How Academic Librarians use Evidence in their Decision Making: Reconsidering the Evidence Based Practice Model

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Abstract

The model for evidence based library and information practice makes assumptions about the way librarians should use evidence to inform decisions. This study explores how academic librarians actually use evidence in their practice, the types of evidence that are useful to them, and whether the decision making model upon which EBLIP is based fits with the ways academic librarians actually incorporate research.

A grounded theory methodology was used, within a pragmatic philosophical approach. The 19 study participants were academic librarians in Canada. Data was gathered via online diaries and semi-structured interviews over a 6 month period in 2011.

Findings encompass three main areas: 1) the concept of evidence and the sources of evidence that are used by academic librarians in their decision making; 2) how academic librarians use evidence, namely to convince in individual or group decision making; and 3) determinants of evidence use in decision making. Several elements of the existing EBLIP model were identified as being insufficient, and based on the findings, a revised model of EBLIP is proposed. The new model is more inclusive of different types of evidence that are important for librarians, explicitly includes the professional knowledge of librarians, and accounts for the context in which decision making occurs.

This study is the first to focus on how academic librarians use evidence in their decision making; to determine what types of evidence they use; and to consider whether the existing EBLIP model is one that is applicable for academic librarians. The findings highlight the impact of collaboration and organisational dynamics upon decision making and evidence use. Convincing emerged as the main theoretical concept in relation to how evidence is used. The new model proposed in this thesis is grounded in the research data from this study and is more applicable to the needs and realities of academic librarians than the current model that was adopted from medicine.

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Chapter 1: Introduction

1.1 Statement of the problem

Over the past 20 years, evidence based practice (EBP) has grown from a fledgling movement proposed by physicians at McMaster University in Canada, to a widely accepted and expected part of practice in health care. Clinicians practising in an evidence based manner strive to make decisions that are informed by the best available research evidence. Clinical experience and knowledge are not ignored, but clinicians continually question practice norms, and are prepared to change practice if the accumulated research evidence indicates the need for change. The principles of EBP began in medicine, but have since spread and are in widespread use in other professional fields such as nursing, social work, and education. Many librarians have also embraced EBP, and for the past 15 years have been building a body of knowledge about how EBP can work in library and information studies. While the EBP process has not yet been fully accepted or integrated within the regular practice of librarianship, it continues to grow and become more established.

Evidence based librarianship began taking shape as a movement in 1997, with early mention in *Hypothesis*, a publication of the Medical Library Association (Eldredge, 1997). Early proponents within health sciences librarianship, who had been assisting physicians and nurses with evidence based health care, wanted to apply the same principles of evidence based practice to their own profession. Largely, the model used has been adapted from the EBP model first developed in medicine. Hence, there has been a focus on quantitative research and critical appraisal of research methods that are common in health sciences fields.

Now commonly referred to as evidence based library and information practice (EBLIP), the movement has grown at a fast rate, with a biennial conference, an international journal, book publications, tools for critical appraisal, and workshops given regularly on the topic. While research has been conducted in areas related to EBLIP, such as on the state of Library and Information Studies (LIS) research, systematic reviews in LIS, or the impact of evidence summaries, to date there has

been very little research evidence about the EBLIP model itself. The model has not been tested. The EBLIP movement has embraced this model as a good way to improve practice, but we do not know if that is actually the case.

Evidence based library and information practice provides a structured approach to decision making. It begins with an issue or problem that arises in the workplace – an area in which librarians are looking to improve service. The problem may start out somewhat vague, and must be formulated into an answerable, well-built question. A well-built question helps to determine some of the key terms that will be used in a search strategy. Depending upon the subject area or domain into which the question falls, databases within and beyond the library literature are searched to find research evidence. Once relevant research is found on the topic, the evidence is critically appraised to determine whether it is valid, reliable, and applicable to the librarian's situation. This knowledge is then applied to the librarian's practice. The final step is to evaluate the process and determine what impact was made, where gaps remain, and where improvement is needed for next time. EBLIP is a continual cycle of improvement for the way librarians work and make decisions.

While the EBLIP model has grown in use over the past 15 years, it has not been without criticism. Hunsucker (2007) cites several criticisms, among them that the EBLIP framework is too narrow and that it has been "too unreflectively taken over from the early, orthodox version of evidence-based (clinical-epidemiological) medicine" (p. 2). Given (2006) notes that in EBL-focused publications, qualitative research is simply excluded from the discussion in favour of experiments, randomized controlled trials (RCTs) or other quantitative measures that are considered to carry a great deal of weight in the evidence hierarchy. Although questionnaires and other quantitative methods are appropriate and heavily used in library contexts, RCTs are far removed from the types of research questions librarians ask; and yet, this method is touted as one that should be applied outside of medical contexts (Given, 2006, p. 381).

Banks (2008) put forth three main points of contention with EBLIP:

> 1) EBLIP is not sufficiently responsive to the reality that local contexts can trump even the most rigorous evidence.

2) EBLIP cannot answer many types of questions, particularly value-laden questions.
3) EBLIP can stifle innovation, in effect if not in design. (p. 87)

These criticisms of the current EBLIP model were drivers to test its validity, and to assess the need for change to the model. With roots in evidence based medicine, does the focus on quantitative research apply to librarians whose questions often demand explanations rather than judgments on the effectiveness of interventions? Can the current model address academic librarians' questions in a meaningful way? In fact, the current model may be alienating some librarians who feel that the forms of evidence they are using are not being recognised as important. The model may also be too cumbersome and prescriptive for librarians to embrace. This study tested the model of EBLIP itself in order to determine if the model works for academic librarians, or if it should be fundamentally altered.

1.2 Purpose and aims of the study

This research study assessed how academic librarians use evidence in their practice, the types of evidence that are useful to them, and whether the decision making model upon which EBLIP is based fits with the ways academic librarians actually incorporate research into practice. The EBLIP model has been noted in the literature since 1997 but the assumptions upon which it rests has not been proven or enhanced with research about that model. One goal of this research was to study librarians who work within an academic setting, in order to determine how they make decisions in their practice and what role evidence plays in those decisions. These findings were then compared with the existing EBLIP model, in order to refine the model (as necessary) to make it more useful. This research study creates new theory about academic librarians' use of evidence and research, and determines how that theory fits with the current EBLIP model. The ongoing aim is to develop an EBLIP process that works for academic librarians and potentially all librarians.

1.2.1 Objectives

The objectives of this study were:

- To identify what sources academic librarians consider to be evidence.

- To explore the ways in which academic librarians use evidence in their practice and decisions.
- To identify and explain challenges encountered by academic libraries when trying to incorporate evidence into their practice.
- To evaluate the existing EBLIP model, identifying the elements to be changed and suggest how the EBLIP model might better meet the needs of academic librarians.
- To provide research evidence upon which to base the EBLIP model.

1.2.2 Research questions

This study seeks to answer the following questions:

- How do academic librarians incorporate research into their professional decision making? Here research means both qualitative and quantitative research from any field that has been published.
- What does the term evidence[1] mean to academic librarians, and how does the term relate to what they use and who they consult for decision making?
- What forms of evidence do academic librarians actually use when making professional decisions? Why do they use these types of evidence?
- To what extent do academic librarians use the EBLIP process when trying to make evidence based decisions? What aspects of the EBLIP process, if any, need to be changed in order to better account for the needs of academic librarians in the decision making process?

1.3 Definitions

A number of terms are used frequently throughout this thesis, and for clarity's sake, definitions of those terms are provided here.

Academic librarians – Qualified librarians with an MLIS degree who work in libraries that are part of an institution of higher education. This study takes place in Canada,

[1] The Oxford Dictionary states that evidence is "the available body of facts or information indicating whether a belief or proposition is true or valid" (OED, 2011). In evidence based practice, evidence is generally focused on published research.

where qualified librarians have a graduate degree in Information Studies, in addition to an undergraduate degree in any field of study.

Associate University Librarian – A senior level librarian who is part of the library's senior management team, working closely with the University Librarian. This term is used in place of Associate Dean, or Associate Director.

Department – The specific area or library in which a librarian works. For example, this could mean the Science Library, Collections Department, or Technical Services. This term in used in place of Unit, or Branch Library.

Evidence - "the available body of facts or information indicating whether a belief or proposition is true or valid" (OED, 2011). In evidence based practice, evidence is generally focused on published research.

Evidence based practice (EBP) – For the health sector, "requires that decisions about health care are based on the best available, current, valid and relevant evidence. These decisions should be made by those receiving care, informed by the tacit and explicit knowledge of those providing care, within the context of available resources" (Dawes et al, 2005).

Evidence based library and information practice (EBLIP) –(based loosely on the above definition) "an approach to information science that promotes the collection, interpretation and integration of valid, important and applicable user-reported, librarian observed, and research-derived evidence. The best available evidence, moderated by user needs and preferences, is applied to improve the quality of professional judgements" (Booth, 2000).

Library Council – A governing body of academic librarians, usually consisting of all librarians in the Library. Similar in nature to a Faculty Council, and normally Chaired by the University Librarian. Not all academic libraries in Canada have Library Councils. This term is used in place of Librarians Council.

University Librarian – The most senior member of staff, who is responsible for the Library's operations. This term is used in place of Chief Librarian, Dean, or Director.

1.4 Overview of the thesis structure

This thesis contains nine chapters. Following the introduction, Chapter 2 provides readers with a literature review that outlines the conceptual framework, and discusses key topics pertaining to this research. Primarily, the literature review focuses on evidence based practice, practice theory, and decision making theory within organisational behaviour. Chapter 3 contains an overview of the research methodology used, justifies the approach taken, provides details of the data collection methods, as well as analysis procedures, how ethical principles were adhered to, and how the research process maintained rigour.

Chapters 4 through 6 focus on the findings of the research. Three broad areas emerged from the research, which have each been given their own chapter. Chapter 4 discusses the evidence sources that academic librarians use, and how they obtain that evidence. It provides a structure for understanding the different types of evidence that are used in academic decision making. Chapter 5 considers how academic librarians use evidence in their decision making, both for individual and group decisions. It reveals organisational factors that impact decision making and also examines levels of decision making control. Chapter 6 pertains to determinants of evidence use in decision making, detailing both obstacles and enablers to academic librarians' ability to use evidence effectively.

Chapter 7 is the discussion chapter which brings together the findings and the literature to address the research questions posed at the beginning of this study. What has been learned as a result of this study, and what it means for both academic librarians and evidence based library and information practice, are considered. In Chapter 8 a new model for evidence based library and information practice is proposed, based on what was learned through the research findings. Chapter 9 concludes the thesis by bringing the overall meaning and importance of the study to a close, along with considerations for future research.

Citations to the literature follow in the References section, and are formatted using APA style. The Appendices at the end provide copies of the research instruments.

Chapter 2: Literature Review

2.1 Introduction and conceptual framework

This chapter reviews the literature of evidence based practice, decision making theory, and practice theory. In considering the research questions, a review of the history and key principles of evidence based practice is required. Whether the EBLIP approach to practice has been embraced is examined, along with an exploration of the meaning of evidence within LIS. Moving beyond the concept of evidence based practice, the literature of decision making is explored, since a key premise of evidence based practice is that it leads to better decision making by practitioners. Practice theory and practice based evidence is reviewed in order to understand an alternative approach to practice and the possible meaning of evidence in LIS.

The conceptual framework for this research is guided by several key concepts. Firstly, the evidence based practice (EBP) model, which began in medicine and has since been embraced by disciplines in the social sciences, including library and information studies. The EBP model encourages a practitioner's use of research in decision making. Related to evidence based practice, the concept of a research-practice 'gap' and how this gap seems to distance theory and research from the practitioners who actually embody a profession, must be considered as a potential barrier to librarians' decision making. These two concepts situate the research within a current mode of practice and potential dilemmas therein.

Additionally, the research is guided by concepts that are not so overt or well-known within the LIS community. These are practice theory and decision making theory, which come from fields of sociology, psychology and business. Practice theory considers how groups of people have shared practical understandings which are based on actions and must be considered within a specific context. This includes elements of tacit knowledge, practical judgment, and societal agreement. Practice theory exposes additional factors beyond research and scientific knowledge that must be considered to fully understand a librarian's way of practising and arriving at decisions related to professional practice. This is guided by Schön's Theory of Reflective Practice, and his ideas on reflection-in-action, which allow one to look

differently at how a practitioner does research within their practice. Finally, elements of decision making theory guide this research, in helping to determine the factors that impact academic librarians' decision making. Specifically, organisational and group influences are examined since they are likely to impact the decision making of individuals, who also work within institutions that require group decision making.

2.2 Evidence based library and information practice

Evidence based library and information practice (EBLIP) began to emerge as a movement within LIS in 1997. The concept and model of EBLIP was based directly upon the model of evidence based medicine (EBM), which had begun as a movement five years earlier. In order to place EBLIP into context from where it emerged, a brief history and overview of EBM are presented, followed by more detailed information on the history, process, and issues relating to the EBLIP model, as presented in the literature.

2.2.1 An overview of evidence based medicine

Evidence Based Medicine (EBM) emerged in the early 1990s, growing out of work by Sackett and Guyatt at McMaster University. Guyatt's editorial in the new publication, *ACP Journal Club*, was the first to coin the term "evidence based medicine" and laid it out as a new approach to the practice of medicine wherein research literature is regularly consulted by clinicians so that new research evidence can be integrated with knowledge and clinical judgment (Guyatt, 1991). In 1992, *JAMA: The Journal of the American Medical Association*, published an article by the Evidence Based Medicine Working Group, which concretely outlined evidence based practice as a new approach to teaching and practising medicine. From this publication, worldwide attention was focused on evidence based medicine and it began to grow and become firmly established as the best way of practising and teaching in the medical profession. Twenty years later, it is commonplace that medical schools integrate evidence based practice principles into their curricula.

As the EBM movement began to grow, Sackett, Rosenberg, Gray, Haynes, and Richardson provided a clarifying definition, which was widely adopted:

> Evidence based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research. (1996, p. 71)

Evidence based medicine quickly caught on in other fields such as nursing (Stevens & Cassidy, 1999), rehabilitation (Bury & Mead, 1998), dentistry (Clarkson, Harrison, Ismail, Needleman & Worthington, 2003), social work (Corcoran, 2000), management (Pfeffer & Sutton, 2006) and librarianship (Eldredge, 1997). In 2005, the Sicily consensus statement proposed that all such endeavors within health care be called 'evidence based practice', and established a clear statement of what evidence based practice means (Dawes et al.).

> Evidence-Based Practice (EBP) requires that decisions about health care are based on the best available, current, valid and relevant evidence. These decisions should be made by those receiving care, informed by the tacit and explicit knowledge of those providing care, within the context of available resources. (p.4)

Landry and Sibbald (2000) found the progression of evidence based medicine extending to the field of librarianship quite remarkable when they noted that there were many new spin-offs, including "even evidence based librarianship" (p. 1227). In fact, from the early days of EBM, librarians were considered crucial to the new approach, and often fully integrated as part of the research team, since searching for the latest research literature was considered an important part of the process. In 1998, McKibbon, also from McMaster University, outlined the importance of the librarian's role in evidence based practice, and provided information for librarians regarding the best way to search for different types of research articles depending upon the type of question. While these were still somewhat early days of librarians' involvement in EBP, those working at large medical schools were by this point already well integrated, and were incorporating these new processes into their own professional workflows. The natural next step of this integration was to apply the same principles to one's own profession. The movement of librarians from being solely a supporter of evidence based practice, to the development of evidence based practice in LIS will be explained in more detail in section 2.2.3 below, following an explanation of the model and process of EBM.

2.2.2 The evidence based medicine model

Given the widespread adoption of an evidence approach in many different fields, the term evidence based practice is now widely used as an umbrella term to describe the process, which for the most part remains unchanged from how it was explained in the context of EBM, which will be further explained here. The EBM model follows 5 steps which are as follows:

1) Translation of uncertainty to an answerable question
2) Systematic retrieval of best evidence available
3) Critical appraisal of evidence for validity, clinical relevance and applicability
4) Application of results in practice
5) Evaluation of performance (Dawes et al., 2005, p.3)

These five steps have also been translated into a mnemonic called the 5 A's, which simplifies remembering each step of this information cycle. They correspond directly with the five elements noted above, and are a cyclical pattern of practice:

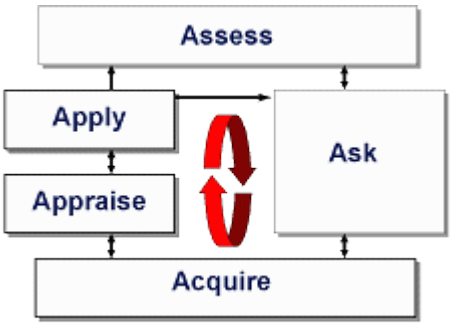

Figure 2.1 5A's of evidence based practice (Hayward, 2007, http://www.cche.net/info.asp)

Evidence based medicine uses a structured approach for clinicians to incorporate research evidence into their decision making. The process begins with an issue or problem that arises in practice – for health care professionals the question usually relates to an issue encountered with a patient. The problem may initially be somewhat vague, and must be formulated into an answerable, well-built question (*Ask*). Richardson, Wilson, Nishikawa, and Hayward (1995) noted that well built questions need to be directly relevant and should facilitate searching for the answer to the question. They developed the acronym PICO to assist clinicians with remembering the four parts that should be included in a well built clinical question:

(P) patient or problem being addressed;
(I) intervention or exposure being considered;
(C) comparison intervention or exposure, when relevant;
(O) clinical outcomes of interest. (Richardson et al., 1995)

Most clinical questions can fall into one of four domains (Sackett, Richardson, Rosenberg & Haynes, 1997; McKibbon, 1998) - therapy, diagnosis, aetiology, prognosis - which help guide the clinician towards the types of research that are best suited to the question, and also to assist with the search for research (*Acquire*). This aspect of the process is one that has relied heavily on the expertise of librarians, and librarians have been involved in developing search strategies and methodological filters that assist with the retrieval of higher quality evidence depending upon the type of question (for example, Haynes, Wilczynski, McKibbon, Walker & Sinclair, 1994; McKibbon, Eady & Marks, 1999).

Evidence based practice promotes the use of an evidence hierarchy in order to determine studies that are of higher quality and more likely to be valid, based upon study methodology that is considered more rigorous and minimizes bias. This hierarchy of evidence is often depicted as a pyramid, with the highest level of evidence shown at the top:

Figure 2.2. The evidence pyramid (SUNY Downstate Medical Center, 2004)

In a slightly different approach, the Oxford Centre for Evidence Based Medicine (OCEBM) has produced a levels of evidence table which covers more types and

levels of evidence depending upon the type of question. These levels of evidence were originally designed in 2000, and recently updated in 2011. They are presented as a "short-cut for busy clinicians, researchers, or patients to find the likely best evidence" (Howick et al., 2011). Both the hierarchy pyramid and the levels of evidence table are meant to assist clinicians in determining better quality evidence based on study design, although as the OCEBM points out, they are "NOT intended to provide you with a definitive judgment about the quality of evidence" (Howick et al, 2011, n.p.). Due to the smaller number of available studies that fall into the top levels of evidence, and the focus on these as the best types of evidence, the EBP movement has also been active in fostering a greater knowledge of these research methods, producing systematic reviews and meta-analyses so that clinicians have greater access to those specific forms of evidence.

There has been criticism that the dominant sources of evidence in EBP come from a positivist stance and other forms of research such as naturalistic inquiry are "relegated to a position of inferiority or even illegitimacy" (Clark, 2011, p. 48). Positivist research is generally quantitative, testing theories and effects of certain variables in order to verify what works. This type of research sometimes has the perception of being more scientific and closer to the truth than other types of research. However, qualitative research is able to inform knowledge in other ways, particularly with exploratory questions where the researcher wants a deeper understanding of why something is happening. Some stress the importance of narrative and telling stories (Brophy, 2009; Seely Brown & Duguid, 1991). Brophy (2009) states: "professionals must rediscover the value of narrative if their services are to meet the needs of real people in real, and hugely complex, situations" (p. xii). The question remains about whether EBP is overly focused on positivistic truth, and whether different types of research should be more fully embraced for what they have to offer that cannot be discovered by quantitative research alone. Nutley, Walter, and Davies argue that research is but one part of evidence (2007), and subsequently note that equating evidence with research is "a narrow conceptualization of evidence that ignores the many other sorts of knowledge that can inform decisions" (Davies, Nutley, & Walter, 2008, p. 188). They contend that social research includes local research and evaluation reports, as well as client and user experiences.

Returning to the EBM model, once relevant research is found on the topic, the evidence is critically appraised to determine if it is valid, reliable, and applicable to the question at hand (*Appraise*). Critical appraisal has been a major focus of EBM, as these skills were seen to be lacking in clinicians, and the process not intuitive. In the quest to educate clinicians about how to better critically appraise research, many workshops and guides were developed. Beginning in 1993, a series of articles was published in *JAMA: The Journal of the American Medical Association* as 'Users' guides to the medical literature' which later was compiled into a book and now is part of the *JAMA Evidence* database (Guyatt, 2008). Likewise, in 1997, *BMJ* produced the popular 'How to read a paper' series, which was also published as a book (Greenhalgh, 1999). Critical appraisal is a key skill for the EBM movement because without knowledge of the quality of the study or studies being read, practitioners will be unable to make a good decision about the trustworthiness of those studies. Distinguishing the best research from that which is not as well conducted is crucial to being able to confidently determine what evidence should be weighed more heavily in decision making.

In EBM, once research evidence has been found and appraised, the next step in the process is to apply that knowledge to practice (*Apply*). This stage involves integrating research evidence with the skills and expertise of the clinician, as well as the preferences of the patient. Applicability of the evidence is of utmost concern for the individual situation at hand. This stage in the process also considers the environmental factors within which one works: whether certain treatments or diagnostic tools are available, whether the environment and the situation of the evidence found translates into the situation of the current patient's circumstances, and possible consequences. This stage relies heavily on the judgment of the practitioner regarding benefit versus possible harm when interpreting research findings. Evidence cannot always be applied to the particular situation at hand, but by having gone through the process, the practitioner has updated his or her own knowledge of the current research on a topic, and can use that knowledge to inform future decisions. Recent studies have shown that one of the greatest cognitive impacts reported by clinicians regarding the use of published research information is

tied to confirmation that they did (or will do) the right thing, and that the information reassured them that their actions were correct (Grad et al, 2011; Pluye et al, 2012).

The final stage, which connects back into the beginning of the evidence based process, is to evaluate what happened in this specific situation, determine what impact was made, where gaps remain, and where improvement is needed for next time (*Assess*). Not a lot of literature has paid attention to this component of the process, and given time constraints and busy day to day requirements of clinical practice, it is easy to understand why it is often difficult to take the time to reflect on one's practice. However, in the EBM cycle, this step is crucial in order to be able to learn and improve one's practice. Sackett et al., in their popular 'Book of EBM' (1997) outline several suggested questions that a clinician should ask themselves when doing a self-evaluation. These questions include whether the practitioner is asking clinical questions, looking to the literature, doing any critical appraisal of what is read, and whether he or she is taking part in any EBM related professional development activities.

2.2.3 A history and explanation of the model of evidence based library and information practice

Medical librarians took on an important role in EBM, becoming a vital link in helping clinicians find quality research evidence, and in teaching students how to find and evaluate the research literature. As an extension of this role, medical librarians began applying the same principles to their own professional practice within LIS. In 1997, at a point when EBM was firmly recognised and academic and clinical health sciences librarians were participating in the searching and teaching activities of EBM, the term "evidence based librarianship" (EBL) appeared in the LIS literature (Eldredge, 1997). While the first mentions of "evidence based libraries" (Roddham, 1995) and "evidence-based information practice" (Haines, 1995; Bradley & Marshall, 1995) trace back to 1995, it was Eldredge's 1997 article in *Hypothesis*, a publication of the Medical Library Association's Research Section, that caught the attention of medical librarians and began the movement in earnest. At this point, the movement began to grow, particularly within the health sciences library community. The Medical Library Association began offering a Continuing Education (CE) course on the topic, and by 2000, the MLA Research Section had created an Evidence-Based

Librarianship Implementation Committee, whose goal was: “To foster Evidence-Based Librarianship (EBL) and to integrate its principles into the practice of health sciences librarianship” (Eldredge, 2000, p.7). At this same time there were a growing number of papers published on the topic, and the first conference on Evidence Based Librarianship took place at the University of Sheffield in 2001 (EBL2001; Eldredge, 2001). In the same year, the Special Libraries Association released a new research statement, which emphasized the building of a culture of evidence-based practice (2001).

While initially referred to as evidence based librarianship, this approach to practice has also been called evidence based information practice, and since a meeting at the 3rd International Evidence Based Librarianship Conference in the fall of 2005, has been generally referred to as evidence based library and information practice (Booth & Brice, 2007). This designation also mirrors the name of the journal that began publication in 2006, and the now biennial international conference series that was also renamed at about the same time. The change in name was largely due to the expressed desire to include information professionals of a wide range, which would include librarians but not be limited to those who held the job title “librarian”, and was prompted by the founding of the new journal, with an open discussion regarding an appropriate name (EBLIG Archives, 2005).

While EBLIP was initially of interest to health sciences librarians, it has since grown to involve librarians from various sectors including school (Todd, 2002; Gordon, 2009; Farmer, 2009), academic (West, 2003; Booth, 2009a), public (Wilson & Hall, 2007; Ryan, 2012), law (Lerdal, 2006), and special librarians (Marshall, 2003; Fisher & Robertson, 2007; Savard & Alcock, 2007). It also extends to specific interests such as cataloguing (Carter, 2010), search interface design (Wildemuth, 2006), and information literacy design (VanScoy & Oakleaf, 2008). The journal *Evidence Based Library and Information Practice*, publishes articles from a wide-range of library and information studies’ sectors, and is a testament to the growth of evidence based practice as a mainstream activity.

Evidence based library and information practice is strongly modeled on the original EBM process. The most widely cited and accepted definition of EBLIP was adapted

from McKibbon, Wilczynski, Hayward, Walker-Dilks, & Haynes' (1995) definition of EBM, keeping all the same components and basic meaning, but inserting "user" in place of "patient" and "librarian" in place of "clinician":

> An approach to information science that promotes the collection, interpretation and integration of valid, important and applicable user-reported, librarian observed, and research-derived evidence. The best available evidence, moderated by user needs and preferences, is applied to improve the quality of professional judgements. (Booth, 2000)

Evidence based librarianship became more well established in the year 2000, at which point Booth's definition was published from a conference presentation he gave that year (2000), and Eldredge published a number of papers on the topic of EBL in different journals that same year (2000a, 2000b, 2000c). Eldredge's publications were significant because they were the first published works that proposed a framework for EBL, the process involved, and gave an outline for how to practice in this manner. Eldredge's *Bulletin of the Medical Library Association* paper from that year remains one of the most highly cited scholarly papers on the topic. These publications allowed for scholarly conversation on the topic to begin.

Eldredge outlined a conceptual model for EBL, with the following seven principles:

1) EBL seeks to improve library practice by utilizing the best-available evidence combined with a pragmatic perspective developed from working experiences in librarianship;
2) EBL applies the best-available evidence, whether based upon either quantitative or qualitative research methods;
3) EBL encourages the pursuit of increasingly rigorous research strategies to support decisions affecting library practice;
4) EBL values research in all its diverse forms and encourages its communication, preferably through peer-reviewed or other forms of authoritative dissemination;
5) EBL represents a global approach to information seeking and knowledge development, involving research but not restricted to research alone;
6) EBL supports the adoption of practice guidelines and standards developed by expert committees based upon the best-available evidence, but not as an endorsement of adhering to rigid protocols; and
7) In the absence of compelling reasons to pursue another course, EBL adheres to the hierarchy […] for using the best-available evidence, lending priority to higher levels of evidence from the research.

(Eldredge, 2000a)

In 2004, a book edited by Booth and Brice brought together many contributing librarians for a more in-depth look at EBP in LIS, building upon the foundation laid by Eldredge. As the first book published on the topic, it remains a seminal source for those interested in EBLIP. It covers EBLIP according to the same process as EBM, but from a LIS professional's viewpoint, providing examples of how this process works in LIS practice. While some have espoused the need for EBLIP to expand beyond the model that was transferred from Medicine (Hunsucker, 2007; Given, 2006), the heart of EBLIP remains the five-step process that focuses on research evidence.

1) Formulate a focused question (Ask)
2) Find the best evidence to help answer that question (Acquire)
3) Critically appraise what you have found to ensure the quality of the evidence (Appraise)
4) Apply what you have learned to your practice (Apply)
5) Evaluate your performance (Assess)

In the sections that follow, each step of this process is examined in more detail.

2.2.3.1 Ask

EBLIP begins with a question. For librarians this may be an area where service improvement is required, or related to the management of the library's collection, for example. It could be a question about how an instruction librarian should best teach information literacy concepts, or it could involve a large decision such as reconfiguration of reference services in the library. Eldredge notes that "Questions drive the entire EBL process. […] The wording and content of the questions will determine what kinds of research designs are needed to secure answers" (Eldredge, 2000a, p. 292). Initially, health librarians used the PICO model from EBM for question formulation, but since PICO is very clinically oriented, it did not work as well for librarians, particularly those outside of health sciences who were unfamiliar with the terminology. Booth developed the SPICE model to more accurately reflect the elements of questions that LIS professionals would be asking:

- Setting – where? In what context?
- Perspective – for whom?
- Intervention – what is being done?

- Comparison – what is the alternative?
- Evaluation – how will you measure whether the intervention has succeeded?

(Booth, 2003b & 2004b)

Crumley and Koufogiannakis (2001; 2002) proposed domains for the LIS literature in their presentation at the first EBL conference, based upon the main professional areas librarians deal with in their daily practice. The idea for these librarianship domains came from and was modeled after the use of domains in EBM. The proposed domains comprised six areas of librarianship: reference/enquiries, education, collections, management, information access and retrieval, and marketing/promotion. Koufogiannakis, Slater and Crumley (2004) subsequently tested and modified the domains via a large scale content analysis of the LIS research literature. A lack of research literature in the category of marketing and promotion led the authors to remove it as a domain and add its components to the management domain. A new domain of professional issues emerged, and LIS education was found to be a significant and unique subset of the education domain.

The reason for creating such domains was to "aid librarians in determining where the answers to their questions may be found and ultimately assist them in conducting a better search for information" (Koufogiannakis, Slater & Crumley, 2004, p. 230) in the same way that in EBM domains are used to narrow searches of the medical literature to particular types of studies. The domains were widely adopted within EBLIP, being referred to frequently in the *Health Information and Libraries Journal*'s research column, incorporated into a FOLIO (UK) online course about EBLIP, and used to structure the handbook published by Booth and Brice (2004b).

2.2.3.2 Acquire

Depending upon the subject area or domain that the question falls into, databases within and beyond the library literature are searched to find research evidence (*Acquire*). Winning notes that "The multifaceted nature of librarianship and information science (LIS) means that the evidence base is contained in multiple and varied information sources" (2004, p. 71). In addition to databases focused on LIS literature, those from education, management, sociology, and health sciences will

hold relevant literature, depending upon the subject of the question. Web resources, grey literature, and pre-print or institutional and subject repositories may also hold valuable content (Winning, 2004). In terms of actually searching the literature in order to find relevant research on a topic, Eldredge (2000c), Beverley (2004), and Bradley (2006) have outlined helpful strategies and provide context for the challenges of searching the LIS literature.

The quality and quantity of the LIS research literature has often been lamented, and noted as a potential barrier to implementing evidence based library and information practice (Haddow, 1997). Sometimes, for example, there may be enough literature on a particular topic, but research studies within that literature are lacking (Plutchak, 2005). Several content analyses have looked at the LIS literature and have found the percentage of research studies within the published research to range from between 15 to 57 percent, much of it descriptive in nature (Buttlar, 1991; Feehan et al, 1987; Jarvelin and Vakkari, 1990; Kumpulainen, 1991; Nour, 1985; Peritz, 1980; Williams and Winston, 2003; Koufogiannakis, Slater & Crumley, 2004). The EBLIP movement has prompted discussion about improving the quality of research in LIS, for without good quality research evidence, the evidence base is lacking and practitioners will not be able to make decisions based on reliable information.

Although there have been many methodological filters developed by librarians for EBP literature searching in healthcare, very few efforts have been made in this area for EBLIP. Beverley introduced some possible search filters for librarians wishing to limit searches to particular types of studies in LIS (2004), but these have not been verified or adopted. Bradley (2006) notes that the lack of structured abstracts and poor indexing of methodologies used in LIS literature, hampers the ability to effectively apply methodological search filters. Certainly, a quick look at the thesaurus of *Library, Information Science, and Technology Abstracts* (LISTA) shows that that specificity in relation to research methods is lacking. The subject heading ‘Qualitative Research’ lists no narrower terms at all, while the heading ‘Quantitative Research’ only lists three (content analysis, Pareto principle, and webometrics). Under the broader term of Research there are narrower terms, but the majority are not research methods, with the exception of quantitative research, qualitative research, longitudinal method, experimental design, and retrospective studies.

2.2.3.3 Appraise

Once relevant research is found on a topic, that evidence is critically appraised to determine if it is valid, reliable, and applicable to the situation (*Appraise*). As with EBM, this part of the process requires a close reading of the articles found to critically appraise the studies and specifically look at three factors:

1) Validity – the extent to which the results of the research are likely to be free from bias
2) Reliability – the likelihood that the study reports something that is reproducible as opposed to being a 'fluke' or chance result
3) Applicability – the extent to which the results are likely to impact on practice

(Booth and Brice, 2004a, p.105)

Critical appraisal is an element of EBLIP that has been given much attention. There have been several critical appraisal tools developed in order to assist librarians with their reading of research studies. While critical appraisal is considered an essential skill in EBLIP, it is not one that most librarians were initially familiar or comfortable with. Booth and Brice developed the Critical Skills Training in Appraisal for Librarians (CriSTAL) program to assist with the development of these skills, and produced a tool for the appraisal of use studies, and information needs analysis (2003). Koufogiannakis, Booth, and Brettle developed a tool for use with educational intervention studies (2006), and Glynn developed a general tool for the critical appraisal of LIS research (2006). As such tools were being developed, Clyde's research (2004; 2006) also brought to light that even people who are well versed in appraisal of research have different understandings of quality and will rank articles differently. Clyde notes that coming up with a single measure of research quality may be difficult and that the evaluation of research is a complex process (2006). In addition, Booth (2007) reminds us of the limits of critical appraisal, and cautions that library and information practitioners should not give up on research papers just because they do not seem to meet all the criteria of critical appraisal. Practitioners must move forward with the best evidence that they have.

The EBLIP movement has also encouraged the development of publications that synthesize or appraise existing research so that practitioners do not have to do all the work themselves each and every time they encounter a problem or question.

Systematic reviews in LIS were virtually unheard of in 2000 (Eldredge, 2000c), and have since grown in number as the movement has grown and brought awareness to the need for such research syntheses. In 2008, Ankem found seven systematic reviews and five meta-analysis published in the LIS literature, which may not seem like many, but is noteworthy for this type of intensive research synthesis in a relatively short period of time. A recent compilation of citations of systematic review in LIS indicate more than 35 published reviews (LIS Systematic Reviews, 2012).

Booth and Brice point out that a systematic review helps LIS practitioners "keep up-to-date, define the boundaries of what is known and what is not known and can help us avoid knowing less than has been proven" (2004a, p. 111). However, the complexity of applying such methodology to research in LIS should not be overlooked (Urquhart, 2010). Brettle notes that while most systematic reviews in health care use controlled studies, "it is appropriate for systematic reviews in the library domain to take a wide view of relevant evidence and include a variety of designs appropriate to the topic or review question at hand" (2009, p.45). In addition to systematic reviews, the journal *Evidence Based Library and Information Practice* has been publishing evidence summaries since its inaugural issue in 2006, in an attempt to bring brief synopses and critical appraisals of recent individual research articles to practitioners in an open access format that allows readers to benefit from the critical appraisal of others (Koufogiannakis, 2006).

Systematic reviews also grew in popularity because they were notably at the top of the "evidence hierarchy" which is a vital part of evidence based practice. Again, adapting principles from EBM, the EBLIP movement also incorporated a hierarchy of evidence into its process. Eldredge initially noted a single hierarchy with nine levels:

1) Systematic reviews of multiple rigorous research studies
2) Systematic reviews of multiple but less rigorous research studies, such as case studies and qualitative methods
3) Randomized controlled trials (RCTs)
4) Controlled-comparison studies
5) Cohort studies
6) Descriptive surveys
7) Case studies
8) Decision analysis
9) Qualitative research (focus groups, ethnographic observations, historic, etc.) (Eldredge, 2000a & 2000c)

The research methods at the top of the hierarchy are more likely to be free of bias, whereas those methods lower in the hierarchy have a harder time controlling for bias. This is seen as important because the less bias in a study, the more likely it is to be "true" according to the scientific paradigm. Eldredge notes that the levels do not make judgments about the merits of individual studies, but are a way for "the busy practitioner to make quick comparisons between multiple pieces of evidence with conflicting results" (2006, p.346). Hence, if a practitioner does a search of the literature and finds several promising studies that may assist with their question, an initial filter may be to prioritize what one reads by study designs that are higher in the hierarchy. Or, where studies are in conflict, more weight would be placed in the study nearer the top of the hierarchy. Booth and Brice point out that such a hierarchy should only be used for questions of effectiveness (2004a), for example, when comparing different interventions such as methods of teaching, or service provision.

Eldredge later refined his hierarchy into a 'levels of evidence' table, wherein levels of evidence are slightly different depending upon the type of question being asked. Prediction questions "seek to predict an outcome under similar circumstances"; intervention questions "seek to compare different actions in terms of efficacy in attaining intended goals or outcomes"; exploration questions "imply a 'why' inquiry" and "have a greater tendency to have more open-ended orientations" (Eldredge, 2002, p.11-12).

Table 2.1. Eldredge's levels of evidence (2002 & 2006)

Prediction	**Intervention**	**Exploration**
Systematic review	Systematic review	Systematic review
Meta-analysis	Meta-analysis	Summing up
Retrospective cohort study	RCTs	Qualitative studies
Prospective cohort study	Retrospective cohort study	Survey
Survey	Prospective cohort study	Case study
Case study	Survey	
	Case study	

While the levels of evidence are a well known aspect of EBLIP, they are not something that EBLIP community has wholeheartedly accepted, even though Eldredge has stated that levels of evidence:

> should not be applied rigidly, particularly when one considers the relative degrees of adherence to methodologically rigorous standards that might be found within any EBL evidence level. Some research found at the lower levels of evidence in this hierarchy actually might contain higher quality applications of methodological rigor than some research studies found at higher levels (2000c).

The application of such a hierarchy has been a concern for many within the field (Given, 2006; Crumley & Koufogiannakis, 2002; Booth, 2010; Koufogiannakis, 2010; Banks, 2008). Given (2006) complained that the positioning of qualitative research at the bottom of the hierarchy may "disenfranchise qualitative research from the EBL process, and […] discredit the results of qualitative work without further (quantitative) investigation of the conclusions that those studies draw" (p.381). Crumley and Koufogiannakis (2002) proposed a core-centred approach to librarianship rather than a hierarchical one, noting that a medical style research hierarchy is not a good fit for librarianship, where qualitative methods are often more appropriate. The application and usefulness of a hierarchy for research in LIS is one that requires more research.

2.2.3.4 Apply

Once research has been found and appraised, the knowledge obtained is then applied to the librarian's practice (*Apply*). As with EBM, the apply stage in the process means the research evidence must be integrated with the skills and expertise of the librarian. While applying the evidence after having done the work of critical appraisal may seem like a straightforward task, it may actually be the most difficult part of the EBLIP process. Koufogiannakis and Crumley outlined three ways that evidence may be applied in practice:

1) The evidence is directly applicable – the research evidence found is directly applicable and can be used in current practice.

2) The evidence needs to be locally validated – while the research is sound, specific circumstances are somewhat different and the librarian determines there is a need to replicate the research with the local population.

3) The evidence improves understanding – the research evidence is not applicable to the librarian's direct situation, but as a practitioner she/he

> can learn from it and it enhances understanding of possible ways to do things.
>
> (Koufogiannakis and Crumley, 2004)

But how does a practitioner actually implement changes within their organisation? As Booth notes, “While finding and appraising the evidence base for information practice carry their own challenges it is implementation that poses a greater challenge to the evidence based practice movement” (Booth, 2003a, p.13). Simply having the evidence is not enough; librarians also need to start thinking about implementation and how ideas can be diffused based on research into organisations and individual practitioners in order to make change (Dalrymple, 2010). Booth advocates for the integration of evidence based strategies into existing day-to-day workflows (2009c), and others have also commented on the importance of management support and the organisational environment as being important to the integration of evidence into practice (Hallam & Partridge, 2006; Grefsheim, Rankin & Whitmore, 2007). Specific examples include the call for a collaborative evidence based approach (Mirijamdotter, 2010), and stakeholders establishing a culture of evidence based practice in the profession (Hallam & Partridge, 2006).

There have been some positive responses to the concerns echoed above, such as the formation of the Library and Information Science Research Coalition in the UK, which has an aim to promote LIS practitioner research, and to support practitioners in their research (Hall, 2010). Individual case reports of successful evidence based practice implementation have been also been published (Cotter, Harije, Lewis, & Tonnison, 2006; Grefsheim, Rankin & Whitmore, 2007; Pan & Howard, 2009). The *Using Evidence in Practice* section of the journal *Evidence Based Library and Information Practice* also features practitioners’ application of evidence to their practice, using a standardized format that incorporates the various stages of the EBLIP model. As well, a 2006 book edited by Connor includes case studies and active learning exercises as practical assistance for readers.

2.2.3.5 Assess

The final step in the EBLIP process is to evaluate and determine what impact was made, where gaps remain, and where improvement is needed for next time (*Assess*). Booth notes that this final step in the EBLIP process has two aspects. The

first is that the librarian evaluates his or her performance as an evidence based practitioner. The practitioner asks him- or herself questions related to how he or she followed the EBP process, and how the evidence was evaluated and used. The second is evaluating any service change that was made, in order to determine if it had the desired effect. This can be done via measures of service quality such as benchmarking, performance measures, and audit (Booth, 2004a).

The use of reflection is one that has been encouraged within EBLIP when assessing performance. The idea of reflective practice within EBLIP builds upon the work of Schön, whose 1983 work *The Reflective Practitioner*, has been very influential. Reflection allows the practitioner to be actively insightful and consciously learn from experience. Grant (2007) conducted a systematic review on the role of reflection in the LIS sector and found a small number of papers pertaining to reflection in, or on, LIS practice. She found that analytical reflection provided the greatest personal and professional benefit, but that further research is needed on the impact of reflection upon practice.

Reflection is noted as an important continuing educational development activity (Koufogiannakis, 2010), and some organisations such as the Medical Library Association have recognised the importance of reflection in the research process, challenging its members to "build a culture of reflective practice in which the profession's evidence base is routinely used" (Grefsheim, Rankin, Perry, & McKibbon, 2008, p.115). Examinations of how librarians can be more reflective in their practice are starting to become more prevalent in the literature (Booth, 2010; Forrest, 2008; Sen, 2010). In some cases, the element of reflection is tied to evidence based practice as an essential element of evidence that is found in practice (Todd, 2009).

2.2.4 Is the EBLIP model used?

The EBLIP model is meant to improve practice via the systematic introduction of valid and reliable evidence into the process of decision making. In theory, if librarians use research evidence as a basis of decision making, as opposed to anecdotal evidence or their own opinion, the practice will be improved. The EBLIP process is

aimed at ensuring professionals consider the best evidence available prior to making a decision.

As was noted in Chapter 1, there have been criticisms of the EBLIP model however, including the argument that the framework is too narrow (Hunsucker, 2007; Hjørland, 2011), evidence sources are exclusively in favour of quantitative research (Given, 2006), and that it is not responsive to local contexts (Banks, 2008). These criticisms bring to light the fact that many aspects of the EBLIP model have not been tested or even fully debated. Questions remain about the adoption of the model and whether its introduction has helped librarians or made any impact on practice. This section explores the literature on whether the EBLIP model is used in practice and the obstacles to using research in practice.

