

# Determinants of Evidence Use in Academic Librarian Decision Making

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The objective of this qualitative study was to identify and explain challenges encountered by academic librarians when trying to incorporate evidence into their practice. The findings resulted in the identification of five main determinants that act as either obstacles or enablers of evidence use. The identification of these determinants provide librarians with a greater understanding of the complex processes and individual as well as organizational factors that impact decision-making processes within academic libraries.



While individual librarians have certainly used evidence sources as part of their decision making before the evidence-based practice (EBP) movement began within librarianship in 1997,<sup>1</sup> there was no concerted effort to ensure the integration of evidence as a regular part of decision making until that time. The evidence-based library and information practice (EBLIP) movement began within medical librarianship where librarians had taken on an important role in evidence-based medicine and, as an extension of this role, began applying the same principles to their own professional practice. The movement has grown at a fast rate, with a biennial conference, an international journal, book publications, tools for critical appraisal of research, and workshops given regularly. For a more detailed overview of EBLIP, a good starting point is the book edited by Andrew Booth and Anne Brice.<sup>2</sup>

EBLIP promotes librarian decision making that is informed by the best available research evidence.<sup>3</sup> It 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.<sup>4</sup> 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; 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. Research is important because it contributes to the growth of the profession, creates new knowledge, and ultimately helps to improve practice-based decision making. EBLIP is sometimes seen as a potential bridge due to its emphasis that practitioners

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should be reading and incorporating research into their practice.<sup>5</sup> However, simply putting research in front of practitioners is insufficient to effect change, as the process for using evidence in decision making is complex.<sup>6</sup>

Having a better understanding of the reasons librarians do or do not use research and other forms of evidence in their practice is an important first step in working toward greater integration of research and practice to overcome the gaps that may currently exist. This study aims to address this question by revealing determinants of evidence use in the decision making of academic librarians, via a qualitative, grounded theory methodology. Determinants are factors that have a direct influence on whether evidence will be incorporated into decision making within professional practice.

This paper details the results of one part of a larger doctoral study. The overall study looked at how academic librarians use evidence in their decision making. Other aspects of the study looked at what evidence sources were used by academic librarians and how the evidence was used. This particular part of the study focuses on the obstacles and enablers faced by academic librarians during the process of attempting to use evidence in their practice.

In evidence-based practice, evidence is normally recognized as published research; however, the first paper published from the wider study<sup>7</sup> shows that academic librarians use a multitude of evidence sources depending upon the situation and decision to be made. This paper considers evidence from a wide perspective and looks at determinants within the context of whatever librarians considered to be appropriate evidence sources within the situation they were encountering.

## Literature Review

To date, there have been many articles written about possible obstacles to the use of research in librarianship, including why librarians do not use evidence in their decision making. However, very few of these articles have been based on research. Booth<sup>8</sup> provides an overview of the literature on barriers and facilitators to evidence-based library and information practice, via a qualitative synthesis. Of the 55 papers that Booth identified as reporting at least one barrier to EBLIP, only the paper by Turner<sup>9</sup> was an empirical research study. Booth also included commentary and opinion pieces within his review; by synthesizing all the papers on the topic, he identified five themes regarding possible barriers: environment, evidence, workplace, profession, and paradigm. One LIS study not included in Booth's review is from Hiller, Kyrillidou and Self,<sup>10</sup> who examined why evidence was not used more widely in Association of Research Libraries (ARL) libraries. This may not have been included in the Booth synthesis because it focused on assessment measures of evidence, as opposed to research.

Turner<sup>11</sup> 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 (that is to say, library does not subscribe to certain journals), the research is difficult to understand and apply, and finally that there are problems with intellectual availability (in other words, poor bibliographic control). These reasons for lack of research use by practitioners are echoed by Genoni, Haddow and Ritchie,<sup>12</sup> who also include language barriers, as well as the fact that LIS questions draw from the literature of a variety of disciplines.