2.2.4.1 Use of the EBLIP model in practice

Very little research exists on the actual use of the EBLIP model in practice. To date just two studies shed some light on this issue. The first focused on how individual library and information professionals experience evidence based practice. The authors (Thorpe, Partridge, & Edwards, 2008; Partridge, Edwards, & Thorpe, 2010) undertook a small-scale phenomenological study with the aim to "establish the first model of evidence based practice as understood by the library and information practitioner" (2008, p.1-2). They found five categories that explain how LIS practitioners experience the EBLIP phenomenon:

1) Evidence-based practice is experienced as not relevant.

> *Evidence-based practice is a professional accident that happens by default because I am a library and information professional but I don't know what evidence based practice is or what it means.*

2) Evidence-based practice is experienced as learning from published research.

> *Evidence-based practice is learning from and using research. It is relying on what has been proven right.*

3) Evidence-based practice is experienced as service improvement.

> *I undertake evidence based practice to improve what I do or what my library and information service offers.*

4) Evidence-based practice is experienced as a way of being.

> *Evidence-based practice is an integral part of my job. We all do it, none of us can switch it off. My job is evidence-based practice; evidence based practice is my job.*

5) Evidence-based practice is experienced as a weapon.

> *I am forced to use evidence-based practice when pushed into a corner.*

(Partridge, Edwards, & Thorpe, 2010, p.282-290)

This research gives EBLIP proponents the first insights about how LIS professionals experience EBLIP in their work. Not everyone experiences it in the same way, but the distinct categories that Partridge, Edwards and Thorpe have been able to determine, tells us much about different approaches and attitudes towards EBLIP.

The second study (Casey, 2011), explored strategic priorities and change in academic libraries, with one element being evidence based practice and whether it was used by the organisations included in the study. In all three cases examined, Casey found that the directors of the libraries used evidence as part of their decision making, particularly in relation to usage and service quality, and that this use is also mirrored by staff at all levels of the organisation. However, this study did not evaluate use of the model or processes of EBLIP. In addition to maintaining local data, managers at the institutions studied also sought out information via surveys, interviews, and informal conversations. While Casey found that all three libraries exhibited signs of a culture of evaluation, the evaluative culture was strongest at one library:

> Case A differs from the other two in that it is larger and can afford a position dedicated to coordinating the gathering and analysis of evidence, where the other two cannot. In addition, the parent institution appears to place an emphasis on evidence-based management and expects units to demonstrate alignment to university and academic mission, goals, and learning outcomes through the use of data. This level of value placed on evidence-based decision-making is not apparent at Cases B and C. (p. 176)

There are other studies not directly about EBLIP but which do look at the use of research in practice. One study found that approximately half of those surveyed *occasionally* apply research results to their practice (Powell, Baker & Mika, 2002).

Another found little use of assessment data by large research libraries, noting that many staff prefer to "rely on their own assumptions and past practices to make decisions" (Hiller, Kyrillidou & Self, 2008, p. 228).

2.2.4.2 Barriers to using evidence in practice

Evidence based practice has been viewed by some as a way to bridge the so-called research-practice gap that exists between what research in a field shows to work, and what practitioners actually implement. This gap may mean different things to different people, depending upon the perspective. Researchers, for example, may bemoan the lack of uptake of recent research findings that show new approaches to be more effective, while practitioners may bemoan the lack of relevance of certain research to their practice. The gap is not just about how to get practitioners to use research, but it is also about how to make research more meaningful to practitioners. Finding a way to bring these two elements together is crucial to having a profession that is based in research. EBP is sometimes seen as a potential bridge due to its emphasis that practitioners should be reading and incorporating research into their practice (Dawes et al., 2005; Booth, 2003a; Trinder, 2000). However, simply putting research in front of practitioners is insufficient to affect change, as the process for using evidence in decision making is complex (Bowen et al, 2009; Hiller, Kyrillidou, & Self, 2008; Kitson, Harvey, & McCormack, 1998).

Professional fields are generally tied to academic institutions that educate future practitioners of that field. While those who teach at such professional schools may have some background in practice, they are first and foremost academics and are usually removed from the ongoing day to day needs of the profession. The academics in these fields teach future practitioners and also do research in areas related to the field. Practitioners, on the other hand, are usually at a distance from the education of new professionals (although may guest lecture or assist with practicum experiences, for example). As part of their professional commitment, practitioners engage in continuing education, attend conferences, and read scholarly journals, but they are focused primarily on the day to day business of the service they provide, whether that be as a doctor, nurse, social worker, teacher, lawyer, physical therapist, or librarian. For the most part, researchers and practitioners

occupy different worlds; although they speak primarily the same language, the detailed knowledge of that language is different for each party, and each may consider different aspects to be important, despite the similarities they also share related to the overall value of the field in which they work.

These differences between researchers and practitioners have led to competing priorities and needs, as well as criticisms on both sides. Researchers have complained that their research is not being implemented into practice, while practitioners complain that much research is not relevant to what they actually do (Wilson, 2003; Turner, 2002). In LIS, studies have shown that practitioners tend to read journals in which little research is published (Haddow, 2010), resulting in less exposure to the research literature. As well, the use of research in practice has been very low (McClure & Bishop, 1989). More recently, however, Klobas and Clyde (2010) found that authors publishing in the professional field of school librarianship do place a high value on the relevance of their research publications to practice.

Turner (2002) found that “time constraints” was the most common reason given by information professionals for not consulting the research literature. Other reasons were that conferences and similar meetings provide sufficient knowledge sharing opportunities, the research does not address practical problems, there are problems with physical availability (i.e.: library does not subscribe to certain journals), the research is difficult to understand and apply, and finally that there are problems with intellectual availability (i.e.: poor bibliographic control). These reasons for lack of research use by practitioners are echoed by Genoni, Haddow and Ritchie (2004), who also include language barriers, and the fact that LIS questions draw from the literature of a variety of disciplines.

Haddow and Klobas (2004) conducted a thorough review of the LIS literature concerning the research-practice gap, and in analyzing that literature, identified 11 types of gaps that may exist between research and practice, including gaps in knowledge, culture, publication, relevance, and activity. These areas were supported by the research of Cruickshank, Hall and Taylor-Smith (2011), who also note that the lack of support given to practitioners makes them less receptive to research. The lack of support points to the importance of organisations for enabling the

incorporation of research into daily work, an area previously identified by Hiller, Kyrillidou and Self (2008). They note the importance of library leadership, organisational culture, library priorities, assessment skills, and expertise within the institution. Others have also pointed out the crucial importance of organisational factors such as politics, research capacity, and workload as barriers to implementing evidence-informed decision making (Bowen, Erickson, Martens, & Crockett, 2009; Booth, 2011). These researchers emphasize the need to focus on the many complex factors needed to support the implementation evidence based practice.

Potential solutions to help narrow the research-practice gap have been proposed. These include greater collaboration between researchers and practitioners (Ponti, 2010; Genoni, Haddow & Ritchie, 2004; McNicol, 2002; Ford, 1987; Cruickshank, Hall & Taylor-Smith, 2011), including practical outcomes and guidelines for applying research results in publications (Turner, 2002; McNicol, 2002), summaries of recent research (Turner, 2002), having staff present papers at conferences (Turner, 2002), enrolling in courses to develop research skills (Turner, 2002), encouraging participation in the research process (Turner, 2002), inclusion of research reports in publications frequently read by practitioners (Haddow & Klobas, 2004), using a mixture of dissemination strategies including social media (Cruickshank, Hall & Taylor-Smith, 2011), and formal professional education related to research skills (Haddow & Klobas, 2004).

Another possibility in bringing research and practice closer together is the idea of the practitioner-researcher, or in LIS, the librarian-researcher (Jarvis, 1999; Watson-Boone, 2000; Wilson, 2011). Jarvis notes that practitioner-researchers are valuable because they are rooted in practice itself, and “the more research that is undertaken by practitioner-researchers, the more information we will have about the processes of practice, the development of practical knowledge, and other relevant facets among practitioners” (p.137). Wilson (2011), reflecting on librarian-researchers, agrees, noting: “the librarian-researcher is in a distinctive position to closely examine and test issues of a practice nature from a unique perspective” (n.p.). For Watson-Boone (2000), the practitioner-research process is what is important, for if librarians approach their practice with this practitioner-researcher mindset of critically thinking

about problems that arise in practice, and finding ways to solve those problems, it will improve practice.

2.2.5 Alternative EBLIP models

Recently, professionals in LIS have begun to consider modification of the EBLIP model, realising that it may not be the best fit for librarians and other information professionals. Rather than just criticising the existing model, suggestions have been put forth to improve upon the model. As yet, little research has been conducted on the EBLIP model itself and whether it works for practitioners, improves practice, or has any impact on the provision of library services. This section provides a brief overview of the alternative EBLIP models that have been proposed.

Following the 5th International Evidence Based Library and Information Practice conference (EBLIP5) in 2009, Booth wrote an article reflecting on key themes that he took away from the conference. This focused on a noticeable trend toward collaboration. He then proposed to rename the 5A's of evidence based practice, with a view to group decision making. Booth notes that the current model focuses on individual professionals, not collective activity which may be common in libraries. He also notes that the existing process does not make allowances for realities of the situational context and pragmatic nature of LIS professionals' work. Booth's alternative 5A's tries to account for these factors and focuses on collaborative decision making. Below is a summary:

1) *Articulate* – the team arrives at a shared understanding of the problem and articulates this collectively (there may be many questions and priorities are set).

2) *Assemble* – the evidence needs to be Assembled, not simply Acquired, because it is derived from multiple sources not just the published literature.

3) *Assess* – place evidence against the different components of a wider overarching problem. Assess the evidence for its quantity and quality.

4) *Agree* – achieve consensus among the group. A model that allows for agreement of subsequent actions is potentially much stronger than a unilateral decision to apply the evidence.

5) *Adapt* – the group frequently revisits what they are trying to achieve, fine tuning as they go along.

(Booth, 2009b)

Koufogiannakis (2011a) wrote about the role of practice-based evidence in evidence based library and information practice. Her contention was that EBLIP has focused mainly on research evidence, when other types of evidence also legitimately contribute to the decision making of librarians. She proposed a cycle which incorporates the current EBLIP model, but also emphases the other aspects of decision making, such as local evidence, tacit and professional knowledge, and the context of the situation, which round out the process for librarians. She notes that while some of these elements were already present in the original EBLIP model, they were overshadowed by research evidence, and were really not considered as valid sources of evidence (Koufogiannakis, 2011a).

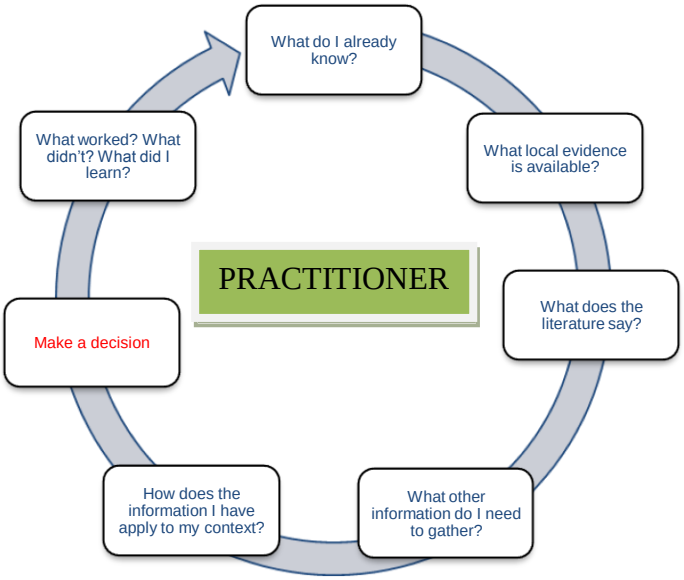

Figure 2.3 Key questions a practitioner should ask themselves (Koufogiannakis, 2011a, p. 55). (Also included in Chapter 8, p. 188).

Koufogiannakis (2011b) argues that this process puts the practitioner back at the centre and in control of his or her decision making, which includes research evidence, but also considers other forms of evidence that may be more directly relevant to the practitioner. It enables professionals to practise in an informed and evidence based way, bringing together the art and science of the profession.

Another recent model from Howard and Davis (2011) draws on information design and analysis principles and proposes the integration of design thinking with evidence

based practice. The authors note that the existing EBLIP model only serves to answer 'tame' problems, and needs to evolve in order to be able to solve complex or 'wicked' problems in the way that design thinking does, using a collaborative, human-centred approach. Howard and Davis propose a hybrid of design thinking and evidence based practice, for an approach that is both agile and rigorous, and shifts the focus from *finding* to *designing*. This model (see Fig. 2.4) has six stages, which are not meant to be linear. They are: define the problem; research; prototype and test; implement; evaluate; and storytelling. Howard and Davis assert that this model:

> focuses on human centredness rather than literature; it redefines what we might consider to be 'evidence', and involves collaboration and engagement of customers and stakeholders throughout the whole process to ensure human needs are met. It is also future oriented, looking forward rather than looking back, and enabling a mindset of reframing problems to support solving those with little or no precedence. (p.19)

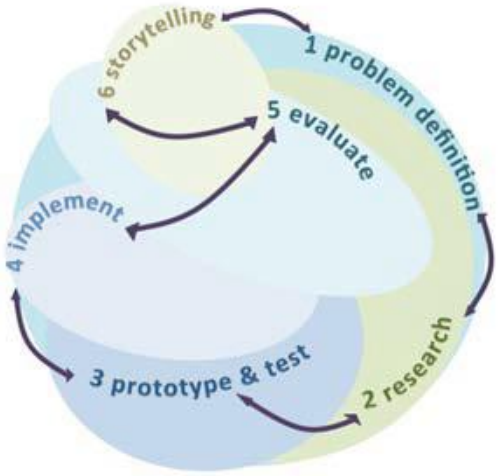

Figure 2.4: Howard and Davis' hybrid EBP and design thinking model (2011, p. 18)

These new models have been grounded in research and theory, but none have been directly applied to the LIS population. Further research will be required to test these models and determine if any of them are more applicable for LIS practitioners than the current model.

2.2.6 What counts as evidence in EBLIP

After a thorough examination of the model of EBLIP as it has been presented in the literature, it is clear that "evidence" in the context of EBLIP refers to published research articles. The process of EBLIP is one which advocates searching the

literature to find research articles, appraising those research articles to ensure they are valid, and then integrating the findings into one's practice. The more recent alternative models noted above in section 2.2.5, do not constrain evidence to research; yet, there has not yet been any uptake of those proposed models noted in the literature.

The more basic question of "what is evidence?" has not yet been debated or tested to any degree within the literature of EBLIP. There has been no research to show that in LIS evidence only consists of research; this treatment of evidence was simply adapted from the evidence based medicine model. In fact, the LIS literature that does exist on this topic points to sources reaching beyond research literature. Koufogiannakis (2011c) questions what evidence consists of in LIS, and proposes that in addition to research evidence, local sources of evidence also need to be considered. She notes, "data that comes from a local context is in fact often the most important evidence source that a LIS professional can consult because it gives us information that is directly applicable to, and about our users" (p. 1). She also considers professional knowledge to be a form of evidence which provides a basis for questioning and critiquing all other evidence sources.

Davies (2007) also proposes that evidence in LIS consists of more than research. He considers there to be two types of evidence in LIS. The first is performance evidence which pertains to the "operational aspects of a library service and may be quantitative, or qualitative" (n.p.). This type of evidence includes inputs, outputs, outcomes, and impacts of specific library services. The other type of evidence is research evidence, which "comprises the results of empirical studies that illuminate the broader outcomes of service provision, providing insight for decision making, or identifying options and solutions for service refinement and development" (n.p.). This type of evidence includes published research studies, as well as in-house research studies, with the main qualification being the rigour of the research, so that it will be applicable and useful.

Casey (2011) found that in the libraries she studied, the librarians did not use empirical research to assist with decision making, but they did use local sources of evidence including quantitative data including usage statistics, and qualitative data

including user satisfaction surveys. Evaluation of programs and services, assessment of instruction learning outcomes, and benchmarking against other institutions also figured into the sources of evidence being used. Casey considered all of these to be evidence sources and a demonstration that these organisations were practising in an evidence based manner. She noted the combination of quantitative data with qualitative measures: “Library managers in each of the cases maintain data on usage trends and seek additional information through surveys, interviews, and informal conversations to combine the evidence of perceptions and satisfaction with the usage data they compile” (p. 175-176).

Looking at the wider body of literature about the nature of evidence, key elements of evidence are revealed and can be applied to the field of LIS. In keeping with the Oxford Dictionary (2011) definition of evidence as “the available body of facts or information indicating whether a belief or proposition is true or valid”, evidence is commonly thought of as something constituting a form of proof to enhance a claim (Hornikx, 2005; Upshur, VanDenKerkhof & Goel, 2001; Reynolds & Reynolds, 2002; Twinning, 2003). That evidence serves as a proof, differentiates it from information – information must be relevant to the question at hand, and be used to prove a hypothesis in order to be considered evidence. Schrum (2011) asserts that “all evidence has three major inferential credentials or properties known to me: relevance, credibility, and inferential force or weight” (p. 19). Relevance looks at how the information bears on what is attempted to be proven; credibility asks whether what is reported actually occurred; and, inferential force or weight considers how strong the evidence is in comparison to other evidence.

Types of evidence noted in the literature are wide ranging. Rieke and Sillars (1984) consider there to be four types of evidence: anecdotal (a specific instance), statistical (numerical representation of multiple instances), causal (explanation for the occurrence of effect), and expert (testimony of an expert) evidence. In a similar vein but considering a different categorization of evidence, Glasby, Walshe, and Harvey (2007) created a typology with three types of evidence: theoretical (ideas, concepts and models to explain how and why something works), empirical (measuring outcomes and effectiveness via empirical research), and experiential (people’s experiences with an intervention). They say that “we need to embrace a broad

definition of evidence, which recognises the contribution of different sorts of knowledge to decision making" (p. 434). Evidence must always be used in context, whether in the context of a particular situation, or context of a wider body of professional knowledge. In the profession of nursing, Tarlier (2004) argues that evidence is only valuable within the context of existing knowledge in a profession. It is always viewed from that professional knowledge perspective. "To be readily accepted as true, new evidence must exhibit some congruency with what nurses already hold to be true within their existing disciplinary knowledge" (p. 130).

There is a small body of literature that looks at persuasiveness in relation to evidence, considering what forms of evidence are most persuasive (Hoeken, 2001). A recent review (Hornikx, 2005) of published studies on the persuasiveness of different forms of evidence, concluded that statistical and causal forms of evidence appear to be more persuasive than anecdotal forms of evidence, although some studies have found that anecdotal evidence is more persuasive. According to Conger (1998), evidence is one of four components of being persuasive. Persuasiveness includes establishing credibility, finding common ground with the person being persuaded, reinforcement of the position via the use of compelling evidence, and connecting emotionally with the person or persons being persuaded.

2.2.7 Conclusion on the evidence based library and information practice literature

Evidence based practice is still a relatively young movement, which began in medicine and has since spread to other fields, including library and information studies. In LIS, very little testing has been done on a model that has been directly adapted from medicine, despite the fact that LIS is a social science discipline. This section of the literature review has provided an overview of what evidence based library and information practice is, and given an in-depth look at the accepted process for EBLIP. Alternative variations of the EBLIP model that have been discussed in the LIS literature have also been presented. The wider literature beyond LIS provides a basis for the current research study on how academic librarians use evidence in their decision making, as this research seeks to determine how academic librarians adhere to the evidence based practice model and the aspects that may be missing from the model as it is currently known. Considerations of what

evidence is within LIS, and how evidence is used, are important aspects of the current research study.

2.3 Decision making in organisations

This section examines decision making within organisations, specifically within the study of organisational behaviour, which is “the systematic study of the actions and attitudes that people exhibit within organizations” (Robbins, 2005, p. 2). Organisational behaviour draws from sociology, psychology, social psychology, and anthropology. Since the purpose of evidence based library and information practice is to make better professional decisions, and academic librarians work within organisations, what is known about decision making theory may shed light on how academic librarians use evidence in their decision making in the workplace. Decision making is “concerned with the process of generating options and then choosing among them” (Furnham, 2005, p. 525). Decision making research has been dominated by approaches that emphasise rational decision making (and utility theory), and deviations from that, with a focus on experimental research. The development of naturalistic decision making research is more recent, and offers different approaches to research in the field, often using a type of cognitive task analysis, and simulations (Pliske & Klein, 2003).

Since the body of decision making literature is so large, coverage here is selective to first consider the literature that applies specifically to libraries and librarians, then extended outward via authoritative reviews to provide a broad overview on the topic which may be applied to librarian decision making. Both individual decision making and group decision making will be explored, since librarians make decisions independently but also as part of groups within an organisation. Factors affecting the decisions of the individual and the group will be discussed, including methods of decision making, biases, strategies, and relationships.

2.3.1 Decision making in libraries

There is not a great deal of research literature specifically related to decision making theory and organisational behaviour within libraries. A search on LISA (all dates) combining the subject headings “decision making” AND “organizational behavior”

yielded only two results. Broadening the search to keyword provided 40 results, many of which did not pertain to libraries. Searching for “library management” AND “decision making” AND (evaluation or research) yields only 16 articles. There is more relevant literature but it is not easy to find in traditional indices. There are articles relating to aspects of organisational behaviour such as organisational development (Stephens & Russell, 2004), innovation (Jantz, 2012), and culture (Martin, 2006), but which have not specifically addressed issues of decision making. This section focuses on LIS literature that examines decision making from an organisational behaviour perspective, specifically on literature that deals in some way with evidence, assessment, or evaluation, and its role within the decision making process of librarians.

McClure led several studies that examined the use of information and data in decision making within libraries. He first reviewed the literature relating to management of organisational information and how information is used for decision making, and concluded that when people who are information rich are included in decision making, the organisation will be more productive in meeting its goals (McClure, 1978). Later, McClure teamed up with Samuels to study the utilization of information for decision making in both public (Samuels & McClure, 1983) and academic (McClure & Samuels, 1985) libraries. Both studies found that librarians preferred internal sources of information, including personal communication with other staff, and internal documents. Patron involvement in decision making was practically non-existent, and very few decisions used information from empirical research:

> the information that is used tends to be ‘opinion-based’ rather than empirically based. Proximity also plays an extremely important part in information source selection: the closer and more familiar a source is, the more it is likely to be used. (McClure and Samuels, 1985, p.495)

Samuels and McClure also found that organisations where decision making is shared, and the environment is more open with its communication, facilitate greater use of information in decision making. McClure (1986) went on to recommend professional and organisational strategies to increase the use of data in decision-making:

1. Review existing management styles and organisational climates within the academic library.

2. Increase the knowledge level of the importance and potential applications of cost and performance measurement data.

3. Develop administrative systems that support the identification, collection, organization, analysis, and reporting of cost and performance measure data.

4. Establish reward structures for librarians who use cost and performance measurement methodologies for library decision-making.
(p. 332–333)

These aspects raised by McClure and Samuels in the 1980s have come to light again in the 21st Century, when evidence based practice and assessment have emerged as topics of interest within LIS. Authors have written about the importance of research and data in decision making within libraries, and that such use requires an environment where openness, integrity, and trust are enabled (Lakos & Phipps, 2004; Hiller, Kyrillidou and Self, 2008). Involvement of staff in decision making and developing clear communication systems help to facilitate this type of organisational change where evidence can become part of the culture of the organisation (Davies, 2007). Davies also stresses the importance that "evidence is used honestly and that data is acquired and presented in as transparent a fashion as possible" (2007, p.6). Such transparency and honesty allow for staff to participate more fully and contributes to the integrity of the decision making process. Hiller, Kyrillidou and Self (2008) determined that evidence alone is not enough to create a research culture where decisions are grounded in data. Ultimately, organisational culture and leadership within the organisation are crucial to the integration of evidence as a normal part of decision making within academic libraries.

The small body of LIS literature on the topic of evidence use and decision making in libraries, is supported by the wider literature on decision making, and aspects raised in the studies noted above can be looked at in relation to wider organisational behaviour literature.

2.3.2 Organisational decision making

Choo (2006) outlines four models by which decision making in organisations occur: the rational model, process model, political model, and anarchic model. Choo notes

that goal uncertainty and procedural uncertainty are the two main factors in how difficult it is to make a decision. Goal uncertainty is higher when goals are ambiguous and when there is disagreement about goals. Procedural uncertainty is higher when there is no prior experience in dealing with a problem, and when there are time constraints or pressures such as in a crisis situation. The four decision making models that Choo describes depend on the levels of procedural uncertainty and goal uncertainty, and are noted in Figure 2.5.

The rational model occurs when goals and alternatives are clear. Cyert and March (1992) have noted four theoretical concepts that are key within this model: 1) uncertainty avoidance, 2) quasi-resolution of conflict, 3) problemistic search, and 4) organisational learning. Uncertainty is avoided by being focused on the short-term and imposing plans or standard procedures. Conflict is resolved by having smaller groups problem-solve within their area of expertise, and focusing upon one small goal at a time. When searching for information or alternative solutions within this model, the search will stop once an acceptable solution is found. And finally, organisational learning occurs via the rules that are imposed upon the decision making, and as goals are adapted. This model is based around organisations that rely on rules and procedures, and try to avoid uncertainty.

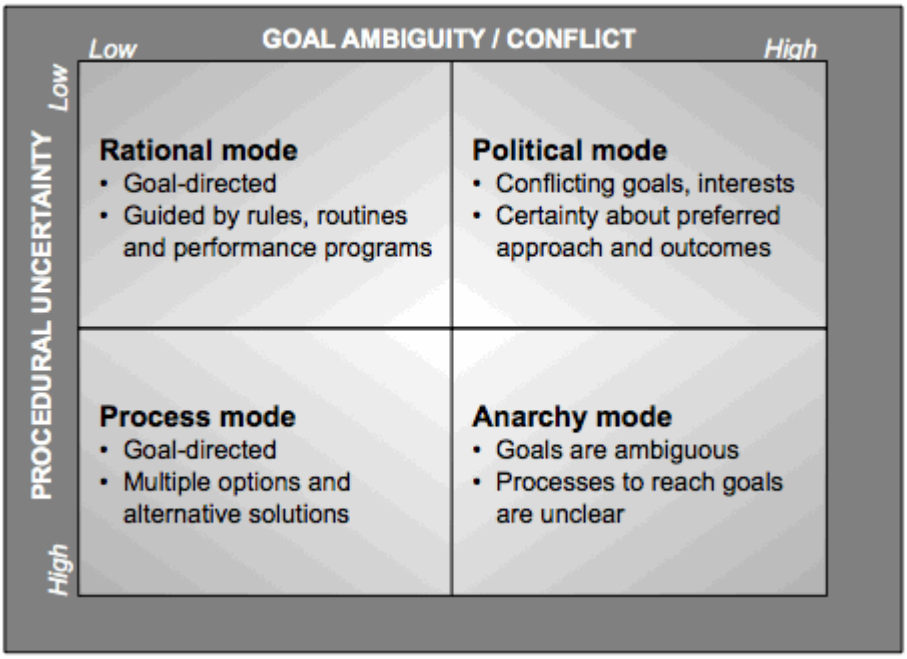

Figure 2.5. Models of organisational decision making (Choo, 2006, p. 211)

The process model focuses on routines that provide structure and goals that are clear, but in situations where alternatives are not clear. It results in a process that involves much searching for, and evaluating options. Mintzberg, Raisinghani, and Theoret (1976) analyzed many decision processes and in all cases they were characterized by high levels of ambiguity. They categorized this type of decision making process into three phases. The first is the *identification* phase, which realizes the need for information, and assesses the various possibilities. Next is the *development* phase when solutions are developed, which could be ready made external solutions, or custom made in-house solutions. The final phase is the *selection* phase wherein all alternatives are evaluated and a solution chosen. Selection can be, but is not always the final stage, as often a choice may go back for further development. There can be many delays with this type of decision making, due to the focus on exploring alternatives and being open to those alternatives.

The political model is one where goal uncertainty is high and procedural uncertainty is low. This type of decision making occurs when groups are involved that have different interests and take different points of view. There will be differences of opinion about what is most important. Choo (2006) notes that this model is most likely to occur when "the organization is experiencing high levels of (1) environmental uncertainty, (2) resource dependency, and (3) task interdependency" (p.220). Environmental uncertainty is high when there are external pressures on the organisation which the organisation does not have control over, and when changes are occurring within the organisation at a rapid pace. Resource dependency is high when the organisation relies on external resources which are vital to the organisation, but which may be in short supply. And finally, task interdependency is high when groups within the organisation must rely on the cooperation and completed work of other groups within the organisation, all of which may be working toward different goals. These factors create goal conflict within the organisation and cause alliances and coalitions to be formed in order to strengthen positions, with the purpose of strengthening a group's power within the organisation.

The anarchic model (also known as the garbage can model) is based on the work of Cohen, March, and Olsen (1972). It describes a situation where both goals and

procedures are uncertain. Cohen, March, and Olsen note argue that when organisations' preferences or goals in decision making are not well defined and are inconsistent, when processes are not understood by members of the organisation, and when participation in decision making is fluid, the organisation will function in organized anarchy. In this type of environment, various problems and solutions are dumped, as if into a garbage can, as they are generated. Decisions will be made when problems and solutions happen to appear at the same time. There is no coordinated approach to the problem solving. Decisions happen either by resolution, oversight or flight. Resolution happens by working on the problem over time. Oversight occurs when opportunities present themselves, and choices are made quickly without consideration of other choices being made in the organisation. Finally, flight is when the problem simply goes away. Choo notes that in organisations where this type of decision making occurs, oversight and flight are more common than resolution.

2.3.2.1 Individual decision making within organisations

Regardless of a person's role in an organisation, everyone is involved in making decisions in the workplace on a daily basis. Academic librarians make independent decisions related to aspects of their professional work, and other times make group decisions related to more complex aspects of organisational direction and management. Decisions require consideration of options and judgment making, which in turn leads to actions that will impact the organisation.

Organisational behaviourists have developed the rational-decision making process, which outlines how optimal decisions *should* be made. This model includes six procedural steps:

1) Define the problem
2) Identify decision criteria (objectives)
3) Weight the criteria
4) Generate alternatives
5) Rate each alternative on each criterion
6) Determine the optimal decision (Robbins, 2005, p. 85)

This process assumes that the problem is a clear one, and the person making the decision has complete information; that all the criteria and alternatives can be

identified by the decision maker; that there will be clear preferences that will be weighted and rated appropriately; that there are no time or cost constraints; and that the optimal alternative will be the one chosen (Robbins, 2005, p. 86).

In reality, decisions are rarely made based on solely rational processes. Individuals have different decision making styles, and biases also come into play. Hence, many elements lead to people making poorer judgments than are optimal. Psychologists use the term 'bounded rationality' to convey that due to the complexity of problems and organisational factors affecting decision making, optimally rational decisions are not met. Instead, rationality is bounded by these other factors, and satisficing (the point when one decides that something is 'good enough') occurs (Furnham, 2005). March and Simon (1993) convey this reality of decision making when they write that:

> Most human decision making, whether individual or organisational, is concerned with the discovery and selection of satisfactory alternatives; only in exceptional cases is it concerned with the discovery and selection of optimal alternatives. (p.162)

Of course, individuals do not all make decisions in the same way. Research on decision making styles has categorised orientations towards particular styles. People can use different styles, although they generally have one dominant style. Rowe, Boulgarides and McGrath (1984) note that there are four managerial decision making styles:

1) Directive – people with this style do not tolerate ambiguity well. They make decisions quickly because they do not consider many alternatives and rely on existing rules. They have a high need for power and are autocratic.

2) Analytic – people with this style carefully analyze problems based on as much data as possible, considering all alternatives. They prefer complex problems and are willing to use innovative methods. They have a need for control, but can also adapt well to new situations, and enjoy variety.

3) Conceptual – people with this style are achievement and future oriented. They solve problems creatively, with an artistic and humanistic approach. They consider many broad alternatives and enjoy new ideas. They value relationships, commitments, and integrity.

4) Behavioral – people with this style have a deep concern for the organization in which they work, as well as for the development of their co-workers. They are interested in helping others, and are open to

> suggestions from others and communicate well. They do not rely on data for decision making, and are mainly people-oriented. (p.18-19)

Differences in decision making styles may cause conflicts in the workplace, and being aware of others' styles can be helpful to understand how other people may be considering a problem, and what their focus is.

Another factor affecting individual decision making is bias. Decisions are influenced by a host of personal factors including memory, perception, motivations, past experiences, and beliefs (Furnham, 2005). There are many types of bias that will affect decision making, including overconfidence bias, when people think they know more than they actually do; confirming bias, when people gather information selectively in order to confirm what they already think; framing bias, when people make different decisions depending upon how information is presented; and representative bias, when people rely on stereotypes and predict outcomes based on past situations (Robbins, 2005; Greenberg and Baron, 2008).

Intuition also plays a role in decision making, and can complement rational decision making. Intuition refers to "affectively charged judgments that arise through rapid, nonconscious, and holistic associations" (Dane and Pratt, 2007, p. 40). Simon (1987) argues that effective managers use both rational and intuitive methods of decision making. The use of intuition in the workplace allows experienced individuals to "recognise a situation and draw on previously learned information associated with that situation to arrive at a decision choice quickly" (Robbins, 2005, p. 93). The use of intuition in decision making occurs in situations where there is high uncertainty, little precedent, facts are limited or unavailable, there are several options to choose from, and time is limited (Agor, 1989). Dane and Pratt note that "the individuals most capable of making the associations that trigger accurate intuitive judgments are those who possess complex, domain-relevant cognitive structures within a particular domain. Such individuals may be referred to as experts" (2007, p. 46). When experts are dealing with ill-defined problems and need to be judgmental, the use of intuition is most effective.

Constraints within the organisation also affect decision making of individuals. For example, how the reward system functions, how performance evaluation is done, regulations, time constraints, and organisational history will all affect decision making (Robbins, 2005). Political pressures to “save face” in front of others or to avoid serious conflict, as well as time pressures to make quick decisions, are other organisational influences impacting how people make decisions, and the reasons why those decisions may be less than optimal for the organisation (Greenberg and Baron, 2008). Experts with a lot of experience are able to make good decisions quickly, while novices require more deliberation and time to consider the options. Greenberg and Baron (2008) note that experts “know what matters, what to look for, and what pitfalls to avoid. What is so often considered ‘gut-instinct’ is really nothing more than the wealth of accumulated experiences” (p.393).

2.3.2.2 Group decision making in organisations

Group decision making in organisations adds further complexity and dimensional factors to how decisions are ultimately made. One of the strengths of groups is in bringing together more diverse viewpoints as well as information and knowledge that bring more input and alternatives to the decision making process. People bring their unique skills, and can share the workload. Groups that are heterogeneous with complementary skills, and where ideas can be freely communicated, are better than individuals for solving complex problems (Greenberg and Baron, 2008). Robbins (2005) notes that groups make higher quality decisions, and working in groups generally leads to the increased acceptance of a chosen solution. Those who participate in the decision will be more committed to the implementation.

On the other hand, groups take longer to reach decisions, and are less efficient than individuals. Furnham (2005) points out that research consistently shows that “groups do better on well-structured tasks, although they take longer” (p. 544). ‘Well-structured’ tasks are those types of problems which have a definite answer, as opposed to ‘poorly structured’ tasks that have no single correct answer. Potential disagreement between group members may also breed ill-will, which if it is disruptive, could negatively impact group decisions. As well, if groups are controlled by those trying to please a dominant leader, there will be a lack of open discussion of possible solutions (Greenberg and Baron, 2008).

The size of groups also factors into success. Smaller groups tend to function better, whereas the larger a group becomes, the less group members participate, and the more likely conflict will occur. Smaller groups are also more cohesive, whereas large groups tend to be fractious and form cliques (Greenberg and Baron, 2008).

The concept of groupthink was first coined by Janis in 1972. Groupthink diminishes the effectiveness of group decision making. It is “a mode of thinking that people engage in when they are deeply involved in a cohesive in-group, when the members’ strivings for unanimity override their motivation to realistically appraise alternative courses of action” (Janis, 1982, p. 9). Groupthink results in limited or incomplete assessment of all the steps in the rational decision making model. Hence, when groupthink occurs, members may not consider all alternatives in their decision making, or search for sufficient information. They may be easily swayed by the group leader, rationalize assumptions, become overconfident, and not voice any concerns in order to maintain a cohesive group. Janis notes that several factors contribute to a groupthink environment including the group’s cohesiveness, insulation from ‘outsiders’, a leader who pushes for his or her preferred outcome, and a lack of established norms to follow methodological decision-making procedures. Time pressure, a sense of urgency, and ineffective group leadership are additional factors that contribute to groupthink (Neck & Moorhead, 1995).

Strategies for reducing groupthink include promoting open inquiry and playing devil’s advocate; the use of subgroups to generate more ideas and have a fuller discussion with the whole group afterwards; admitting shortcomings in order to avoid the illusion of perfection; holding ‘second-chance’ meetings before implementing a decision; giving group members the ability to ‘sleep-on-it’, and; voicing any doubts prior to implementation (Greenberg & Barron, 2008).

Another element that factors into group decision making in organisations is power. Dahl (1957) defined power as “A has power over B to the extent that he can get B to do something B would otherwise not do” (p. 202). Power, he notes, cannot exist in isolation, but relates to other individuals or groups. Rowe, Boulgarides, & McGrath (1984) identify four components of power in organisations:

1) Power sharing – the degree to which power is shared amongst participants

2) Authority - the degree of legitimacy afforded to the person responsible for the decision

3) Organisational politics – the relationships that affect cooperation, including coalitions, negotiations, and consensus.

4) Influence – the ability to persuade during the process of arriving at a decision. (p.26)

A concept that is necessary for power relationships to exist is that of dependency. The greater dependency employee B has on employee A, the greater power employee A has over employee B. When something is plentiful, it will not be a source of power. But, as Robbins (2005) notes, "If you can create a monopoly by controlling information, prestige, or anything that others crave, they become dependent on you" (p.179-180). Dependency relies on three factors, 1) the thing controlled must be perceived as being important, 2) the thing being controlled is perceived as scarce, 3) the source of power has no viable substitutes (Furnham, 2005). Power does not have to be negative, although it is usually perceived that way. Almost all organisations have some form of a power structure in place, and use these structures to manage work and responsibilities.

An abuse of organisational power is frequently exhibited via organisational politics. Such politics are "actions by individuals that are directed toward the goal of furthering their own self-interest without regard for the well-being of others or their organization" (Greenberg & Baron, 2008, p. 488). Organisational politics can take various forms, including control over and selective use of information, building powerful coalitions, blaming and attacking others, and creating obligations and using reciprocity to hold power over others. Political behaviour is most likely to occur in organisations when there is ambiguity over roles, there is a history of political behaviour, when resources are scarce, and when employees do not feel empowered in their jobs (Greenberg & Baron, 2008). The greater the amount of organisational politics, the less satisfied employees feel, and the less committed they are towards their organisation (Cropanzano, Howes, Grandey, & Toth, 1997; Randall, Cropanzano, Bormann, & Birjulin, 1999).

2.3.2.3 Organisational culture

Another factor that must be considered in organisational decision making is that of the organisation's culture. Schein (2010) defines organisational culture as:

> a pattern of shared basic assumptions learned by a group as it solved its problems of external adaptation and internal integration, which has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems. (p.18)

Cultures will be different depending upon the organisation and the people that work there. Characteristics that determine an organisation's culture include the level of innovation and risk taking employees are encouraged to take, the degree to which they are expected to pay attention to detail; whether there is a focus on outcomes or processes; the orientation of the organisation towards the people working there; the degree to which work is organised around teams rather than individuals; the degree of competitiveness that exists; and the amount stability is emphasized versus growth and change. As a whole, these characteristics provide a picture of shared understanding of the organisation's culture, regardless of whether or not employees are happy about those aspects of their workplace. They provide a picture of how the organisation functions and the way people behave. Subcultures can also exist, particularly in large organisations. Such subcultures may be defined by their geographic location or by departmental designation. In such cases, core values are generally retained across the organisation but may otherwise be modified within distinct departments (Robbins, 2005).

Organisational culture is neither inherently good nor bad. On the positive side, it can provide a sense of identity and commitment among employees. It also emphasises norms for behaviour and attitudes, essentially providing individuals with a sense of how things are done in their organisation. However, there are potential negative aspects to organisational culture as well. The culture of an organisation can stifle creativity and innovation if new ideas do not conform to underlying assumptions of the organisation. Martin (2006) points out that,

> challenges to these assumptions will result in defensive behavior from the members. Therefore organisational culture can explain the resistance, fear,

> and sometimes 'irrational' behavior that one encounters in any organization, especially when trying to implement change. (n.p.).

Greenberg and Baron (2008) explain that the value placed on people within the organisation is very important because in organisations where people do not feel valued, a toxic culture is created, and such organisations lose good employees and struggle to be profitable. Healthy organisations, on the other hand, treat people well and inspire their employees, resulting in low turnover, greater morale and motivation.

Rowe, Boulgarides, and McGrath (1984) note that "the response to problems is often based on the creative impulses of the manager" (p. 5). Amabile (1997) has identified three components that are necessary for creativity to thrive. Creativity is "simply the production of novel, appropriate ideas" (p. 40). Three components of creativity are expertise, skill in creative thinking, and intrinsic task motivation. Basically, when a person's skills overlap with their passion, creativity will be higher. Individual creativity is impacted by one's personality and social environment. Amabile notes that a creative workplace is one where an individual has freedom, positive challenges, supervisory encouragement, work group support, organisational encouragement, and sufficient resources. Her research showed that the work environment within an organisation "can make the difference between the production of new, useful ideas for innovative business growth and the continuance of old, progressively less useful routines" (p. 51).

2.3.3 Conclusion on the decision making literature

This overview of decision making in organisations illustrated how research has shown that decision making does not follow a tidy rational decision making model. This may be at odds with the requirements of the existing evidence based practice approach, which seeks to assist individuals in making better decisions by providing quality research evidence on which to base those decisions. For the individual decision maker within an organisation, attitudes towards evidence and use of evidence may be influenced not only by personal bias in judgment but also power dynamics, leadership styles that exist in the organisation, and organisational culture. For group decision making, the same factors apply with the additional problems such as groupthink, and the variable ways in which size and composition of the group will

affect not just the decision but the process by which the decision is made. The limited scope of the literature on decision making in libraries makes extrapolation of the organisational literature on decision making uncertain. However, there seems to be renewed interest in the use of data and research evidence to inform management decisions in libraries, after some decades in which there appears little published literature on the topic, although that does not mean that professional practice was neglecting evidence from research or routine data collection from library management systems. Next, practice theory and practice based evidence will be explored, in order to examine a concept which is close to professional practice, but which has not been previously discussed in relation to evidence based library and practice.

2.4 Practice theory and practice based evidence

This section will provide an overview of the basics of practice theory and more specifically the concept of knowing in practice. It will also provide concrete connections to practice theory via writings on practice based evidence and how this type of evidence is necessary for many professions. Finally, the concept of 'communities of practice' will also be addressed in connection to knowledge generation and dissemination in professional practice.

2.4.1 What is practice theory?

Practice theory arose in the writings of social theorists, Bourdieu (1972), and Giddens (1979; 1984). Wittgenstein and Heidegger are also noted philosophers of influence in this movement. However, it was Schatzki's (1996) book, *Social practices*, that was the first to wholly focus on the practice concept. In that seminal work, he outlines the theory of practices and the necessity of action within practice. Schatzki sees a practice as "a set of considerations that governs how people act. It rules action not by specifying particular actions to perform, but by offering matters to be taken account of when acting and choosing" (1996, p.96).

Reckwitz (2002) expands on Schatzki's definition of a practice, specifying the elements involved in the behaviour of a practice:

> A 'practice' is a routinized type of behaviour which consists of several elements, interconnected to one another: forms of bodily activities, forms of

> mental activities, ‘things’ and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge. (p.249)

He notes that individuals carry elements of a particular practice with them, but those elements are not unique qualities of the individual. Physical and mental activities are routinized and a shared understanding exists amongst the group, and even observers of the group. “A practice is thus a routinized way in which bodies are moved, objects are handled, subjects are treated, things are described and the world is understood.” (Reckwitz, 2002, p. 250).