Haddow and Klobas<sup>13</sup> 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,<sup>14</sup> 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 organizations for enabling the incorporation of research into daily work, an area previously identified by Hiller, Kyrillidou, and Self.<sup>15</sup> Hiller, Kyrillidou, and Self note the importance of library leadership, organizational culture, library priorities, assessment skills, and expertise within the institution. Others have also pointed out the crucial importance of organizational factors such as politics, research capacity, and workload as obstacles to implementing evidence-informed decision making.<sup>16</sup> These researchers emphasize the need to focus on the many complex factors needed to support the implementation of evidence-based practice. Looking beyond LIS, in the health sciences, Bowen et al<sup>17</sup> and Kitson, Harvey, and McCormack<sup>18</sup> found organizational factors to be paramount to the actual use of research evidence in practice.

### Objectives

The overall aim of the wider study was to explore and better understand how academic librarians use evidence in their professional decision making. One of the specific objectives within this broad aim was to identify and explain challenges encountered by academic librarians when trying to incorporate evidence into their practice. This paper focuses on that objective and the findings that arose specifically relating to both obstacles and enablers of evidence use in decision making by academic librarians. This article aims to add research to the literature on this topic to enable a greater understanding of the factors that affect librarian use of evidence.

### Methods

The study used a grounded theory methodology, following the approach of Charmaz.<sup>19</sup> The methods used to collect data were online diaries (blogs) and semistructured interviews. Ethics approval was received from both Aberystwyth University, where the researcher was a student, and the University of Alberta, where the researcher is employed as a librarian.

The study used a purposeful sample of Canadian academic librarians with a total of 19 participants from across Canada. The 19 participants were geographically dispersed across Canada and were all English language speakers. All worked in academic positions, identified themselves as academic librarians, and worked in a variety of different roles and subject areas. The participants' number of years of experience as a librarian varied widely, ranging from less than two years to more than 30 years. They 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 an analysis of 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 process of data collection occurred over a period of nearly six months, simultaneously in conjunction with data analysis. Participants wrote in their online diaries for a period of one month. They were asked to note questions or problems that related to their professional practice and how they resolved those issues (see Appendix: Blog Diary Instructions for Participants). The diary keeping took place using *WordPress.com* online blogging software, which allows for blogs to be kept private. All participants who completed the diary portion of the research agreed to a follow-up interview. The semistructured interview process (via telephone/Skype) allowed clarification and

deeper analysis of specific aspects that participants may have noted in their diary entries, enabling participants to look holistically at their experience and comment on the overall process.

Analysis of the diaries began as each one was completed. The process of “generating, developing, and verifying concepts” outlined by Corbin and Strauss<sup>20</sup> as well as by Charmaz<sup>21</sup> was used to closely analyze the text and discover and group the concepts related to the decision-making process of participants. As additional diaries and interviews were completed, the information gained from the earlier data was used to refine concepts and discover new ones. Memo writing was used to keep a reflective record of the approach to the research as well as to emergent concepts. An open coding approach was used on a printed copy of the diary and the interview transcripts and later transferred into the *NVivo* software program, which was used to assist with the management of data analysis. Very specific codes were later grouped into categories, as analysis was refined and a picture of the findings began to emerge. Saturation of the data was reached by the sixteenth interview.

### Findings

The doctoral research study, of which this paper is one part, found that librarians do incorporate the use of evidence into their decision making and that they use evidence to confirm and influence.<sup>22</sup> This paper’s focus is on elements that the study revealed as determinants, both positive and negative, that impact academic librarians’ use of evidence in decision making.

When participants were asked directly whether they encountered any obstacles or barriers to their decision making over the course of the month that they kept the online diary, they 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; 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 organizational dynamics or the culture of the organization, 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.

Yet, after close examination of the specific situations discussed in the participants’ diaries and during interviews, several obstacles and enablers emerged. Since it was found that the obstacles and enablers mirror one another, they have been grouped together thematically according to the basic element that encapsulates the general concept as a determinant of evidence use in decision making. These are individually described below. Each determinant and its positive or negative effect on decision making are largely tied to the environment or context. For example, organizational 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, 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.

## Determinants

### *Organizational Dynamics*

The dynamics within an organization is a concept that 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 organization and among peers. A workplace that is not functioning well due to poor leadership, or a senior manager who is overly controlling, interfere with good decision making. 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)*

Academic librarians do much of their decision making in groups. In this regard, organizational 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 organization, 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:

*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. (Librarian 5, interview)*

*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)*

Librarians also question their own place within the organization and the atmosphere in which they work. They are trying to make conscientious decisions based on evidence, but they may 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 who is more experienced, such as Librarian 17, it becomes a source of frustration:

*Sometimes I feel that I don't know the organization 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 organization 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 organization, but I still remain frustrated. (Librarian 17, interview)*

The various combinations of interrelated dynamics in the workplace are a complicated issue, given differences of opinion and the academic environment in which they occur. Figuring out a way to be heard is an obstacle to many.

Although organizational dynamics can be obstacles to evidence-based decision making, they can also be enablers. If the culture of the organization is one that allows open discussion and values the use of evidence in decision making, academic librarians are enabled to practice in a way that they feel very positive about. Some 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 own 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)*

Supportive groups that can work well together, with a common goal, also enable the 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)*

When group members work collaboratively to reach consensus, the outcome is one that members of the group feel positive about. Others mentioned cohesion in terms of “being on the same page” with other group members, as a positive group experience. 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—their workplace, in this respect, was itself an enabler to using evidence in decision making.

### **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,<sup>23</sup> and it is confirmed by this study. Usually the lack of time is due to workload 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. (Librarian 11, 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; instead, participants emphasized that they know they should be doing more to look at research evidence. There is also recognition that they have to interpret the evidence that they find, and this can also be a daunting task.

*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; 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.

*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. They have a percentage of their work time devoted to scholarly activities. In other cases, people were given release time from other tasks 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 to contributing to a culture of using research for decision making within the organization.

### **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.

*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)*

*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. (Librarian 15, interview)*

These examples show the types of negative feelings about one's own performance that may arise. 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 in a negative work environment, this may lead to avoidance and may mean they will bypass certain types of evidence that would actually be useful in their decision making.

For some participants, personal outlook played a positive role. It emerged 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 he or she can do within a certain context, regardless of the organizational climate. Another positive outcome occurred when librarians did not feel helpless due to a lack of information, but instead chose to investigate by either gathering more information, talking with colleagues, finding sources of evidence to confirm what they were doing, or educating themselves (via self-study or more formal instruction) so that they could improve 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: 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 she or he is undertaking.

### ***Education and Training***

Education and training was another determinant that affected participants' 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 for a librarian in a very new job. 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, reflecting in her diary about the difficulty in trying to determine the best sources of information. She notes:



*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 an obstacle 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 presents itself with the personal outlook obstacle. Where librarians lack knowledge on a topic, they also seem to lack confidence. Correspondingly, having the opportunity for ongoing education, beyond one's formal education, arose 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. Participants identified these types of learning opportunities as helping with their professional growth toward making better decisions.

### **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 those data into a usable format, meaning it goes unused.

*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)*

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, librarywide level, the data that are specific to her subject area are 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. (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 organization's policies, procedures, and vision:

*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 poor.

While "information needs" did not arise in the data as an enabler, it was noted as a significant obstacle. Hence, it is included in table 1 as an important overall determinant, and, following the other examples, it was determined what the opposite of the obstacles would be for that factor.