Gherardi (2009) situates practices as “patterns of socially sustained action”:

> A practice is not recognizable outside its intersubjectively created meaning, and what makes possible the competent reproduction of a practice over and over again and its refinement while being practice (or its abandonment) is the constant negotiation of what is thought to be a correct or incorrect way of practising within the community of its practitioners. (p. 536).

More recently, Huizing and Cavanagh (2011) summarize contemporary practice theory and point out that practice theory does not start from an objectivist or subjectivist viewpoint, but rather, looks at the whole of what is happening in practice. What is active is what is important, and this may include objects as well as people. They note that practice theorists “build their theories from in-depth understanding of what people actually do when they organize their private and professional lives” (n.p.).

Schatzki writes that there is not a single approach to practice theory, but practice theorists concern themselves with “arrays of activity” generally associated with humans, and with “embodied capacities such as know-how, skills, tacit understanding, and dispositions” (Schatzki, 2001, p.7). Practice theory therefore considers how groups of people have shared practical understandings which are based on actions and must be considered within a specific context. This includes elements of tacit knowledge, practical judgment, and societal agreement. Practice theory exposes additional factors beyond research and scientific knowledge that can be considered to fully understand a librarian’s way of practicing and arriving at decisions related to professional practice. It looks to the practice itself to guide what is known about how a practice functions.

2.4.2 Knowing in practice

A key element of practice theory that is directly applicable to evidence based practice is the concept of *knowing* in practice. In practice, knowing has two elements that cannot be separated – these are: "knowing how" and "knowing that". These phrases were first coined by Ryle in 1945. Knowing *that* relates to the mind, and how to do something, so that it is explainable. Knowing *how* relates to doing the thing, or action, even if one does not know how to explain how they have done it. Knowing *how* relates to tacit knowledge, those things that one knows but cannot easily explain, a knowledge which is formed through the action itself, i.e.: knowing how to ride a bike. Polanyi (1966) was the first to delve into tacit knowledge, explaining it as "we can know more than we can tell" (p.4). Particularly relevant to evidence based practice, Polyani notes that the very act of problem solving, asking questions, and finding solutions requires tacit knowledge for the "act of knowing exercises a personal judgment in relating evidence to an external reality, an aspect of which he [the researcher or problem solver] is seeking to apprehend." (p. 25).

Schön, building upon the work of Polanyi, writes in his 1983 influential work, *The reflective practitioner: How professionals think in action*, that "our knowing is *in* our action" (p.49). For Schön the work life of a professional depends on this tacit knowing in action. Professionals make judgments of quality and display particular skills that the practitioner him or her-self may not be able to adequately explain. Schön says "Even when [the practitioner] makes conscious use of research-based theories and techniques, he is dependent on tacit recognitions, judgements, and skilful performances" (p.50). The two aspects, research and professional knowledge, must go hand in hand. Huizing and Cavanagh (2011) point out that both tacit and explicit knowledge function together, and

> practice is positioned as the natural place in which explicit or propositional knowledge obtains significance if and when it is combined with participants' tacit, embodied knowledge. To become a resource for action, explicit knowledge presumes and relies on practice. (n.p.)

Orlikowski (2002) states that knowing is an active process that happens within practice, and that tacit knowledge is inseparable from action since the knowing found

in tacit knowledge happens via action of the practitioner. Knowing in practice is a key component of how one practises in a profession. It simply cannot be ignored. It is a critical piece of activity in practice, contributing to the completeness in a practice. One cannot practise without this type of knowing and ability, and hence, in terms of evidence based practice, this know-how that practitioners possess is an important element of evidence that should be considered alongside the more explicit research knowledge.

2.4.3 Practice theory in LIS

If librarianship can be considered a practice, it can also be viewed through the lens of practice theory. In librarianship, practitioners have particular behaviors that are comprised of mental and bodily actions. An example is reference services where practitioners need to use such devices as a computer or the catalogue; but within these physical actions, librarians also have mental actions that go hand-in-hand with the physical. For example, the knowledge of how to conduct a reference interview and make a determination of the best way to answer the patron's question. Librarians govern themselves according to certain agreed upon and identifiable rules or behaviours, which have been learned both from training and experience. This does not mean that every individual does everything exactly the same, but that librarians operate a body of practice within a shared general framework, which the collective practising body can change over time, and which practitioners know and understand. Within a shared general framework, for example, would be such concepts as access to information, organisation and retrieval of information, as well as delivery of reference and instruction services, and principles of collection building, to name a few.

Very little has been written on the connection between practice theory and LIS, although it is possible that some older literature with similar thinking may exist, but is very difficult to find. A few recent articles do explore the place of practice theory in LIS. Huizing and Cavanagh (2011) provide an overview of contemporary practice theory and examine how it can be applied to library and information studies. They show that practice theory can be applied to LIS research in order to better understand the processes of organizing, doing and knowing. Practice theory bridges objectivist and subjectivist standpoints, and is a "lens to study organized settings"

(n.p.). Lloyd (2007, 2010a, 2010b, 2010c) uses practice theory to help "frame an understanding of information literacy as sociocultural practice" (2010b, p. 245). She explains how viewing information literacy from a practice theory perspective will allow researchers to better understand how information literacy activities occur, and to consider a broader picture than just acquisition of specific skills. Taking a practice theory approach:

> allows researchers to consider a whole body approach to understanding and describing IL. In doing so, researchers must recognise that an engagement of and experience with information is not solely mentalistic, but is also rendered through the body and the social networks and communities with which an individual interacts (Lloyd, 2007, n.p.).

Such future research possibility in LIS opens up a wider view of information practice in society, and could shed many new discoveries that could improve LIS practice.

2.4.4 Practice based evidence

Looking beyond theory, several professions are beginning to embrace a practice-based evidence approach in addition to an evidence based practice one. The terminology purposefully turns evidence based practice around in order to illustrate a different view on decision making in practice than has been advocated by evidence based practice. Fox (2003) argues that the academic model of evidence based practice situates research evidence in a position superior to other forms of knowing, and is actually in opposition to practice. He believes that evidence-based practice should be supplemented by practice-based evidence and a model of practice-based research (PBR), wherein "research and practice are intertwined rather than opposite poles" (p. 86).

Others also argue for the need to move beyond the current model of evidence based practice, noting the importance of local context and situational knowledge (Webb, 2001; Clark, 2011; Gabbay & LeMay, 2011). Webb (2001) questions the validity of evidence based practice in social work, due to assumptions and a version of rationality which does not work in practice because it over-simplifies the complex decision making process in that profession. Clark (2011) emphasizes the importance of practice-based wisdom in professional decision making, noting that evidence based practice can never be entirely sufficient because qualities such as practice

wisdom is a distinguishing feature of a truly respected professional. Wisdom is a quality gained over time and learned via the action of practice. It is this contextual information that is most important, for ultimately, as Usher and Bryant (1989) note, it is judgment and reasoning that must stand the test of practice and be responsible to the situation at hand. Gabbay and Le May (2011) convey the importance of "knowledge-in-practice-in-context" (p.65), and note that medicine is an art in addition to a science. It requires judgment and decision making skills in addition to scientific knowledge. Their ethnographic research reveals how clinicians acquire and use knowledge through the use of what they call "mindlines". Mindlines are usually tacit, and are collectively reinforced within a practice. They are informed by elements such as professional training, experiences, understanding of local circumstances, and interactions with others. These are all elements that would be noted as important aspects of knowing in practice, as per practice theory, but are generally overlooked in discussions about evidence based practice.

An element considered important in practice based evidence is that of reflection. Rolfe, Jasper and Freshwater (2011), emphasize the need for reflective practice over evidence based (research-based) practice. They note that "the reflective practice paradigm promotes the view that practitioners are also researchers in their own practice" (p.16) and go on to argue that this type of reflective knowledge is just as important as empirical knowledge. This is a concept that grew from the work of Schön (1983) who encourages reflection on professional actions and tacit knowing. He notes that as practitioners work through situations in practice, they should question and ask themselves how judgments are made and how they are approaching problems. Being reflective in practice allows practitioners to become more aware of aspects that are embedded in actions, which themselves can be reflected upon and restructured. Schön notes, "It is this entire process of reflection-in-action which is central to the 'art' by which practitioners sometimes deal well with situations of uncertainty, instability, uniqueness, and value conflict." (p.50).

Schön (1983) reminds us that in most professions,

> large zones of practice present problematic situations which do not lend themselves to applied science. What is more, there is a disturbing tendency for research and practice to follow divergent paths. Practitioners and

> researchers tend increasingly to live in different worlds, pursue different enterprises, and have little to say to one another." (p. 308).

This sentiment has been noted previously in the LIS literature (Haddow and Klobas, 2004), and continues to remain a common complaint of practitioners, as was noted in the previous section on the research-practice gap. Schön goes on to propose that if the traditional idea of professional knowledge that resides with the researcher and is passed down to practitioners is rejected, the relationship between research and practice can be reframed. Schön (1983) argues that research is an activity of practitioners and that practitioners "may become reflective researchers in situations of uncertainty, instability, uniqueness, and conflict" (p.308).

Koufogiannakis (2011a) examined the types of practice-based evidence that are important to librarians. Local evidence is specific to the context in which librarians do their work and encompasses usage statistics, patron feedback, evaluation of programs, and organisational realities. Professional knowledge is experiential and something built over the course of a career through formal and informal training, is often tacit in nature, and evolves. She argues that bringing together the art and science of our profession is certainly something librarians need to embrace in evidence based library and information practice. Otherwise, the research evidence becomes meaningless to practitioners who may see it as so removed from their daily work and needs.

2.4.5 Evidence generated in practice

Two ways of making practice-focused knowledge more explicit are action research, and communities of practice.

Action research is one way to enhance the relationship between research and practice in library environments. Action research seeks to produce practical knowledge that will directly affect practice or greater humanity. This is done in a participatory way, within a community in which one normally participates, involving a wide number of people from that community in the research itself. As Reason and Bradbury (2008) note:

> Typically such communities engage in more or less systematic cycles of action and reflection: in action phases co-researchers test practices and

> gather evidence; in reflection stages they make sense together and plan further actions. And since these cycles of action and reflection integrate knowing and acting, action research does not have to address the 'gap' between knowing and doing. (p.1)

Action research creates practice based evidence in an active and conscious manner. It has been commonly adopted in educational settings, dating back to the 1950s when Stephen Corey (1953) introduced the concept to the educational community (Harada, 2003). Action research became a way for teachers to study their own practice and solve problems in their daily work. It is a combination of the action of doing practice and research to study that practice, which leads to professional learning and growth (Harada, 2003).

In LIS, Curry (2005) notes that "action research requires trust, openness, high tolerance for uncertainty and surprise, and a genuine desire on the part of all participants to improve library service" (n.p.). Much action research has been done in school libraries, in keeping with the strong tie of this method to the education field (Ballard, March, & Sand, 2009; Kwok, 2009), but has also found a place in academic libraries (Brown-Sica, Sobel, & Rogers, 2010; Markless & Streatfield, 2006; Mehra & Braquet, 2007), and health librarianship (Seeley, Urquhart, Hutchinson, & Pickard, 2010). As Civallero (2007) points out, action research shares many basic aspects of the EBLIP process in that it encourages practitioners to integrate research into their practice. However, in action research the focus is on the doing of that research to solve a particular problem within the context of the situation. It is very local and based in practice, while focusing on action. In this respect, action research goes further than EBLIP, because the aim is always action within practice.

Another example of generating practice based evidence lies within 'communities of practice'. The formation of communities of practice has been a natural evolution within professional practices in order to facilitate learning and knowledge transfer. The idea of communities of practice grows out of practice theory and looks to make explicit the tacit and active aspects of knowledge that are found in practice via this method of learning. Hence, it is a way to move beyond the idea of practice-based evidence that is held by individuals, by transforming it into shared knowledge within the community, enhancing access to that knowledge. The term 'communities of

practice' was coined by Lave and Wenger in 1991, in their work on situated learning, which considered how people learn within organisations, and emphasizes that learning is a social activity, which was further built on by Wenger (1998). Lave and Wenger (1991) note that a community of practice is:

> a set of relations among persons, activity, and world, over time and relation to other tangential and overlapping communities of practice. A community of practice is an intrinsic condition for the existence of knowledge, not least because it provides the interpretive support necessary for making sense of its heritage. Thus participation in the cultural practice in which any knowledge exists is an epistemological principle of learning. (p.98)

Wenger (2006) more simply states that communities of practice are "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (n.p.). He goes on to note that there are three characteristics required for a group to be considered a community of practice: 1) the domain, which is the shared interest which defines the identity of the group, and to which members share competence within; 2) the community, which is social interaction defining how members build relationships and engage in activities that enable them to learn from one another; and, 3) the practice, which is the activity where members in a particular field develop a shared set of resources as part of their practice.

For practitioners, learning occurs via doing (Schön, 1983). Within communities of practice, the focus of this learning is on the social nature of the community. Practitioners learn from others within the same community, and likewise contribute to that learning. Communities of practice occur whether one is conscious of them or not. In an unconscious format, practitioners rely on their internal networks to assist with learning tacit dimensions of their work, via conversations with colleagues, interactions in groups, and verification from peers. Duguid (2005) explains that in learning to be a practitioner, one needs to "learn to be", which is part of Ryle's concept of *knowing how*, embodying the art of practice and tacit dimensions that are not easily made explicit.

> Transforming knowing *how* into knowing *that*, the tacit into its nearest explicit equivalent, is likely to transform learning from learning *to be* into learning *about*. The CoP's knowledge, in tacit or explicit form, may be distributed across the collective and their shared artifacts rather than held by or divisible

> among individuals. Within the CoP the knowing *how* of the community, not merely of an individual, is on display. (Duguid, 2005, p. 113)

Simply put, communities of practice hold the possibility of transferring the tacit into the realm of the explicit. They may make the art of a practice more obtainable by those within the particular community of practice. This way of learning enables knowledge to be more pervasive and spread across an organisation.

Since the concept emerged, organisations have begun to emphasise planned communities of practice in order for individuals to bring skills and ideas together in order to foster problem solving and innovation within their field (McDermott & Archibald, 2010). Wenger (1998) states that, "in terms of organizational engagement, communities of practice are fundamental elements of an architecture of learning" (p. 250). While communities of practice will exist with or without organisational approval, organisations should recognise the important role they play in learning and knowledge creation (Wenger, 1998; Somerville, 2009).

There has been research done within LIS on communities of practice (Davenport & Hall, 2002; Urquhart, Yeoman & Sharp, 2002; Urquhart et al, 2010). Davenport and Hall (2002) point out that for communities of practice to succeed within organisations, there needs to be an environment that supports social interaction, employees should be encouraged to work in groups and share information, experimentation must be allowed, knowledge sharing become a normal part of an individual's job, and the organisation must provide necessary tools and support to make such communities thrive. A recent study found that the virtual communities of practice within specialist libraries for health professions in the UK were mostly operating at an 'engaged' stage, and while this is not a very advanced stage, it was effective and supportive of evidence based practice because it provided a framework that worked for practitioners (Urquhart et al, 2010). Ponti (2010) found that collaboratories (a type of community of practice) between LIS researchers and practitioners allows research to focus on practice problems and produce research that influences practice because it is relevant to professionals.

Gabbay and LeMay (2011) provide the example of a well-functioning interdisciplinary community of practice in a hospital setting. They explore collective and the individual 'mindlines' shape one another, and hence, the community of practice was shaping the knowledge of individual physicians. Such mindlines were understood by the whole group, and were discussed, which they contend allows for norms of practice to be either reinforced or modified, as necessary. Gabbay and LeMay note that the community of practice allowed health care practitioners to "externalize their tacit and implicit knowledge. Through chatting with each other about their work, they exposed their knowledge-in-practice-in-context and their views about what they had gleaned from their reading and other sources" (p. 151).

Communities of practice have the potential to allow for individual practitioners to bring their practice based knowledge to a conversation within their practicing community. Practice-based knowledge is made more explicit, and learning occurs within the group, ultimately influencing practice decisions.

2.4.6 Conclusion on practice theory literature

This section provided a brief overview of practice theory, in order to enable a different view of practice and knowledge than is afforded by the evidence based practice model. With evidence based practice, the scientific research is the main concept explored in relation to practice, whereas in practice theory, a wider view is taken in order to explore what people actually do in practice, and to examine how what is learned in the doing of practice leads to knowledge that is important to that practice. In this section, forms of evidence that are different than scientific research evidence were explored, in order to expose other possibilities, and consider the complexities of actual practice. As well, the pragmatic application of what practitioners do in their practice and alternate forms of evidence was explored. Finally, the notion of communities of practice provides a possible way to make the tacit dimension of knowledge shared within a community, allowing for knowledge to move beyond individuals and benefit organisations in which practitioners work.

2.5 Literature review conclusion

The purpose of the literature review was to situate the current study, and to illustrate how the concepts related to evidence based practice have penetrated beyond the health sector into other disciplines and areas of professional practice. In doing so, the gaps in the research evidence around attitudes, use and applicability of evidence to everyday practice and decisions for libraries (and academic libraries in particular) should become clear.

The first part of the literature review highlighted the growth of evidence based medicine and the contribution that health librarians made to evidence based practice by developing search strategies to locate, and filter high quality evidence. Unsurprisingly, this sparked an interest in the applicability of the evidence based practice model to library and information studies. The EBLIP model involves the development and acceptance of a structured approach to decision making, as well as formulation of an evidence pyramid that places some types of research evidence higher than others. LIS has a very different research base than medicine – it is much smaller and there are few experimental trials, with a much greater contribution of case studies, surveys, and qualitative research. Straight translation of the EBM model to LIS seems therefore very difficult, and to many, unwise. In addition, the debate about the meaning of evidence has increased and this concern is echoed in other professions such as social work, education and nursing. The EBM model does include, as the fourth stage, the application of evidence in practice and this does stress the integration of the research evidence with professional experience and judgment, but very little in the literature has addressed best ways to accomplish this.

The proponents of EBLIP have demonstrated that the model is feasible, and there is growing acceptance of some of the principles as illustrated in the small, but growing number of systematic reviews published, the success of the EBLIP journal, the EBLIP conference series, and the discussion about levels of evidence. The debate about the research-practice divide may always be with us, but the focus of the debate may be shifting to consideration of the ways in which the EBLIP model might be adapted to make it more acceptable. However, the core of the problem may well be the meaning of the word evidence to practising librarians. There is little to guide

LIS researchers or practitioners on what might count as evidence, what should count as evidence, and how the various strands of evidence might be brought together.

This gap is particularly apparent when considering the literature on decision making in libraries, where the research evidence is scant. It is so scant that it is difficult to assess whether and how research on decision making can be applied to libraries, but one can assume that as organisations, or departments in organisations, the decision making research that highlights the effect of framing, the expected deviations from the rational model will apply. For academic libraries, decisions may be made individually, or in groups, and the biases and barriers identified in the research on decision making should be expected to apply. Leadership, organisational culture, power and politics all need to be considered when evaluating decision making by groups. The important question may be on the process of decision making, how the decision was reached rather than the comparison of rational alternatives.

The two gaps identified so far, in understanding what counts as evidence, and in understanding decision making processes in libraries, shaped the choice of theoretical lens for the research. Practice theory considers how groups of people have shared practical understandings which are based on actions and must be considered within a specific context. This includes elements of tacit knowledge, practical judgment, and societal agreement. This seems a very good fit with the research objectives that seek to identify what sources academic librarians consider to be evidence, to explore how academic librarians use evidence in their practice and decisions, and to explain some of the challenges in incorporating evidence into practice. Practice theory has been applied in LIS research, although not to a great extent. Additional support for its use in this research comes in fact from the health sector, where there is increasing recognition of the importance of knowing-in-practice, and practice-based-evidence, and more emphasis on ways of capitalising on such tacit knowledge and wisdom through encouragement of action research and communities of practice, that provide frameworks for the social learning that takes place, and which librarians know take place, but often do not formally investigate or recognise. It is only through a deeper understanding of the components of the EBLIP model – what evidence means in library and information practice, how evidence

(however defined) is used in practice, how decisions are informed (or not) by practice that the final research objective of evaluating and refining the existing EBLIP model can be achieved.

Chapter 3: Methodology

3.1 Introduction

This chapter describes the methodological approach undertaken in the study. Prior to beginning a research study, the choice of methodology must be evaluated in order to ensure that it is appropriate and meaningful in relation to the research questions asked. Hence, the exploration of possible methodologies, and justification for the use of grounded theory, are discussed. Next, the practical detail of conducting the study is outlined in order to provide the reader with a rich description of how the research process unfolded. This includes information about selection of participants, as well as the methods of data collection and analysis that were used. Finally, the validity of the study is examined via a reflection on how the study adhered to the principles of rigour, in order to provide the reader with a greater level of trust in the study's findings.

3.2 Research Questions

As was noted in Chapter 1, this research study proposed to examine the assumptions of evidence based library and information practice (EBLIP) by exploring how academic librarians use evidence in their practice, and by determining whether the decision making model upon which EBLIP is based fits with how academic librarians actually incorporate research. The following research questions were explored:

- How do academic librarians incorporate research into their professional decision making?
- What does the term evidence mean to academic librarians, and how does the term relate to what they use and who they consult for decision making?
- What forms of evidence do academic librarians actually use when making professional decisions? Why do they use these types of evidence?
- To what extent do academic librarians use the EBLIP process when trying to make evidence based decisions? What aspects of the EBLIP process, if

any, need to be changed in order to better account for the needs of academic librarians in the decision making process?

3.3 Philosophical Approach

This research was undertaken within a pragmatic philosophical approach. Pragmatism began with the work of Charles S. Peirce in the last quarter of the 19th century, and extended to philosophers such as William James, John Dewey, and George Herbert Mead. Peirce's pragmatism was based on a theory of "how people construct knowledge of phenomena for intentioned use in concrete circumstances" (Prus & Puddephatt, 2008, p.74). This philosophy of pragmatism relies on the basis of human action as "the way to change existence" (Goldkuhl, 2004, p. 13). Peirce believed that in order for an idea to be meaningful, it had to have practical bearings:

> we come down to what is tangible and practical, as the root of every real distinction of thought, no matter how subtle it may be; and there is no distinction of meaning so fine as to consist in anything but a possible difference of practice. (Peirce, 1878, p. 292-293)

The basis of pragmatism lies in action and the connection between human knowledge and human action. Pragmatists come to an understanding of the world via the actions of people and how those actions shape human knowledge. Concepts must translate into reality, or else those concepts are insignificant. Concepts should be tied to empirical data, and translated into the practical world. Researchers, for example, are interested in the difference that their research will make in practice, and they are interested in change and action. They are interested in what works and what does not work, and why (Goldkuhl, 2004).

In choosing to follow a pragmatic philosophy, the researcher has embraced that by engaging in practical considerations, the meaning of a concept can be grasped. In this specific case, the concept is evidence based library and information practice. Through the process of empirical research, connecting with practically relevant situations and actions undertaken by the participants, knowledge about evidence based practice can emerge and will lead to possibilities for further action that can impact upon the profession of librarianship.

3.4 Selection of an appropriate qualitative methodology

In determining a methodological fit for this research, both the philosophical approach and research questions were considered. Listening to what librarians themselves had to say about how they make decisions in order to uncover what types of evidence are important and how evidence is used, was seen as of utmost importance. While the research questions were probing how academic librarians made decisions, the researcher's focus was on an overall approach of discovering what types of evidence librarians used, and how they went about making decisions that occurred in everyday practice. Hence, decision making was viewed from a qualitative perspective, rather than an experimental one often used in decision making research, where specific testing would be done. It was not the researcher's intention to test or determine the right answer, but rather to listen and try to understand how academic librarians underwent a process in their everyday practice. Given that the research questions were mainly exploratory and the researcher wanted to understand evidence use by librarians, a qualitative approach was considered to be the most appropriate.

Many qualitative approaches were reviewed to determine the one that would be the best fit. Eventually, this focused upon three major approaches that seemed most appropriate. Phenomenology, ethnography and grounded theory were considered in more detail and are discussed below.

Phenomenology is concerned with the study of lived experience and capturing the essence of a phenomenon (Adams & van Manen, 2008; Swanson, 2001). This approach is used to study how a person consciously experiences a particular phenomenon and what the phenomenon means to them (Morse & Field, 1995). Key aspects of this type of methodological approach include the determination of a particular phenomenon to be studied, in-depth conversations with those who have experienced the phenomenon, and the description of the lived experience of that phenomenon. The object is to describe how the phenomenon was experience by a particular group of people. There is no attempt to impose a framework on the data being collected, or to interpret what those lived experiences mean in general terms (Swanson, 2001).

In this study, a possible phenomenon on which to focus would have been the concept of EBLIP itself, but exploring how librarians experienced EBLIP as a phenomenon was not a core part the research questions posed; the focus was on a deeper understanding of how academic librarians work through the entire process of decision making and how evidence is used within that process. EBLIP as a phenomenon was not the focus, and a shared point of experience related to decision making was not easy to identify with a diverse group of academic librarians. As well, the researcher did want to probe deeper into the interpretation of data which could lead to a theory about evidence use in practice. Hence, it was decided that phenomenology was not the right methodological approach for this study.

Secondly, an ethnographic approach to research focuses on a particular group of people and their culture. The researcher integrates him or herself with groups of people for a lengthy period of time (usually at least 6 months) in order to better understand the environment in which those people live or work and what is important to them as a group, such as their values and beliefs. This generally involves long-term field work, interviews, and participant observation (Armstrong, 2008; Fetterman, 2008; Morse & Field, 1995).

It was decided that ethnography required more sustained participation and observation than the researcher would be able to give. As well, the researcher wanted to learn from a number of individual librarians at different institutions across Canada, rather than at one specific library, since the EBLIP process has focused on individual practitioners. An ethnographic approach could be very valuable in learning more about the organisational dynamics of a library or a group of librarians, but the research questions for this study focused on individual librarians.

Finally, grounded theory is a methodological approach that is concerned with building theory from the qualitative analysis of data (Corbin & Strauss, 2008). Grounded theory best addresses process questions, and deals with the experiences of individuals as they interact with others in particular situations, in order to generate theories of human behaviour (Swanson, 2001). The methodology is systematic, providing flexible guidelines for researchers, with a focus on simultaneous collection and analysis of data (Charmaz & Bryant, 2008). Any number of data collection

methods can be used, including interviews and observation. Central to grounded theory is the process of constant comparison, whereby pieces of data are continually compared to one another over the period of data collection and analysis, enabling an iterative process that leads to focus of the data towards theoretical concepts (Swanson, 2001).

A grounded theory approach was determined to be most appropriate for this research because the researcher was interested in exploring how and why academic librarians use evidence, and wanted to interpret the data leading towards a theoretical contribution to the literature of evidence based library and information practice. The researcher was focused on working through the process of decision making and the place of evidence within that process. Grounded theory allows for the discovery of theoretical concepts related to the process of decision making via the lived experiences of librarians. This was a good fit with the researcher's pragmatic philosophical stance, since the methodology builds theory based upon what emerges from the experiences of research participants, tying theoretical concepts directly to actions and practices. The lived experiences of practitioners could lead to discovery of concepts related to evidence use, which in turn could potentially improve practice. Further exploration of grounded theory and how it was used in this study is noted below.

3.4.1 Grounded theory

Grounded theory methodology was created by Glaser and Strauss during their collaborative research related to dying in hospitals (1965). In 1967 they published their landmark work, *The discovery of grounded theory*. This book laid the foundation of grounded theory and the strategies for doing a grounded theory study. *The discovery of grounded theory* was so important because the new methodology broke with the positivist paradigm that was so prevalent at the time, while also introducing a more systematic way of doing qualitative research than had previously existed. As Charmaz notes, it "provided a powerful argument that legitimized qualitative research as a credible methodological approach in its own right" (2006, p.6).

Glaser and Strauss began to view grounded theory differently and eventually parted ways. Glaser was more influenced by positivism and Strauss by pragmatism. Glaser

remained true to the original text on grounded theory, and focused on emergence of theory from the data, while Strauss began to focus on verification and a systematic approach. In 1990, Strauss published *Basics of qualitative research: Grounded theory procedures and techniques* with his co-author, Corbin (Strauss & Corbin, 1990), officially documenting a different grounded theory approach. Since then, other grounded theorists have contributed to discussions about the methodology and have taken slightly different approaches. Most notably, Charmaz (2000), a former student of Glaser and Strauss, who put forth a constructivist view of grounded theory. In addition, Clarke (2005) approached grounded theory from a postmodernist viewpoint. Grounded theory is widely accepted as flexible enough to allow for different approaches, although a researcher should make clear which grounded theory version they are primarily following.

All versions of grounded theory share three key methodological elements, including a focus on developing theory via theoretical saturation of categories, theoretical sampling, and constant comparison (Hood, 2007). The basic goal is that of constructing theory based on the data collected in the course of doing the research, resulting in a theory that is "grounded" in that data. The researcher must be open to the possibilities of what will emerge from that data, and does not come to the research with any preconceived notions that he or she is trying to substantiate (Bryant & Charmaz, 2007). In grounded theory, analysis of data is done concurrently with the collection of that data and involves theoretical sampling, in which the sampling is "responsive to the data rather than established before the research begins" (Corbin & Strauss, 2008, p. 144). Concepts that emerge from early data analysis continue to drive the focus of questioning with later participants, and as further concepts emerge from the data, the initial data is examined again to determine similarities and differences. This process is called constant comparison, wherein incidents in the data are continually compared to one another in order to find conceptual similarities that can be grouped together into higher level concepts (Corbin & Strauss, 2008, p. 73). Grounded theory researchers use strategies such as asking probing questions, coding data at different levels, looking for patterns, memoing throughout the process, looking for negative cases, and creating diagrams (Charmaz, 2006).

The methodological approach used in this study drew mainly from Charmaz's (2006) constructivist version of grounded theory. Charmaz uses the same grounded theory principles that are noted above, with the main difference being the constructivist approach taken. A constructivist approach to research denies that there is one objective reality, and instead looks at the world as being shaped and influenced by individual context. "Epistemologically, constructivism emphasizes the subjective interrelationship between the researcher and participant, and the coconstruction of meaning" (Mills, Bonner & Francis, 2006, p. 26). The researcher is part of the reality he or she constructs, and his or her values and experience play a role in the development of theory arising from the data. Charmaz (2006) notes that "Constructivists study *how*—and sometimes *why*—participants construct meanings and actions in specific situations" (p. 130). This must be acknowledged and embraced as part of the process of creating the grounded theory. Consequently, constructivists must acknowledge that their theory is an interpretation – "The theory *depends* on the researcher's view; it does not and cannot stand outside of it." (p. 130).

Constructivist grounded theory bases the development of theory on experiences within a particular context. Charmaz (2006) notes that "We try to learn what occurs in the research settings we join and what our research participants' lives are like. We study how they explain their statements and actions, and ask what analytic sense we can make of them" (p. 2-3). The researcher also must be reflective regarding his or her own preconceptions and how those preconceptions affect the research. In this study, the constructivist grounded theory approach allowed the researcher to be reflective regarding her own experiences with evidence use and her place in the ongoing narrative of evidence based library and information practice. Acknowledging that it was time to look at evidence based library and information practice with fresh eyes allowed the researcher to meet participants openly and with trust, listening and learning from them to form a deeper understanding of how and why academic librarians use (or do not use) evidence as part of their decision making process. Instead of following a pre-existing model and imposing it upon the participants, the research methodology allowed for an inductive model of evidence based practice in academic librarianship to be formed, based upon the data gathered from practitioners.

3.5 The application of grounded theory

Within the grounded theory methodology, it was decided that the methods of data collection would be online diaries and interviews that were semi-structured. In beginning with the diaries, participants were given the space and time to note decisions they were making in practice, and were able to reflect on the process of decision making within their particular context. This enabled participants to focus on what they considered most important. It also allowed the researcher to learn about the individual and organisational factors that participants encountered in their decision making.

The interviews allowed the researcher to focus on incidents that were raised by participants in their diaries, and examine at a deeper level the reasons why participants used certain information, or acted in a particular way with respect to their decision making. In grounded theory, "the researcher starts by coding each incident into as many categories as possible" (Tan, 2010, p.103). As concepts emerge, the researcher "needs to continually move back and forth between data collection, coding and categorizing, refining and interconnecting through additional data collection until he/she reaches theoretical saturation" (Tan, 2010, p.106). The interviews allowed the researcher to explore themes as they were emerging, while maintaining the context of each participant's situation. For example, when issues related to group decision making began to arise, the topic could be pursued with subsequent participants, in order to ensure a richer level of data.

The concept of evidence was kept open to interpretation and no existing models were imposed. Participants knew that the research related to evidence based practice, but they also knew that the researcher wanted to understand how they made decisions in real life. Hence, the approach was a very open one in which participants led the researcher to what was important, and situated their decision making within the realities of their work environments. The data that participants provided gave the researcher new insights about the decision making process in academic libraries, and where evidence fits within that process.

As a Canadian academic librarian, the researcher was part of the group of participants in this study. The researcher was also very familiar with evidence based practice, the topic of the study. While the researcher's background could be perceived as a bias within the study, she chose to embrace the fact that she did already have knowledge and shared some common understandings with the participants. This allowed for seamless recruitment of participants, and also the ability to understand them and have quality conversations with them. Throughout the process the researcher tried to be very conscious of any preconceived notions that she was bringing into the research, and not allow those to overshadow what the participants were saying and doing. She was very conscious of not influencing the participants, and reassured them that they were helping her to understand, and that there were no right or wrong answers. Charmaz (2006) notes that "we are part of the world we study and the data we collect. We *construct* our grounded theories through our past and present involvements and interactions with people, perspectives, and research practices" (p.10). This is the approach and mindset with which the researcher conducted this study, embracing Kaplan's advice that "Freedom from bias means having an open mind, not an empty one" (1964, p. 375).

3.6 Study participants

The study used a purposeful sample of Canadian academic librarians who had some interest in exploring the use of evidence in relation to their professional decision making. Maxwell (2009) notes that in purposeful sampling "particular settings, persons or events are deliberately selected for the important information they can provide that cannot be gotten as well from other choices" (p. 235). As academic librarians, the participants had a vested interest in this topic since their work environment generally encourages research and decision making based on evidence.

In grounded theory, the researcher is aiming to understand a population better, and to gain an in-depth understanding of the issues faced by that group of individuals, therefore purposeful and theoretical sampling is appropriate (Meadows & Morse, 2001; Morse, 2007). The researcher purposefully chooses participants that can provide relevant information to assist with that exploration. In this study, the

researcher knew she wanted to study academic librarians, and decided to limit the study geographically to Canada, knowing that Canadian academic librarians shared similar circumstances, including the ability to obtain tenure. Institutional management differences would exist depending upon where the librarian worked, but overall, this group was likely to share a common understanding of academic librarianship. Widening the study to other countries would increase the variance of understanding more broadly than was determined to be feasible, given the exploratory nature of the study. Hence, the sample of Canadian academic librarians was an *'a priori'* purposeful one, since it was determined prior to the study (Hood, 2007). It is not appropriate for qualitative research to speak of a representative sample, nor would it even be possible to assess how representative this sample of Canadian academic librarians was, demographically speaking, as there is no demographic data available.

An invitation to participate (Appendix A) was sent out on mailing lists that are used by academic librarians in Canada. These included the Canadian Association of College and University Libraries mailing list, and the Evidence Based Librarianship Interest Group of the Canadian Library Association. The invitation was also sent out on Twitter. The study aimed for depth and richness of information rather than higher numbers of participants, as the findings are not meant to be generalized, but will be used to provide insights that may aid in the development of evidence based approaches in librarianship. Lincoln and Guba (1985) point out that in qualitative research sampling is "based on informational, not statistical considerations. Its purpose is to maximize information, not facilitate generalization" (p.202).

Twenty-one Canadian academic librarians initially volunteered to participate in the study. Two participants later dropped out, due to time constraints (both were in senior administration roles), leaving a total of 19 participants. The number of participants was not predetermined, but since that number volunteered at the beginning, they were all included in the study. The researcher was still able to approach data collection in a theoretical manner, since the diaries and the interviews were spread out over a period of approximately six months (Appendix I). By the 16th participant, the researcher realised that saturation had been reached, and this was confirmed by continuing through with interviews for the final three participants.

The 19 participants came from six different Canadian provinces: Saskatchewan (5), Ontario (4), Alberta (4), British Columbia (3), Manitoba (2), and Newfoundland and Labrador (1). Seventeen of the participants were female, two were male. All participants had an MLIS degree; two also had an additional Master's degree, three had a PhD in addition to their MLIS, and another three were PhD candidates. All worked in academic positions, the majority of which were traditional academic librarian positions, while one participant worked in a hospital that was affiliated with an academic institution, and another worked in an academic department outside the library. All identified themselves as academic librarians.

Participants worked in a variety of different librarian roles. Many were liaison librarians, others were managers or department Heads, and a couple worked at the Associate University Librarian level. Nine participants worked in humanities and social sciences libraries, six in health sciences libraries, one in an education library, and the remaining three in library administration roles such as technical services. Participants came from libraries of all sizes, but the greatest number came from institutions with 10,000-15,000 students, which is very much in the mid-range of size for Canadian institutions of higher education.

The participants' number of years of experience as a librarian varied widely, ranging from less than two years, to more than 30 years. The participants represented all levels of experience, from new librarians in their first job, to senior librarians nearing retirement. Some librarians had many years of experience but had recently begun new positions, while others had been in the same position for many years. Each participant's familiarity with evidence based practice was assessed, based on comments in the diaries and interviews, and it was determined that eight participants were very familiar with EBP, three were moderately familiar, and eight had very little to no familiarity with EBP.

The sample obtained was therefore purposive at several levels (Bryman, 2008, p. 375) including the range of types of academic libraries represented, and the embodied expertise of the individual librarians involved (considered by age, experience in academic libraries and highest educational qualification).

3.7 Ethical considerations

Ethics approval was received from both Aberystwyth University, where the researcher is a student, and the University of Alberta, where the researcher is employed as a librarian.

This study was considered to be low risk, and no harm was anticipated to befall the participants. Participants volunteered to take part in the study, and were able to discontinue their participation at any time. This was clearly communicated in the letter of invitation (Appendix A), as well as in the instructions for the online diary (Appendix B), and the consent form for the interviews (Appendix C). Participants were given an overview of the purpose and nature of the study in the initial letter of invitation, and were encouraged to contact the researcher with any questions or concerns. For the online diaries, consent was obtained when the participants actually wrote and posted their thoughts in the online diary (blog). For the interviews, participants were sent a consent form a few days prior to the scheduled interview, and responded via email that they had read the document and gave their consent to the interview. Interview consent was also reconfirmed verbally prior to beginning the interview.

The online blog diaries were password protected and only the participant and the researcher had access. Data from the diaries was transferred into a Word document and saved on the computer of the researcher, which is password protected. Data was also backed up on the researcher's University of Alberta computer, which is also password protected. Blogs were then deleted from the *WordPress* site.

The interviews were tape recorded and transcriptions kept in the same password protected computer sites as the diary entries. Print copies of research data were stored in a locked filing cabinet. Participants were anonymized using codes (e.g. Librarian 1, Librarian 2), and any names mentioned in the diary or interview transcripts were changed to pseudonyms. Any job titles that may have been mentioned have either been changed or removed before use in this thesis. Any excerpts of data (quotations) preserve the anonymity of the participants.

3.8 Field work

This section provides detail about the data collection methods used in this study. The field work included familiarisation with the literature, online diaries, and semi-structured interviews. Familiarisation with the literature began in the fall of 2009, and continued throughout the duration of the study. The process of data collection via the online diaries and interviews occurred over a period of nearly six months, simultaneously in conjunction with data analysis. The first participant to begin a diary posted on March 9, 2011, and the final interview took place on September 1, 2011 (Appendix I). The timing for completing the diaries and interviews was based on participants' schedules, but the spacing of the data collection allowed the researcher to approach the data collection in a theoretical manner, because as concepts emerged from early participants and patterns were noted, the researcher could then follow-up on those emerging concepts with the later participants.

Consideration was given to piloting the study, but rejected because piloting is not an element that is necessary for grounded theory, and is not discussed by Charmaz (2006). Piloting implies that a researcher will refine his or her approach based upon difficulties encountered by pilot participants, in order to make the research instruments valid and reliable (Hank, Wilkins Jordan & Wildemuth, 2009). In grounded theory, the entire approach has to be flexible based on each participant. Unlike quantitative research, there is no predetermined set of questions or coding schema that the researcher uses. Instead, the researcher builds upon areas of interest or importance to initial participants and continues to refine and focus the research approach theoretically over the entire course of the research. Hence, piloting the study was not necessary. If there were major problems with any of the online diary instructions, for example, those could have been adjusted as the study was progressing. Likewise, the questions noted for the interview (Appendix F) were never meant to be followed exactly as written – they were adapted to each participant's focus and the interview was very open, based upon both what the participants wanted to discuss, and the emerging areas that the researcher wanted to learn more about as the study progressed.

3.8.1 The literature

Review of the literature began prior to the beginning of formal study, as the researcher was quite familiar with the body of literature on evidence based practice in general, and evidence based library and information practice specifically. This familiarity came from 12 years of working as an academic librarian, with a practitioner-researcher focus on evidence based practice. As was previously noted, the researcher has been active in the area of EBLIP, and regularly read in this area. From this past reading, coupled with a thorough review to ensure nothing was missed, the researcher knew that very little research existed about the EBLIP process and that it was a topic ready to be explored empirically.

The other main areas covered in the literature review were new to the researcher. The body of literature on practice theory was discovered while reading widely about professions and professionals. A professional may also be referred to as a practitioner, and a small portion of the literature about professionals also examined theory related to practice. The researcher discovered practice theory and read comprehensively in that area prior to beginning the empirical research. This body of literature introduced a new way of viewing practice and how practitioners make sense of their work as individuals within a larger community of professionals.

During and following the data collection and analysis, the body of literature concerning decision making was explored. This is a very large body of literature, and it was decided that the most appropriate area in which to focus was organisational behaviour, as this fit most closely with the research questions and the nature of the research. This literature provided a wide lens with which to view the decision making practices that were detailed in the diaries and interviews, making sense of the actions of individual librarians within their organisational environment.

Overall, a broad approach to finding relevant literature was used. This included database searching, supervisor-recommended readings, cited reference searching, and scanning the references cited in book chapters and journal articles.

3.8.2 Diaries

Diaries are useful for collecting data within a particular timeframe. By using diaries, the researcher can collect data over a longer period of time, and participants can make entries close to the point in time in which the event or incident occurs. Participants may also find it easier to express themselves when writing in a diary, although this relies on having participants who are comfortable with writing (Gibson & Brown, 2009; Symon, 1998). Since participants in this study were academic librarians with a minimum of an MLIS degree, it was unlikely they would face writing challenges. Participants wrote in their online diaries for a period of one month, although some participants wrote every day or two, while others wrote once per week. The one month timeframe was chosen because it would be a sufficient amount of time to capture a variety of work related problems, and also was likely the maximum amount of time that a person might be willing to commit to keeping an online diary. Participants were asked to note questions or problems that related to their professional decision making and judgment. They were asked to record their thoughts and experiences in the diary as near as possible to the time of the event they were writing about, and most participants seemed to take this approach, although some would write a few days or a week later, and one participant wrote about a combination of current situations as well as things that had happened in the recent past that they were still contemplating.

Sheble and Wildemuth (2009) point out that web-based diaries (blogs) are now quite common, and provide many advantages such as automating data collection, allowing the researcher to track what is happening, and providing simultaneous access for researcher and participant. They caution, however, that “you should keep in mind the preferences and abilities of your study participants” (p. 216) when choosing to use Web or paper based diaries. This study used a web-based, online diary for the advantages noted above, but also because it was felt that this group of participants would be comfortable with the blog format. Most of the participants had used blogging software previously, and those who had not, expressed no serious reservations. The only minor problems experienced were with user name and password creation in a couple of instances, which were quickly resolved.

To guide the diary process, instructions were semi-structured and prompted specific areas upon which participants might wish to comment (see Appendix B). These instructions were located in a tab at the top of the blog, for easy access in case participants needed to refer to them. The instructions were meant to "guide participants in selecting or omitting material" (Sheble & Wildemuth, 2009, p. 214). Since the participants were busy professionals, the researcher consulted with each librarian that volunteered, asking them when would be the best time for them to participate in the research, in order to facilitate greater contribution to the diaries and provide necessary time for reflection, which is a key element of the research.