<b>Determinant</b>	<b>As an Enabler</b>	<b>As an Obstacle</b>
<b>Organizational Dynamics</b>	<ul style="list-style-type: none"> <li>• Collaboration</li> <li>• Positive work environment</li> <li>• Supportive colleagues</li> <li>• Open discussions</li> <li>• Culture values evidence</li> </ul>	<ul style="list-style-type: none"> <li>• Division/conflict amongst colleagues</li> <li>• Negative work environment</li> <li>• Poor processes</li> <li>• Poor leadership</li> <li>• Culture does not value evidence</li> </ul>
<b>Time</b>	<ul style="list-style-type: none"> <li>• Dedicated time for research</li> <li>• Making research a priority</li> </ul>	<ul style="list-style-type: none"> <li>• Too many competing demands</li> <li>• Research not seen as a priority</li> <li>• Heavy workload</li> <li>• Tight deadlines</li> </ul>
<b>Personal Outlook</b>	<ul style="list-style-type: none"> <li>• Remains positive</li> <li>• Open mind</li> <li>• Confidence</li> </ul>	<ul style="list-style-type: none"> <li>• Self-doubt</li> <li>• Feels insecure</li> <li>• Negative emotions</li> <li>• Afraid to ask for help</li> </ul>
<b>Education and Training</b>	<ul style="list-style-type: none"> <li>• Mentoring</li> <li>• Conference attendance</li> <li>• Skills training</li> <li>• Current awareness of literature</li> <li>• Journal club</li> </ul>	<ul style="list-style-type: none"> <li>• Lacking knowledge in specific areas / knowledge gaps</li> <li>• Lack of research training</li> </ul>
<b>Information Needs</b>	<ul style="list-style-type: none"> <li>• Good access to literature and local data</li> </ul>	<ul style="list-style-type: none"> <li>• Insufficient information available</li> <li>• Difficulty accessing the literature</li> <li>• Inability to obtain local data</li> <li>• Poor organizational documentation</li> </ul>

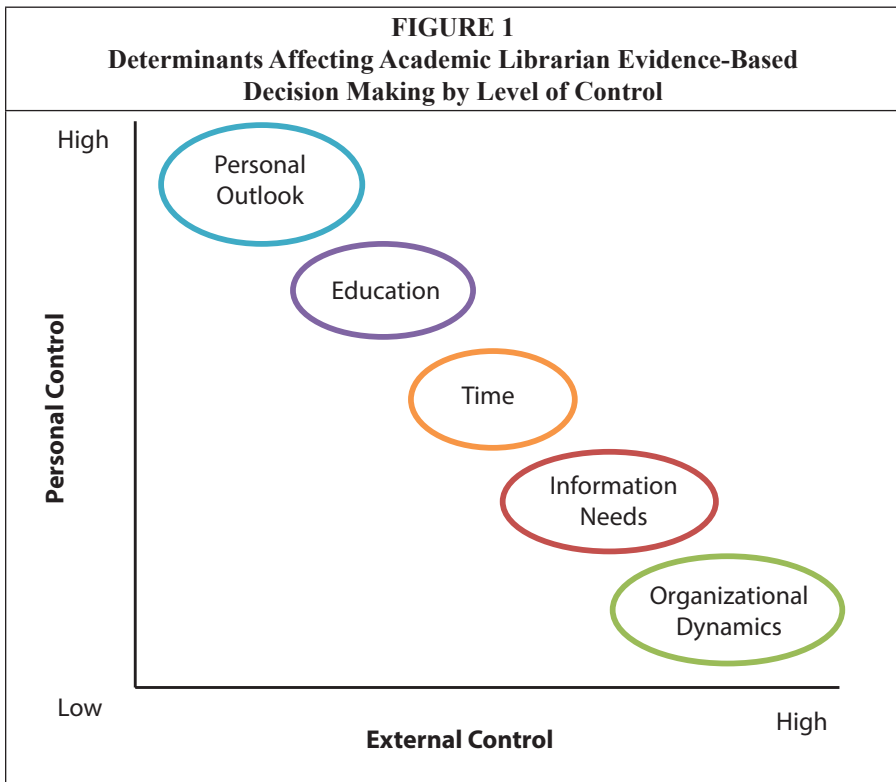
### Summary of Determinants

Table 1 summarizes the five main determinants 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.

### Determinants and Individual Level of Decision-Making Control

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.<sup>24</sup> In relation to this level of control in which decisions are made, the determinants of evidence use can be placed.

Figure 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 each person is responsible. On the other end of the spectrum is organizational dynamics, which is very highly connected to external control but low on personal control. While each individual contributes to the organizational culture and dynamic within the organization in which he or she works, the overall environment is one that is largely outside an individual librarian's control. So, for example, if a librarian works 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 her or his own learning opportunities. Essentially, as a professional, it is up to each librarian to be responsible for his or her continuing education. The organizations in which librarians work, however, do play a role and may be more or less supportive with monetary support, time allowances to attend conferences, and so on.

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 are beyond any one person's individual control.