The diary keeping took place using *WordPress.com* online blogging software. *WordPress.com* allows for blogs to be private, and thus, individual blogs could be created for each participant in the study. Only the researcher and the participant had access to read the blog entries. If someone other than the researcher or participant attempted to enter the blog, they would receive a message telling them that the blog is private, and they would be unable to access any content.

Each participant was asked to sign up for an account on *WordPress.com*, in order to sign-in and make their diary entries. Once a participant sent the researcher his or her user name, he or she was added as an author to the blog that was created specifically for them. Participants were sent brief instructions on how to use WordPress (Appendix D), and the researcher was available to answer any questions from participants. A welcome post (Appendix E) was also added to the blog to encourage the participants and get them started.

Participants were asked to provide some information about themselves in their first blog diary entry. They were asked to write about their professional selves, and were also given some examples of the types of things to include, such as the size of the library they currently work in, the year they completed their MLIS, the number of years they have held their current position, the title of their current position and area of responsibility, current level of responsibility (i.e.: senior administrator, middle manager), education (degrees received), conference attendance (times/year) and presentation, and any professional activities they were involved with. This

information was used to understand each of the participants' backgrounds, and place their diary entries in some context.

Once a participant had made their first blog posting, if no further entries were received within the period of one week, they were prompted with an email reminder. The blogging software allowed the researcher to keep track of participants' diary writing, and read entries as they were made. In this respect, it was easy to communicate with participants, sending them a friendly reminder to write in the diary if they had not done so for more than a week. Participants were also told that they could contact the researcher at any point, either to ask questions, or to drop out of the study if they should wish.

Since being asked to keep a diary can influence the behaviour of participants, Alaszewski (2006) points out that "researchers will normally seek to minimize the intrusion, creating diaries that are open in structure and informal. The objective is to enhance the diarists' control over the way in which they use their diaries" (p.78). In this respect, general instructions were provided to participants they were allowed them to write in the diary as they preferred. For example, the content of diaries varied widely, with some participants being very detailed and thorough in their entries, while others were brief, simply noting questions and the decision they made, or their thoughts about making the decision. Some people were very reflective while others were less so. Finally, some people wrote very frequently, while others only made a handful of entries over the course of the month. Other than prompting those who had not made an entry in more than a week, there was no attempt to change the participants' approach to writing in their diaries, as the researcher did not want their writing to be forced, or for them to feel burdened (Sheble & Wildemuth, 2009) and perhaps quit the study. The researcher's attitude toward the diary entries was that whatever the participants wanted to share was valuable information, and the intrusion into their lives should be minimal. In all cases there was sufficient information recorded in the diaries to allow for follow-up and more in-depth conversations with participants in the subsequent interviews. After a one-month period, participants were thanked for their contribution to the research project and the researcher emailed them to arrange for a follow-up interview.

3.8.3 Interviews

All participants who completed the diary portion of the research agreed to a follow-up interview. Most interviews occurred within two weeks of the diary completion, however a couple of interviews took longer to arrange due to scheduling issues. The semi-structured interview process allowed the researcher to clarify and probe deeper into specific aspects that a participant may have noted in their diary entries, and allowed participants to look holistically at their experience and comment on the overall process. Gibson and Brown (2009) point out that with semi-structured interviews, the researcher is usually flexible in the way the interview schedule is used. For example, researchers can vary the order of the questions according to the 'natural flow' of conversation. Researchers try to fit their pre-defined interests into the unfolding topics being discussed, rather than forcing the interviewees to fit their ideas into the interviewer's pre-defined question order.

An interview guide (Appendix F) was used to prompt questions on a few broad topics related to the participant's understanding of research, evidence, and associated issues of these concepts in practice. The majority of the interview, however, was an open discussion that probed deeper into issues raised by the participants in their diaries, and flowed naturally from topics that the participants raised over the course of the interview. This allowed for further exploration of themes or critical incidents that emerged from each participant's diary entries. Sheble and Wildemuth (2009) point out that the diary-interview method allows researchers "to provide a rich description of the phenomenon under study or as a means of triangulation" (p. 216). They go on to state that the diary-interview technique is:

> Much stronger than the sum of its parts because the interview is grounded in and expands on information captured in the diary. Used conservatively, the interview provides the opportunity to clarify and draw out selected diary entries. More liberally, the interview may employ diary entries as a point of departure to explore in-depth topics presented in the diary. (p. 216).

This approach allowed the discussion to begin with topics that were already established by participants in their diaries, and through questioning the researcher was able to learn more about why participants made the decisions they did, why they chose to use certain sources of information, and what other elements affected their decision making process within their work environment.

Given the wide geographic distribution of participants across Canada, most interviews were conducted via telephone or Skype. All interviews were taped using a digital recorder. Audio tapes were transcribed by a professional transcriptionist and checked for accuracy by the researcher.

3.9 Data Analysis

Diary and interview analysis followed a grounded theory approach. Analysis of the diaries began as each one was completed. The process of "generating, developing, and verifying concepts" (p.57) outlined by Corbin and Strauss (2008), as well as by Charmaz (2006), was used to closely analyse the text and discover and group concepts related to the decision making process of participants. As additional diaries were completed, the information gained from the earlier data was used to refine concepts and discover new ones. Charmaz (2006) notes that coding "means categorizing segments of data with a short name that simultaneously summarizes and accounts for each piece of data. Your codes show how you select, separate, and sort data to begin an analytic accounting of them" (p. 43). An open coding approach was used, done on a printed copy of the diary and interview transcripts, and later transferred into the software program, *NVivo*.

As interviewing began, the same process was carried out. It was not always possible to analyze the interview data immediately or before conducting another interview, due to certain periods of time where several interviews occurred in close proximity to one another, and due to other commitments. However, an attempt was made to have transcripts of the interviews completed as soon as possible, and initial coding began as other interviews were still being scheduled. The interview text further supplemented what was found in the participant's diary entries, and also revealed new concepts. Upon engaging with the data, concepts begin to emerge that revealed academic librarians' approaches to decision making and their attitudes toward using evidence in aiding their decision making.

The coding process began as a very open one, identifying the concepts that were conveyed by the first participants. General questions were asked by the researcher

when reviewing the data, such as what was the participant doing? What were his/her actions in making a decision? What sources of information was the participant drawing on when they were making a decision? What was his/her attitude? The researcher kept a very open mind and simply tried to note what participants were conveying. The first diaries and interviews to be completed were coded according to the actions that the participant had conveyed. Examples of this include “looking at facts”, “searching for information”, “seeking evidence to be prepared for a project” and “checking against what others do”. If participants provided examples of evidence sources used, those were coded at a very specific level such as “usage stats”, “brochure” or “reviews”, for example.

Constant comparison was used as the main approach to analysing the data. With each new diary or interview transcript, the researcher worked through this process whereby that data was coded and checked against earlier data sources in order to compare concepts across the data and determine similarities and differences. After a number of interviews, larger concepts began to emerge, and with subsequent participants, the researcher began to delve deeper into those concepts in order to obtain richer information. For example, after the first few interviews, the concept of decision making in groups was noticed as a common theme, and the researcher began to explore more closely how participants made decisions in group environments versus when they made solo decisions. It became clear that group decision making was common and significant for academic librarians, and the researcher wanted to learn how this influenced the librarians’ actual use of evidence sources. Hence, interviews began to introduce concepts that arose from the diaries and the data in general, to see if it also applied for subsequent participants, or if those arising concepts were anomalies. As new concepts were revealed, the researcher also looked back at earlier transcripts to determine if new concepts could be verified or contradicted in the existing data.

As patterns emerged in the data, concepts that were originally coded very specifically, such as “lack of support” or “poor communication” were grouped into broader codes that covered a topic into which those concepts could be grouped. In this example, that code was “organisational dynamics” which fell under the broad category of “obstacles”. This process involved much interaction with the data,

checking for concepts and understanding the context in which they arose. As coding progressed, many questions arose prior to any clarity, and concepts were tested against the data by continual re-examination of the data for the presence or absence of a concept.

Focused coding of concepts was also used. For example, when it became clear that there were different levels of decision making and control occurring in relation to the librarians' decision making, the data was systematically reviewed in order to focus on that concept. In this example, the researcher asked herself, for the decision being made, who has the final decision making control? Is it the librarian working on this problem, or someone else? As a result of this focused coding, several different levels of decision making control were discovered, including "full control of decision", "decision must be approved by someone else", "decision made by a group" and "decision will be made by someone else". Such concepts could then be looked at in the context of the participants' attitude toward the decision making, and their comments about the work environment in relation to the decision making. This provided a full picture of a theoretical concept across many individual situations, which led to the emergence of the core concept of convincing.

All data was entered into the software program *NVivo 9.0*, which was used to assist with the management of data analysis. By the 16th interview, the point of saturation had been reached. Saturation is the point at which "theoretical work (like applying a category) routinely involves seeing the same thing. Where an instance of a particular code comprises nothing new in the form of properties but simply reaffirms what is already known" (Gibson & Brown, 2009, p. 29). Despite having reached saturation, the final three interviews were still conducted because they were already scheduled and the diaries completed for those participants. However, with those final participants, the data did not provide anything new, but it did reaffirm what was already found.

Throughout the data gathering and analysis, memo-writing was used to keep a reflective record of how the data collection and analysis were approached, as well as the researcher's thoughts during varying points in the process (Appendix H).

> Memo writing (a) engages researchers with their data and emerging comparative analyses, (b) helps them to identify analytic gaps, (c) provides material for sections of papers and chapters, and (d) encourages researchers to record and develop their ideas at each stage of the research process. (Charmaz & Bryant, 2008, par. 8)

The memo writing process provided an opportunity to write down thoughts, reflect following the coding of a diary or an interview, sketch out potential theoretical points and the reasoning behind them, and it provided a basis of thought which grew out of the data and could be further verified against future data. Within the memoing process initial thoughts about the data were pieced together, and the researcher began to make sense of what was happening. The questions posed during reflection upon the data collected up to a certain point in time prompted the researcher to ask questions that would fill in gaps and complete the theoretical picture.

3.10 Rigour

In qualitative research, there are several strategies that a researcher can undertake in order to ensure the quality of the research. What a researcher does to ensure rigour for a qualitative study will be different from approaches used in quantitative research, however he or she is still verifying the reliability and validity of the study. Many qualitative researchers choose to use language other than validity and reliability, opting instead to use the term trustworthiness, which was brought into common usage by Lincoln and Guba in 1985. Not all researchers agree with changing the language of rigour however. Morse, Barrett, Mayan, Olson, and Spiers (2002) argue that the terminology of rigour is important to maintain in qualitative research. They detail verification strategies that should be part of the qualitative research process, including investigator responsiveness, appropriate sampling, methodological coherence, and saturation. Such strategies, “when used appropriately, force the researcher to correct both the direction of the analysis and the development of the study as necessary, thus ensuring reliability and validity of the completed project” (p.17).

The following are key verification strategies taken from Morse et al, with brief summary of what each entails:

1) Ensuring methodological coherence – congruence between the research question and the components of the method. The interdependence of qualitative research demands that the question match the method, which matches the data and the analytic procedures.
2) The sample must be appropriate – consisting of participants who best represent or have knowledge of the research topic. This ensures efficient and effective saturation of categories, with optimal quality data and minimum dross.
3) Collecting and analyzing data concurrently – forms a mutual interaction between what is known and what one needs to know. This pacing and the iterative interaction between data and analysis (as discussed earlier) is the essence of attaining reliability and validity.
4) Thinking theoretically – Ideas emerging from data are reconfirmed in new data; this gives rise to new ideas that, in turn, must be verified in data already collected. Thinking theoretically requires macro-micro perspectives, inching forward without making cognitive leaps, constantly checking and rechecking, and building a solid foundation.
5) Theory development - to move with deliberation between a micro perspective of the data and a macro conceptual/theoretical understanding. In this way, theory is developed through two mechanisms: (1) as an outcome of the research process, rather than being adopted as a framework to move the analysis along; and (2) as a template for comparison and further development of the theory. Valid theories are well developed and informed, they are comprehensive, logical, parsimonious, and consistent. (2002, p. 18-19)

Like Morse et al., the researcher chose to embrace the terminology of rigour. As such, the following details how the study was both reliable and valid.

Ensuring methodological coherence - Before beginning the research, many different methodological approaches were considered. As noted at the beginning of this chapter, the researcher wanted to learn how and why academic librarians use evidence in their decision making, and approached the research from a pragmatic viewpoint. Grounded theory was chosen as the methodology because it fits very well with pragmatism. The researcher wanted to base the research on what was important to the academic librarians who were participants, and learn from these

participants, keeping an open mind. This in turn led the researcher to use diaries and interviews as the methods of data collection because these methods fit very well with what the researcher was trying to understand. The diaries enabled participants to contribute actual decision making situations that they encountered during the diary keeping period, allowing them to tell the story in their own words. The interviews followed up on the data obtained from the diaries, allowing the researcher to obtain a deeper understanding of what happened in each situation described. This allowed for rich data to be obtained. In detailing the results it was ensured that each participant was included with quotes using their own words.

The sample must be appropriate - a purposeful sample was used to obtain data. Participants were academic librarians who had some interest in incorporating evidence into their decision making. They were able to provide real-life scenarios of their decision making, captured close to the time in which those incidents occurred. The participants shared information openly. As the last few participants were interviewed, saturation of the data was apparent, as nothing new was emerging, despite including participants with varied years of work experience and those who worked in different academic librarian roles. Negative cases were found as part of the process, and were incorporated into theory building. The research therefore fairly represented different viewpoints.

Collecting and analyzing data concurrently – From the start, data gathering and analysis took on an iterative form. Once a diary was completed, it was coded and questions arising from the diary entries were noted. The nature of the interview questions was largely derived from what each participant wrote in his or her diary. Hence the interviews built upon what was already noted in the diaries. With each successive diary and interview, concepts began to emerge that could then be follow-up on with future participants in order to tell a more complete story at the theoretical level. Memos were used to capture the researcher's thoughts and any emerging concepts, and the researcher probed deeper on those concepts with the interviews that followed, while at the same time remaining open to any new concepts that were emerging from subsequent diaries, or that were brought up by participants in the interviews. The nature of this concurrent data collection and analysis allowed for confirmation of the concepts that were emerging from the data and allowed the

researcher to probe deeper in areas where questions remained. By the end of the data collection, the researcher felt confident that a complete picture had emerged of what was happening with respect to academic librarians' use of evidence for their decision making.

Thinking theoretically –Constant comparison was used in the data collection. As concepts emerged they were reconfirmed with subsequent data. When new concepts later emerged, they were checked against the earlier data as well as later data. The data was coded at a very granular level. Codes were later grouped into categories that related to specific actions taken, or types of evidence used, for example. How these aspects fit together through checking and rechecking, allowed the researcher to piece together theoretical concepts and how they work together. Please see Appendix G for the coding structure.

Theory development – Each participant's data told his or her own story. But from a researcher's point of view, within a careful listening and reading, and examination of the data at a micro level, similarities and differences between each of the participants' stories could be detected. The researcher was therefore able to create theory of what was happening with the general concept of evidence use among academic librarians. The research outcomes, as detailed in the findings chapters, are a template that can be used by future researchers to both verify what was found in this study, and compare against other work environments beyond academic libraries. The research therefore has ontological and educative authenticity (Guba & Lincoln, 1989) in that the research should assist, at the very least, Canadian academic librarians appreciate each other's perspective, and enhance understanding of evidence based practice.

There are several approaches to the quality criteria for evaluating qualitative research, and there is growing emphasis on a reflexive stance, although the exact meaning and implementation of this varies. This research did involve a considerable amount of philosophical self-reflection, given the researcher's dual stance as an academic librarian, and researcher. The constant comparison approach to the data analysis in conjunction with the use of memoing performed the function of that self-reflection.

3.11 Chapter conclusion

This chapter has provided an overview of the methodological approach to the research, and the detail of the methods used. It provided an explanation of why grounded theory methodology was chosen, and why grounded theory was most appropriate to answer the research questions. This was confirmed in the empirical research as the online diaries and semi-structured interviews provided rich data and theoretical saturation was reached at the 16th (out of 19) participant. The sampling was purposive, and a wide range of settings and expertise is present. The range of opinions expressed by participants suggests that the research was conducted fairly, and that the findings should be credible. Given the researcher's dual stance as researcher and academic librarian, the data analysis was a concern for the rigour of the research, but the constant comparison method was successful, and the qualitative software package used helped to document the progression of the theory development.

Chapter 4: Findings: Evidence Sources

4.1 Introduction

This chapter is the first of three that detail the research findings. The findings chapters will focus on the research itself, followed by a discussion chapter that will link the findings back to the existing literature, as well as explore the implications of these findings.

This chapter describes the main evidence sources used by academic librarians, and explores the reasons these sources are used. It also examines how academic librarians view different sources of evidence, and the differences between what is used in practice and what is conceptually considered to be evidence. The sources of evidence that academic librarians use is an important basis for this research study, particularly in addressing what constitutes evidence for this group of practitioners, and why these sources of evidence are important. Using participant excerpts to illustrate key points, this chapter will outline the categories of evidence that emerged from the data.

4.2 What is evidence?

As was noted in the literature review in Chapter 2, the evidence based practice (EBP) movement focuses on research as the primary source of evidence. EBP has produced many tools for practitioners, to assist them with critical appraisal of research evidence and determining the strength of the research evidence. While professional knowledge and patient/user preferences are accounted for in the definition of EBP, the focus within the model has been on research evidence. There has been criticism that the EBP model does not account for other forms of knowledge that are a vital part of professional practice. In this chapter, the concept of evidence and what counts as evidence for academic librarians is explored, based on the information provided by participants with respect to their actual decision making in practice.

4.2.1 The concept of evidence

While the interviews in this study were semi-structured with a focus on following-up on situations that participants had raised in their blog diaries, towards the end of each interview participants were asked a direct question about what they considered to be evidence. For the most part, participants had a very broad view of evidence when asked to ponder this question in general terms. Most, however, were initially a bit taken aback by the question, often noting that they had not thought about what evidence was before, or admitting that it was "a difficult question". One person even noted, "*I feel like I am about to pass or fail at evidence, definitely*" (Librarian 11), and another stated "*I'm clueless how to speak evidence*" (Librarian 13). This slight discomfort may have been due to the conceptual nature of the question, and the fact that participants likely knew of the researcher's involvement with evidence based practice, and that the researcher had written and spoken on this topic in the past. If such reservations were expressed, the researcher assured participants that there were no wrong answers and that she was trying to learn more about what evidence is for academic librarians, that it was not an easy question, and that they could take their time to think about it. At no time did the researcher feel that participants were reluctant to answer, and everyone contributed their thoughts about what evidence was for them, with the exception of one participant whose interview was cut short due to a time constraint.

Other than one person, everyone who responded to the question about what they considered to be evidence was very open to the possibility of what evidence could be within librarianship. Responses that exemplify this outlook include "*there are lots of things that are evidence*" (Librarian 10) or, "*I consider every information source to be evidence*" (Librarian 14). Most participants named several sources of evidence, and usually put those in context. For example, different evidence sources depending upon the type of problem faced.

Everyone noted research literature, or simply 'literature' as evidence, often couching this source in terms such as "*obviously*" or "*of course*". However, there were some caveats put on the inclusion of published literature, due to participants' discomfort with the quality and relevance of literature they have found in the past. This is exemplified by Librarian 10 who says that "*Obviously research is another kind of*

evidence although it is not totally implacable." Librarian 3 provides more detail on this point:

> *I find the library literature, of course, is a little disappointing in respect to the quality of the evidence. So, I think the nature of the library literature itself has made me lower the bar. So, what I would regard as evidence, you know, good quality evidence, in a medical setting is much higher quality than what I would regard as evidence in the library world, and that's just out of necessity.* (Librarian 3, interview)

Another concept that was mentioned very frequently as evidence was looking at what other libraries do. Sometimes this comes from the literature in the form of descriptive articles about what a particular library did (the "how I did it good" type of articles), while other times this comes from examining other libraries' websites or catalogues, speaking with librarians at other institutions, or hearing about what another library did via a conference presentation or an electronic mailing list. This type of evidence provides ideas and insights relating to a problem that a librarian may be working on. As Librarian 20 noted:

> *I do find that hearing the experience of other librarians, getting some of their ideas - maybe it's not what you would term hardcore evidence, but I do find that that really just generates ideas, better ways of doing things or more interesting things, and they are based on people's experience with teaching, and I really do like thinking of scenarios; that is important to me, and I want to do a good job with it and I want the students to be engaged and interested and not bored. So yes, that type of information is useful.* (Librarian 20, interview)

What other librarians do also provides a starting point and guidance when approaching a problem one has not encountered before, or when trying something new. There is a reassurance in knowing how a service worked at another institution, particularly peer sized institutions that have similar populations. Such insights may not be published in the literature, or if they are, may be too vague. Speaking with other librarians about what they did in a particular situation is more inspiring and seems to be easier to relate to than the literature. It also provides the level of detail that the inquiring librarian needs, as he or she can ask specific questions. Librarian 7 states:

> *It kind of almost reinvigorates you and when you get outside of your own work space and talk to other people and learn what they're doing, it kind of inspires you to go on and try something new if you haven't tried that before, or if you talk to people about stuff that they tried that didn't work, it inspires you to trust*

> *that that might be your own idea and just say "oh well, you know what? If it fails, it fails.* (Librarian 7, interview)

Another area mentioned by participants when asked to discuss what they thought of as evidence, was data, or what is commonly referred to as statistics. Keeping statistics on reference transactions, circulation of books, usage of electronic journals, interlibrary loan requests, and so on, is very common in libraries; hence it is not surprising that academic librarians are looking to those sources as evidence to help with their decision making. As Librarian 11 points out:

> *I think my gut reaction is that I want numbers of things. I want quantitative information. I want numbers of transactions, numbers of uses, and so on. I think that's probably a fairly shallow interpretation of evidence, but that's the kind I like.* (Librarian 11, interview)

While most people mentioned data or statistics as evidence, one person pointedly stated that she did not consider it as evidence: "*I had someone who's just really trying to push and say that data is evidence and I don't think data is. I think data is one of the lowest levels of evidence*" (Librarian 13, interview). Librarian 13 was an exception in that she was quite certain in her conviction of what evidence was, namely the research literature. She also noted that "*I think there are a lot of people who pretend to use evidence but they only use their experience. Someone I work with decides things on her gut feeling, and this makes me cringe*." (Librarian 13, interview)

While Librarian 13 was the only one who was adverse to statistics data being an evidence source, others were also somewhat cautious about its inclusion. Participants often qualified statements by noting that there were problems with this type of evidence, and that it could not simply be looked at it in isolation. For example, Librarian 16 says:

> *The first reaction is hard numbers like circulation and visiting staff and web traffic counts and patterns of activity at the reference desk, those sorts of things. Knowing the problems that go along with all those kinds of measurements, right?* (Librarian 16, interview)

Likewise, a comment by Librarian 17 illustrates the general feeling about statistics:

> *If you look at statistics, I consider that to be evidence. Often I will only go so far as to say it's indicators only, because I'm never comfortable in saying that this is hard, factual data that we can rely on.* (Librarian 17, interview)

There was a general feeling that data/statistics are useful but should also be put together with other types of evidence to provide a better picture.

Very often, librarians referred to the need to look at many types of evidence, particularly depending upon the situation. This is exemplified by Librarians 6 and 14, who state:

> *For bigger things, more complex things, I don't usually like to move forward without collecting evidence of some sort from a variety of sources.* (Librarian 6, interview)

> *I consider every information source to be evidence. And I guess I mean that in the very broadest category, so it could be someone's opinion or it could be a report. I feel confident in my ability to judge whether evidence is credible or not. So, I think I would look at everything. I wouldn't discount anything.* (Librarian 14, interview)

In keeping with the wide breadth of sources that could be evidence, other sources mentioned that were not already discussed above include anything that is observable, the librarian's own experience, knowledge of the subject area, other people's experiences, people's opinions, conversations with people, factual information, local research (such as surveys, focus groups, *LibQual*+®[2], teaching evaluations, etc), feedback from faculty and students, policy documents, anecdotal evidence, employee documents such as performance reviews, information on the Web, what has been done in the past, guidelines, and expert opinion.

Regardless of whether they felt certain that some sources really were "evidence" or not, participants did mention experience, opinion, and anecdote. These seem to fall into a grey area, as most people who mentioned them did not feel absolutely comfortable or certain that they were evidence sources. One person was very certain that they were not, and another that they were. But most were fuzzy about these sources, acknowledging that they were used, but uncertain about whether they could or should be considered evidence.

[2] *LibQual*+® is a survey tool provided by the Association of Research Libraries (ARL) to measure service quality based on user opinion. For more information, see: http://www.libqual.org

In summary, academic librarians generally have a very wide view of evidence, while at the same time, they are for the most part unsure of what evidence actually comprises. This view of evidence goes beyond what is noted as evidence in the EBLIP model, namely research. Participants considered evidence carefully and were willing to take into account whatever sources would help them with a decision. They consciously weighed evidence in an effort to make good decisions with the evidence they had. For this, they relied on their own professional judgment and knowledge of what was most important in a particular situation.

4.2.2 Types of evidence actually used

During the period that they kept their blog diaries, participants noted questions or problems that arose in their practice. It is worth noting that no participants wrote their questions or problems in the format of PICO or SPICE that has been advocated by the EBLIP model. Participants noted what, if anything, they did to make a decision or move forward with that particular issue. They usually referred to evidence sources that they drew upon, as well as the process they implemented to come to their decision. None of the participants referred to the librarianship domains which were created to provide guidance on sources to search for research evidence. Some participants were more prolific and reflective in their blog entries than others. However, all blogs provided enough information to prompt further discussion during the interview, on topics that participants had raised in the blog. This allowed for follow-up on what sources of evidence were used in resolving the problem or question. Most participants discussed between three to four different professional decision scenarios.

Actual evidence sources used were numerous and detailed. In order to best convey this information, the evidence sources have been grouped into two main types, and within those types there are a total of nine main categories of evidence. These are listed in Table 4.1, and are individually discussed below.

The evidence sources that academic librarians use fall into two broad groups, hard evidence and soft evidence. Hard evidence sources are types of evidence that are usually more scientific in nature. They may focus on numbers, or are tied to a traditional publishing model. Sources are usually quantitative in nature, although

Table 4.1. Sources of evidence used by academic librarians

Evidence Source	Definition	Examples
Hard Evidence		
Published literature	Scholarly publications that have been vetted via a publication process	Journal articles (research and non-research), books, databases, conference papers, etc
Statistics	Data pertaining to the use of a particular product or service	Usage statistics, reference statistics, circulation statistics, etc.
Local research and evaluation	The evaluation and assessment of services	Course evaluations, surveys, focus groups, etc.
Other documents	Non-scholarly publications that provide information about a service, event or person	Policies, web pages, blogs, course materials
Facts	Things that the majority of people agree to be true or to have really happened	Cost of a product, date of a publication
Soft Evidence		
Input from colleagues	Going to colleagues to ask their advice, feedback, or for information about a program or service that they may know about	Discussions, feedback, brainstorming, conference presentations
Tacit knowledge	Knowledge that is embodied by an individual and difficult to transfer to another person	Experience, intuition, “common sense”
Feedback from users	Individual feedback received from users on products or services	Comments, discussions, email
Anecdotal evidence	“information obtained from personal accounts, examples, and observations. Usually not considered scientifically valid but may indicate areas for further investigation and research”.(Jonas, 2005)	Stories, observation

qualitative research and non-research publications also fall into this category. Ultimately, there is some written, concrete information tied to this type of evidence. A librarian can point to it and easily share it with colleagues. It is often vetted though an outside body (publisher or institution), and adheres to some set of rules. As noted in the table below, these types of evidence include the published literature (research

and non-research articles), facts, documents, statistics and data, as well as local research and evaluation projects that are documented. These sources are generally acknowledged as acceptable sources of evidence, and are what a librarian would normally think of as evidence in library and information studies.

The other type of evidence can be thought of as “soft” evidence. As opposed to the “hard” evidence, soft sources of evidence are non-scientific. They focus on experience and accumulated knowledge, opinion, instinct, and what other libraries or librarians do. This type of evidence focuses on a story, and how details fit into a particular context. Soft evidence provides a real-life connection, insights, new ideas, and inspiration. As is noted in Table 1, such types of evidence include input from colleagues, tacit knowledge, individual feedback from users, and anecdotal evidence. These types of evidence are more informal and generally not seen as deserving of the label evidence, although they are used by academic librarians in their decision making.

Hard evidence sources

Published literature

A main source of evidence consulted by academic librarians is the published literature, although many participants were quick to point out that they should consult the literature more frequently. As Librarian 10 put it, “*I guess I would like to use the literature more than I do*.” This shows that academic librarians do value the research literature and are not rejecting it out of hand. Lack of use may be prompted by a lack of time, irrelevance, or necessity to act quickly. The statement above may also illustrate some guilt about not using the literature themselves, when in their practice they are advising faculty and students to do so.

The published literature includes journal articles from both LIS journals as well as non-LIS journals, and can include both research articles and non-research articles, quantitative and qualitative studies. It also includes books, databases, guidelines, bibliographies, and any other similar source that has been published. Participants noted that the literature provides them with a wider context, background information, and theoretical models. It also reinforces certain principles, and reassures them of

what they are doing. As the following comments illustrate, the literature reassures that one is on the right track:

> *I tell myself, it's library instruction, how much variety can there be? That's also what I want to make sure of. So, before I go any further, I'm going to consult the research literature...I'm thinking maybe how-to articles rather than in-depth research studies would be helpful for me at this point.* (Librarian 8, diary)

> *So, the lit search, I think it was useful, at least in terms of giving me confidence that I wasn't overlooking anything major. That the stuff I had figured out was about right.* (Librarian 1, interview)

The literature is rarely consulted in isolation. It is looked upon as just one piece of evidence in a decision and is often used for background information gathering when one is faced with a new problem. However, the literature does not always offer sufficient answers. The literature is the first place to look for some people, but not for others. Librarians seem to find the literature somewhat useful, but at the same time, disappointing. They wish that the quality of the library literature was higher and that it was more relevant to their practice. Sometimes, they do not find anything in the literature, or what they do find is not useful; however, no participant had given up on the literature completely. For some topics, such as new technology or current trends, they may look elsewhere, in sources such as blogs, news on websites, or via social media. As Librarian 16 points out:

> *I think what I'm getting from the library literature is where I'm finding evidence about effectiveness and uptake. Like, if there was an article about x number of ARLs are using Twitter on the reference desk, that's the sort of thing I would seem to be finding in the literature, whereas in blogs and microblogs it's more about 'here's what to do and how to do it'. That's where I'm getting practical information.* (Librarian 16, interview)

Several librarians pointed out that they use the literature much more in conjunction with their own research interests rather than with their daily decision making. Sometimes the literature is looked to in order to stay current on a particular topic, but more often the literature is turned to when librarians are starting new projects or want to get background information about a particular topic that they may be investigating. As Librarian 2 points out:

> *When I tend to turn to the literature more is when I'm considering new projects or if I'm looking to refresh, or....a more constant one is the information literacy stuff, because that one's still a real anxiety for me and so I'm trying to keep abreast of how people are approaching it.* (Librarian 2, interview)

There are often problems with the literature – it's too specific, not specific enough; there are a lack of strong studies; it's not relevant – hence, librarians consult other sources in conjunction with the literature. Often, they just don't find concrete answers in the literature, which can cause them to abandon the literature. Librarian 8 provided the following reflection on her use of the literature for a project she was assigned:

> *I think I was looking to the evidence to give me an answer. Do this model because of these reasons. But, I mean, that was pretty unrealistic now that I think about it. But it did help me to see the larger context.* (Librarian 8 interview)

Understanding the bigger picture or the context of a specific topic is something that librarians appreciate gaining from the literature. If they want specific answers for their particular problem or issue, they are unlikely to find them in the literature, although the literature will provide good overviews of the issues. Throughout this study no one ever referenced a source from the literature that they were able to directly apply in their own practice. For general questions such as Librarian 7's query about space requirements for collections, the literature may be one of the best sources to find that type of background information:

> *I did a literature search and I found a great article about estimating the size of your collection and how much growth was needed and all that kind of stuff. So that was nice because there was no way I was going to find out from our users you know, how much space I needed for our collection.* (Librarian 7, interview)

In conclusion, the literature is a source that is constantly turned to and is regarded as an obvious evidence source. It is valued, but academic librarians acknowledge its limitations, and do not use the literature in isolation. The literature provides good background information, examples, and theoretical models, but rarely provides specific answers to the questions that practitioners have. Hence, literature is combined with other evidence sources in order to make a decision.

Statistics

Data in the form of library statistics is a very common source of evidence among academic librarians. Participants frequently mentioned usage data, circulation statistics, reference statistics, interlibrary loan data, room bookings, and web usage

data. This type of evidence is most common when problems arise relating to collection management, and also reference services. It was generally felt that such statistics provide an overall picture of the general situation as it pertains to use of a particular collection or service. For example, in comparing journals in a particular field, usage statistics would be looked at in order to determine which journals are being most heavily used by faculty and students. This would be considered very strong evidence when faced with decisions about possible cancellations, for example. As Librarian 8 comments, "*I can't quite think of a way to assess a resource without usage statistics*" (Librarian 8, diary). Echoing this, Librarian 5 notes, "*From my perspective, I need to be able to support positions for or against purchases, cancellations, etc. I tend to base these on usage stats and acknowledge this*" (Librarian 5, diary).

However, while participants used this type of evidence in their decision making and were frustrated if it was not easily available, they also pointed out that such information could not be used in isolation since there are limitations to relying on such data. As Librarian 10 points out, "*I think that circ stats are important to look at but I recognise that they do have limitations*" (Librarian 10, diary). Participants emphasized that data and statistics were only one part of the story, and that context and other forms of evidence were also required before making a final decision. Librarian 11's comments provide a good sense of the overall feeling of the participants:

> *Although I value this information and its importance in making such decisions, I am at a loss for making cancellation recommendations for my discipline. A few things factor into this – one is my general scepticism of the accuracy and consistency of these figures across databases and vendors (is a hit in X measured in exactly the same way is in Y, for example). Another is the fact that despite their per-use cost, there are some items that a university simply cannot be without. [...] Quantitative evidence must not be considered in a vacuum.* (Librarian 11, diary)

While librarians value statistics and want to consider statistics in decision making, they are also sceptical and do not want to make decisions solely based on this type of information. Librarian 12 approaches statistics as one tool in helping him see the overall picture, when he is making discard decisions. Rather than just discarding

based solely on the lack of circulation, he takes these figures and puts them in the context of the overall collection.

> *A more evidenced approach would be, then, if it's from the circulating collection, you can look at the circulation statistics. You can look at the collection as a whole. How is this object positioned within the rest of the collection? Do we have twenty other books on the topic, or one or two?* (Librarian 12, interview)

As with this example, the general approach to the use of statistics by academic librarians is one of balance and caution. Academic librarians want statistics; want to see the numbers regarding use; but know that there is likely more to the story than simply what these figures show.

Local research and evaluation

Academic librarians frequently incorporate evaluation and assessment of services into their work. Many also take on research projects that are connected in some way to the work they do. While empirical research projects may be more scientifically rigorous, they are not as frequent as the evaluation of projects or teaching. Such evaluation may not always be very rigorous, yet this is a source that academic librarians find useful in the ongoing improvement of their services. For example, when referring to instruction decisions, Librarian 7 states: "*I find, probably, evaluations are the most – the best evidence that we have*" (Librarian 7, interview).

As with the other sources, not everyone is in agreement regarding their value. For example, the well used *LibQual*+® survey, was mentioned frequently by participants, often in a positive light, as a source that they can look to in order to better understand the strengths and weaknesses of their services. However, it was also a source that some felt was not as useful as they wish it was. As Librarian 16 points out,

> *Another form of evidence I would consider would be surveys, things like LibQual for example. And I'm weary of that as well. There are problems with that instrument but at the same time it's what we've got.* (Librarian 16, interview)

Sources that fall into this category include total market surveys such as *LibQual*+®*,* University surveys that include the library, time audits to measure workload, staff surveys to generate feedback on workload, in-house surveys, testing how something

works, evaluation of instruction, SWOT analysis, workplace climate survey, individual research projects, pre- and post- assessment instruction surveys, and web usability testing.

Such tools are useful to academic librarians who want input from the community they serve, or also from the staff that work at an institution. When decisions potentially impact staff, librarians may survey that group as a way to gather their wide input in a more systematic way, rather than just anecdote. This was the case with Librarian 11, who says:

> *We administered a survey to staff which yielded some helpful qualitative evidence with respect to how staff members view a variety of issues within the area and how they might be improved. Opinions we suspected might be held broadly by staff members ended up not to be, and vice versa, which has helped to crystallize some of the planning initiatives we had in mind.* (Librarian 11, diary)

More often, however, librarians are focused on better understanding users' perspectives. When reflecting on an internal staff planning exercise, Librarian 17 notes:

> *As we worked through the activity, I found myself 'analyzing' the process and reflecting on the kind of data or 'evidence' we were compiling. It represented the collective perceptions of staff about our department, how we worked, what we considered to be our strengths, weaknesses etc and therefore very subjective in nature. While this is useful information it clearly needs to be balanced by the perceptions of our clients.* (Librarian 17, diary)

Likewise, Librarian 8 had looked to the literature and discussed a reference project with her colleagues, but still did not feel that she had all the evidence required to make her decision. She concludes, "*I'm convinced that I need to hear the voices of actual users. So, I've planned to undertake 3 focus groups next week*" (Librarian 8, diary).

This type of information that is gained from evaluation, assessment and local research will often impact future services, such as the revision of content taught in an instruction session, or the targeting of services to meet specific needs. Librarian 20 had conducted a research project in relation to her liaison and teaching area, and then used what she learned from that project to adjust what and how she was teaching students:

> *I had also based some of this talk on the research project that I did with nursing students. After interviewing 11 students after they completed their research project, I discovered that the biggest challenge they faced was coming up with words and or phrases that would yield results in CINAHL for them. I spent some time in this lecture talking about the ways to address this problem.* (Librarian 20, diary)

Other documents

This category includes non-scholarly sources such as job postings, position descriptions, brochures, mandate documents, safety standards, webinars, collection policies, library policies, websites (particularly those of other libraries), Library of Congress classification, collective agreements, CVs, internal procedure documents, past internal review documents, blogs, Twitter, reports from other institutions, workplace standards, newsletters, journal/publisher information on websites, and consultants' reports. These types of documents are not scholarly or research based, but they provide pertinent information that may be useful in making decisions. For example, when dealing with hiring scenarios, looking at the position description is important prior to determining interview questions or sifting through resumes.

> *I read the Collective Agreement[3] to see what the criteria were. I then reviewed all of the files provided, reflected on my own interactions with the candidate and summarized my notes for the meeting*. (Librarian 15, diary)

Policy and procedure documents will guide librarian decisions so that they conform to the overall mission of the institution: "*is the decision consistent with our policies and procedures?*" (Librarian 2, diary).

Publisher websites provide concrete information for those in collections or acquisitions, confirming information about publications:

> *From this step [consulting the publisher's website], I learned/it was confirmed: no electronic access, no open access, no hints about the next issue, publication delays, or cessation of publication, a few more details about the focus of the publications – very narrow, very specific, one publication supports some teaching areas, the other publication does not support teaching/research.* (Librarian 6, diary)

[3] A collective agreement is a negotiated agreement between the employer and a group of employees which sets out terms and conditions of employment.

Blogs, tweets, and various web site postings provide up-to-date information on current technology or techniques that other librarians use, providing the evidence of "what others do". Librarian 20 and Librarian 8 exemplify this use:

> *One of the crucial things that came out of the IASSIST conference for me was Twitter. I'd been resisting using it, but finally gave in when I saw the quality of posts coming from people using the conference hashtag on Twitter. Since being friended by some of the more prolific Tweeters at the conference, I've found Twitter to be really useful in keeping up with the latest news and tech from the data world. I've been checking it religiously every day and found out about a number of useful resources this way.* (Librarian 20, diary)

> *I found a tutorial page from Queen's University Library that dealt in quite good detail with website evaluation. I found two key sections that I poached for my PowerPoint slides. I cited these using the link, and I pointed out to the students that the link was on their handouts and that they could visit the Queen's site for more information. I had found authoritative information that jived with what I vaguely remembered from library school, so I went with it.* (Librarian 8, diary)

Overall, this category of evidence is a broad one, ranging from the official publications of a university, those documents that are "on the fly" as pointers or tidbits of information, from sources such as Twitter. Despite this, all these types of "other documents" are a source that librarians draw upon, and will be relevant depending upon the situation.

Facts

Facts are things that the majority of people, if not all, agree to be true and to have really happened. In academic librarianship, sources that can be placed in this category include the cost of products, physical condition of material, citation/publication info, what items are in the catalogue, license terms, the amount of physical space available, and hours of operation. Facts are generally not disputed, although they may occasionally be. Academic librarians use facts in their decision making in order to place certain realities around the decision, or to verify details before making a decision. For example, if there is $10,000 in the budget to spend on something new, but a resource costs $15,000, the fact of the budgeted amount in conjunction with the cost of the project may alone drive the decision (unless one or both are negotiable). Another example would be the physical condition of a book being considered for discard: "*I pulled several books based on condition, age and*

appropriateness" (Librarian 10, diary). Or, when deciding when to keep or cancel a subscription:

> *Checking the catalogue record confirmed: we have only a couple of issues of either publication – with so few issues, I questioned the usefulness of having the in the collection at all; they are not available electronically, they are not indexed, one of the titles appears to be the continuation of another title – which we do not have.* (Librarian 6, diary)

Soft evidence sources

Input from colleagues

Going to colleagues to ask their advice, feedback, or for information about a program or service that they may know about, is a very common source of evidence for academic librarians. Almost all participants mentioned that they do this as a part of their decision making, whether they conceptually consider it to be evidence or not. 'Colleagues' were generally considered to be other librarians, but could sometimes be non-librarians that a librarian works with. Getting input from colleagues, both from within an institution, and from other institutions, provides academic librarians with a way to learn from others who have more experience in a particular area. It also confirms that one is headed in the right direction and that there will be support for what one does. This type of interaction combines the evidence of experience and knowledge with factors relating to the politics of the institution. It gives the librarian a sense of what other librarians do, and becomes a confirming experience. For many, it is also a way to obtain different viewpoints from one's own, ensuring that the full picture is being considered.

Ways of gaining such input from colleagues include one-on-one conversations, attending conference presentations, asking someone to critique teaching or writing, networking at group events including conferences, corresponding via email or phone, and getting informal feedback from a number of people. This is usually done in conjunction with other forms of evidence (hard sources), but this type of input is considered very valuable for providing insights and knowledge that cannot be gained from the more concrete sources of evidence. Hence, combining what is found in the literature, or what statistics show, with the professional experience of colleagues,

puts other sources of evidence in context, provides insight, and flags any potential problems.

Colleagues from within the same organisation are often a first point of contact:

> *I think I tend to go to colleagues first and part of that is some of the things are the institutional culture [...] I also have colleagues who have been here a while that I really respect their opinions on things, so I think I tend to go to them first. I don't know if I would say they are a bad source, but how should I be doing things?* (Librarian 10, interview)

Internal colleagues also provide a contextual view on the problem, which is particularly important if one is new to the organisation. Internal colleagues understand the specifics of the context in which the decision is being made. But external colleagues are equally, if not more important for what they provide in terms of an external viewpoint, new ideas, success stories, and different ways approaching practice. As Librarian 3 points out:

> *The other thing is to talk to other people I know, look and see what other libraries are doing by looking at the websites and follow up with a phone call if there's something that I need particular information about and there's someone I'm able to pinpoint who can at least provide some insight into what they're doing in their institution.* (Librarian 3, interview)

While most participants were comfortable asking their colleagues for advice, and acknowledged that they frequently gather input from colleagues when making decisions, some participants were less comfortable with this approach, particularly when they felt that they may be judged in some way by asking for advice or help:

> *If I have to be perfectly honest here, yes, sometimes I feel kind of embarrassed. It's just like I should know this kind of thing, especially if it's an area that I feel I should have expertise in. If it's an area where I don't have any expertise, I generally feel pretty comfortable going to somebody, but yes, I find that difficult.* (Librarian 15, interview)

Academic librarians tend to go to those they trust, and those whom they believe are knowledgeable about a particular topic. For example, Librarian 8 reflected in her diary that she wanted to approach colleagues but did so carefully:

> *I should also approach my more experienced colleagues. That's always tricky because I find that sometimes here it's not strategic to admit a lack of knowledge. So much politics in an academic library, or any workplace, I guess. Still, there are a couple of generous colleagues who will have a discussion with me, and I feel that they will be good sources of information*

> *because they have a handle on the local context as well as experience in library instruction.* (Librarian 8, diary)

Librarian 6 also stated:

> *Sometimes depending on the complexity, I'll get a sounding board and talk to somebody and say here's the evidence, here's how I want to proceed, here's how I'm going to do it. What are your thoughts? So, I go to a trusted person who's neutral or hasn't been involved with the situation.* (Librarian 6, interview)

Academic librarians will often turn to colleagues early in the process and then look to other sources of hard evidence to confirm what they are hearing from other professionals. Sometimes, however, the opinion of a colleague is the only evidence available. This is when input from other knowledgeable professionals is so important. As Librarian 4 explains:

> *I never want to sort of leave something with just my opinion. I want to see if I can find a couple of other varying opinions to inform what I'm doing. So, maybe it is evidence that informs me because at that point once there is an absence of anything that's documented, I still think it's valuable to then go and talk to peers or experts.* (Librarian 4, interview)

In summary, input from colleagues is a very common source of evidence for academic librarians. Depending upon the individual and the topic, librarians may be more or less comfortable approaching others, but they do value what both internal and external colleagues have to say and what they can learn from others.

Tacit knowledge

As was explained in the literature review (Chapter 2), tacit knowledge refers to those things people know but cannot easily explain (Polanyi, 1966). Elements of tacit knowledge, which came from the participants, include one's own professional knowledge acquired via experience and education, professional judgment, intuition, and reflection.

For academic librarians, tacit knowledge is frequently drawn upon to make decisions. Often this is done in conjunction with hard evidence, although there is not always time to be able to look to hard sources of evidence, particularly in situations that need to be resolved quickly, such as Human Resource issues. Librarian 17 refers to

the “careful thought” that was needed when preparing to interview candidates for a job:

> *I found that some careful thought about what was critical for the candidates to demonstrate in terms of the practice of professional skills, experience, subject knowledge and interpersonal skills requirements helped me formulate an appropriate topic for presentation and useful questions for interview.* (Librarian 17, diary)

In other situations, the amount of hard evidence versus soft evidence, in the form of tacit knowledge, depends upon what one already knows about a topic, and how comfortable one feels in making the decision. Librarian 2 refers to this in terms of making purchase decisions for the library’s collection:

> *Collections, you know, I don’t have time to look up every review on every book that I might select [...] I know from what people have requested in the past, or I know from working with a particular class that this is a popular topic, and that might be enough for me to select a book. So, I’m not necessarily triangulating sources for those types of decisions.* (Librarian 2, interview)

Likewise, Librarian 12 comments on the sense of intuition he has when looking at books to discard:

> *There’s a certain sense of intuition right off the bat. You can look at something, and if it is an item that simply appears to be very dated: maybe it contains factual information that’s outdated; it’s a directory or something; physically, it’s in very poor condition; it’s dog-eared; or it looks like something that was very specialized, that was purchased some time ago to meet the needs of one specific faculty member who isn’t here anymore. One tends to discard that.* (Librarian 12, interview)

It clearly emerged in this study that academic librarians bring past experiences to their decision making. Yet, tacit knowledge is not necessarily considered to be evidence by all academic librarians. However, those who see the value in it are usually more reflective and see how that type of personal evidence ties into other forms of evidence and may influence their decision making. Participants combined this type of evidence with other sources in order to strengthen and verify their decision making, but they do not discount their knowledge and experience as irrelevant. As Librarian 6 reflects in her diary:

> *Now I’m finding – as a result of more experience, confidence, knowledge, maturity – how important those initial gut reactions/instincts are and I’ve learned how to trust them and work with them and pay attention to them – however insignificant that may be. I’ve learned to bracket those instincts and*

> *look to the evidence – but in a way that is realistic and appropriate to the situation/question/issue.* (Librarian 6, diary)

Tacit knowledge is certainly used, but when thinking about evidence as a concept, academic librarians do not have any kind of consensus on whether it is evidence or not. As is noted in section 4.1 of this chapter, many see it as a lower form of evidence that provides a starting point, but which needs to be substantiated with other evidence.

Academic librarians do use tacit knowledge very heavily in their decision making. This is evident in the number of references to tacit knowledge that arose in both the diaries and interviews. What is interesting is that tacit knowledge reveals itself when participants describe how they made decisions and the sources upon which they drew, but when they are directly asked what they consider to be evidence, tacit forms of knowledge are rarely mentioned. Most academic librarians combine the tacit knowledge aspects of what they know as individual professionals with external evidence in order to make decisions. Librarian 6 is an example of working in this way:

> *at a certain point we have to recognise that we know what is right and what will work for us and so we cannot just take the details, recommendations from the articles and apply (or impose) the same models to our situation – we have to take all the information and in the end do what is right for us – for me – this means relying on our experience.* (Librarian 6, diary)

Feedback from users

Obtaining feedback from library users is something that arose in this study as a minor source of evidence. When it is more rigorous (as part of a study or planned evaluation), it can be placed in the category of local research and evaluation, which usually focuses on users of a service. However, it is included here as the individual feedback that librarians receive on products or services, whether solicited or not. Some see this as simply anecdotal, while others turn to it as a more significant form of evidence since they may want the guidance that such feedback provides.

This type of feedback is used most frequently in collections management, and also teaching/instruction activities. Faculty feedback that is related to collections is most often looked favourably upon as a source that will hold a great deal of weight in

decision making. Librarian 2 reflects upon the decision to purchase certain books in print due to feedback from faculty:

> *I have been privileging ebooks because of issues of space in our library and the proliferation of blended delivery courses. Usage statistics suggest that if a nursing ebook is linked to from a Blackboard site it will see high usage, more so than most monographs in our collection. However, I did decide to purchase titles on the teaching of nursing in print, because of feedback I received at a nursing department meeting where professors of nursing expressed their preference for that medium.* (Librarian 2, diary)

However, librarians will only look at this as one specific source of evidence, and when the decision is a larger one, take it into consideration alongside other sources, since all faculty members are going to have their own specific interests. Librarian 10 notes:

> *In some of my areas I do have people, instructors, who will tell me the kinds of things they are interested in and what they feel our collection needs, but I mean, they are looking at it from their perspective*." (Librarian 10, interview)

Student feedback is also important to academic librarians, particularly as it relates to information literacy instruction, since librarians want to ensure they are helping the students be successful. In addition to formal evaluations, the informal feedback received following an instruction session is a valuable tool for reinforcement or as an indication that something needs to change. It may result in changes being made to a presentation or style of teaching for the following session. Librarian 15 described a situation where she had a bad teaching experience, where "*they were just not into it*". The feedback of no one laughing at her jokes, and her feeling that "*the response was like nobody was there almost*" prompted her to change her instruction style for the following year's class. The next time around, she felt that the instruction session was much more successful, noting, "*I did see people looking engaged and even smiling and stuff. So it was different; just the atmosphere in the room was better. And I got good feedback from the professor as well"* (Librarian 15, interview). This feedback confirms that her changes did make a difference and were worthwhile.

Anecdotal evidence

Anecdotal evidence is "information obtained from personal accounts, examples, and observations. Usually not considered scientifically valid but may indicate areas for further investigation and research" (Jonas, 2005). Most academic librarians would

not include this in a conceptual discussion of what they consider to be evidence. However, it is a source of evidence that is often drawn upon when making decisions. As librarian 12 explains with respect to a decision about service points in the library:

> *So, the anecdotal evidence of, 'I actually stayed a whole 15 minutes or 20 minutes extra because five minutes before my shift ended, a student came with a very complex question that took a long time to resolve.' It would be that versus the tick marks, which appear to tell the story of not a lot of activity, and would appear to then justify combining, say, the Reference Desk and the Circulation Desk into a single service point.* (Librarian 12, interview)

Similarly, Librarian 16 muses about the usefulness of anecdotal evidence in relation to a collections and access issue:

> *I guess even anecdotal evidence can be – to look at where it confirms or differs from available evidence and then go from there and try to figure out what's happened and why; why all the librarians think everybody wants to have circulating current issues of journals and there's no evidence showing that people are asking for this.* (Librarian 16, interview)

Anecdotal evidence may be the prompt that sets investigation of a potential problem into motion, and it is often used in group conversations when determining a course of action. This type of evidence is most frequently frowned upon, as not being worthy, but in the absence of anything else, it is certainly used. Most often, librarians will look to other sources of evidence to confirm or deny anecdotal evidence, for as Librarian 15 points out, "*anecdotally I know about things like that. But you know, having some actual evidence would be helpful*" (Librarian 15, interview).

4.2.3 Evidence sources depending upon the type of problem

The evidence sources that were used by academic librarians in this study show no clear pattern when broken down by the topic or type of problem encountered. The sources noted in Table 4.1 are used across many types of decisions. In general, the literature and input from colleagues are used widely across all types of questions. However, a few areas rely more on certain types of evidence than others. Questions regarding collections look heavily at statistics and feedback from users. Management and human resource questions, involving people, rely on other documents and tacit knowledge more than other types of questions; and teaching related questions rely very heavily on input from colleagues and feedback from users more than other sources. A comment from Librarian 11 illustrates this type of situation:

> *So – in this case, the evidence, or at least the quantitative evidence, was only a small part of my decision making. The bulk had to do with more complex, less black and white, factors.* (Librarian 11, diary)

The librarians interviewed were mainly concerned with how good the evidence was in particular situations. Depending upon the situation, the best evidence source may be different. Published literature was considered an obvious form of evidence, but not necessarily the best source, as it could be irrelevant to the situation, or a poorly conducted study. In situations that dealt with human resource issues, for example, the most important types of evidence were people's stories and finding out what happened in a particular situation. Thinking critically about the evidence and weighing its importance, was noted frequently by participants. Librarian 19 sheds light on this perspective:

> *Definitely looking at the research, but also just in my day to day life, like looking at what's going on around me and thinking critically about it. Just having that critical eye and talking to people and getting as much information as I can and then assessing it in my own head about how does what I'm doing fit with this? So I think, yeah, there's the published research, but there's also an experiential kind of assessment that goes on all the time.* (Librarian 19, interview)

4.3 How academic librarians find evidence

When faced with a problem or question related to practice that they need to make a decision about, academic librarians find evidence in several ways. These are detailed in Table 4.2.

The first and most obvious method of finding evidence to help with decision making is what is known as pulling the information required from various sources (*pull*) (Cybenko & Brewington, 1999). This is a very proactive way of obtaining information, and allows the librarian to be specific about what their needs are. As Librarian 4 commented: "*I searched, I looked, I asked*" in her quest to locate evidence. Doing a literature search is a well known way of pulling evidence on a particular topic. Other ways of using the pull method would be doing a Google (Internet) search, gathering statistics for circulation or journal usage at the point of need, looking up facts, and asking colleagues questions related to their experience. While discussing the management of approval plans with a monograph vendor, Librarian 15 commented:

I also use the vendor's database site so I can see what the effects of adding a particular variable to a search would be. For example if I want to see how many slips would be received annually by our Education selector in the LC section G73 (Geography – study and teaching) I can run a search for that LC class, limiting it to appropriate readership levels and one calendar year. This way I can determine whether or not the slips are appropriate in content and if the number of slips is reasonable. (Librarian 15, diary)

Table 4.2. How academic librarians find evidence

Method	How	Examples
Pull	Proactive and specific	Literature search in databases, Google (internet) search, gathering statistics for circulation or journal usage, looking up facts, asking colleagues questions related to their experience or sources of information.
Push	Passive, general awareness	Notifications via TOC services, Twitter, RSS feeds; attending conferences and listening to presentations, colleagues passing on information, getting feedback from users, anecdotal evidence (hearing stories)
Create	Proactive and specific	Including evaluation with instruction, doing a research project related to the problem, conducting in-house surveys or focus groups, keeping reference statistics
Reflect	Proactive examination of knowledge and experience	Carefully considering context and what is known about the situation, tacit knowledge (unique for each person)
Serendipitous discovery	Passive, by chance	Coming across an article or some other document or piece of evidence that is related to a decision, even when not directly looking for it. I.e.: picking up a journal and while flipping through it, finding something relevant; seeing something in the news that points to a source that is relevant.

A much more passive way of obtaining evidence is via having it pushed to an individual (*push*) (Cybenko & Brewington, 1999). This method is a good way to stay current, but an individual may miss a lot of evidence sources, if this were the sole method relied upon. Setting up table of contents alerts or RSS feeds, following

people or organisations on Twitter, attending conferences and listening to presentations, are all ways in which evidence sources are pushed to librarians. Since these sources are not the result of a specific search for information on a topic, much of what the librarian receives and filters through may not be directly relevant to the problem at hand, but often such sources provide an early indication of trends or aspects of practice that are changing, or new innovations. As one participant noted, "*I have a lot of notifications coming over my desk so I see what sort of the trends are typically in the field so I feel like there are lots of things to learn*" (Librarian 10, interview). Upon learning of new possibilities via this method, an academic librarian may then further move to the pull method for more information.

Academic librarians also *create* their own evidence sources. This is very proactive and is usually in reaction to addressing a specific need. This would include sources where a librarian does research or evaluation in relation to his or her work. Examples are: including formal evaluation with instruction, designing a research project related to a problem, conducting in-house surveys or focus groups in order to obtain user feedback, keeping reference statistics so that trends in use of reference service can be monitored over time. Such sources are generally used in-house for local decision making, but may also be published and feed back into the evidence base used by others.

> *We – library administration – are looking for ways to improve productivity, efficiency and engagement within the unit, and are considering adding an additional layer of supervision to the existing structure. It has been challenging getting enough staff members to participate in frank discussion on the topic, and to articulate what they see as the major areas in need of improvement in the area. To help with this, we administered a survey to staff which yielded some helpful qualitative evidence with respect to how staff members view a variety of issues within the area and how they might be improved. Opinions we suspected might be held broadly by staff members ended up not to be, and vice versa, which has helped to crystallize some of the planning initiatives we had in mind.* (Librarian 11, diary)

Reflection is another way that academic librarians find evidence, by taking time to carefully consider the problem at hand and draw upon their past experiences and knowledge in relation to the problem. Considering the context of the problem, and what one knows about the circumstances and people involved is often very important in terms of how to best approach a given situation. Schön (1983) argued that such

reflection allows practitioners to better deal with situations that are uncertain or unique. Reflection on what one does and how one does it strengthens the soft forms of evidence discussed earlier.

> *I like to reflect, you know, when I've gathered the evidence I like to reflect, depending on how complex the situation is. But I'm finding more and more that taking some time to reflect is extremely useful and whether that's—even if that's half an hour or overnight, I like to give myself time to think about all the evidence that I've collected and let it ruminate, let it kind of come together and it helps me with seeing a direction. It helps me if I miss anything. You know, have I missed anything, or misread anything? Because sometimes I'll go back again to the evidence and look at it again and then I realize oh, actually this person said this and I took it to mean this, but actually now that I read it again I see that it means this. This changes things. So I've found that to be very useful, that reflection as part of the evidence.* (Librarian 6, interview)

A final way that academic librarians find evidence is by obtaining it serendipitously. *Serendipitous discovery* happens almost as if by accident, when one finds something they weren't expecting to find, as a pleasant discovery. Foster and Ford (2003) concluded from their research that "serendipity would appear to be an important component of the complex phenomenon that is information seeking" (p. 337). In the case of academic librarians this may mean coming across an article or some other document or piece of evidence that is related to a decision, even though not directly looking for it. Such discovery is passive, although subconsciously one may be looking for things that relate to the problem at hand. Librarian 3 titled one of her blog posts "Serendipity!" and went on to state:

> *I knew that ACRL had Guidelines for Instruction Programs in Academic Libraries but I also knew that they are fairly out of date—2003. I was just reading the latest issue of College and Research Libraries News (usually they sit for months on my desk before I have get to them but for some reason I opened the February 2011 issue) and I see that they have updated draft guidelines out! I looked at the ACRL site, and they also have a new draft of Characteristics of Best Practices of Programs of Information Literacy! These are going to be very useful as we figure out what to do with our program. (Librarian 3, diary)*

4.4 Chapter Conclusion

This chapter has detailed the research findings regarding types of information that academic librarians consider to be evidence, and the evidence sources that they use

in practice, answering the research question, “What forms of evidence do academic librarians use when making professional decisions?” Two broad types of evidence were identified (hard and soft), and are generally used in conjunction with one another. Neither is sufficient on its own. Both types of evidence are questioned, indicating that librarians look at all evidence sources with a critical eye, and try to determine a complete picture before reaching a conclusion. As well, how librarians find evidence emerged from the data, showing that a variety of both proactive and passive approaches are used.

This chapter also partially answers the research question, “How do academic librarians incorporate research into their professional decision making?” It is clear that academic librarians do value research and look for it to assist with their decision making. However, the published research is insufficient on its own. It may not be directly applicable, and the specifics of the question or problem that the librarian is trying to solve take them to sources beyond the research literature. Research literature is valued but not used in isolation. It is only one part of the overall evidence that a librarian needs to consider.

Both hard and soft types of evidence instil confidence but from different perspectives, and taken together have the most strength. These results provide a strong message that no evidence source is perfect. As a result, librarians bring different types of evidence together in order to be as informed as possible before making a decision. Using a combination of evidence sources, depending upon the problem, is the way academic librarians approach decision making.

The implications of these and other findings that emerged from the research will be addressed in Chapter 7, the discussion. Next, Chapter 5 will examine the findings related to how academic librarians use evidence in practice.

Chapter 5: Findings: Using evidence to convince

5.1 Introduction

As was explained in Chapter 4, academic librarians use a variety of evidence sources when making professional decisions. The evidence may be more scientific and 'hard' or it may be more tacit and 'soft'. The use of different types of evidence depends on each specific situation, but usually a mixture of hard and soft sources is used as part of the librarian's decision making.

This chapter reveals findings related to *how* academic librarians use evidence sources in their work. The data generated in this study has led to the theoretical concept of 'convincing' as the main way that academic librarians use evidence. This will be developed through an exploration of the environment in which academic librarians work, their level of decision making power, and sub-concepts of confirming and influencing.

5.2 Individual and group decision making

When examining the research data collected for this study, the scenarios presented by the participants illustrate that there are two broad categories of librarian decision making. Academic librarians are professionals who have a fair amount of autonomy, and in certain aspects of their work this is exemplified when they make decisions on their own. Often, however, they make decisions as part of a group of professionals (with their colleagues at the institution in which they work), or contribute towards a decision that will ultimately be made by someone else (their supervisor or the University Librarian).

The two broad categories can be exemplified as follows:

1) *Decisions that the individual librarian has the autonomy/power to solve and implement on their own*. Two examples are making monograph purchases, or determining the content of an information literacy session. Usually these are of minor-medium importance in the overall context of the library, and the impact is not large, or is contained. The librarian has autonomy to make the

final decision. With these types of decisions, librarians usually seek evidence that will confirm that they are doing the right thing; or, where they had no preconceived notion of what they should do, the evidence guides them toward a decision that they can make with confidence.

2) *Decisions that the individual librarian participates in but which involve a group/team who will make the decision or recommendations*. Two examples are determining a new model for reference service, or a deciding upon a new library-wide programme for information literacy. Usually these types of situations are of major importance and will have a large impact. The University Librarian or other senior administrators are often involved. In some cases, the University Librarian will impose a decision following recommendations from a group.

Group decisions occur frequently for academic librarians. Librarians are often part of a team, committee, or working group that must work together to make a decision or recommendations on a particular topic. In this type of a group situation, analysis of the data in this study shows that evidence is sought for the following reasons:

- To give the group background information as a starting point for discussions
- To substantiate a point of view within the group
- To counter someone else's argument
- To influence the ultimate decision maker to decide that the recommendations are sound and so that person accepts the recommendations.

The first point noted above pertains to the use of evidence for confirming, which is usually a solo activity, but which can also apply to groups that are functioning well, as will be described in section 5.3 below. The other three points pertain to the use of evidence for influencing, which will be discussed in section 5.4 below.

5.3 Using evidence to confirm – for oneself or a group that works well together

This research shows that one of the main reasons librarians use evidence is to confirm that the decision they are making is correct. Confirming generally applies in situations where an individual decision is being made, or when the librarian is part of a well-functioning group that she or he feels comfortable with.

Confirming is nearly always positive because in doing so, a librarian is seeking to better understand something and add to their knowledge as a professional. What emerged very clearly in the data from participants is that academic librarians confirm to feel better and more confident that they are doing the right thing while remaining open to new possibilities. They may have initial thoughts, reactions and instincts, but they want to confirm those instincts with more concrete sources of evidence in order to proceed with their decision in a more confident manner. This is another way that the librarian brings together the soft evidence of their initial gut instinct or their own knowledge upon reflection, with harder sources of evidence that corroborate the soft evidence, or else make the librarian re-think their initial position on the matter due to new evidence that was not previously known or considered.

As was discussed in Chapter 4, the literature is a common evidence source consulted by academic librarians. One of the reasons that academic librarians go to the literature is to confirm their existing knowledge, and ensure they have a firm grasp of the issues before making a decision. Even when the literature fails to present new ideas or evidence that they hoped it would, academic librarians appreciate the reassurance that verifying their thoughts against the literature brings:

> *So, the lit search, ah, I think it was useful, at least in terms of making – giving me confidence that I wasn't overlooking anything major.* (Librarian 1, interview)

> *I tend to use that* [the literature] *as confirmation for interesting ideas that I read about.* (Librarian 16, interview)

Librarian 10, when considering her criteria for weeding materials from her library's collection, turned to the literature to ensure she wasn't overlooking anything:

> *The article, "Weeding Gone Wild" from Reference & User Services Quarterly, was good in that it gave some good ideas about how to do weeding projects but it also confirmed some of the things that I have been doing and the criteria I've been using.* (Librarian 10, diary)

The confirmation librarians receive when their initial thoughts are echoed by other sources of evidence builds confidence and provides a sense that they are doing what is right. Participants felt that they could not base decisions solely on their existing knowledge because best practices are constantly changing and they need to continually learn. From those librarians just starting out, to those that were quite experienced, there was a common feeling throughout that they did not know everything and wanted some form of reinforcement whether it be from the literature, input from colleagues, or some other source of evidence. In this sense, for individual decisions, the existing EBLIP model is followed at least in spirit, wherein the librarian goes to the literature to find evidence that will assist them in making their decision. However, no participants noted that they critically appraised what they found.

Part of the interview conversation with Librarian 13, a highly-experienced librarian, is illustrative of the approach commonly taken and the reasons why it is important:

> *DK: Would this type of an approach in terms of bringing some of the research literature to bear on the decision - is that something that you normally try to do?*
>
> *L13: Yes, it's my practice. I don't have enough confidence that I know enough. I mean, sometimes I can be quite didactic but generally I like to be able to back up my contentions. I can't always trot it out. If I'm going to open my mouth and be determined about what I've got to say, if I believe that, I'm also quite flexible.* (Librarian 13, interview)

As Librarian 13 illustrates, the need to be both determined and flexible is important to academic librarians. Making a decision requires confidence and acting with knowledge that what one has decided is best in the circumstances. It also requires the openness and flexibility to consider other pieces of evidence that may change one's outlook and final decision. Confirming takes place in a moment of time, but the decision can change depending upon what new evidence is brought to bear on the situation. Librarian 17 also speaks to this need to gather evidence in order to feel more confident in decision making:

> *I just think that way and I feel more confident about what we're doing if I know that we have – that we've tried to collect evidence, we've tried to assess what we're doing and to me it's just more confidence in going forward with other things.* (Librarian 17, interview)

When participants were asked about sources of evidence they consult, “what other libraries or librarians do” arose as a very frequent way that librarians considered evidence (this is considered more fully in Chapter 4). However, “what other libraries do” in itself is not an evidence source – the evidence sources that could contain this type of information include articles, catalogue records, websites, social media communication, and so on, that discuss what is happening in other libraries. "What other libraries do" is actually a reason that academic librarians seek evidence, as part of their overall confirming. They are comparing their own institution's services, or their own ideas, to what other libraries or librarians do, in order to confirm that they are on the right course. For example, Librarian 8 explained a situation in which she was revising slides for an information literacy session that she had taken over from another librarian who used to teach the class:

> *A couple of other people looked at the session as well, a couple of my colleagues, and they said, ‘oh, there’s too much stuff here’ so that kind of corroborated my initial gut feeling. So I just, I kind of re-jigged based on, kind of, like, my own common sense.* (Librarian 8, interview)

The input from Librarian 8’s peers was enough in this case to confirm her initial instinct that the slides needed to be simplified. This is confirming - it brings new ideas and situates actions in the broader context of one’s peers. Individually, librarians want to know what their peers are doing, and in that respect, it becomes a way of confirming what an individual librarian is doing in his or her own practice. However, evidence related to what others are doing can also be used as a way to influence colleagues to agree with something that is put forward, especially when compared to peer institutions or institutions to which a library aspires to match. Confirming also fits very closely with practice theory in terms of the evolution of a practice and practitioners having a common frame of practice (Schatzki, 1996; Reckwitz, 2002). This is how practice evolves and others understand what is happening within a common frame of reference.

Confirming is done for oneself. It is an act that reassures, and corroborates instinct or tacit knowledge. The participants’ actions show that they do not just gather evidence for external purposes, or for influencing others (as will be discussed in section 5.3 of this chapter), but that they gather and use evidence as part of their own professional development and regular practice of keeping current. Librarian 7’s

description of her use of evidence in this way captures the essence of this type of evidence use. Librarian 7 was discussing information literacy teaching, and what she teaches others about Google. She had come across an article on the topic of teaching Google, and read it as part of her normal routine or keeping up in areas that are important to her. While she noted that it was not a research article, and did not really provide her with anything new to add to her teaching, it was useful for her own reassurance:

> *L7: Yes, it kind of confirmed what I was already doing but also gave me something to back-up why I was saying what I was saying about Google I guess, kind of.*
> *DK: Yes.*
> *L7: And reassured me that yes, okay, other people are teaching everything I am.*
> *DK: Okay. And when you say to back-up what you were already saying, do you mean to yourself or other people? Like would you reference this outward?*
> *L7: No, no – to myself.*
> *DK: To yourself, okay.*
> *L7: Yes.* (Librarian 7, interview)

While not usually the case, confirming can occasionally be negative, if a librarian consciously discredits or avoids evidence that does not support their preconceived notion of what is the best. For example, if a librarian prefers print books to electronic books and as a result only seeks evidence that confirms their preconception. This type of negative use of evidence is more likely to occur when the librarian is influencing others, as will be discussed further in the section below. However, it is possible that a librarian would also convince themselves in this way, although it rarely came through in this research as a method of confirming, since the process of confirming usually occurs with an open mind. Librarian 1 hints at this possibility of the use of evidence:

> *I think a lot of times, I find myself doing this, and I know that other people certainly do as well; that you often have your intuition, and then you go and find the facts to support that, and then you say it with great confidence.* (Librarian 1, interview)

While finding the facts to support one's initial thoughts can be quite positive if approached with an open mind, it is negative when there is a predetermined outcome. However, throughout this research, the positive nature of the use of evidence as confirming came through continually. Librarians were, if anything, hard

on themselves and felt that they should find more evidence or do a better job at being thorough.

As individuals, librarians use evidence in a confirming manner to convince themselves that they are doing what is right within their work and profession. Confirming brings together soft sources of evidence, such as intuition and professional knowledge, with hard sources that are usually more concrete, such as the published literature. Librarian 6 reflected in her diary about evidence that she uses in conjunction with her own knowledge:

> *I find it interesting when the outcome matches/supports my initial gut reaction and instincts. For me this is one of the ways I test for validity when making decisions, a little private "ah-ha" moment – I can say, with confidence: 'I knew it, I knew I was right'. If the info collected informs a decision or action different from my initial thought – I chalk it up to experience and put it under the category of: 'good thing I double checked this'.* (Librarian 6, diary)

In addition to confirming for the immediate situation, the act of using hard sources of evidence adds to the soft evidence that is held within a librarian's knowledge and experience, to be drawn on again in future decision making situations.

5.4 Using evidence to influence – when someone else or a group makes the decision

While some decision making by librarians is individual, often it is done in a group setting, especially for decisions that will have a major impact on library users or staff. This research shows that group decision making leads librarians to try and influence what the final decision will be. Influencing can be positive or negative. When in a positive work environment, participants often first go through the confirming stage for themselves, but when working with others, they bring evidence to the table in order to enable the group to make the best decision possible. In a positive situation individuals feel free to speak and be heard, and will reach a consensus. What an individual brings to the table, in this environment, is a positive form of influencing.

When participants were in a negative environment, they often felt they were not being listened to, or their concerns not heard. They then adopted strategies to deal with this. One such strategy was to bring research evidence to the table in support of

their viewpoint, where someone with an opposing viewpoint may not have done this. Research is generally well regarded in an academic environment and therefore cannot be as easily dismissed as a person's own opinion. Any form of evidence that shows “what other libraries do” is also seen in a very favourable light, as libraries may be more likely to make changes based on what is happening around them at other institutions. Other strategies were to convince individuals and bring them on-side prior to any decision. or to stress particular points depending upon what the decision maker needs to hear in order to be persuaded. Some participants would just go ahead and put something in place without asking permission. In all cases, the individuals want to influence the final result, and where a work environment is negative, they will use evidence as a tool. This use of evidence for influencing is very much in keeping with what Thorpe, Partridge and Edwards (2008) describe in their research regarding librarians’ experiences of evidence based practice.

5.4.1 Levels of decision making control

Different levels of decision making control emerged from the data in this study. It became clear that librarians do not always have control over their own decisions. When an individual librarian makes his or her own decision, influencing is not required. Rather, the librarian would look to evidence sources to confirm for him- or herself before making a final decision, as was discussed in section 5.3 above. In situations where a group makes the final decision, or where someone else makes the final decision, influencing is widely used. The next sections describe each of these categories in more detail.

5.4.1.1 A group makes the decision

Librarians often work in groups, whether it is a team, committee, or task force. When this is the case, an individual librarian working within the group may try influence the rest of the group in order to have an outcome that the influencing individual is satisfied with. As was mentioned above, this can be positive, or it can lean towards being negative influencing based on closed-mindedness, although this is not usually the case.

Generally, an individual’s approach to a group decision is going to be different depending upon several factors, such as how much they care about the topic that is

being discussed, the personalities and past experiences with the other people in the group, and the overall dynamics of how that group works together. Librarian 2 illustrated this when she discussed some of the factors she takes into account when approaching a decision within a group setting:

> *Where the group setting makes a difference, I think, is that depending upon whether or not I'm a champion for a particular project, I may present, you know - I may frame the evidence in a way that I think would speak to the needs of the people in the group.* (Librarian 2, interview)

Similarly, Librarian 5 discusses the strategy involved in group decision making, wherein the needs of the people involved must be taken into account, along with a variety of other factors:

> *I think you have to be very strategic because you have to recognise what the other person's concerns are in order to address them and that's the strategic part; and also being able to address the mandates of the library and all those other conflicts, right?* (Librarian 5, interview)

Presenting evidence in ways that meet the needs of the individuals involved is not necessarily negative. It shows awareness of the context and the knowledge levels of one's peers. Participants noted that depending on the interests of the specific field in which a fellow librarian works, that person will have certain questions or will want to know more about particular aspects. Anticipating some of these questions and bringing evidence that is needed to the discussion, enables the group to be more productive. Librarian 2 expanded on this further:

> *Well, it sounds Machiavellian when I start to talk about it, but I think some of it is – existing knowledge would be one - how much knowledge do they already have about it? The amount of information I give would depend upon that, right; you're not going to bore them with something that we've already discussed at length, that has come up over and over again. [...] I am conscious that there are different motivating factors for people – certain people might be concerned about an issue from a collections perspective, some people might be concerned about a staffing side of it, right, so I think it's not about slanting the information but just being prepared to respond to the types of information I might get, or if I know that we've had a similar discussion in the past and people were concerned about this decision for these reasons, then I think I'd have to be prepared to address that.* (Librarian 2, interview)

Many participants noted that consensus was a method used most frequently for decision making in their workplace. This method was viewed positively, as it allowed

for individuals to contribute to the discussion. However, as Librarian 2 pointed out, such group decisions do bring some added pressures due to group dynamics:

> *A lot of the big library decisions at my library are made at a group level – either all librarians weighing in or coordinators of areas with staff consulting and making the decisions in the library staff management group. I still personally apply the process above* [how she makes individual decisions] *in these situations, but there is the added pressure of trying to read and work within the group dynamics in these situations.* (Librarian 2, diary)

The dynamics of the group was a common discussion point with participants. If the group is small and fairly like-minded or open-minded, decision making is much more positive and proceeds faster. As librarian 3 noted in reference to her situation:

> *It's a small group, there's four of us, including me, so that, I think, helps with consensus, achieving consensus. I'm also fortunate, I think, in that the people on the group are fairly like minded – you know, we have similar ideas about where the program should go, and we've also - a couple of us have been around, two of us have been around here for a while, so we are familiar with some of the issues and concerns that have been arising, and really do need to be addressed in some way or another in these recommendations.* (Librarian 3, interview)

If the group is large, it is more likely to have differences of opinion or people that are 'difficult' to work with. The greater the number of varying perspectives there are, the more that evidence to assist in the decision plays a role. Evidence is then brought in to influence the group that a particular choice is best. Again, this could be done in a very positive way, or in a way that simply makes the contributor's voice more loudly heard. Decision making in groups depends upon the personalities involved, their convictions, and their willingness to make a decision with an open mind.

5.4.1.2 Someone else makes the final decision

A common scenario is one where someone else makes the final decision. This could be when an individual requires permission from their supervisor or the University Librarian in order to move ahead with implementation of a new proposal. It could be that a group has put forward recommendations that need to be approved by either the University Librarian, senior administrators, or the governing body of Library Council. Regardless of who makes the final decision in this case, it is someone outside that has not been directly involved with the decision making process, but who has final say over what happens. This is the situation where influencing is used the most.

This level of decision making control affects librarians at all stages of their career. Even the most senior of people taking part in this study had to answer to someone else or at least gain their approval before moving ahead with certain decisions. The enormity of the decision may be greater for those in higher level positions, but the situation is essentially the same across levels in that individuals are unable to move ahead with decisions due to the organisational structure that requires approval at either a group or supervisory level. Academic librarians work within the confines of their organisation, and that means either consensus or approval by others who may not be as knowledgeable about the topic, who may have radically different points of view, or who may not have the best intentions.

Sometimes, the decision must be approved by a governing body, such as the institution's Library Council. This becomes a type of consensus where the entire librarian body can discuss the issue prior to it moving ahead. Consensus is what is sought but may not always be achieved. There may be a vote, in which the majority needs to support the decision in order for it to move ahead. This is a case where the body as a whole controls the decision even more than the University Librarian. Institutions are quite different in the level of power between the Library Council group and the Senior Administration. Depending upon the organisation, evidence use and planning for decision making will occur in different ways. Regardless, the intent is to have some influence, based on the decision that the individual or smaller group has made, in order to convince others to accept the recommendations.

Librarian 3 outlined a situation where the Library Council plays a very large part in final decision making. This can be looked upon as a barrier to moving ahead, but Librarian 3 also recognised the need to have participation and buy-in for the information literacy program she was presenting to succeed.

> *DK: So, if the majority of your librarians - at Council, did not support it, would it not be able to go ahead?*
> *L3: That's right. It wouldn't be absolutely shelved, but if there were particular parts of the report that the majority opposed, it would likely go back for revision and reconsideration of those particular sections and we'd present something else to the group.*
> *DK: Right*
> *L3: We really do proceed on a consensus basis. I suspect the library*

> *leadership team could sort of say, "this is the way we are going" you know, and I think that they will endorse what we're doing, but I don't think they will...you know, they wouldn't do that without the majority of Library Council supporting it. Just the optics of it, and the Council is the official governing body of the library, so you know....and it would sort of be shooting yourself in the foot anyway, to go forward with it if you didn't have the support of Council, the majority of Council supporting it, because the nature of the program is such that we're going to need participation and buy-in from, if not everybody, then certainly the majority.* (Librarian 3, interview)

More common than a governing body such as a Library Council having a final say in a decision, is the University Librarian or a senior administrator having the final decision regarding work that an individual or group did in order to make a decision. In this study, such decision making power came across as contentious. In addition, where there is a negative work environment, it may result in individuals feeling that they do not have a voice. In such a case where someone else has the final decision making authority, individual librarians are very attuned to thinking through what they need to do in order to influence that person's decision so that it is a positive experience for them or the group they have worked with to develop recommendations. This is expressed by Librarian 18 who writes:

> *I will have to **sell** this to the University Librarian.* (Librarian 18, diary) [researcher's emphasis]

The "selling" of a decision is an additional step that is required in order to move the decision forward. This is where evidence will be used to influence the individual or other people in the organisation that the recommendations are sound. The following two examples illustrate this:

> *I think that we are confident in everything (i.e. the foundation of our evidence); that we will be able to implement this regardless of the resistance/reluctance that may still be expressed - we suspect this resistance to come from only a few people and I suspect, that if we are not able to convince them of this decision and the soundness and practicality and the wisdom of this decision, we will be able to move forward regardless.* (Librarian 6, diary)

> *DK:Right. Okay. Just one last thing, when you finish your work, will that go into a report that then goes to your University Librarian for approval and then implementation or how does that piece fit in, at the end?*
> *L14:We'll write the report. Lydia and I report to the Associate University Librarian directly. So I think we would deliver it to him and copy it to the University Librarian. And he would, going by the last time, he would convene a couple of meetings for the liaisons, distribute the report, ask for comments,*

> *and come up with the recommendations and they would become part of that strategic plan; they would be actionable.* (Librarian 14, interview)

Sometimes, key decision makers are outside of the library structure, but the librarian reports to them or works with them closely. This is another situation where someone else has control of the final decision, but the librarian has done a lot of work and wants to influence what is going to happen. As Librarian 1 described this type of a situation, she used phrases such as "*have my story straight*" and "*spinning very hard*", which shows that she used the evidence previously gathered and written up to influence the person whose decision may have a significant impact on her library:

> *So, he hadn't read any of the briefing materials that I'd written up, which was not surprising I guess, and that's fine – to some extent I wrote it as background for myself so I would have my story straight going in. So, I sort of summarized that for him, and spinning very hard the kind of resources that would be needed to introduce records management to the organisation. And he was fully in agreement with that.* (Librarian 1, interview)

Likewise, Librarian 8 discusses a situation where having research evidence to bring into a meeting with potential student volunteers was very reassuring and could be used for convincing the group she was meeting with of the value of the program for which they were considering volunteering:

> *Now, with the serendipitous discovery of this evidence summary, I can cite research to back up my claims, not only strengthening the meaning of my words, but also conveying librarians as academics who can help you find information, but also who work with research for their own practice.* (Librarian 8 diary)

To summarize the findings on the use of evidence for influencing, Table 5.1 shows the various levels of decision making control that a librarian will encounter in their decision making in practice, and how this impacts their use of influencing.

The level and impact of decision making power is also connected to the work environment itself, which situates the librarian's experience and contributes toward the type and level of influencing that occurs when making decisions. This will be discussed further in section 5.4.2.

Table 5.1. Levels of decision making control and impact

Who makes the final decision	Individual librarian's level of decision making control	Impact of decision on the institution/users as a whole	Use of influencing
Individual librarian	Full	Low	None
Group the individual librarian is part of	Partial	Medium	Medium
Someone else after the librarian has made recommendations (individual or group)	Low-moderate	High	High

5.4.1.3 Getting "buy-in"

Another related theme that emerged from the data was that of obtaining "buy-in" or building consensus. Much of this has nothing to do with what the evidence says -- the evidence seems to sit apart and may be brought in to convince others of a position that someone wants to prove. So, in that respect, evidence becomes a *tool* for *winning* a case. A decision has already been made and the decision maker is looking for support in the implementation of the decision.

Other times, gathering co-workers' input becomes a form of evidence for consensus building. Showing that one has taken everyone's opinions and concerns into account is a politically astute way of allowing people to "buy-into" the decision that is made. This factor seems to be a very important part of academic librarian decision making, especially with respect to decisions that may change practice routines or move away from how past practices have always been done. For example, as Librarian 3 said in her interview, "*there's no point if they won't do it.*"

Librarian 11 discussed presenting a proposal to staff in her unit to consider a paging/book retrieval service for the library. She noted that she:

> *expected it to be a very controversial issue that would require a lot of persuasion to gain support. The introduction of evidence that the service is quite common in other academic libraries, that we would not be recreating the wheel, resulted I think, in people being more willing to consider this service which is quite a radical departure from our self-service philosophy. Although the group did not agree to implement the service, they did commit to striking a working group to explore it in greater depth, which was, to my mind, a victory.* (Librarian 11, diary)

Librarian 14 noted that she "watered down" what she would have liked to move ahead with regarding a de-selection policy because of very different opinions from librarians. One group wanted to keep and preserve everything, another wanted to really trim down the collection.

> *L14: So I put out the de-selection guidelines as a draft for people who have this work to be done, have some guidelines of how to go ahead. So the version that's out there now is a watered down version of 'let me be real tough on everything we want to deselect' but it does – what I wanted was a process where people will call me up and say, 'I've got 500 books that I weeded from the collection, what do I do with them?" – I want to be able to give them that information. So the one that's out there is not – it's a watered down version, but at least it gives us a process.*
> *DK: Was putting out, as you say, a watered down version – would you way that that was like a compromise on your part to have better buy-in?*
> *L14: Yeah. Exactly.* (Librarian 14, interview)

Finally, Librarian 2 discusses "positioning" the issue properly in order to get staff buy-in:

> *L2: I was on the committee that was trying to do staff development, and the big thing the librarians wanted to talk about was customer service, and the staff did not want us to talk about it at all. But largely you know, the problem was that they had had lots of customer service seminars previously, so knowing that was helpful in knowing how to possibly frame the workshop a bit differently, so maybe the focus will be on communication not customer service – do you know what I mean?*
> *DK: Right*
> *L2: So, you can position something better so it can be more successful and there can be more uptake and stuff like that.* (Librarian 2, interview)

Obtaining staff "buy-in" can sometimes occur during the decision making process, by soliciting staff feedback which will be used as one piece of evidence among others that will help shape the decision. In doing so, the decision maker is showing that they are willing to listen to staff ideas and concerns. Getting such buy-in is another form of influencing, but influencing downward in the hierarchical ladder of an organisational staffing chart. In this case, the librarian is influencing not because these individuals are the ones to actually make the final decision, but because they are the ones who will have to implement the decision, and hence success is greatly determined by their willingness to make changes and be supportive.

5.4.2 Impact of the work environment on influencing

The findings from this research show that using evidence to influence others occurs in all types of academic library work environments, whether they are large or small libraries, as well as in both positive and negative work environments. The work environment does play a major role in determining the degree to which influencing occurs, and the strategies and efforts that go into such influencing.

Group decision making causes consternation among librarians. They have less control over the outcomes and will often try to use evidence to influence the decision that will be made. In some environments this situation is more pronounced because the organisational dynamics are more negative and there are power struggles. In other cases, the style of leadership and organisational culture will actually lead to a very positive environment in which librarians feel they can truly contribute to the situation.

Participants who felt they were in a positive work environment looked at the decision making process in a very positive light. They used evidence to confirm their individual decisions, and when in a group setting they brought evidence to the table in order to influence others, but in a very positive way. The attitude was that others in the group would take that evidence into account, and together the group would make a decision. Hence, the influencing is very positive and without any ulterior motive. Generally, those working in this type of a positive environment discussed that decision making often occurs via consensus, and where it did not, they seem satisfied that an appropriate process was in place in order to facilitate good decision making that would be best for the institution.