Finally, time is placed in the center of the figure, as it is a factor that equally depends upon personal and external control. Managing one's time and setting priorities are very personal actions that every professional has to take responsibility for. However, the organization also plays a large role in the demands they place on academic librarians, setting 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 favor of time being an enabler rather than an obstacle.

Both individual librarians and the organizations 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 organizations examine their practices and consciously try to adapt the positive traits that will ensure that these factors become enablers rather than obstacles.

## Discussion

This study found that there are five main determinants that impact whether or not academic librarians will use evidence in their decision making, and it was found that these variables are simply different sides of the same concept. 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 if librarianship wishes to nurture EBLIP as a part of practice.

These findings confirm the results of the study conducted by Hiller, Kyriallidou and Self,<sup>25</sup> who found that a supportive organizational culture was critical to successful assessment and evidence use. As with their study, organizational dynamics emerged as the most important determinant of evidence use. Another key determinant found in this study confirms the findings of Turner,<sup>26</sup> that time constraints are a major reason for not using research in practice. While the Turner study focused on research, and the current study included research as well as other forms of evidence, in both cases, time was a major determinant toward evidence use.

The personal outlook determinant has not been identified as a major factor in previous studies, although elements of it did occur in the nonresearch articles that were included in Booth's<sup>27</sup> synthesis of the literature. This is the first research study to show

the importance of this particular determinant in successful evidence implementation. Some aspects of the education and training and information needs determinants were also noted by Turner, but more they generally arose within the nonresearch literature, as found by Booth. So this research also verifies that these elements are significant factors when considering implementation of evidence-based processes.

This study also connected the internal and external levels of control associated with each of the determinants of evidence use. This is an area that has not previously been explored through research. Clearly, the extent to which academic librarians 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 program may require some evidence that can be collected independently of the setting, but availability of appropriate data will depend on system capabilities and organizational protocols. This interacts with the time available and prioritization of work activities. Organizational dynamics influence the acceptability of the program for other library staff as well as faculty, and those dynamics interact with personal outlook of the librarian responsible for the program. The decision-making process is a complex one with many layers that must be considered.

This study was qualitative in nature, seeking to explore and understand through depth and richness of the data. While the study reached saturation and the findings should be able to be transferred to other populations beyond the Canadian academic librarians involved, it should be noted that the results of this study are not generalizable. Future researchers may wish to do a similar study with a different group of librarians or to take the results of this study and apply them as measures within a quantitative study of a larger population. EBLIP proponents should examine each of these five factors further to find ways to ensure they become enabling factors rather than obstacles to evidence use.

The determinants revealed in this study should provide practitioners and organizations with concrete elements to make progress toward being more evidence based, if they are able to focus on making each determinant an enabler rather than an obstacle. The identification of such determinants will enable academic librarians to understand the factors that may be obstacles to their use of evidence, or potential enablers to evidence use. Individual librarians can reflect upon the elements within their personal control and work toward turning any obstacles into enablers. Administrators can use this information to create a workplace that may be more conducive to using evidence in decision making, particularly by ensuring that the determinants that are more connected to external control, such as organizational dynamics, are positive within the local environment and enable evidence use rather than discourage it. Discussions between librarians and administrators to identify problems and determine solutions would be ideal. If academic librarians and administrators wish to embrace the use of evidence within their organizations, the findings from this study are crucial pieces of knowledge that will add to the understanding of what academic librarians require to move forward with an evidence-based approach to decision making.

## **Conclusion**

This study sought to identify and explain the challenges encountered by academic librarians when trying to incorporate evidence into their practice, and that goal was achieved. The findings revealed that obstacles and enablers actually mirror one another, and it is how each specific determinant relates to the individual librarian that will make it a positive or negative factor in the use of evidence. Five main determinants of evidence use occur among academic librarians, as was exemplified through in-depth analysis of actual situations where the participants tried to incorporate evidence into

their decision making; a different approach from past research that has mainly consisted of surveys. This study sheds new light on the reasons academic librarians use or do not use evidence, as well as the level of individual control academic librarians have over those factors. The study provides new knowledge for both individual librarians and the academic organizations in which they work, so they may better understand decision-making processes and the use of evidence in practice.

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## Appendix: 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.

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