Librarian 19 is illustrative of a librarian who is currently very happy with her workplace and has had positive working experience:

> *I feel like I've really lucked out landing here – my boss is the best manager I've ever seen, by far, and the work culture is a happy and healthy. Sure, there are some politics, but compared to other places I've worked this seems like paradise.* (Librarian 19, diary)

> *Despite our differences, this is a really good team to work on. People around here aren't afraid to try different strategies, which means we can try new*

> *things out around the library. If our ideas bomb, they get cut and something else is tried. For example, we recently decided to put all of our materials budget into one big pool, instead of assigning budgets based on subject area. We'll assess it next year and if it's working we'll keep it. If not, we'll revert.* (Librarian 19, diary)

Librarian 12 commented on his experience, noting that the "spirit of openness" is crucial part of a well-functioning academic library work environment. The style of leadership at the University Librarian level, and that person's personality plays a large role in whether such a climate will be fostered within the institution.

> *L12: It functions well if there is a spirit of openness. If the University Librarian is willing to be subjected to critical comments or whatever, or willing for issues to be raised that the University Librarian may be uncomfortable with. It's worked differently with different people. It's working reasonably well now. I think there's some reluctance on the part of some people to speak out very much. And so, it could be that there's quite a bit of automatic consensus in whatever is the issue. The fact is that there are several junior librarians who are coming up for tenure, and they are not placed, career-wise, in a position where they should object very much. It could interfere with their promotion into a full-time status, or into a tenure-type status.*
> *DK:Right.*
> *L12: And so, an unwillingness for those reasons to challenge a policy that might not be thought to be a good one but may mean that the Council is fairly passive and for the most part, accepts direction from the University Librarian. It depends on the part -- the personality of the University Librarian and the personalities of the individuals and the climate of open discussion or not.* (Librarian 12, interview)

When participants felt that they worked in a negative environment, they tended to look at the decision making process with a cynical or sceptical view. These are the cases where evidence is used in a more strategic and negative way to influence the final outcome. What the evidence itself says or the process of determining the best evidence, becomes secondary. Being selective about evidence and looking at the evidence in terms of what will convince the group, or (more usually) the individual who has power over the final decision, is very important. This type of environment has little consensus, and the person making the final decision is more likely to disregard what the others involved have to say. Based on past experience, those librarians working in this type of environment are attuned to moving forward with caution and being strategic in what they say and do.

An example of decision making in this type of negative workplace came from Librarian 6 who reported that the University Librarian at her institution did not listen and made odd decisions that were not based on evidence.

> *With respect to the UL's decision making (and his leadership style) this is creating an unusual dynamic and that is weird, uncomfortable, unsettling. What some of us have learned and what some of us are doing and have done is also creating an unusual dynamic and that is weird, uncomfortable, unsettling – sometimes our actions/responses verge on obstruction and insubordination – but also in a strange way this is bringing us together that has had some positive results.* (Librarian 6, diary)

As a result, she strategically planned how to approach a situation where she knew that the ultimate decision would be made by the University Librarian. She was assigned to a group that needed to come up with recommendations for changes to reference services, but felt the need to plan strategically within that group to ensure the outcomes she wanted to see:

> *I contacted Paula and suggested that she and I have a preliminary meeting before the group meeting in order to gather our information, our thoughts, and to prepare some structure for the meeting/discussion with the group.* (Librarian 6, diary)

She outlined what she wanted to happen, and reflected in her diary:

> *I suspect the above points make me sound like a tyrant, a control freak and very directive and prescriptive...in fact this is not the case, I just like to be very organized and with this particular project and knowing the personalities and the experience levels – such as Paula with project management... I want to make sure that we proceed in a way that will be successful and will have support from everyone – even though the degree of support may be diverse in its enthusiasm. This project has been too long in the making to go off the rails now.* (Librarian 6, diary)

They pulled together a recommendation document:

> *I am also pleased that this document really is reflective of our blended efforts (that is Paula and mine – built on a solid foundation of evidence) and the decision making is inherent and evident – it is clear how and why (and I think convincing) we came to the decision /statement of proposing/recommending a single point of service.* (Librarian 6, diary)

The actual final decision had not been made by the University Librarian at the time of the interview with Librarian 6, but she did feel quite positive about the likely end result. Within the confines of the small group, she was able to take back some decision making power, and this in turn made her feel positive once again.

In another case, Librarian 5 outlined how the librarians at her institution were dealing with a negative environment, where they felt they had no control over decision making.

> *A meeting of librarians was held today to chat about our concerns, interests with respect to the Library. It became a discussion about the current lack of control of librarians in the decision-making processes of the library. Various issues were covered such as the political environment, consortia impact on the library, current and past practice of various library administrations, why/how this happened, our culpability in the process along with suggestions on how to regain some of that power, etc.* (Librarian 5, diary)

Librarian 16 showed a sense of fatalism due to the inability to contribute to decision making and a feeling that decisions were already made, despite calls for input.

> *DK: I'm just thinking about how you then approach within that kind of a culture - how much power or influence I guess you feel that you might have in order to contribute to the decision making around things in general but I guess tying back to this particular blog post that was something directly related to your function. So you said that you did approach your supervisor and gave some feedback but nothing really happened. So is that more to do with that same sort of culture that currently exists?*
> *L16: I think I know what you're getting at and I think you're right, but it's less to do with the quality of my argument and more to do with 'well, what's the point'? That people just kind of feel that decisions are already made. There's a cynicism about it I suppose. And I could fall victim to that as well. It's just kind of well, I'll say it but, I'll say my thoughts, but I don't expect them to be considered. I don't have any institutional power and I don't have much influence for a lot of the decision makers because I just keep saying the same thing over and over again.* (Librarian 16, interview)

Such an environment is disempowering and draining. As is encapsulated by Librarian 18, when the work environment is so negative and decision making on important matters is completely removed from the role of academic librarians, it affects what people are able to accomplish.

> *I have never felt like this before in my career but I am finding work overwhelming. Most of it has to do with the lack of leadership direction, and support on the part of senior management. I know I have to take some responsibility for this as well but have not found a way to navigate the chaos much less understand it.* (Librarian 18, diary)

These examples of positive and negative work environments and how they contribute to the way a librarian uses evidence to try and influence the final decision, may seem polarizing and extreme, but they came clearly out of the diaries and

interviews as a condition within which academic librarians have to make decisions. Of course, such situations are never simply black or white, and depending upon the individuals involved, a situation could be viewed quite differently. Librarian 17's comment perhaps best illustrates the complicated nature of academic library environments, and the fact that environments will change as people in positions of power change, and in turn each individual's level of decision making power will change in relation to that.

> *I guess I am comfortable with the fact that I have considerable degrees of freedom to manage my department and to be able to make decisions and to proceed accordingly. My frustration comes when I look at the library as a whole and I have very real concerns about the fact that a lot of decision making I feel has been withdrawn from people like myself and pulled back into the University Librarian's office. And it's just a question of a different management style. Our University Librarian has a very different way of operating than our previous University Librarian and what we had before was quite a distributed management and leadership and decision making environment and now it's very much centralized in the University Librarian's office and the hands of the University Librarian's senior group. And a lot of us who were used to being players are no longer. We receive the decisions that have been made and have not been privy to the thinking and discussion and arguments and rationale, a lot of us. And nor are we consulted. And so it is frustrating.* (Librarian 17, interview)

5.5 Evidence is used for convincing

The above sections described how evidence is used by academic librarians for confirming and influencing. Both these concepts are encapsulated under the broader term of 'convincing'. To say academic librarians use evidence to convince does not necessarily imply a negative connotation. An individual can still be open-minded about what the evidence says, and want to share that evidence with others. Sometimes, however, the person may already have a strong opinion about something and purposefully seek only that evidence which supports their position.

The concept of Convincing includes two sub-categories, *confirming* and *influencing*, which were previously discussed in detail. Confirming focuses on the *self*. It concerns a librarian's knowledge and positioning as a professional (even if the decision is part of a group). In this case, librarians look to the evidence in order to confirm and reassure themselves that they are on the right track with their decision making. They turn to the literature or to input from colleagues in order to verify their

initial instincts. This process is a positive one because it is self-inflicted and builds confidence. Generally, the librarian comes to the process of looking for and using evidence to confirm in a very open minded and forthright manner.

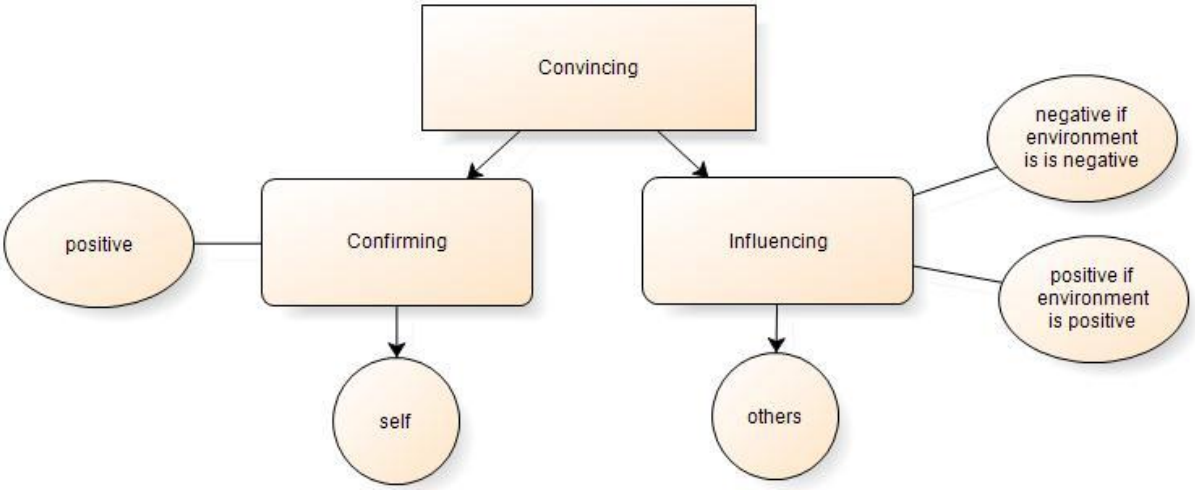

Figure 5.1. The concept of Convincing in evidence use

Influencing focuses on *others* and what a librarian needs to do to contribute to what would be a positive outcome from their perspective. Influencing concerns transmitting what an individual thinks the decision should be to others that are involved in making the final decision, in order to convince them to come to the same conclusion. Influencing can be a positive or negative experience depending upon the work environment. Evidence in this situation can become simply a means to an ends, and used differently depending upon the circumstances and the people involved.

Work environment largely determines the convincing strategy. For example, in co-worker relationships, how much control one holds, what is likely to convince someone, past experiences in dealing with particular people, and the perception of being heard in the workplace are all factors that impact the use of evidence and the reasons for using evidence. For larger decisions such as reconfiguration of the reference desk, the individual does not have control of the final decision, but can contribute to it. The work environment contributes to whether this is a positive or negative experience.

Depending upon the work environment, evidence is used differently. If it is a positive work environment, academic librarians are more forthcoming with ideas, listen to others, and are open to what the evidence says. If the work environment is negative, there is often secrecy, a withholding of information, evidence is used selectively to make a case, situations are approached differently depending upon personalities, there are feelings of hopelessness, and power-plays and strategizing are common.

Generally, librarians want to contribute to organisational decision making, but if they feel that they are not being listened to, they will be disempowered and look for other ways to influence the outcome (or some may simply give up). Ultimately, individual academic librarians are not in control of most final decisions. Therefore, they do what they can to influence and impact the decision indirectly. Even when they do have the final say in a decision, they look to evidence sources to convince themselves that they are doing what is best.

5.6 Chapter conclusion

This chapter looked at how academic librarians use evidence for the purpose of convincing. Two major sub-categories of convincing are confirming and influencing. Confirming focuses on the self and individual decision making, where librarians will look to evidence sources in order to confirm what they know and feel more confident in their decision making. Influencing focuses on others, and the individual librarian's place in the decision making of a group, or where someone else makes the final decision. Academic librarians use evidence to try and influence those people who have substantial power over the final decision. This type of influencing can be largely positive in a work environment that is supportive and open to ideas, or negative in a workplace where librarians feel they are not being listened to. In general, librarians put forward evidence to support their ideas, as proof that is more powerful that simple conjecture or opinion.

These findings have addressed the research questions concerning why academic librarians use certain types of evidence, and how they incorporate research into decision making. The findings presented in this chapter also speak to some of the elements that may be missing in the current EBLIP model and what needs to change

with that model. In particular, the complexity of decision making and the factors that contribute to the reasons why a particular decision is made, is highlighted within this research, whereas it is largely absent within the literature of EBLIP, and certainly not contained within the existing EBLIP model. This will be further discussed in Chapter 8, where the research findings are compared to the current EBLIP model and changes proposed. Next, in Chapter 6, determinants of evidence use, or the lack thereof, by academic librarians will be examined.

Chapter 6: Findings: Determinants of evidence use in decision making

6.1 Introduction

As was noted in Chapter 5, evidence is used by academic librarians for convincing. Convincing can pertain primarily to one's own practice (confirming), or be used outwardly when dealing with others (influencing). Irrespective of whether a decision is made by an individual or by a group, there are certain factors that will influence the success of a librarian's ability to use evidence in making their decision. This chapter will outline determinants of evidence use in decision making by exploring both obstacles and enablers in the process, as exhibited by the participants of this study.

Section 2.2.4.2 of the literature review provided an overview of the research-practice gap, and within that concept, several gaps between research and practice were discussed. Some were obstacles related to the integration of evidence (mainly research) into practice, which is the focus of this chapter. Booth (2011) provides an overview of the literature on barriers and facilitators to evidence based library and information practice, via a qualitative synthesis. He identified five themes in the published literature on this topic regarding possible barriers: environment, evidence, workplace, profession, and paradigm. Booth's study found only one actual research study on the topic of barriers to EBLIP, which was Turner (2002), who found time constraints to be the major obstacle. Other studies by Hiller, Kyrillidou and Self (2008) in LIS, as well as Bowen et al (2009), and Kitson, Harvey, & McCormack (1998) in health, found organisational factors to be paramount to the actual use of research evidence in practice. The rest of this chapter highlights key areas that determine whether academic librarians use evidence in their decision making. Since participants referred to evidence broadly, rather than focusing specifically on research, the word evidence is used here. The evidence being referred to throughout this chapter is the 'hard' more concrete type of evidence, as per Chapter 4 on evidence sources.

6.2 Obstacles and enablers

When asked directly if they encountered any obstacles or barriers to their decision making over the course of the month that they kept the online diary, participants were often hard-pressed to identify any. Obstacles were not something at the forefront of their thoughts. The participants were generally an optimistic group, rarely mentioning obstacles in an overly negative way, but instead they took a more reflective approach. For example, Librarian 13 noted of her barriers, "*I think I can proceed with awareness*." There were certain factors that participants raised as obstacles, such as time constraints and costs, but these were spoken of more as an acknowledgement of limitations and that in spite of these limitations, a good, realistic decision could still be made. Other obstacles mentioned included organisational dynamics or the culture of the organisation, as well as what individuals saw as their own personal failings. It seems that rather than *obstacles* to successful decision making, academic librarians view these aspects as *realities* in which the decision must be framed. Such realities contextualize and partially explain why a certain decision was made. This attitude towards barriers is reflected in the following interview excerpts:

> *DK: did you see barriers or difficulties related to your decision making during this time period?*
> *L4: In some ways yes but I think I wouldn't say they were barriers. I think they were just interesting problems. I guess it would have been a barrier if people didn't want to talk to me. So no, I don't actually think I faced any barriers because there wasn't anything I couldn't get. A lot of things could have been easier for me but I don't think I actually found any actual barriers.* (Librarian 4, interview)

> *L5: Well, there are always barriers and things that you are going to have to put on the back-burner, like following things through or a lack of data or you know, needing more input or a different perspective. I mean, there are always barriers.*
> *DK: Okay*
> *L5: I think that's a given, it's just turning it around.*
> *DK: Okay; and how do you approach that?*
> *L5: Well, you know, I've got to work my way through it; I'm one of those people that I talk to other people to try and understand the situation.* (Librarian 5, interview)

Yet, after close examination of what was discussed in the participants' diaries and interviews, several obstacles emerged. Six categories of obstacles were found in the

data. These are presented in Table 6.1 and will be discussed more fully in section 6.3.

Table 6.1. Obstacles to evidence use

Obstacle	**Definition**
Organisational dynamics	Structure and function of an organisation, including the behaviour of individuals and groups
Lack of time/Competing demands on time	When one does not have sufficient time to complete a task to their liking; other demands take priority
Personal outlook (negative)	Emotions and other internal factors such as a lack of confidence, which impact a person's decision making
Education and training gaps	Areas in which a person does not have sufficient education or requires training
Information needs not being met	When one cannot obtain the type of information required to make a well-informed decision
Financial limits	When finances are insufficient to implement certain solutions

In analysing the data, several factors also emerged that were very positive in relation to using evidence in decision making. These were grouped into four main categories of enablers, which are noted in Table 6.2 and will be discussed more fully in section 6.3. All the enablers actually very closely mirror obstacles and the same types of issues are raised, but in a positive way. These enablers assist with good decision making, a reversal of the elements that impact decision making negatively.

Table 6.2. Enablers of evidence use.

Enabler	**Definition**
Positive organisational dynamics	When the culture of the organisation is generally felt to be positive and one that is open-minded with respect to decision making. Individuals are consulted and have respect for one another.
Ongoing education	Continuing to educate oneself, either formally or informally, throughout one's career.
Personal outlook (positive)	When a librarian has a positive outlook and does not allow obstacles to overcome them
Time for research	When the organisation provides librarians with dedicated time to do research and project investigation

Since the obstacles and enablers mirror one another, they have been grouped together according to the basic element that encapsulates the general concept as a

determinant of evidence use in decision making. These are individually described in section 6.3.

6.3 Determinants

This section outlines each determinant and its positive or negative effect on decision making, which is largely tied to the environment or context. For example, organisational dynamics can be either positive or negative depending upon the specific circumstances of a workplace. This determinant has a large influence on a librarian's ability to make good decisions and use evidence effectively because librarians do not work in isolation. Likewise, an element such as time can be an obstacle when competing interests consume any time one may have for evidence finding and interpretation; but if time for research and evidence finding are incorporated into a librarian's regular work schedule, it can be an enabler.

6.3.1 Organisational dynamics

Chapter 5 outlined how the work environment of the participants impacted their influencing behaviour. Influencing occurs differently depending upon the work environment, and if the librarian is happy in his or her workplace and feels that he or she can contribute to decision making, the use of evidence for influencing can be a positive experience. However, in a negative environment, the use of evidence becomes something of a 'weapon' (Thorpe, Partridge & Edwards, 2008), since it is used to 'win' an argument, or is presented as something that is not easily dismissed and must be considered by the group or person making the final decision. This is a much more negative use of evidence, and often does not consider the full picture, as emotions and personalities can cloud reason.

In a similar vein, the dynamic of an organisation is a concept that very strongly emerged from the data as the largest obstacle to effective decision making and evidence use. Problems can occur both within the hierarchical structure of the organisation, as well as among peers.

A workplace that is not functioning well due to poor leadership, or a senior manager that is overly controlling, arose as an obstacle for academic librarians. As Librarian 6 writes in her diary:

> *Latitude and autonomy for decision making is not supported, our decisions/judgment are micro-managed almost to the point of paralyzing us; decisions made by this individual have not been sound, have not been based on all the appropriate information, experience, knowledge* (Librarian 6, diary)

As was previously mentioned in Chapter 5, academic librarians do much of their decision making in groups. In this regard, organisational dynamics of groups came through in the data as a possible source of consternation, something that slows down or even stops progress from being made. Differences of opinion are common, and within the organisation, decision making can be immobilized when strong differences occur. This becomes an obstacle to making progress regardless of the evidence presented. The two examples below illustrate this problem:

> *We were deeply divided between the folks in what we call tech services, and collection development. So the decision kept getting put off because we, in a way, didn't really know how to resolve it, but then eventually we did come up with some criteria and ended up going with the vendor that tech services folks had preferred. [...] So there are lots of-- there were some organisational culture aspects. There were probably some misunderstandings and then there was also, I think, a certain amount of emotional attachment, especially for the folks that work with the acquisitions and all they do all day is order.* (Librarian 15, interview)

> *Actually getting them in the same room – like the one committee, to get them in the same room fell apart because of resistance to moving towards more of an information literacy approach. So, actually getting them into the same room, I recognise as a problem. Number two is an issue of personality, which I realised would be a problem because certainly, I've come into conflict with a number of people because they don't understand what I do and I find it difficult to explain what I do.* (Librarian 5, interview)

Librarians also question their own place within the organisation and the atmosphere in which they work. They are trying to make conscientious decisions based on evidence, but face the obstacle of a culture that has not embraced this way of decision making in the past. For a newer librarian, such as Librarian 10, this is bewildering, and for a librarian that is more experienced, such as Librarian 17, it becomes a source of frustration:

> *Sometimes I feel that I don't know the organisation as well. I will bring things up and they are controversial and I'm not even sure why they are*

> *controversial. I think that has to do with not having been in the organisation as long. The collection policy is saying that I think we should have them [subject policies] and it would be good to go over them. I have gotten pushed back on that and I am not exactly sure why. It is sometimes tough to know whose toes you are stepping on.* (Librarian 10, interview)

> *L17: It's typical of the way this library at large works. Assessment is spoken about but it's not practiced except in very small areas. And I guess, for me, I think the only way that I have any influence is to be the broken record.*
> *DK: Right.*
> *L17: People sort of now roll their eyes. They almost turn and look to me, waiting for me to say 'and what about assessment?' That's just the only way. And where I have, I mean, I can do lots in my own Department, so I can try to answer those assessment questions, or put those processes in place and model that and hope that it will spread to other parts of the organisation, but I still remain frustrated.* (Librarian 17, interview)

Finally, there is also the organisational dynamic of conflicts between peers that become an obstacle to proceeding with decisions, or getting work done. This is illustrated by Librarian 16, who was trying to implement a decision regarding the movement of older periodicals to a storage facility:

> *A couple of librarians just outright refused to get rid of the print, and one librarian who is responsible for about 25% of the list, just never replied to me.* (Librarian 16, interview)

The various combinations of inter-related dynamics in the workplace is a complicated issue, given differences of opinion and the academic environment in which it occurs. Figuring out a way to be heard is an obstacle to many (at the very least slowing progress), and one which leads to the influencing behaviour noted in Chapter 5.

Whereas organisational dynamics can be an obstacle to evidence based decision making, it can also be an enabler. If the culture of the organisation is one which allows open discussion, input, and values the use of evidence in decision making, academic librarians are enabled to practice in a way that they feel very positive about. Participants spoke in general terms about the environment of their institution and how this makes their workplace a good one for decision making. An example comes from Librarian 15:

> *I do feel good about it* [her decision making] *and I feel very supported in it, particularly with* [her supervisor]*. We do want to use evidence and there's a huge culture of assessment with all these new things coming down from the*

> *government. So yes, I think it's a really good time to be interested in data driven decision making.* (Librarian 15, interview)

In other cases, the focus was on group decision making within the institution. A supportive group that can work well together, with a common goal, is a very important aspect of enabling decision making progress. This does not mean that all people in the group have to have the same opinion, but rather that they respect one another, and approach their task with an open mind about what the evidence says, and how that evidence applies to their specific context.

> *This process proved to be consultative, inclusive and wide-ranging in terms of the sources of data collected. I believe it informed the committee's decisions about the approach we would take, the discussion about philosophy and principles and the practical considerations about the process (voting, weighing and ranking) we would implement. This seemed to be one instance where we effectively collected and applied the evidence to produce a Standards document and process for ratification by our Library Council.* (Librarian 17, diary)

> *It was actually a very positive meeting with everyone listening and discussing across the table, as opposed to* [Library Council] *where by the very nature of it being chaired by the UL, everything seems to go through the Chair. The very accepting nature of this meeting is actually a 'step-up' in terms of moving forward to work together and address common issues.* (Librarian 5, diary)

When group members work collaboratively to reach consensus, the outcome is one that members of the group feel positive about.

> *In some of our meetings we looked at some of those [articles] as well, as a group, and tried to figure out what is their key point, and which of our issues does that relate to, and you know, do we think that the solution proposed in that particular article would work for our institution. So, it's been fairly collaborative like that, as far as identifying issues and reaching consensus, and I think it certainly will be a report that the four of us agree on each recommendation. I don't think there's anything in there that anyone doesn't agree on among the four of us.* (Librarian 3, interview)

Others mentioned cohesion in terms of "being on the same page" with other group members, as a positive group experience.

> *We are on the same page, we have more than enough evidence to move forward, the timing is right. I don't really like the word 'synergy', but there was synergy at our meeting – being on the same page and having the same information and similar experiences opened the discussion immediately to the potential, the possibilities, the positive benefits – we weren't sidelined by*

> *resistance, or other concerns, problems, drawbacks – we shared a common focus.* (Librarian 6, diary)

Tying these different situations together is the positive environment in which the participants work, at least in these particular situations. Participants felt they could contribute and work together with colleagues to reach a good decision.

6.3.2 Time

Another obstacle mentioned by a large number of participants was that there is not enough time to find, digest and use evidence. This is an obstacle that has been frequently cited in the literature as a barrier to evidence based practice (Booth, 2011; Turner, 2002), and it is confirmed by this study. Usually the lack of time is due to the workload librarians have, and the need to balance competing demands. Looking at the research evidence, for example, was most frequently mentioned by participants as something they need more time for, and taking the time to find and read the literature was often a lower priority due to other demands in a busy workplace.

> *L11: To be honest, I wish I had more time to read the literature because I think that we should all be doing it all the time; that I should spend an afternoon every week reading about what people are learning and how I can take that and apply it to how we operate our library. I don't think it happens enough.*
> *DK: And is that mostly an issue of time?*
> *L11: Absolutely. One hundred percent, time.*
> *DK: Yeah.*
> *L11: There's only so much reading I can do on my lunch hour and that's basically when I do it unless I'm working on a project where I go and I do a bunch of research, but even then I think that I may be a minority; but for me, I don't have a lot of time to do that leg-work, and I think that maybe my Department suffers as a result.* (Librarian 11, interview)

> *The barrier is mostly time. Yes, because I have a lot of things to do, and I think also I kind of have a lot of ideas like that, so I have to actually rein myself in and figure 'ok, what's the important thing to look at?'* (Librarian 15, interview)

The issue of time is generally considered from an individual perspective, as something that librarians know they should improve upon. The lack of time was not blamed on someone else in the institution, but rather participants emphasized that they know they should be doing more to look at research evidence. There is also

recognition that one has to interpret the evidence that they find, and this can also be a daunting task.

> *I think that I fail in many ways as a practitioner in that I have very little time to follow the research literature.* (Librarian 11, interview)

> *I often can kind of convince myself that there are other things that should take priority. It is all the day to day stuff. I always have this feeling that later in the semester or later in the summer I will have way more time, but that never actually happens.* (Librarian 10, interview)

> *Well, there's time to find a couple of articles but where I get bogged down is when there is a massive amount of articles. I'm there right now with my current project. So much to read and incorporate.* (Librarian 8, diary)

Finally, there can be internal deadlines which limit the amount of time that an individual or a group has to find evidence sources to contribute to the decision. In these cases, they have a defined time period to work on the project at hand, and looking at different sources of information is part of that process. However, the deadline for working on the project may be a set one, in which case the individual or group has to report back to another decision making body or individual, and thus, they are pressed for the time (given other work that is still happening) to find and incorporate all the evidence they would like to consider.

> *The only thing is I'm getting a little bit concerned about the timeline.* (Librarian 19, interview)

> *We agreed on these restrictions because we have some reports on file that looked at the older literature, and the 'Canadian' restriction is a method of preserving sanity and finishing this before our end-of-the-month deadline.* (Librarian 3, diary)

In essence, a lack of time is about priority setting and competing interests. When immediate work such as public service, meetings, and unexpected issues arise, it is more difficult to find quiet time to think, read and reflect, or conduct research.

While time was generally viewed as an obstacle to evidence use, it can also be an enabler. Some participants were in institutions that incorporated research time into the librarians' duties. Hence, they have a percentage of their work time devoted to scholarly activities. In other cases, people were given release time from other tasks in order to focus on a particular project.

> *Our contract gives us 10 or 12 research days per year, where we are allowed to put down everything and just work on a research project.* (Librarian 12, interview)

> *I had time set aside. I mean, I had time; well, it wasn't really very much, but the four hours that I was working on the reference desk, I was pulled off that for the winter in order to work on this project.* (Librarian 15, interview)

Having the ability to carve out dedicated time emerged as a great enabler to being able to do one's own research, to reading and gaining knowledge in particular areas, and in contributing to a culture of using research for decision making within the organisation.

6.3.3 Personal outlook

An unexpected determinant, since it is not mentioned in literature of the research-practice gap, is what can be referred to as 'personal outlook'. As an obstacle, it consists of negative feelings, lack of confidence, fear, self-doubt, and other emotions. It relates to individual practitioners and may impact how those individuals move ahead or not in relation to their decision making. Often, self doubt is related to a lack of experience with a particular area of one's work, and may also impact one's willingness to reach out for help due to embarrassment or feeling stupid.

> *I don't think I will do a good evaluation of my collection. [...] I don't feel always confident in my decisions. I know that I will probably never feel completely confident in my decisions but I feel that I am having to make up for a lot of what I don't know about, so I find that problematic.* (Librarian 10, interview)

> *I was so frightened of doing that focus group research; I just felt so inexperienced for this actual research business. I've never done focus groups before and so I did my-- I felt I did due diligence in terms of getting my posters up and sending out information to the liaisons so they could pass it on to their faculty and that kind of thing, but honestly, I don't think-- I don't know, I don't think I did enough. I was probably immobilized by fear. That's terrible.* (Librarian 8, interview)

> *If I have to be perfectly honest here, yes, sometimes I feel kind of embarrassed. It's just like I should know this kind of thing, especially if it's an area that I feel I should have expertise in. If it's an area where I don't have any expertise, I generally feel pretty comfortable going to somebody, but yes, I find that difficult.* (Librarian 15, interview)

These examples show the types of negative feelings about one's own performance that may arise. For participants to open up in this manner during the confidential

interviews, was not easy for them. These personal feelings impact how academic librarians move forward in their process of decision making. If they have strongly negative feelings of self-doubt and are within a negative work environment, this may lead to avoidance and means they will bypass certain types of evidence that would actually be useful in their decision making.

While for some participants, their own personal outlook was an obstacle to evidence use in decision making, for others it played a positive role. Personal outlook emerges as an enabler in a variety of ways: when a librarian adopts a positive attitude despite a negative circumstance, or always looks to find something positive that they can do within their context, regardless of the organisational climate. As well, when librarians do not feel helpless due to a lack of information, but instead choose to investigate by either gathering more information, talking with colleagues, finding sources of evidence to confirm what they are doing, or educating themselves (via self study or more formal instruction) so that they can improve in their decision making for next time. For these people, the entire process of what they do is one that is a learning process, and they embrace that they do not necessarily know everything. This is an enabler to facilitating discovery, having an open mind regarding what the evidence says, and not feeling bad about oneself as a professional.

> *DK: So, how do you work through that in terms of what, like, what are your strategies or how do you approach that kind of situation when another person is so much involved, as well, with ultimately, the success of what you're trying to do?*
> *L18: Well, I have to make a decision. I mean, sometimes I feel that given the individual and their knowledge, their skills – I mean, a lot of it is skills because people back off because they don't feel they have the skills to deal with something, right? They'd just rather ignore it. But if I feel that they might be willing to kind of develop some knowledge and skills and continue to work with a situation, I mean, that's just it. [...] I have to try to assess whether or not they're in it for the long haul.* (Librarian 18, interview)

> *DK: I'm wondering what you might plan to do to approach that perceived lack of knowledge.*
> *L8: Well, I'm glad you asked because I'm already walking down that path.* [goes on to explain her plan for improving her skills, and the fact that she really likes teaching and that it is incredibly important]. (Librarian 8, interview)

A positive outlook is an internal factor tied to the individual. While personalities differ, a positive outlook may be enhanced through a positive work environment where the

person has a support system, and also through education to fill gaps and make the individual feel more confident in what they are undertaking.

6.3.4 Education and training

Education and training was another determinant mentioned by participants as affecting well-informed decisions. As an obstacle, participants reflected on the gaps in their training, and their lack of experience in certain areas. This was mostly the case for newer librarians, or when a librarian had a very new job. For example, Librarian 10 notes:

> *Another roadblock is that I did not take Collections Management in library school. Not taking collections is something I regret.* (Librarian 10, diary)

As a newer librarian, Librarian 10 is trying to learn about collections, and the specific collection areas she is responsible for, while doing the job. She feels this is a large responsibility, and reflects in her diary about the difficulty in trying to determine the best sources of information. She goes on to note:

> *I have very little training in collections and it is such a large field. It's varied and there are so many different aspects to pay attention to, all of which have a body of literature behind it. There's also wildly different opinions on the topic. I'm left wondering what are the most important aspects of collections to pay attention to and what are the best pieces of evidence to use for decision making.* (Librarian 10, diary)

Librarian 8 notes that a lack of experience doing research is a barrier for her, and this is something she is trying to learn more about as she begins to do research. The lack of research training is combined with her internal lack of confidence, despite the initiative she has taken to read about research methods and her familiarity with evidence based practice.

> *I know that one of the barriers to EBL is the actual or perceived lack of research experience among librarians (they feel they don't have the experience). And it's really a strong feeling. The feeling like you know what you want to do, what the end goal is, but no matter how many books you read about research methods, or how much you hear about other colleagues doing good research studies, if the confidence isn't there, it's really tough to move forward.* (Librarian 8, diary)

Lack of education often comes together with the personal outlook obstacle. Where librarians lack knowledge on a topic, they also seem to lack confidence. Those who can identify the gaps in their knowledge, such as the librarians who spoke about it as

participants in this study, will be able to address the problem if they are willing to learn, and have support from their institution to do so.

Correspondingly, having the opportunity for ongoing education, beyond one's formal education, came up as an enabler to making good decisions. The most frequently mentioned form of this type of education was mentoring, but other educational opportunities, including conference attendance, instruction sessions on specific topics, keeping up with literature via current awareness services, and group discussions with colleagues on particular topics (such as a journal club or discussion group) were also noted as ways that academic librarians could continue to learn and be more confident.

> *L19: I mean, one thing I think librarianship in Canada could benefit from more as a whole, is having some sort of mentorship program from someone outside of your institution.*
> *DK: So if there was such a program, what would you hope that it would give you, I guess, as a newer librarian?*
> *L19: I think, well, partly someone to bounce ideas off of. Sometimes I wonder, am I totally crazy to be suggesting this or not? Is this a good idea? Or, how have they approached decisions; and I don't know, just someone to run things by when you're stuck in a problem that you can't quite figure out. And also, somebody who is already well networked in so they can introduce you to their network so that you can start to meet people.* (Librarian 19, interview)

> *I would still like some more formal information about how to structure a library instruction session, as well as what kinds of hands-on things can I get the students to do so they will engage with the material.* (Librarian 8, diary)

Participants identified these types of learning opportunities as helping with their professional growth toward making better decisions.

6.3.5 Information needs

Meeting the information needs of librarians is another determinant to making evidence based decisions in academic libraries. When academic librarians do not have sufficient information to answer their questions, it creates an obstacle to good decision making. As an obstacle, this determinant can consist of a variety of factors, including the inability to obtain local statistics, difficulty accessing the research literature, or encountering tools that are complex to use. Sometimes, information is received but it does not address the specific need, and it would take too much time and effort to manipulate that data into a usable format, meaning it goes unused.

The following quotes show librarians attempting to retrieve local statistics related to collections so that they can make better decisions based on that data. However, in the end they are unable to obtain what they need, and simply have to do without, or else come up with workarounds to the problem. In some cases, the information gathering can continue via another means, and in other cases, it results in a lack of information that the librarian wishes they had in order to be more confident about their decision.

> *I've stopped using circ stats in my collecting because doing titles individually is too cumbersome and asking someone to do the stats for me takes too much time.* (Librarian 10, diary)

> *DK: The report you received, was that helpful to you?*
> *L16: No, not in the least. Yeah, just disastrously unhelpful because it didn't account for title changes, so I got 3000 some items that were all listed as short run journals. And then when I started looking at it, most of them were title changes and there was no way for me to pull it out of there, so I simply went up to the shelf with a stack of blue dot labels.*
> *DK: Oh, okay, and did it that way.*
> *L16: Yeah.*
> *DK: So, visually looking at it?*
> *L16: Yeah.* (Librarian 16, interview)

> *Where we don't have data is, say, in the use of the reference collection, and reference weeding is happening right now. It's happening very aggressively. And we lack absolutely any hard data on the use of the collection, because we have no scanning equipment that records the number of times that an item was placed back on a shelving cart. It would be simple to buy a handheld device, and to scan all the items before you put them back on the shelf, but we've never purchased that equipment or gone that route.* (Librarian 12, interview)

In a similar vein, Librarian 17 expresses her disappointment with the data that she gets from the *LibQual+*® survey. This is the type of information that she wants for her Department library, but because the survey was done at the institutional, library-wide level, the data that is specific to her subject area is very limited and of little use to her:

> *The piece that bothers me is that when we get down to looking at the information at the Department level, the sample size is so small for us that I can't attribute any real validity or reliability to the information that's being retrieved because in some cases you know, there's only four people saying that. What about the 1396 others that weren't even commenting? So you sort*

> *of question the real value of doing LibQual or similar kinds of surveys.* (Librarian 17, interview)

Another area where academic librarians' information needs are not being met is within the documentation of their own institution. This is especially problematic for those who are new to the institution and are trying to understand the organisation's policies, procedures and vision:

> *We don't have a lot of background documents. When I started it was a bit of a nightmare figuring out - like, there's only one document that I've seen that's kind of a strategic plan and that's because we had to produce it. Just because everyone here has been working here a long time and it's such a small group and it's such a flat organisational structure that kind of everyone has a sense of where we're headed; but not the new person. And that's another thing – we don't have a lot of notes for things. So the organisational history is just kind of all in memory and as the new person that's kind of what I was coming into.* (Librarian 19, interview)

> *There are not a whole lot of guidelines. I am the only person who had any collection development policies with my subjects.* (Librarian 10, interview)

Finally, gaining access to the literature via indices was also expressed by a couple of participants as being problematic, either because they did not have access, or the interface was terrible to search.

> *Started my lit search in Wilson's Library and Information Science Fulltext. It is the only library specific database I have access to. It is such a horrible thing to search!* (Librarian 3, diary)

While 'information needs' did not arise with participants as an enabler, it was noted as significant obstacle. Hence, it is included in Table 6.3 as an important overall determinant, and following the other examples, it was determined what the opposite of the obstacles would be for that factor.

6.3.6 Financial considerations

Limits pertaining to finances were an obstacle raised by some participants, and as such they are mentioned here, although unlike the other determinants, they do not really have an impact on the use of evidence. Unlike other obstacles, finance was really just mentioned as a fact of the current organisational situation. Mainly, it is noted to show that finances are a consideration, and hence, what one library is able to do is not going to be the same for another library. This comes through in comments about space limitations and the need for a new building, or in the

challenges of determining what information resources may have to be cancelled. Such challenges limit what collections and services librarians can provide to users. It also limits the resources that librarians may have for their own decision making.

> *We had a meeting on Friday where we discussed potential cuts of subscriptions to databases. We had this conversation because there is no increase in our budget, meaning that with the yearly increases in subscription prices we actually have losses. This was just a preliminary discussion and at the end the subscription products we use for collecting were brought up. At the meeting RCLWeb received support for being cut. At the meeting I was resistant to having it cut and I expressed that I felt we don't have a lot of resources for us to make decisions.* (Librarian 10, diary)

> *Space is a big constraint for us, just in terms of, we're hoping to get a new library, like everyone I guess, but we could really use one right now.* (Librarian 2, interview)

This obstacle is really about a realistic limit around what new infrastructure, equipment, resources, staffing, and so on, are possible. It, in fact, becomes a criterion, or a source of evidence (facts) when making decisions within the organisation's means and priorities. Hence, it is not included in the table below as one of the five determinants to the use of evidence in decision making.

6.3.7 Summary of determinants

Table 6.3 summarizes the five main determinants that arose from this research that influence whether academic librarians will use evidence in their decision making. The table notes specific examples or traits for each factor, whether enabler or obstacle. These specific examples were drawn directly from the data obtained from participants in this study.

6.4 Determinants and individual level of decision making control

As was discussed in Chapter 5, academic librarians have different levels of control over their decisions. An individual librarian sometimes makes decisions independently, but also makes decisions as part of a group, and often the final decision making power lies with someone else. In relation to this level of control in which decisions are made, the determinants of evidence use can be placed.

Table 6.3. Determinants that can be either obstacles or enablers to evidence based decision making

Determinant	As an enabler	As an obstacle
Organisational dynamics	Collaboration Positive work environment Supportive colleagues Open discussions Culture values evidence	Division/conflict amongst colleagues Negative work environment Poor processes Poor leadership Culture does not value evidence
Time	Dedicated time for research Making research a priority	Too many competing demands Research not seen as a priority Heavy workload Tight deadlines
Personal outlook	Remains positive Open mind Confidence	Self-doubt Feels insecure Negative emotions Afraid to ask for help
Education and training	Mentoring Conference attendance Skills training Current awareness of literature Journal club	Lacking knowledge in specific areas / knowledge gaps Lack of research training
Information needs	Good access to literature and local data	Insufficient information available Difficulty accessing the literature Inability to obtain local data Poor organisational documentation

Figure 6.1 visually represents the factors that may be either obstacles or enablers to evidence based decision making. Each is placed according to where the level of control for that factor primarily lies, with more personal control or external control of the determinant. Personal outlook is highest in relation to personal control, because these are internal feelings and emotions that belong to each individual, and for which they are responsible. On the other end of the spectrum is organisational dynamics, which is very highly connected to external control, but low on personal control. While each individual contributes to the organisational culture and dynamic within the organisation in which they work, the overall environment is one that is largely outside of an individual librarian's control. So, for example, if they work within an institution

where the use of evidence in decision making is ignored, it will be very difficult for one individual to change that culture.

The remaining determinants are closer to the middle, with education being higher on the level of personal control. Academic librarians in Canada do have a fair amount of autonomy as professionals, and can usually undertake education and training opportunities without a problem. Hence, this factor depends more on what an individual librarian does to nurture their own learning opportunities. Essentially, as a professional, it is up to each librarian to be responsible for their continuing education. The organisation in which they work, however, does play a role and may be more or less supportive with monetary support, time allowances to attend conferences, and so on.

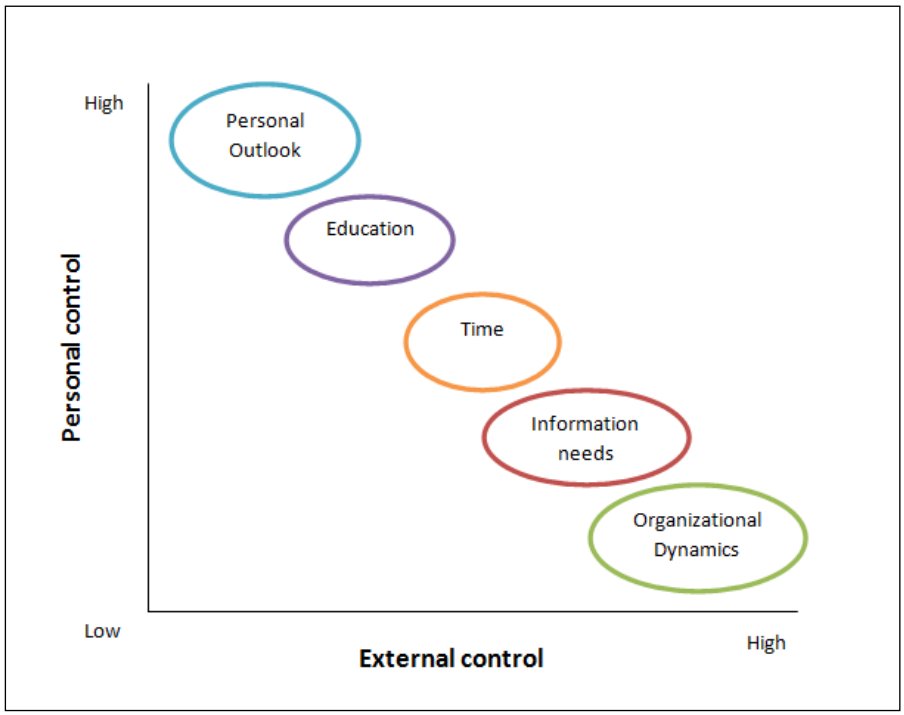

Figure 6.1. Determinants affecting academic librarian evidence based decision making, by level of control

Information needs are placed closer to high external control because with respect to finding evidence, academic librarians have to work with the systems that are in place, regardless of whether these are good or bad. They still do have individual control over this factor, however, in ensuring that the local information they require is being collected, for example in doing evaluation of their information literacy efforts.

But with respect to external sources of information, many factors relating to the availability and usefulness of evidence is beyond any one person's individual control.

Finally, time is placed in the centre of the figure, as it is a factor that equally depends upon personal and external control. Managing one's time and setting priorities is a very personal action that every professional has to take responsibility for. However, the organisation also plays a large role in the demands they place on academic librarians, and sets the tone for the importance of devoting time to research activities. For example, some participants work at institutions where they are given a certain number of days per year, or a percentage of their overall work time, to devote to scholarly activities. Such institutional support tips the scale in favour of time being an enabler rather than an obstacle.

Both individual librarians and the organisations they work for can influence whether the determinants identified become obstacles or enablers to evidence based decision making. The internal and the external interact for all of these elements. It is paramount that both individual librarians and organisations examine their practices and consciously try to adapt the positive traits that will ensure that these factors become enablers rather than obstacles.

6.5 Chapter conclusion

This chapter explored determinants to whether evidence will be used in decision making. The five factors of organisational dynamics, time, personal outlook, education and training, and information needs, emerged as factors that impact decision making and could be either obstacles or barriers depending upon how those factors are treated. Personal outlook has not been identified as a major factor in previous studies, but this research demonstrated how academic librarians could reflect carefully on the situation and their own personal approaches in order to be able to increase confidence and knowledge needed to competently make a decision. Clearly the extent to which the academic librarian participants can impact a decision depends on the degree of control they have. All five factors are influenced by a combination of personal and external control. For example, evaluation of an information literacy programme may require some evidence that can be collected

independently of the setting, but availability of appropriate data will depend on system capabilities and organisational protocols. This interacts with the time available and prioritisation of work activities. Organisational dynamics influence the acceptability of the programme for other library staff as well as faculty, and that interacts with personal outlook of those library staff responsible for the programme – how much are they willing to promote different ideas to faculty and their colleagues?

Chapter 7 will move from findings into the discussion of those findings, within the context of the literature reviewed in Chapter 2. In a reflective manner, the chapter will focus on how this study addresses the research questions asked, and will consider the implications of the findings for scholarship and practice.

Chapter 7: Discussion of Findings

7.1 Introduction

The purpose of this study was to examine the underlying assumptions of evidence based library and information practice (EBLIP) by exploring how librarians use evidence in their practice, and by determining whether the decision making model upon which EBLIP is based fits with how academic librarians actually incorporate research and other types of evidence into their practice. This chapter discusses the relevance of the research findings, which were detailed in Chapters 4-6, in light of the specific research questions posed. Since the study used grounded theory methodology, the data was considered on its own merit and not made to fit within any pre-existing models from the literature. However, having now detailed the findings, it is useful to interpret what those findings mean, and how they fit with the bodies of literature noted in Chapter 2. Each of the research questions will be considered in a separate section below.

7.2 How academic librarians incorporate research into their decision making

The first research question posed within this study was: *How do academic librarians incorporate research into their professional decision making?*

The findings from this study show that research is valued by academic librarians, and is used as an evidence source in their decision making. However, academic librarians do not automatically assume that research is useful or beneficial just because it has been published. They look at research with a sceptical eye, and also want to ensure that the research is applicable to their own situation. As is discussed in the body of literature on the research-practice gap, often research is not sufficiently relevant for practitioners (Wilson, 2003; Turner, 2002), which creates a disconnect between what practitioners may read in the literature and what they witness themselves in practice. That is not the case for all literature, and the practitioners who took part in this study certainly did note the literature as one source of evidence that they used, and which they felt was a good source. However, it is clear that the research literature alone rarely provides specific answers to the

questions that practitioners have, leading to the need for other sources to assist with decision making.

Research evidence is almost always used in conjunction with other forms of evidence, including those that are categorized as “soft” sources, such as professional knowledge and intuition. Librarians use many forms of evidence when making decisions and research is but one of them. Librarians also incorporate other evidence sources such as statistics, local research and evaluation, and input from colleagues, in order to look at many variables prior to making a decision. As was previously noted by Davies, Nutley, and Walter (2008):

> Whether and how new information get assimilated is contingent on local priorities, cultures and systems of meaning. What makes sense in one setting can make a different sense in another. Moreover, contexts are dynamic: the likely interactions between new knowledge and shifting contexts defy ready predictability. (p. 190)

The hierarchy, or levels of evidence in both EBM (SUNY Downstate Medical Center, 2004; Howick et al., 2011) and EBLIP (Eldredge, 2000a; 2000c, 2002, 2006), focus on privileging certain types of research evidence for decision making, with a very narrow scope of research at the top of the hierarchy, and with elements that are less scientifically reliable at the bottom, or not even included. The levels of evidence are meant to provide a starting place to focus on the best evidence available. This approach is not one that is used by academic librarians when decision making. Partly, this could be because the LIS research literature is not robust enough to produce volumes of research studies on any topic where filtering by methodology would be needed. But, this study illustrated that regardless of what was found in the research literature, the academic librarian participants would combine that research evidence with other evidence sources in order to make a well-rounded decision. The research literature provides insights on a topic, but it does not hold all the answers, nor does it address local needs.

Academic librarians value research evidence, but they equally value input from colleagues. As noted, research found in the literature is often not directly relevant to the situation at hand. Input from colleagues provides confirmation and support from those who know the local situation and the nuances of why something may or may

not work within a specific context. Hence, both aspects are important in an academic librarian's decision making. This is in keeping with the literature of practice-based evidence which stresses the importance of the "soft" sources of evidence. The same can be seen in other professions. In health care, for example, Gabbay and LeMay (2011) found similar results in their ethnographic study on the acquisition and use of knowledge by health care professionals. They observed that judgment and "knowledge-in-practice-in-context" (p.65) are essential. Their mindlines concept demonstrates the importance of skills and knowledge beyond what is found in the research literature, and its contribution to decision making. As a group, professionals collectively reinforce aspects of their practice which are informed by their training, experience, understanding of the local situation, what they learn from others, and daily interactions. The science of a practice cannot be isolated from the other skills and knowledge that professionals bring to their practice. Decision making requires judgment and contextual knowledge, to be used alongside scientific information.

The recognition that research cannot be used in isolation is also in keeping with Usher and Bryant's (1989) statement that "the practitioner therefore needs to have a situational or contextual knowledge which encompasses an understanding of these possibilities and constraints, and an awareness of their implications for action." (p. 75). The practitioner's situational knowledge, their practice wisdom (Clark, 2011), and internal guidelines are essential components of decision making. To tie this back to the research-practice gap literature, for professionals, the science and the art of a profession cannot be separated. Librarians' use of sources such as their own experience and knowledge, allows them to understand and properly use the literature. When researchers raise concerns that their research is not being used in practice, it may be because it does not apply to the real-life situations, and may need further refinement to be meaningful and useful.

LIS practitioners are beginning to more actively take responsibility for making their own knowledge explicit, and contributing to the knowledge-base by participating in research that may be more active and an actual part of their practice, providing direct and meaningful answers. Methods such as action research (Curry, 2005; Ballard, March, & Sand, 2009; Brown-Sica, Sobel, & Rogers, 2010) allow this direct connection with practitioners in their daily environments and situations involving their

service users. Librarians are also forming communities of practice (Urquhart, Yeoman, & Sharp, 2002; Urquhart, Brice, Cooper, Spink, & Thomas, 2010; Ponti, 2010) where practice based knowledge is reinforced and learned within the community. This is a way to bring the knowledge that was more hidden and tacit into the forefront, as a new method of adding knowledge to the profession. While the community of practice idea did not explicitly emerge as a point of discussion in this research, many of the concepts did. For example, the importance that participants placed in learning about "what other libraries do" and the high emphasis on gaining input from colleagues, show that practitioners are working within communities of practice for enhancement of their own knowledge, and for reinforcement before moving ahead with new ideas. This implies that communities of practice are functioning, but are not explicitly known; they are natural extensions of functioning practices, which help guide and move the practice forward (Gherardi, 2009; Schatzki, 1996). A community of practice may exist within the workplace, where local context is very important, or at a broader level amongst colleagues at other institutions. This broader community is built through conference attendance, as well as committee work on issues of shared interest, and references from colleagues.

In conclusion, academic librarians do incorporate research into their professional decision making. It is used as one element among many that will influence the final decision. Other types of evidence also impact that decision, and the impact of a librarian's work environment and what is known to be beneficial in practice, are also key determining factors within a librarian's decision making. To ensure that group decision making is successful, fostering an environment where knowledge and information can be shared and freely discussed is important. Research is an important factor in librarians' decision making, but not always the most important factor.

7.3 What the term evidence means to academic librarians

The second research question asked: *What does the term evidence mean to academic librarians, and how does the term relate to what they use and who they consult for decision making?*

Within evidence based practice, which seeks to apply the best documented evidence to practice, the 'evidence' focus has traditionally been on research evidence, which needs to be gathered and critically evaluated. As was discussed in Chapter 2, the model focuses on finding external research evidence that may assist with decision making, critically appraising that research, and if appropriate and high quality evidence is found, applying it to change practice. The practice of librarianship followed suit, adopting the model from evidence based medicine, and similarly focused efforts on finding quality research evidence and applying it to practice. However, the amount of research literature in LIS is far smaller than that found in medicine, and the types of decisions being made are not the same. Other professions that had also adopted evidence based practice began to question whether there were other forms of evidence rather than just research within their profession (Rycroft-Malone, 2004; Brophy, 2009; Clark, 2011).

When librarians in this study were asked about what they considered to be evidence, they took a broad view and were generally very open to what might be considered evidence, noting that evidence sources could be different depending upon the situation. In naming sources, they most frequently pointed to research literature, statistics from local data, and "what other libraries do". They also mentioned experience, opinion, and anecdotal evidence, although they were less certain that these could truly be called evidence sources. In examining what academic librarians actually used as evidence sources when making decisions, all the above sources and more were used, confirming that in academic librarianship, the forms of evidence extend well beyond research. This is in keeping with the work of Davies (2007) who pointed to performance evidence as another form of LIS evidence besides research, and Casey (2011), whose findings showed that the librarians at the institutions she studied used local forms of evidence such as usage statistics, benchmarking against other institutions, and evaluation of library programs and services.

The literature of practice theory is useful to understand how practices (librarianship being one) function. It provides a lens to better understand and validate the use of the soft forms of evidence that are incorporated into decision making. Practices embody many skills and elements of knowledge that are tacit and are not necessarily

easy for practitioners to explain. Knowledge and understanding are learned through the active function of practice by an individual, within the larger body of practice. In this case, that body is academic librarianship. As Gherardi makes clear, practice is tied to its intersubjectively created meaning, which is reinforced and changes over time through constant negotiation within the community of practice (2009). As practitioners act in practice, they are actively gaining new knowledge and participating in the refinement of that practice. This is in keeping with Ryle's (1945) concept of "knowing how" within practice, which is distinct from the more scientific aspect of "knowing that". Schön (1983) brings the elements of science and art together when he notes, "Even when [the practitioner] makes conscious use of research-based theories and techniques, he is dependent on tacit recognitions, judgements, and skilful performances" (p.50). Although the use of research to assist with decision making relating to practice is very important, the other aspect of how to actually translate that research into something meaningful within practice is paramount. Schön's comment rings very true within this research study. It is clear that academic librarians need both the hard and the soft sources of evidence in order to be effective practitioners.

Evidence sources will vary depending on the type of problem. For example, as Agor (1989) and Dane and Pratt (2007) point out, there are situations when expert intuition is useful. These include situations with significant time pressures and high uncertainty, in which a quick judgment needs to be made. In these situations, an experienced practitioner (expert) in the field is best to make the decision and intuition can be effective. Such scenarios occur in libraries when there is an emergency situation, a problematic patron, or a difficult human resource issue, to name a few examples. Decisions have to be made quickly and the soft sources of evidence very much come into place by helping librarians make good decisions in such circumstances. However, for decisions that are more planned and have time for investigation, the soft evidence simply offers a basis of knowledge from which to work and assist with the process of decision making. In these, more common cases, the librarian would use the hard evidence sources to develop a more complete picture based on data, facts and research in order to come to a logical conclusion about what decision is best. The evidence sources used would be those that are most appropriate depending on the question. For example, in the case of designing

an information literacy service, the group working on the strategy would look to the research literature, as well as articles about what other institutions have done, examine any past information literacy evaluation that had taken place at the institution, consider learning outcomes tied to the curriculum, talk with faculty, and so on. Many sources of evidence would be weighed for the team to come to a decision on the best way to provide service in that particular library.

Given that the history of EBLIP dates back to 1997, the lack of literature relating to what constitutes evidence in LIS, is somewhat surprising, especially for a movement where the key word in its name is evidence. Beyond, LIS, the philosophical body of literature about what constitutes evidence generally agrees with the Oxford Dictionary's (2011) definition of evidence as "the available body of facts or information indicating whether a belief or proposition is true or valid". Evidence is commonly thought of as something constituting a form of proof to enhance a claim (Hornikx, 2005; Upshur, VanDenKerkhof, & Goel, 2001; Reynolds & Reynolds, 2002; Twinning, 2003). The participants in this study met this definition in the sources of evidence that they gathered and used as proof in decision making related to problems or questions in their workplaces. The use of evidence was continually tied back to the context of the situation in which the decision was being made, and used alongside professional knowledge of the situation, which brings weight to Tarlier's (2004) assertion that evidence is only valuable within the context of existing knowledge in a profession.

7.4 Evidence use

The third research question was: *What forms of evidence do academic librarians actually use when making professional decisions? Why do they use these types of evidence?*

This study found that evidence sources can broadly be categorized into two areas: 'hard' and 'soft' sources of evidence. As is detailed in Chapter 4, hard evidence refers to evidence sources that are more scientific in nature. There is some written, concrete information tied to this type of evidence. Examples include published literature, statistics, reports, and local research projects. Soft evidence, on the other

hand, is non-scientific. It focuses on experience and accumulated knowledge, opinion, and instinct. Examples include input from colleagues, tacit knowledge, and anecdotal evidence. There are benefits to both broad types of evidence. Hard evidence sources are generally more scientifically rigorous, they confirm or add to knowledge that is based on your past experience and training, they increase confidence, and other people place more value in hard sources of evidence. Hard evidence can be used for convincing purposes, and ultimately increases the depth of professional knowledge. Soft evidence sources are also important; knowledge and experience allow one to judge situations and make quick decisions when necessary. It enables the necessary analysis and reflection on hard evidence sources, and facilitates putting problems into context.

The question may be asked if both types of evidence are equal in weight, and whether soft types of evidence should really be considered evidence. This study showed that both types of evidence were used and valued by academic librarians. Both soft and hard evidence sources are used in conjunction, bringing together the science and the art of practice. The art of the craft allows librarians to embrace the messy situation, find ways to be creative, put professional judgments to use and find the best solutions to meet the needs of individual users by applying the best of what is found in the research literature together with the best of what they know is likely to help a person. The science allows for certainty, confirmation, and builds the overall knowledge base. Since the types of evidence were already discussed in section 7.3, this section will focus on how evidence was used.

The main theoretical contribution of this study has been that librarians use evidence for convincing. As was described in detail in Chapter 5, convincing has two sub-categories, confirming and influencing, which depend largely upon the context of the decision making. As individual practitioners, academic librarians are very conscientious and use evidence (including research) to be more confident and confirm that they are making good decisions. Individual decision making usually occurs in cases of everyday decisions that do not have a huge overall impact on the organisation, such as determining which books to purchase, or what to teach in an information literacy session. For individual decisions, academic librarians use evidence sources to confirm that they are making the best decision. In order to

confirm, they may discuss a situation with colleagues, consult the research literature, or look at other local data. Research literature is one form of evidence used to confidently make a decision. This is in keeping with findings in medicine regarding the cognitive impact of research information on clinicians (Grad et al, 2011; Pluye et al, 2012). While this study indicates that librarians do keep an open mind when looking at evidence sources as part of their decision making, there is a danger that librarians may potentially seek only that information which confirms what they already think. Confirmation bias (Robbins, 2005) can lead to a false sense of confirming and potentially lead to poor decisions being made. In order to avoid such pitfalls, librarians must be conscious of this and other biases that may impact their decision making.

More important decisions in academic libraries are usually made as part of a group. Group dynamics and organisational culture impact the decision making process in ways that are complex, strategic, and certainly not always rational. Individuals will use the various forms of evidence they find as tools to influence the decision making of others. In this study, there were examples of group decision making that were positive and open, wherein all pertinent evidence is shared and discussed in a collaborative manner. This is in keeping with the positive aspects of decision making that are noted in the literature, namely higher quality decisions, increased acceptance, bringing more alternatives to the decision making process (Robbins, 2005; Greenberg & Baron, 2008), as well as with a collaborative, shared leadership environment (Mirijamdotter, 2010), and a creative workplace (Amabile, 1997) where individuals have positive challenges, encouragement, and support, enabling creativity to thrive. On the other hand, this study also encountered examples of group decision making that was negative and narrow, wherein evidence is picked and chosen to simply strengthen a predetermined position. This is a danger of group decision making, as noted by Greenberg and Baron (2008), especially when a dominant leader is involved, and members of the group do not feel the ability to contribute freely and openly within the decision making process. Going forward, the EBLIP model should take into account the large degree of group decision making that is done in academic libraries.

The complexity of organisational decision making in academic libraries is well captured in the four models outlined by Choo (2006), and this study confirms that Choo's model is still valid. Procedural uncertainty and goal uncertain play a large role in organisational decision making. The decision making environments that were present in the organisations in which participants in this study worked, clearly had an influence on how they approached their decision making. More negative examples emerge when goals or processes are unclear, or when there is conflict with a senior decision maker. In situations where an anarchic decision making environment seemed to be operating, one way that the librarians coped with the lack of structure, was to use research evidence as an advantage to back up the solution they would like to see happen. This was also the case when in a political situation where there were differing viewpoints. Research evidence was used to make a stronger case. When goal uncertainty and conflict within the organisation were low, as in the cases of the rational and process models noted by Choo, group decisions by the librarians involved proceeded more smoothly. Because there was a clear direction or at least a clear process to reach a decision, and conflict was not a dominant aspect of the decision making, the librarians could work well with their colleagues in a group setting, bringing forward different forms of evidence and evaluating all the evidence sources to arrive at what they felt was the best decision.

The use of evidence for influencing that was found in this study aligns with the findings of Thorpe, Partridge and Edwards (2008) and Partridge, Edwards and Thorpe (2010), who found five different ways that information professionals experience evidence based practice. All five categories include some level of influencing as it pertains to decision making, and depend upon power and relationships within an organisation. This study agrees with Partridge, Edwards and Thorpe when they conclude that "the practitioner and their environment will influence what approach can and should be used within a specific situation or context" (2010, p. 294). No two situations are the same, and the process of applying evidence is not a simple one. This study indicates that in addition to using evidence for decision making, evidence is also used as a tool for influencing behaviour. Such use does not negate the use of evidence for good decision making, but it adds complexity and an element that has largely been ignored within discussions about EBLIP.

This study found that in general, research evidence, along with evidence of what other libraries do, and local statistics, are the strongest forms of evidence for convincing others of a position, as they hold more weight. This largely agrees with Hornikx's (2005) review article noting that statistical and causal forms of evidence are more persuasive than anecdotal evidence. There are no similar studies in LIS but now that this study has shown the types of evidence that are used by academic librarians, a similar study within LIS would be possible and help to determine why certain types of evidence are more influential.

When making group decisions, librarians feel more positive about the process if they are in an environment where they can contribute and collaborate on the decision. When this happens, the decision is likely to be more successful. As Greenburg and Baron (2008) point out, smaller groups tend to function more successfully, since group members are usually able to contribute more than in bigger groups. Librarians making decisions in groups should be aware of the potential danger of 'groupthink' (Janis, 1982) and ensure that cohesiveness does not mean that group members are afraid to speak or contribute differences of opinion or contrary evidence. If that happens, it will diminish the effectiveness of the group's decision making. The individual questioning and exploring that is promoted within evidence based practice needs to carry through into group situations, ensuring open discussion and evaluation of the available evidence.

Librarians are continually negotiating with others in the workplace. The more important the decision, the more likely that others will be involved in that decision making, and individual control is diminished. In order to compensate, librarians will try to convince others of what they feel will be the best decision. This convincing is often done using 'hard' evidence sources, as those seem to be most persuasive to other people and increase the chance that the decision made will be agreeable to the librarian doing the influencing. This process can potentially be devious, but not likely. However, librarians may subconsciously be biased to a particular point of view if they do not consider all sides of the argument and look at all the evidence. In a well-functioning work environment, convincing can be used openly and honestly, to the point where everyone can achieve consensus and work towards shared goals.

The EBLIP movement has not previously recognized or examined the reasons why librarians may be using evidence. It is assumed that evidence use contributes to better decision making. However, there is a huge gap in the EBLIP process, wherein the actual process of decision making is not accounted for. It is assumed that an individual librarian will make a decision and use research evidence to guide that decision. Group decision making and the dynamics of decision making within organisations has not been addressed, and is a gaping hole in the literature of evidence based practice. The introduction of group and organisational dynamics within decision making will actually make the EBLIP model more meaningful because it is more true to how most librarians make decisions. Understanding that librarians use evidence to convince, allows an entire organisation to proceed with this as a known entity, and should enable that organisation to look more completely at what the pertinent forms of evidence contribute to the decision, to weigh those pieces of evidence, and to make a decision that is more transparent. The use of evidence for convincing illustrates the complexity of decision making, particularly within academic libraries, and points to the fact that evidence sources do not stand alone, and are not enough in and of themselves. The EBLIP process must account for the human interactions, and organisational complexity within which decisions are being made.

7.5 Use of the EBLIP process

The final research question was: *To what extent do academic librarians use the EBLIP process when trying to make evidence based decisions? What aspects of the EBLIP process, if any, need to be changed in order to better account for the needs of academic librarians in the decision making process?*

The EBLIP process is one that is based on the 5As that were created in Evidence Based Medicine. As a reminder, the steps of the EBLIP process are as follows:

1) Formulate a focused question (Ask)
2) Find the best evidence to help answer that question (Acquire)
3) Critically appraise what you have found to ensure the quality of the evidence (Appraise)
4) Apply what you have learned to your practice (Apply)

5) Evaluate your performance (Assess)

(Hayward, 2007)

Findings from this study show that while some participants strove towards use of the EBLIP process (at least in spirit), in practice it was not fully used by any participants, even those with knowledge of EBLIP. For example, key elements of the EBLIP process, described in detail in section 2.2.3 of this thesis, were never used or mentioned at any point. This includes the helpful ways of formulating questions via SPICE or PICO, as well as application of the librarianship domains. Reasons for this lack of use were not explored as part of this study. Perhaps that part of the process does not come naturally, even for those participants who are familiar with EBLIP. As questions or problems arose in practice, participants were not thinking about reformulating their questions into something specific and answerable. In some cases, the questions that arose were large and contained several sub-questions, all being looked at together, and the SPICE model would have been too restrictive. In any case, there was no evidence that participants used that first stage in the EBLIP process.

Practitioners certainly went about acquiring information to help with their question or problem, but whereas in the EBLIP model this focuses primarily on the research literature, research was just one element of evidence gathering done by participants in this study. The EBLIP model advocates searching databases and other sources for research literature on the topic. Most participants did that, but they also spoke with colleagues about the situation, used additional methods to find information about what other libraries were doing, such as checking for information on websites, and used local sources of evidence such as statistics and user evaluation in order to complete their picture of evidence.

There was indication that participants thought critically about the evidence they gathered, and seriously considered its worth. They discussed research literature in making group decisions. However, there was no mention of the use of the critical appraisal resources that feature so heavily in the literature of EBLIP (Glynn, 2006; Koufogiannakis, Booth & Brettle, 2006; Booth & Brice, 2003). The usefulness of the studies was considered, but there was no discussion of in-depth appraisal related to

methodology. For those participants who were familiar with EBLIP, there was some reference to the hierarchy of evidence (Eldredge, 2002 & 2006), which was identified as a way to immediately measure a research study's 'worth' if it was something in a 'high' level of evidence category, such as a systematic review. A few people mentioned practice guidelines as a form of evidence they find useful but for which there has not been much development.

It was difficult to assess how closely the Apply portion of the EBLIP model was used. The Apply and Assess components of the current EBLIP process are currently not well enough developed for comparison purposes. Most attention has been focused on the Ask, Acquire, and Appraise parts of the model, with very little follow up on how to gauge whether evidence has been applied or the process assessed after the fact. In this study, some participants had not yet reached final decisions within the period of their diary keeping and follow-up interview. Similarly, this study did not really address the Assess component of the EBLIP model. However, several participants commented on the usefulness of the diary keeping exercise and the fact that it made them reflect on their practice, which they found very helpful and illuminating, noting it was not something they normally did. A couple of participants commented that they would like to continue with a reflective diary in the future. This is in keeping with what some have proposed as an important part of assessing one's own performance within the EBLIP model (Grant, 2007; Booth, 2010; Todd, 2009, Sen, 2010).

The EBLIP process is not being used in its entirety. In broad terms, some aspects of the model were used, such as the search for research to answer a question, the evidence hierarchy, and some form of evaluation of the usefulness of that research. However some key areas that have been a focus within the EBLIP movement over the past 15 years were not used, such as question formulation, librarianship domains, and in-depth critical appraisal. As well, the narrow focus of EBLIP on research evidence was not in keeping with the way that librarians involved in this study made decisions. This lack of use points to a model that is too simplistic to be truly useful, and a model that has not been thoroughly tested in order to ensure it was useful for LIS practitioners.

A recent critique of evidence based practice by Hjørland (2011) argued that evidence based practice was too narrow, formal and mechanical; essentially opposed to theoretical understanding, and should be referred to as research-based practice. However, Hjørland also notes that to "argue that EBP allows practitioners' judgments, rationalist models, and theoretical-historical perspectives to influence the synthesis of knowledge, then the specific characteristics of the movements disappear and the concept is watered down" (p. 1307). This study shows that there is in fact room to include those elements within evidence based practice, and by doing so, widen our conception of what evidence actually is, specifically within the field of LIS. A change within EBLIP does not require a full rejection of the name, but rather a realization that more types of evidence can be included and that doing so allows for better decision making. Both hard and soft sources of evidence are necessary.

Booth's definition of EBLIP is the most widely accepted and referenced in the literature. Booth defines EBLIP as:

> An approach to information science that promotes the collection, interpretation and integration of valid, important and applicable user-reported, librarian observed, and research-derived evidence. The best available evidence, moderated by user needs and preferences, is applied to improve the quality of professional judgements. (2000, n.p.)

It is clear from this definition that the focus of EBLIP is placed on research-derived evidence, although it is open to interpretation whether the user-reported and librarian observed part of the definition are also tied to research or could go beyond research. It is clear that the evidence must also be valid, important and applicable, and as such, it follows that the EBLIP movement has focused on education and the development of tools to assist with determining whether a research article is valid, reliable and applicable. As per the definition, the best research evidence can be moderated by user needs and preferences, and is then applied to improve the quality of professional judgments. While the definition includes professional judgments, it does so only in a way that indicates that application of evidence to those professional judgments will improve them. It does not account for the place of professional knowledge, nor is professional knowledge accounted for in the 5A's model. This exclusion should be reconsidered.

Based on the findings of this study, it is clear that professional knowledge and evidence sources are used together, and both are equally important aspects of the decision making process. If broadly interpreted, the EBLIP definition covers much of what this study has found to be used by librarians in their decision making, but with a specific focus on research. Based on this study, the concept of "evidence" should be broadened to include more than the traditionally recognised research article. EBLIP needs to include other types of data, or 'hard' evidence sources and recognise local circumstances. Being "moderated by user preferences" is an important part of the definition, but is rarely explored in the EBLIP literature. User preferences are necessarily local and can be found through the evidence sources of usage statistics, feedback, local evaluation and research, and even anecdotal evidence, as was described in Chapter 4.

This study identifies other 'hard' sources of evidence that should be integrated with the EBLIP model. For example, if the problem or question relates to reference service, then reference usage statistics should be considered, as should local feedback and potential local service evaluations. The EBLIP process should account for these as legitimate sources of evidence and should provide assistance for librarians in determining the best way to use these sources, similar to critical appraisal tools that have been developed for research articles. The EBLIP movement needs to discuss and debate the topic of what counts as evidence and how librarians can weigh different forms of evidence. EBLIP could focus on how to do better project evaluations, how to interpret user stats, the best methods for collecting reference statistics, and so on. EBLIP was built on the EBM model, but in LIS many different forms of evidence are used and these also need to be considered. In health care, recent efforts have built upon the potential of large patient care databases for research purposes (Smeets, deWit, & Hoes, 2011; Floyd, Heekbert, Weiss, Carrell, & Psaty, 2012; Love, Jensen, Schopflocher, & Tsui, 2012), extending beyond the more widely accepted randomized controlled trials. In LIS, the COUNTER code of practice for usage stats, and *LibQual+*® for measuring opinions of service quality, have helped to establish some standards for capturing and reporting of data in those areas, but such standards and wide collection should be extended to other areas of practice as well.

The current EBLIP process is focused on individual decision making. This research study shows that academic librarians also frequently make decisions in groups, or their decision making requires approval from someone else prior to implementation. The individual decision making process does occur among academic librarians, but usually for more simple or straightforward decisions. The EBLIP process needs to include an explanation of how the process can work for groups, taking into consideration group dynamics and organisational culture, as well as the complications of power relationships (Rowe, Boulgarides & McGrath, 1984). Acknowledging that these things exist is important to make EBLIP more realistic and connected with practice. One potential aspect to explore within the group process is a knowledge brokering role by a member of the team (for example, Gerrish et al, 2011) in order to ensure that evidence is present and considered along within the organisational dynamic.

The “apply” and “assess” aspects of EBP have largely been pushed aside in favour of the more scientific aspects of finding the current best research evidence and evaluating it. The definition of EBP noted by the Sicily consensus statement (Dawes et al, 2005) certainly accounts for tacit and explicit knowledge, as well as context being important, but the focus of workshops and training in EBP has not spent much time on those particular aspects of the process. EBLIP needs to place more attention on these aspects of the process and show that the research evidence itself cannot be used in isolation. Such aspects are harder to teach and explain, because they come from tacit knowledge and softer skills. Hence, it is no surprise that writing them down or trying to teach them has not been at the forefront of the EBP movement. However, there must be acknowledgment that they are important. LIS should look to sociology, psychology and other fields regarding this “art” of practice, and determine why and how decisions are made and how the profession is practiced, in order to better understand this side of LIS decision making behaviour, and understand that as a people-based profession, librarians do not just simply implement science. There are many other factors that influence decision making and reasons to use or not use the research.

The findings of this study show that the alternative models that have been proposed for EBLIP (Booth, 2009; Howard & Davis, 2011; Koufogiannakis, 2011a) all bring insight regarding how the EBLIP model can be changed in order to better meet the needs of practising librarians. Booth (2009) proposed a model of collaboration related to group decision making, and this fits very well with the patterns of decision making that were revealed in this study. The Koufogiannakis (2011a) model points to other types of evidence, in particular local forms of evidence, that should be incorporated into decision making, and are corroborated by this study. The Howard and Davis (2011) proposed model, which focuses on an approach to problem solving that is based in design thinking, was not shown to be directly used in this study, however, the elements of human centredness, a widening of the concept of evidence, and the need for collaboration, are all aspects which emerged from the findings, and should be incorporated into a new model. A proposed new model will be discussed in Chapter 8.

This study found that there are five main determinants that impact whether or not academic librarians will use evidence in their decision making (Chapter 6). To practice in an evidence based manner, a librarian needs a positive work environment, time to use or create evidence, a positive outlook, ongoing education and training, and access to relevant information. Attention must be paid to these factors in order to nurture EBLIP. This finding confirms the study already published by Hiller, Kyrillidou and Self (2008), as well as the commentaries by Davies (2007), Lakos and Phipps (2004), and McClure (1986) on the need for a supportive organisational culture. EBLIP should examine each of these five factors further in order to find ways to ensure they become enabling factors rather than obstacles to evidence use.

In conclusion, the existing EBLIP model falls short on several levels. The simple adoption of an evidence-based model from medicine is insufficient for practitioners of academic librarianship. First, LIS practitioners need to recast what is acceptable evidence, moving beyond a simple focus on published research. This element of the EBLIP process is not realistic, nor useful. The EBLIP movement needs to consider all possible forms of evidence and how they are used by practitioners. Including more forms of evidence will make the model more relevant and useful to

practitioners. The process outlined in the model also needs refinement. As it stands, the model is too simplistic, and does not account for aspects of decision making such as the organisational environment, group decision making, power differentials within an organisation, and the use of evidence to influence others. How librarians use evidence must be recognized and fit into the model so that such elements can become transparent and helpful within an organisational context.

Chapter 8 of this thesis proposes a new model for EBLIP, based on the findings of this study, which modifies the current model and incorporates elements that are important to academic librarians. This is the first model of EBLIP that is itself based in research and existing theory.

7.6 Transferability of findings

As was noted in Chapter 3, this study focused only on academic librarians in Canada. As a group, academic librarians work under similar circumstances and it therefore made sense to focus on them as a single group. Academic librarians work in an environment where using and doing research is accepted and even promoted as part of their professional approach. For example, it is not unusual for academic librarians have faculty status and go through the process of tenure. In this respect, this group should be the most likely to use 'evidence' and if an affinity towards the EBLIP model were to exist, it would be with this particular group of librarians. Academic librarians (including the sub-set in academic health sciences libraries) have been quite active in the EBLIP movement, as is demonstrated by the fact that the majority of the Editorial Team and Editorial Advisory Board members with the journal *Evidence Based Library and Information Practice* come from academic institutions.

While further research will be required to determine whether or not these findings are directly transferable to other groups of librarians, there is reason to believe that they will be. Other groups of librarians have also shown an affinity towards being evidence based. For example there were feature issues of *Evidence Based Library and Information Practice* dedicated to school libraries in 2010 and public libraries in 2012. These feature issues showed a diversity of evidence sources, emphasizing

action research and local assessment. The evidence sources for school, public and special librarians are likely to be even more local and based in practice than they are for academic librarians. For example, public librarians focus on serving their communities, being responsive to change, and must continually prove their worth to public boards. They have long used local statistics to show the worth of the services they provide. As Ryan (2012) notes,

> While public librarians do make significant use of local data to inform organizational decision making, further encouragement and opportunity is needed to take the additional step of publishing these evidence based approaches with the LIS community. (p. 6)

For librarians serving communities outside of academia, the use of sources of evidence may be even more broad and weighted towards the local and the non-research publication types of evidence.

It is conceivable that librarians in public, special, or school library roles would use even less of the current EBLIP process than academic librarians. Mainly, the focus on external research evidence has made the model too narrow to meet the immediate needs of those librarians. In terms of group decision making, and the complexity of the organisational dynamic within which librarians work, it makes sense that this would apply to librarians beyond those working in academic libraries. A librarian's work is generally collaborative, and even for those working in small one-person libraries, they would be collaborating and make group decisions with their non-librarian colleagues. School librarians, especially, seem to work very collaboratively on issues that affect their workplace; this is borne out by the action research that they engage in (Ballard, March, & Sand, 2009; Farmer, 2009; Gordon, 2009).

While this study involved librarians in one country, the findings deal with processes and ways of working. It is likely, that at least in other western cultures such as the United States, United Kingdom, and Australia, the findings will be applicable, because the culture and expectations of what librarians do is not dramatically different in these countries. In cultures that have very different systems of decision making, the results may not be applicable due to cultural differences in the workplace and expectations of where decision making occurs. The other research

studies that occurred prior to this one, and which this study agrees and builds upon, came from Australia (Thorpe, Partridge, & Edwards, 2008; Partridge, Edwards, & Thorpe, 2010) and the United States (Hiller, Kyrillidou, & Self, 2008; Casey, 2011). These studies found similar issues related to evidence based practice in terms of its use for influencing, the importance of organisational dynamics, and the different forms of evidence that are used. Hence, there are already similarities that come from different geographical areas, and focused on different populations than the one in this study. Given these congruencies, transferability of the findings, seems a natural extension.

Above all, as was previously noted, to practice in an evidence based manner, librarians need a positive work environment, time to use or create evidence, a positive outlook, ongoing education and training, and access to relevant information. These elements should hold true for all groups of librarians, although the specific challenges within each determinant may be different depending upon the type of environment a librarian works in. Testing these specifics in different environments would be welcomed.

7.7 Chapter conclusion

This chapter has discussed the study's research findings in light of the original research questions asked, and within the context of the literature and the existing evidence based model within academic librarianship. The findings of this study suggest that academic librarians do use evidence in their decision making, but that those sources of evidence are not always recognised within the current EBLIP model, and thus there is a disconnect between the model and practice. Areas where the model needs to change include widening what is thought of as evidence, and more explicit recognition of the value of professional knowledge. These concepts are reinforced via the literature reviewed in Chapter 2, especially the literature on practice theory and practice based evidence. In addition, the literature on decision making theory confirms the complexity of the decision making process within librarianship, and such complexity should be considered within the EBLIP model. This includes organisational dynamics, group decision making, and potential biases. The research findings demonstrate how practice changes came about not just from

decisions by individual practitioners but also from decisions made in groups. The two decision making processes run in tandem. Librarians use evidence for convincing – which includes “confirming” for the individual, and “influencing” others. The next chapter of this thesis will propose a new model for evidence based library and information practice, based on what has been learned from this study.

Chapter 8: A revised model for evidence based library and information practice

8.1 Introduction

As was noted in Chapter 7, this research study uncovered elements of the evidence based library and information practice (EBLIP) process which merit modification, as well as elements that have previously been absent and need to be included. Since this was a grounded theory study, the purpose was to inductively learn and generate a better theoretical understanding of the use of evidence by academic librarians. This has resulted in the proposed revised model of EBLIP, which was developed from the data and findings in conjunction with previous literature on the topic. It is presented as a result of this research, but not further tested since to do so would require a completely different research project that takes an existing model and tests how that model works with an existing population. To do so becomes a future research project that will confirm or find room for further improvement regarding the revised model presented here.

Academic librarians used the ‘acquire’ and ‘appraise’ aspects of the existing model, but not in the narrow way that is outlined within the EBLIP literature. For example, participants acquire evidence from a far wider range of sources than the research literature. The current model’s sole focus on research evidence was not in keeping with the way that librarians involved in this study made decisions. As well, academic librarians appraise what they find by thinking critically about it and using professional knowledge to place that evidence into the local context, but they do not go into the very specific and detailed use of critical appraisal checklists as a regular part of reading and determining the worth of research literature.

This study identified four main aspects of the EBLIP model which should change:

1. The concept of evidence must be broadened from the current focus on published research evidence to include other types of evidence, with an emphasis on local sources.
2. The emphasis on scientific research must be balanced and paired together with the professional knowledge of librarians. This study clearly shows that

the two are used in conjunction when making decisions to improve practice, and that both are equally important aspects of the decision making process.

3. The model currently focuses on individual decision making, but because librarians frequently make decisions in groups, the model must become inclusive of group decision making, in all its complexity, including the use of evidence for convincing.
4. In the current model, the steps of 'apply' and 'assess' have not been well developed. These steps make use of softer forms of evidence and skills that focus on the artistic side of the profession, including how to implement a change and reflection on the process and one's individual performance. These elements are a critical part of practice improvement and must be given more attention.

Based on this study's findings, the literature review, and the analysis detailed in the Chapter 7, this chapter will outline a new model for EBLIP. While not radically different from the existing model, it builds upon the general principle of evidence based practice, but considers it within the specific context of librarianship, addressing the four items noted above that have been identified as requiring change. The new model attempts to be more inclusive of different sources of evidence, to include professional knowledge throughout the process, and to be practice-focused.

8.2 Building upon suggested alternative models

Using a grounded theory approach for this research study required an open mind and to not place the data into pre-determined categories. Hence, existing models or frameworks were not used. The analysis grew out of what came from the participants themselves, and those results were detailed in Chapters 4-6, which cover the findings. Once the detailing of those findings was complete, they were compared with the existing EBLIP model, and also to the proposed alternatives that were found in the literature. The model that stood out once the research had been completed, was the 2009 collaborative model proposed by Booth. Booth's model is not one that was based upon research, but rather, it grew out of his reflection upon what he had absorbed at the EBLIP5 conference – in essence this change in thinking about the model, which Booth took the time to write down, grew out of a community of

practitioners that meets every two years to discuss EBLIP. The community of practice was sharing ideas and slightly changing course, which is a perfect example of practice theory in action. In being attuned to those slight changes in the discourse around EBLIP at that conference, Booth developed what he called the "alternative" 5As model, focused on a collaborative approach. When proposing this alternative model, Booth (2009) noted his concerns with the current EBLIP model, which echo much of was found to be true in this study:

> There are two principal limitations of the current 5A model—first it is oriented to individual, not collective, activity; and, second, it seeks to simplify, and thus preserve the integrity of, the entire EBP process making no allowances for the realities of pragmatism and expediency. (p.342)

Below is a briefly summarized version of Booth's alternative 5As:

1) *Articulate* – the team arrives at a shared understanding of the problem and articulates this collectively (there may be many questions and priorities are set).

2) *Assemble* – the evidence needs to be assembled, not simply acquired, because it is derived from multiple sources not just the published literature.

3) *Assess* – place evidence against the different components of a wider overarching problem. Assess the evidence for its quantity and quality.

4) *Agree* – achieve consensus among the group. A model that allows for agreement of subsequent actions is potentially much stronger than a unilateral decision to apply the evidence.

5) *Adapt* – the group frequently revisits what they are trying to achieve, fine tuning as they go along.

(Booth, 2009b)

Unfortunately, Booth's alternative model has generated very little discussion in the EBLIP community and has largely gone uncited in the literature. Looked at again following this research study, Booth's version of the 5As of EBLIP is a better representation of the EBLIP process as it applies to academic librarians. It accounts for multiple sources of evidence; focuses on group decision making; places evidence within the overarching problem and environment; and simply discusses assessing the evidence, removing the more stringent requirements of validity and reliability. It also encourages consensus building and adaptation as part of a cyclical process towards successful implementation, and gives more consideration to the areas of apply and assess, in the newly named 'agree' and 'adapt' stages. This version of the

5As is more holistic and encompassing of the complex process of evidence based decision making, as well as more practical. Booth himself noted that his model was a work in progress; a prototype which had potential to be modified. In the tradition of building upon what has gone before, the author will build upon Booth's (2009) model, in order to enhance it and confirm it based in the evidence of this study.

In addition to Booth's alternative model, work previously published by the author, based on a presentation at the EBLIP6 conference which grew out of an earlier phase of this study is drawn upon (Koufogiannakis, 2011a). This work focuses on questions that a practitioner should ask themselves when making professional decisions in an evidence based manner. These questions account for both hard and soft sources of evidence, with a focus on continually asking questions and improving practice.

A model of EBLIP needs to look at the whole of evidence, including evidence driven by practice as well as research. Librarians need to take a different look at how evidence may be used in practice, and tie research and practice together rather than separating them. A first step is to recognise that what practitioners do is of utmost importance. Obviously, without the practitioner, there is no practice, and practitioners are the ones who are going to know what is happening within their context. Practitioners bring evidence to the table through the very action of their practice. Local context of the practitioner is the key, and research cannot just be simply handed over for a practitioner to implement. The practitioner can use such research to inform themselves, but other components are also important. The concepts found in practice theory, focusing on the practitioner and his or her knowing in practice – both local evidence and professional knowledge – help to provide a more complete picture of decision making within the profession of librarianship.

Figure 8.1. Bringing the evidence sources together.

The EBLIP model should be revised so that the overall approach addresses other aspects of evidence. Rather than privileging as in a hierarchy, these elements should be flattened. All forms of evidence need to be respected and the LIS professional, with their underlying knowledge, is at the centre of the decision making process. Progress in the practice of librarianship begins with professionals, not with a set chart to dictate worth of experiences or value of specific evidence. Different types of evidence need to be weighed within the context in which they are found, and only the practitioners dealing with that decision can appropriately assign value and importance within that context.

There must be an emphasis on applicability, because decision making is ultimately a local endeavour. For example, EBLIP workshops should still teach such skills as how to critically appraise research, but those elements should always be framed within the context of the importance of practice-based information, and stressing the importance of the local context. For example, letting participants know that they are not wrong to recognise political or financial influences as being more important than the research literature. These elements are facts of life and boundaries librarians have to live within. Such aspects cannot be ignored. Within such boundaries librarians need to weigh appropriate evidence and make contextual decisions.

First, a practitioner asks, “what do I already know?” about the question or problem at hand. This draws on both professional experience, and knowledge of the specific

situation at hand, which may have built up over a period of time. Asking what is already known allows for reflection on the situation and the factors that may influence future action. Next, determine if there is local evidence available. This draws upon any data or user comments that may have already been collected that are important within the context and relate to the specific problem. From there, the practitioner can look to the literature and see if there is any research that would be relevant to the problem or decision required. This is where the current EBLIP model comes in, and the skills of critical appraisal of existing published work are useful. Sometimes, there may not be any research on the topic, but there may be descriptions of similar situations at comparable institutions that can help.

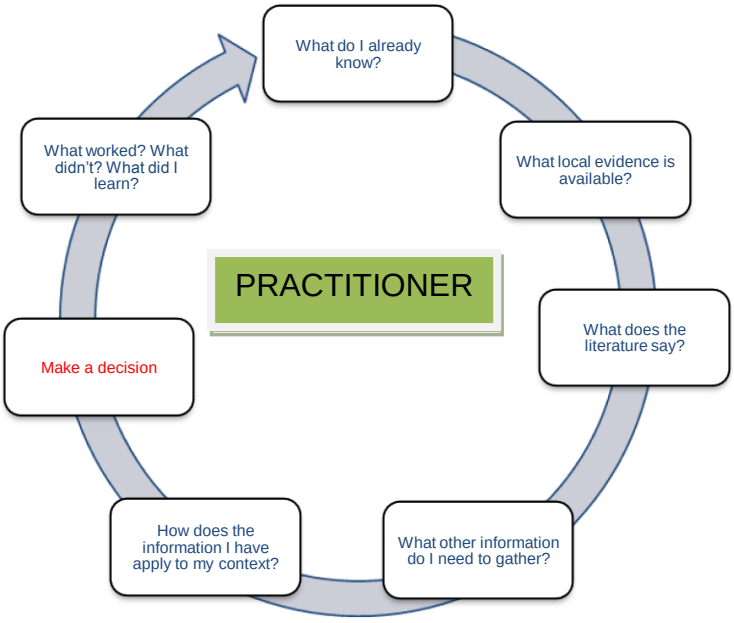

Figure 2.3 Key questions a practitioner should ask themselves (Koufogiannakis, 2011a, p. 55). (Also included in Chapter 2, p. 33).

At this point, it is good to review all existing evidence and ask "what other information do I need to gather?". Doing so allows gaps in knowledge to be identified. At that point, the librarian can determine if more data is required, speak to appropriate groups of people, or set up a research project. At the same time, he or she considers all the evidence and how it applies to the situation or problem at hand. This is a crucial professional knowledge skill that puts the evidence in context. Depending upon the urgency of the situation, or deadlines, the librarian can proceed to make a

decision. This step will happen based on the best evidence available. At a different point in time, that evidence may change, but in that moment, a decision must be made. Finally, after implementation, the librarian reflects on this process and ask questions such as “What worked? What didn’t? What did I learn?”. Taking the time to assess the situation and learn from it is a key part of enhancing professional knowledge.

This process puts the practitioner (or group of practitioners) back at the centre and in control of their decision making, a piece of which is research evidence, but which also considers other forms of evidence that may be more directly relevant to the practitioner. It enables librarians to practice in an informed and evidence based way, bringing together the art and science of the profession.

8.3 A new model

Proponents of EBLIP should consider moving beyond simply focusing on research evidence, and begin looking at the whole of evidence based practice. The widely accepted 5As model within LIS is one that should be revised. Using both the Booth (2009) alternative model, and the questions practitioners should ask themselves (Koufogiannakis, 2011a), the researcher has attempted to modify the model to be more reflective of what was found in this study. It aims to be applicable for both individual and group decision making. It is hoped that other researchers will test and further build on this model as appropriate.

A new model for evidence based library and information practice:

1) *Articulate* – come to an understanding of the problem and articulate it.

   Questions: What do I/we already know about this problem? Clarify existing knowledge and be honest about assumptions or difficulties that may be obstacles. This may involve sharing background documents, having an honest discussion, and determining priorities. Consider the urgency of the situation, financial constraints, and goals.

   Actions: Set boundaries and clearly articulate the problem that requires a decision.

2) *Assemble* – assemble evidence from multiple sources that are most appropriate to the problem at hand.

    Questions: What types of evidence would be best to help solve this problem? What does the literature say? What do those who will be impacted say? What information and data do we have locally? Do colleagues at other institutions have similar experiences they can share? What is the most important evidence to obtain in light of the problem previously articulated?

    Actions: Gather evidence from appropriate sources.

3) *Assess* – place the evidence against all components of the wider overarching problem. Assess the evidence for its quantity and quality.

    Questions: Of the evidence assembled, what pieces of evidence hold the most weight? Why? What evidence seems to be most trustworthy and valid? What evidence is most applicable to the current problem? What parts of this evidence can be applied to my context?

    Actions: Evaluate and weigh evidence sources. Determine what the evidence says as a whole.

4) *Agree* – determine the best way forward and if working with a group, try to achieve consensus based on the evidence and organisational goals.

    Questions: Have I/we looked at all the evidence openly and without prejudice? What is the best decision based on everything we know from the problem, the context, and the evidence? Have we considered all reasonable alternatives? How will this decision impact library users? Is the decision in keeping with our organisation's goals and values? Can I explain this decision with confidence? What questions still remain?

    Actions: Determine a course of action and begin implementation of the decision.

5) *Adapt* –revisit goals and needs. Reflect on the success of the implementation.

   Questions: Now that we have begun to implement the decision, what is working? What isn't? What else needs to be done? Are there new questions or problems arising?

   Action: Evaluate the decision and how it has worked in practice. Reflect on your role and actions. Discuss the situation with others and determine any changes required.

This new model of EBLIP builds upon the current EBLIP model, with recognition that the general process of working through problems and incorporating evidence into practice is important. However, this new model takes a more broad approach, allowing and encouraging different sources of evidence to be incorporated into decision making. It also places emphasis on existing professional knowledge. The process can be applied for both individual as well as group decision making, the latter of which is more common in academic libraries. Groups can use the process to prompt questions and critical thinking within the group, as well as ensure that the process is transparent. Practical developments that would assist with the implementation of such a model include examples or case studies of this process in action, guidelines on 'how to read' different types of evidence sources, and guidelines for evidence sources to consider depending upon the type of question.

Individual librarians are always at the heart of professional practice, and within a community of practice they will change how practice works and how new initiatives proceed. An evidence based library and information practitioner is someone who undertakes considered incorporation of available evidence when making a decision. An evidence based practitioner incorporates research evidence, local sources of data, and professional knowledge into their decision making.

8.4 Implementing the new model

The above model follows a process that flows neatly from one step to the next, while accounting for differences in context and sources of evidence. However, this is notably an ideal, providing a model of how the process could work well. In reality, the process may not necessarily work as planned; however it can be a guide. For

example, obstacles to moving ahead could occur at any stage in the process, and progress may be stalled. The organisational climate may not facilitate an environment of open discussion, and individuals may feel excluded from the decision making process. The obstacles to evidence based decision making that were discussed in Chapter 6, should ideally be addressed in order to facilitate an environment in which the new EBLIP model is able to thrive.

In order for this model to be successful, both individual librarians and employers have a leadership role to play. Employers, or senior library managers, need to create a climate in which evidence based decision making is valued. They should foster a culture in which decision making processes are transparent and use evidence sources that are important to the question; as opposed to implementing decisions that leave librarians wondering why a particular decision was made. Clear communication within the organisation is paramount. Senior managers can also set the tone in relation to the importance of asking questions and engaging in professional education in areas related to research and assessment. Having clear goals and work expectations regarding those elements, is one way to bring the use of evidence into daily use. Managers can identify areas for which local data is regularly collected, and done so in a useable manner for future decision making. They can also prompt collaboration between workplaces and encourage that both internal and external sources of evidence are used. Ensuring that significant time is given to projects that require involved decision making and emulating behaviour by asking questions and requiring evidence are also important.

Individual librarians must also take responsibility for the success of this model by acknowledging that uncertainty is acceptable, and that questioning practice is a healthy part of growth. Individual librarians must foster collegial relationships and contribute to a positive workplace. When working in groups, librarians must be attuned to some of the possible pitfalls such as group-think, by ensuring inclusion and diversity of opinion, as well as a range of evidence sources are consulted. They need to take responsibility for their own continuing education, filling gaps in skills related to research, evaluation, assessment, and critical appraisal, as well as softer skills such as decision making and collaboration. They must also make time for this approach of incorporating evidence into their decision making, rather than pointing to

the barrier of time as being beyond their control. It is up to individual practitioners to be actively reflective in their practice, so that they recognise problems and potential solutions sooner, and can trace progress in their own decision making within the context of their organisation. Being actively reflective may lead to greater awareness and innovation in practice. It will lead to more questions and continual renewal of both individual and organisational approaches to practice.

8.5 Chapter conclusion

This chapter has presented a new model for evidence based library and information practice that is based on the findings of this study, and builds upon what is found in the EBLIP literature. Booth's 2009 model provides a structure for a new 5As that widens the scope of EBLIP, and makes it more applicable to librarians who frequently make decisions in groups. The original EBLIP model grew out of a model for evidence based medicine, and while many of the concepts of that model still hold true and are useful, the new model builds upon those to create a model that is better suited to the needs and practice environment of librarians. Stage 1 (articulate) emphasises how professional knowledge contributes to consideration of a problem (but should not dominate decisions about the way forward). Stage 2 (assemble) reflects one of the key findings of this research that evidence cannot be limited to research evidence. Stage 3 (assess) focuses on the need for careful review of the credibility of the evidence, and how the various pieces of evidence fit together. The key theoretical idea of "convincing" starts at this stage with the need for individuals to confirm for themselves that the evidence is trustworthy. In Stage 4 (agree) there is more emphasis on the "influencing" component of convincing to ensure that consensus decisions are fair and well-grounded. Stage 5 (adapt), requires that practitioners adopt the principles of action research or communities of practice in their work, to encourage reflection and review of decisions made, and to improve practice. Ideally, this new model should be further tested on additional groups of librarians, and use other approaches, in order to test the model's generalisability to LIS practice as a whole, and potentially other areas of professional practice.

Chapter 9: Conclusion

9.1 Introduction

This study set out to examine the model upon which evidence based library and information practice (EBLIP) is based. Driving the study was a desire to base the model of EBLIP, which promotes the use of research evidence in practice, on research itself. With the exception of a study by Partridge, Thorpe and Edwards (2008; 2010), no research had been conducted on the actual EBLIP model and whether it was useful or appropriate for librarians. Since EBLIP was adapted from medicine, it was a legitimate question to ask whether the same model would work for librarianship. It was time to explore whether the model was valid and if changes were needed. The goal was to approach the study with a view to learn and to listen to academic librarians and how they used evidence in their daily practice, which is one reason why grounded theory methodology was most appropriate for this study. The Charmaz approach to grounded theory worked well for this study and its pragmatic framework.

The researcher wanted to see evidence based practice through the eyes of the participants in this study and let go of whatever preconceived notions she may have previously had. On a personal level, this study achieved that objective. While reading the participants' diaries and following up with interviews about their experiences of evidence use in decision making, many concepts were revealed. Of greatest note were sometimes what retrospectively seem the simplest and most obvious – that academic librarians largely make decisions in groups; that obstacles and enablers stem from the same source determinant; that the organisational environment plays a huge role in how academic librarians make decisions; that evidence is used for convincing. Looking back, these concepts seem obvious now, but they were all revelatory at the time, despite the fact that the researcher has been an academic librarian for her entire career, and works in the same ways that the participants in this study exhibited.

This final chapter reflects on both the successes and the limitations of this study. Research limitations are considered, and the contributions of this research to the LIS

knowledge base and practice are proposed. The chapter ends with a reflection on how the existing EBLIP model needs to change, and with recommendations for future research.

9.2 Limitations of this study

Every research study has limitations, and this one is no different. Noting the limitations allows the reader to understand the context within which the research was conducted, and any issues that may potentially affect the reliability and validity of the study. First of all, this study is not intended to be generalized to all academic librarians. The purposeful sample allowed for depth and richness of information, and saturation in the data was reached, but not all academic librarians would necessarily fit within these findings. In addition, other academic library systems outside of Canada may operate differently. Academic librarians are generally regarded as academics or faculty in Canada, and at many institutions they can obtain tenure. These factors may create a very different work environment and professional outlook from those working in other library sectors, although it is thought that these research results are transferable, as was outlined in section 7.6. Doing similar research on other librarian groups would strengthen the key findings and applicability of this study.

As was noted in Chapter 3, the researcher has been very involved with EBLIP for many years, and is also an academic librarian working in Canada. Previous involvement in EBLIP and the fact that many participants knew the researcher, could have potentially affected the results because of what people may have been willing to disclose. As mentioned previously, this was accounted for by the researcher consciously setting aside any preconceived notions and setting the participants at ease by reassuring them that they were helping the researcher to understand, and telling them that there were no right or wrong answers.

Data collection methods included diary keeping by the participants for the period of one month. The very act of having to keep the diary was something that was not normal in their practice, and may have impacted their behaviour. For example, they may have felt pressure to do more and be more methodical in their decision making

processes than they normally would. It is unlikely that false reporting occurred, however, since the follow-up interviews with participants allowed for in-depth probing of the actual decision making process, confirming what was previously reported.

This research was exploratory and based on some broad questions related to evidence use by academic librarians. The processes of how these librarians made decisions and the role that evidence played in their decision making was explored. Factors that impact decision making were discovered, and participants' attitudes and feelings towards the decision making were noted. However, there was no attempt to test or determine whether the decision made was actually a good one, or whether the use of particular types of evidence had any proven impact on performance.

9.3 Contributions to the knowledge base and to practice

This study is the first to focus on how academic librarians use evidence in their decision making, to determine what types of evidence they use, and to consider whether the existing EBLIP model is one that is applicable for academic librarians. This study should serve as a basis for future research related to the EBLIP model and its implementation. Using grounded theory methodology allowed the researcher to use induction to determine how the participants actually made decisions and how evidence fit into that process. Findings were then applied to the current EBLIP model in order to determine what aspects of that model should be changed. Hence, the research establishes a foundation for a unique model of evidence based practice within librarianship.

The major findings of this study will add to the knowledge base of LIS scholars and professionals in the following ways:

- The study outlines the types of evidence that are actually used by academic librarians in practice. This should help to convey what LIS evidence is, and how to incorporate it into decision making.
- The findings highlight the impact of the organisation on decision making and evidence use, something that was previously not given much consideration by the EBLIP movement. Collaborative group decisions are common, and need to

be given more consideration, as group dynamics affect how librarians work and make decisions.

- The theoretical concept of convincing is one that arose from the data in this study, and is one which has not previously been explored in the LIS literature. Convincing related to oneself is known as confirming, and convincing related to others is known as influencing (which was a concept previously discovered in the research of Partridge, Edwards & Thorpe, 2008; 2010). Knowing that librarians use evidence to convince brings awareness to an element of organisational behaviour that can be named and professionally discussed in order to minimize any negative impact or bias when decision making.
- Determinants relating to the use of evidence in practice were established, and it was found that these variables are simply different sides of the same concept. Some obstacles previously noted in the literature were confirmed, and positive ways for the obstacles to be turned into enablers were uncovered. In addition, it shows the internal and external levels of control associated with each of those factors. These factors should provide practitioners and organisations with concrete elements to focus on in order to make evidence based practice a reality.

This research was undertaken from a pragmatic perspective, with academic librarians and the improvement of their decision making practices in mind. It is hoped that academic librarians will see themselves in the concepts that emerged from this research, and that the findings are helpful to them. This research should allow academic librarians to consider how they make decisions, in particular the group decisions that are so common, yet fraught with complexity. In order to make better group decisions, academic librarians can apply this research towards making their own work environment and the approach to their own decision making stronger, recognizing the factors that can become obstacles to evidence based decision making, and working towards turning those factors into enablers.

As an outcome of this research, a revised model of EBLIP was proposed in Chapter 8. The new model is based in the findings obtained from academic librarians and takes variables such as the different types of LIS evidence, group decision making, and professional knowledge into consideration. Because this model is grounded in research, it is an improvement on the original model. It should also be a more natural

process for librarians to use in practice. Further testing and implementation will determine if this is true, or if further improvements need to be made.

9.4 Recommendations for future research

This study has demonstrated that more research is needed on organisational factors that impact the use of evidence, and the best ways to enable decision making. As Hiller, Kyrillidou and Self (2008) note, evidence alone is not enough, and without organisations that nurture a culture of evidence based decision making throughout all levels of the organisation, the incorporation of evidence will not become a normal part of decision making.

It would be beneficial for researchers involved with, or interested in, evidence based practice to explore and recommend the best evidence sources based on the type of question. This would not be a hierarchical list, but would serve as a guideline on what sources of evidence a librarian should consider consulting for that type of question. For example, if one has a collections problem, the research literature should be consulted, but other sources of evidence that would provide good information include usage statistics for e-products, circulation statistics, faculty priorities, tools such as OCLC collection analysis, interlibrary loan and link resolver reports, as well as the publication patterns of faculty. In reference services, the literature, user surveys, and reference statistics should be consulted. Researchers could determine what the sources are for each area of practice, and in what circumstances they are best used.

It would also be very beneficial for practitioners if researchers and LIS teachers would develop guidance on how to “read” the results of different evidence sources. For example, what a practitioner needs to consider when looking at reference statistics, or what elements a librarian should consider when conducting an evaluation of their teaching. Some of this information will be found in existing literature, and a scoping review of what has already been documented would be a good start.

Finally, in order to strengthen the findings of this study, as well as determine any differences within other areas of library and information studies, this study could be replicated with a different group of participants, such as public librarians, special librarians, or academic librarians in other countries.

9.5 Chapter Conclusion

Evidence based library and information practice is a relatively recent development within library and information studies. EBLIP grew out of evidence based medicine and adapted many of the same principles. This initial development has been worthwhile in bringing more attention to the importance of incorporating research into practice. However, after 15 years of writing and thinking about EBLIP, with many significant milestones achieved, it was time to test some of EBLIP's collective assumptions, and begin to base the movement in the research of library and information studies. This thesis is an attempt to begin a new conversation, grounded in the data from academic librarians in Canada. This research is a starting point for exploring what the LIS field should consider as evidence, how evidence is used in decision making, and how evidence can be used more effectively through the elimination of obstacles. This investigation has answered some initial questions and provided a basis for the continuation of similar research studies to discover how library and information practitioners can make better decisions.

The EBLIP model can be improved by expanding its focus beyond research evidence, since that is but one source of evidence that is useful to librarians. It can also be improved by considering how decisions are made and the impact of context and environment on those decisions. The existing model is one-dimensional, and ignoring important factors only serves to make the model useless and unrealistic for practitioners. A simple yet more encompassing model has been proposed, and this should be further tested in order to create a strong basis for evidence based practice in library and information studies.

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Appendix A

Invitation to participate in research letter

Dear Canadian academic librarians,

My name is Denise Koufogiannakis. I am a librarian at the University of Alberta. I am also a doctoral candidate at Aberystwyth University in Wales, UK. I am conducting a research study as part of the requirements of my PhD in Information Studies, and I would like to invite you to participate.

The working title of my study is: How academic librarians use evidence in their decision making: A grounded theory study to determine the applicability of the evidence based practice model.

I am exploring how academic librarians approach their decision making. I am interested in testing the foundation of evidence based library and information practice (EBLIP) and whether the decision making process upon which EBLIP is based works for academic librarians. I would like to learn more about the types of evidence, knowledge and experiences that academic librarians use when making professional decisions. If you decide to participate, you will be asked to keep an online diary (blog) and participate in an interview.

In particular, you will be asked to reflect on questions that arise in your practice as a professional, and the steps you take to make decisions. The diary will take place online using blogging software, and will cover the period of one month. The follow-up interview will take place at a mutually agreed time and place, and should last about one hour. The interview will be taped so that I can accurately reflect what is discussed. The tapes will only be reviewed by members of the research team who will transcribe and analyze them. They will then be destroyed. If you have any concerns about having an interview taped, you can let me know so I can make alternative arrangements for note-taking.

You do not have to answer any questions that you do not wish to. Although you may not feel there is a direct benefit from participating in this study, I hope that it will provide an aspect of continuing professional development as you reflect upon your practice. In the end, I hope the library community will benefit from an improved understanding of academic librarians' use of evidence in decision making.

Participation is confidential. Study data will be kept secure. The results of the study may be published or presented at professional meetings, but your identity will not be revealed.

You may withdraw from the study at any time or decide not to answer any question you are not comfortable answering.

I am happy to answer any questions you may have about the study. You may contact me via email at dkoufogi@gmail.com, by phone at 780-432-3427 (home), or via Skype (username: dkoufogi) or contact my faculty advisor, Christine Urquhart at cju@aber.ac.uk if you have study related questions or concerns. This plan for this

study has been approved by the Ethics Committee for Research Procedures, Department of Information Studies, Aberystwyth University.

The plan for this study has also been reviewed for its adherence to ethical guidelines and approved by the Faculties of Education, Extension, Augustana and Campus Saint Jean Research Ethics Board (EEASJ REB) at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Chair of the EEASJ REB c/o (780) 492-2614.

Thank you for your consideration. If you would like to participate, please email me directly to indicate your interest. The time-frame for beginning your participation in the study is flexible and will be mutually agreed upon.

With kind regards,
Denise Koufogiannakis

Appendix B

Blog Diary Instructions for Participants

Over the course of the month that you keep this diary, please write about any incidents where questions arise relating to your professional practice as a librarian. Questions/problems could vary widely. Please make note of each question, your thoughts about it and how you might approach solving the question.

Explain any action you took to answer the question, and what, if anything, you did about it. Some questions may be answered immediately, while others may take days or weeks, or not be answered during the diary-keeping period at all. That is ok. Just detail as much of the process you used in your decision making as possible. How did you come to make the decision you did?

At any point in the process, please feel free to reflect on the decisions you made and whether they seem to be working. Remember, there are no right or wrong responses. As a researcher, I am looking to understand the process that academic librarians go through in reaching decisions, and what types of evidence may be part of that decision.

Examples of professional questions/problems a librarian may be working on:

- Today I am deciding which print journals we might be able to safely weed from the collection
- I've been asked to determine the most appropriate hours of operation for the fall term.
- We are going to be doing renovations to the building this year and I'm on a team looking into what changes would be best.
- I am planning a one-hour information literacy session for first year biology students and am trying to determine the best method of delivering the information.
- I was wondering how Scopus journal coverage compares to that of Biosis. Do we need both?

Key elements to include in your diary blog entry:

- The professional question/problem arising in practice
- Things you did in working through the question/problem. What types of evidence did you use, if any? Who or what did you turn to in this process to help you?
- Any roadblocks you encountered in your problem-solving process, and what you did as a result.
- The end result/outcome if a conclusion was reached; or, steps you plan to take to reach a conclusion.
- Reflection on your decision making process. How do you feel about what you did; what would you change? Were your sources of evidence sufficient?

Please write in your diary as professional practice questions occur. If no entries are received within the period of one week, you will be prompted with a reminder by the researcher. You may contact the researcher at any point, to either ask questions, or

drop out of the study if you wish. There is no obligation on your part to participate, all participation is voluntary, and there are no repercussions for dropping out of the study. The blog you are using is private, so only you and I can access or read the content.

Denise Koufogiannakis
dkoufogi@gmail.com; dak@Ualberta.ca
780-432-3427 (Home)
Skype: dkoufogi

Appendix C

Consent for Participation in Interview Research

I volunteer to participate in a research project conducted by Denise Koufogiannakis as part of her doctoral studies at Aberystwyth University. I understand that the research is designed to gather information about academic librarians' use of evidence in decision making.

If, for any reason, at any time, I wish to stop the interview, I may do so without having to give an explanation. If I feel uncomfortable in any way during the interview session, I have the right to decline to answer any question or to end the interview.

The interview will last approximately one hour. An audio tape of the interview will be made in order to ensure an accurate recording of my responses.

I understand that the researcher will not indentify me by name in any reports using information obtained from this interview, and that my confidentiality as a participant in this study will remain secure. I also understand that excerpts from the interview may be included in the thesis and/or publications and presentations to come from the research, but that such excerpts will not reveal my identity.

I understand that this research study has been reviewed and approved by the Ethics Committee for Research Procedures, at Aberystwyth University. For research problems or questions regarding subjects, the Ethics Committee for Research Procedures may be contacted through Allen Foster aef@aber.ac.uk.

I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.
I have been given a copy of this consent form.

_____
Participant's Name

_____
Participant's signature

_____
Date

_____
Interviewer's signature

Appendix D

How to use WordPress.com for blog entries

WordPress.com is an easy to use blog software tool. [http://wordpress.com/]

To participate in this research project, you will need to use WordPress to record your reflections in a blog diary that will be created especially for you by the researcher (Denise Koufogiannakis).

If you do not already have a WordPress username and password, please go to the following website to create one: [https://en.wordpress.com/signup/]. You do not need to sign up for a blog – you can choose the "Signup just for a username" option.

Please email me your username and the email address used for your WordPress.com registration, and I will set up a blog that only the two of us can access. I will then add you as an author, and send you information on how to access the blog.

When you login to the blog, you will see a Welcome post by me (dkouf). Please read this post, as it covers issues of informed consent and your participation in the research. It will also suggest some things to note in your first blog post.

To create a new blog post, simply click on "Posts" on the left side of the screen, then click the "Add New" button. You will be prompted to enter a title for the post, and directly below you enter the content of the post. Please refer to the "Blog Diary Instructions for Participants" if you need a reminder of the types of information being collected for this research.

Once you have completed your blog post, click on the Publish button to the right. Your post will be added to the blog where the researcher can read it. It will automatically be date stamped. Please note that all posts will be confidential, and that other than yourself, only the researcher can access this information.

To view your blog postings at any time, click on the name of the blog at the top of the Dashboard page, or go to the direct URL that was sent to you via email.

Do not hesitate to contact me if you have any questions.

Thank you,

Denise Koufogiannakis
dkoufogi@gmail.com; dak@Ualberta.ca
780-432-3427 (H)
Skype: dkoufogi

Appendix E

First blog entry – what participants will see when they first login to their private blog diary

Post title: Welcome! Please read the following before beginning your participation in this study

Thank you for participating in this study to investigate how academic librarians use evidence in their decision making. Your voluntary posting to this private blog site indicates your consent to participate in the study. The information you provide will be kept confidential and stored securely. Only you and I have password protected access to this blog.

At the top of this blog you will see two tabs:

- Instructions for Participants – this includes general guidelines about what you should include in your blog postings. This information was also sent to you via email.
- How to use WordPress – instructions on using the WordPress blogging software. This information was also sent to you via email.

If you have any questions concerning either of these processes, please contact me via email at dkoufogi@gmail.com

To get started and ensure everything is working properly, can you please post your first blog entry entitled “About me”, and tell me about about your professional-self. You could include things such as how long you have been a librarian, the year you completed your MLIS, the title of your current position, where you work, your current level of responsibility, your normal conference attendance, professional activities you are involved with, and anything else you would like to share. Nothing that personally identifies you will ever be used in the presentation of results from this study.

I appreciate the time you are taking to participate in this study. Do not hesitate to contact me at any time.

Best wishes,
Denise Koufogiannakis

Appendix F

Interviewer's Guide

Guiding questions (to be adapted to each situation and allowed to flow from the context of what the participant feels is important to discuss):

- Thinking back on the diary keeping period, were their any specific incidents that stood out for you?

- Would you say that the things you recorded in your diary were fairly typical of a normal month for you? Why/why not?

- In your diary entry, one of the things you discussed was [X]. Can you tell me more about your thoughts on this and what it means to you as an academic librarian?

- You mentioned a question that arose in your practice (name the specific question/incident). Can you tell me about this in a bit more detail?

- What were some of the barriers or difficulties you encountered during the diary-keeping period?

- What types of things do you consider to be 'evidence'?

- Can you tell me how important or not research is to you as a practitioner? How do you use research? What do you consider to be good research, and how do you use it?

Appendix G

Coding Tree

Attitude

- Advocacy
- Concerned
- Confidence
- Disheartened
- Embarrassed
- Finding balance
- Flexibility
- Frustrated
- Have to act
- Holding steady
- Hopeful
- Level of urgency
- Mentoring
- Must move things ahead
- Negative
- Neutral
- No brainer
- Open mind
- Overwhelmed
- Positive
- Subversive
- Surprised
- Trusting
- Unsure
- Ups and downs
- Want to help
- Waste of time

Decision making level of control

- Decision made by a group
- Decision must be approved by someone else
- Decision was already made by someone else
- Final decision will be made by someone else
- Full control of decision
- Influencing
- Taking back some control
- Taking the decision making away from someone else
- Uncertain

Enablers

- An individual's outlook
    - Being prepared
    - Copying strategies
    - Enthusiasm
    - Finding support

        - Learning from past mistakes
        - What others are going through
    - Ongoing education
        - Building on work already done
        - Conference participation
        - Formal instruction
        - Mentoring
        - Research alerts
    - Positive organisational culture
        - Different perspectives
        - Group discussion
        - Group dynamics
        - Information sharing
        - Positive feedback
        - Similar goals
        - Small group
        - Style of leadership
        - Talking to others
    - Time for research

Evidence based practice

Evidence use = convincing

- Confirming
    - Enlightening
- Influencing
    - Strategizing
    - Supporting your viewpoint

Identity

Impact of decision

- Major impact
- Minor impact
- Moderate impact

Influence of this study on what participants did

Nature of evidence

- Observable

Obstacles

- An individual's outlook
    - Embarrassment
    - Emotion
    - Fear
    - Feeling isolated
    - Indecision
    - Lack of confidence
    - Lack of reflection on practice

        - New situation
        - Own instincts
        - Still learning
    - Education and training gaps
        - Lack of education
        - Lack of experience
        - Lack of knowledge
        - Writing
    - Financial restraints
        - Lack of resources
        - Space constraints
    - Information needs not being met
        - Can’t get needed information
        - Data not specific enough
        - Evidence doesn’t exist
        - Lack of guidelines
        - Non user-friendly product
        - Things can’t be compared
        - Too much information
        - What does the data mean
    - Lack of time
    - Organisational dynamics
        - Adversity to change
        - Beyond control
        - Impact on staff
        - Lack of autonomy
        - Lack of clarity
        - Lack of participation
        - Lack of support
        - Lack of trust
        - Needing to work with others
        - Opposing viewpoints
        - Organisational history
        - Other priorities
        - Personalities
        - Politics
        - Poor communication
        - Poor leadership
        - Size of the task
        - Unanticipated events

Question or problem

Reasons to seek evidence

- Affirmation
- Choosing a new product
- Clarification
- Consider all positions
- Determining criteria for doing something
- Educating oneself

- Exploring best practices
- Figuring out the best way to do something
- Making decisions about collections
- Measuring success
- Moral support
- Preparation for a meeting
- Seizing an opportunity
- Starting a new project
- Streamline processes
- Supporting your viewpoint
- Understanding
- Writing a policy

Reflection

Serendipitous discovery

Sources of evidence

- Anecdotal evidence
  - Conversations
  - Observation
  - Product demonstration
- Facts
  - Candidate responses
  - Catalogue information
  - Condition of book
  - Contacting an organisation for information
  - Cost
  - Counting
  - Date of publication
  - Financial reality
  - Part of set
  - Past practice
  - Physical characteristic of an item
  - Physical restrictions
  - Product cost
  - Proximity of company
  - Testing skills of staff
  - Type of book
- Feedback from users
  - Attendee knowledge
  - Comments from students or faculty
  - Feedback from faculty
  - Feedback from students
- Input from colleagues
  - Examples
  - Expert advice
  - Networking
- Local research and evaluation
  - Begin a research project

        - Citation analysis
        - Course evaluation
        - Focus groups
        - Formal input from library staff
        - Interviews
        - Own research
        - Research interests
        - Testing how something works
        - Time audit
        - Usability testing
        - User needs
        - User surveys
    - Other documents
        - Amazon
        - Blog posting
        - Bookseller websites
        - Brochure
        - Cataloguing conventions
        - Collection guidelines
        - Conference presentation
        - Consultant's report
        - CV
        - Google
        - Ithaka list of what to withdraw
        - Job posting
        - LC
        - Mailing list
        - MeSH subject headings
        - Newsletters
        - Organisational direction or culture
        - Other library catalogues
        - Other library websites
        - Procedure documents
        - Proposal documents
        - Publisher website
        - Recommendations
        - Research guide
        - RFP responses
        - Staff collective agreement
        - Standards
        - Syllabus
        - Twitter
        - University calendar
        - Vendor report
        - Webinar
        - What other campus departments do
        - Wikipedia
        - WWW
    - Published literature
        - Authoritative resource

        - Best practices
        - Bibliographies
        - Book reviews
        - Books
        - Databases
        - Guidelines
        - Non-LIS literature
        - Non-research literature
        - Research literature
    - Statistics
        - Circulation stats
        - Click-through stats
        - Comparison
        - Discard stats
        - ILL stats
        - Infolit stats
        - In-house benchmarking
        - Overlap analysis
        - Purchasing data
        - Reference stats
        - Usage stats
    - Tacit knowledge
        - Brainstorming
        - Collegial history
        - Common sense
        - Impact on staff
        - Intuition
        - Library education
        - Online training
        - Orientation program
        - Own idea
        - Own knowledge
        - Past education
        - Past experience
        - Possible negative outcome

Timeframe for decision

- Immediate
- Set deadline – long
- Set deadline – short
- Undetermined point in future

Value of research

What other libraries do

Appendix H

Sample of thematic memos

April 27, 2011

Decision making within an organisational structure or where the decision will impact others in the workplace seems to run through all the data so far.

There seems to be a theme emerging re: "buy-in" or building consensus. Much of this has nothing to do with what the evidence says -- the evidence seems to sit apart and may be brought in to convince others of a position that someone wants to prove. So, in that respect, evidence becomes a *tool* for *winning* a case.

Other times, gathering co-workers' input becomes a form of evidence for consensus building. Showing that you have taken everyone's opinions and concerns into account is a politically savvy way of allowing people to "buy-into" the decision that is made. This buy-in factor seems to be a very important part of academic librarian decision making. Especially re: decisions that may change practice routines or move away from how things have always been done. For example - Librarian 3 says in her interview that "there's no point if they won't do it."

May 4, 2011

A theme I'm starting to see emerge relates to the reflection process that participants are engaged in as part of this study. They note that this type of reflective process is helpful to their decision making, raises questions for them, makes them be more thoughtful about their practice, and potentially helps them with their decision making and contributes to their knowledge and learning.

September 1, 2011

It seems to me that perhaps the types of evidence required depend upon the decision that needs to be made. Some decisions can be made by "intuition" - tacit knowledge and past experience. Others require more confirmation - at a mid-level this is consulting with colleagues or checking to see what other libraries have done. If it is a bigger, more serious decision which the librarian has more time to make, then the consultation procedures are still used, but the librarian would also look to the literature and research. Organisational and political influences seem to trump everything else, however.

Sept 8, 2011

Participants have discussed decisions which involved other people/a group. They alone were not making a final decision. They were contributing to a group decision in some way.

This may be a key aspect of what needs to change with the EBLIP model. The model is really focused on individual decision making, but the fact is that most often, academic librarians are not making decisions in isolation but make decisions with colleagues. Sometimes, it is about consensus building, other times about convincing a superior of your positions, if that person ultimately makes the final decision. The dynamics of this group decision making cannot be ignored. How can we work effectively within a group organisational context to make good decisions? It is complex due to differing personalities, and points of view. This experience can be either positive or negative.

Truly individual decisions are usually about smaller matters such as monograph selection. These are not the kind of questions EBLIP even really deals with. EBLIP has been focused on big questions but without considering the group approach.

Sept 28, 2011

While some decisions are made by an individual, it is the overall organisation that sets the tone and creates the environment to encourage evidence based decision making or not. Whether evidence is viewed favourably and listened to our not, depends upon the culture and dynamic of the organisation.

Research and evidence can be either a positive thing, or rendered useless depending on the organisation.

The organisational dynamic can either be an obstacle or an enabler to the individual librarian's own decision making, depending upon that individual's connection to the environment (whether they are on the inside or outside of the prevailing attitude).

Oct 7, 2011

I think that CONVINCING may be my core concept.

Most decision making is NOT a solo effort. Academic librarians work within an institution and either make decisions collaboratively as a group or partake in the decision to a certain point, but then someone else has the final say. In both cases, evidence is used to **convince** and thereby **influence** the final decision.

Ultimately, we are not in control of most final decisions. Therefore, we do what we can to influence and impact the decision indirectly. Even when we do have the final say in a decision, we look to evidence to convince ourselves we are doing the right thing.

To say we use evidence to convince does not imply a negative connotation. An individual can still be open minded about what the evidence says, and want to share that with others. Sometimes, however, the person may already have a strong opinion about something and purposefully seek only that evidence which supports their position (look at reasons to seek evidence).

Oct 17, 2011

Convincing has two sub-categories:
Confirming and Influencing

Confirming focuses on the Self. Your position/knowledge as a professional (even if you are part of a group)

Influencing focuses on Others and what you need to do to contribute to what you feel would be a positive outcome. Can be a positive or negative experience depending upon the environment.

Confirming can lead to influencing when part of a group process. Starts out as confirming, but where there is disagreement or uncertainty, can become influencing.

Confirming is always positive because you are seeking to better understand something and add to your knowledge as a professional. You don't confirm with evidence falsely - you confirm to feel better and more confident that you are doing the right thing while remaining open to new possibilities.

Influencing can be positive or negative. When in a positive environment, you may first individually go through the confirming stage, but when working with others, bring your knowledge to the table in order to contribute to the group making the best decision possible. In a positive situation individuals will all feel free to speak and be heard, and will reach a consensus. What an individual brings to the table, then, is a positive influencing.

When in a negative environment, people feel they are not being listened to, or their concerns not heard. They then have to adapt strategies to deal with this. One such strategy may be to bring research evidence to the table in support of their viewpoint, where an opposing side may not have done this. Research is generally well regarded in an academic environment and therefore cannot be easily dismissed as a person's own viewpoint, for example. Other strategies may be to convince other individuals of your view and bring them on-side prior to any decision. Or to stress particular points depending upon what you know the decision maker needs to hear in order to be persuaded. Others may just go ahead with something without asking permission. In any case, the individual wants to influence the final result, and where a work environment is negative, they will use evidence as a tool (as per Partridge et al).

October 14, 2011

I am thinking about the data as a whole and what I have learned. What has come through as important.

Academic librarians use evidence to make professional decisions. They sometimes make solo decisions related to the particulars of their work, but more often they

make decisions as part of a group, or contribute towards a decision that will ultimately be made by someone else.

Solo decisions usually relate to decisions that are of a smaller scale. For example, purchasing a book or deciding what to teach in an information literacy session. On these types of decisions, librarians usually seek evidence that will confirm for them that they are doing the right thing, or where they had no preconceived notion of what they should do, the evidence guides them towards a decision they can make with confidence.

Group decisions are more common for academic librarians. They frequently are part of a team, committee, working group, etc. that must work together to make a decision or recommendations on a particular topic. In this type of a group situation, evidence is sought for the following reasons:
1) to give the group background information / a starting point for discussions
2) to substantiate a point of view within the group (i.e.: "the literature says" to back you up)
3) to counter-point someone else's argument
4) to influence the boss/decision maker that the recommendations are sound.

Depending upon the work environment, evidence is used differently:
a) a positive environment = being forthcoming with ideas/listening to others/being open to what the evidence says
b) a negative environment = secrecy, withholding information, only using select information to build up your case, approaching situations depending upon personalities, feeling hopeless, being sneaky, power-plays.

Generally, everyone wants to contribute to the decision, but if they feel they are not being listened to, they will be disempowered.

The most common evidence sources consulted are the literature, getting a colleague's feedback, local stats of various types, and what other libraries are doing. (need to check to see if there is any difference in sources depending on influencing vs. confirming).

No one appraises the literature in the way that has been advocated by the EBLIP movement, and it is only useful if it is relevant to the local situation. When it is, librarians are very happy. The literature seems to be an ultimate check for people that they are on the right track. That is also the same for checking websites and what other libraries are doing. It is reassuring/confirming.

October 21, 2011

Librarians use tacit knowledge very heavily in their decision making. This is evident in the number of references of tacit knowledge use in my coding. The interesting thing is that this comes out when people are describing how they made decisions and the sources that they drew upon. BUT, when they are directly asked what they consider to be evidence, tacit forms of knowledge are rarely mentioned. So, is tacit

knowledge evidence? Or is it something else? Perhaps it needs to be considered as a separate element (the internal, personal aspects of what we know as individual professionals) that we use in conjunction with external evidence in order to make decisions.
tacit + evidence = decision
Decision making requires both. It is made easier by the enablers, and more difficult by things that interfere (obstacles).

October 31, 2011

I have come to realize that "what other libraries do" is not a source of evidence in itself. There are many sources of evidence that fit into this category (such as the literature, website info, conversations with peers, conference presentations, comparing titles held in other library catalogues). "What other libraries do" is actually a reason that academic libraries seek evidence, as part of their overall convincing. They are comparing their own institution's services, or their own ideas, to what other libraries or librarians do, in order to ensure that they are on the right course. This is confirming, it brings new ideas, and can be used as a way to convince others at your institution that doing what you want to do is the right decision. Especially in comparison to peer institutions or institutions you aspire to be like. It also fits very closely with practice theory in terms of the area of practice evolving and having a common frame of practice. This is how the practice evolves and others understand what is happening, so there is still a common frame of reference.

Appendix I: Participant schedule

Participant	Blogging period	Interview date
Librarian 1	March 9 – April 8, 2011	April 19, 2011
Librarian 2	March 24 – April 26, 2011	April 28, 2011
Librarian 3	March 17 – April 15, 2011	April 19, 2011
Librarian 4	March 16 – April 16, 2011	May 3, 2011
Librarian 5	March 29 – April 28, 2011	May 5, 2011
Librarian 6	March 31 – April 30, 2011	May 3, 2011
Librarian 7	May 3 – May 24, 2011	June 14, 2011
Librarian 8	April 1 – May 2, 2011	May 4, 2011
Librarian 10	April 1 – April 30, 2011	May 5, 2011
Librarian 11	April 13 – May 4, + June 6, 2011	June 8, 2011
Librarian 12	April 5 – May 9, 2011	May 17, 2011
Librarian 13	April 4 – May 4, 2011	May 18, 2011
Librarian 14	April 13 – May 5, 2011	June 8, 2011
Librarian 15	April 6 – May 4, 2011	June 17, 2011
Librarian 16	May 2 – May 31, 2011	June 9, 2011
Librarian 17	May 3 – May 27, 2011	June 8, 2011
Librarian 18	May 2 – May 30, 2011	June 22, 2011
Librarian 19	June 10 – July 19, 2011	August 5, 2011
Librarian 20	July 4 – July 28, 2011	September 1, 2011