Knowledge Mobilization - From the Web to the Board Table: How
School Board Leaders Use Digital Information to Inform Their
Decision Making

by

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A Thesis Submitted in Partial Fulfillment
of the Requirements for the Degree of

Master of Education

in

The Faculty of Education

Education and Digital Technologies

University of Ontario Institute of Technology

December 2013

Acknowledgements

This challenging and rewarding research would not have been possible without the help of many people. Dr. Robin Kay, supervisor of this research project, has challenged my thinking and taught me so much about research and writing. I extend my appreciation to him for his patience and understanding, especially during discouraging moments.

To the trustees across Ontario who took the time to fill out the research survey and agreed to be interviewed, I thank you for your support. I gratefully acknowledge the assistance of the staff and executive at the Ontario Public School Boards' Association who promoted the survey and encouraged me along the way. Appreciation is also sincerely extended to the retired trustees who provided valuable insight and guidance in crafting the survey and interview questions.

This project would not have even begun without the help of two individuals. I offer special thanks to Jan Johnstone, who started me on this journey and provided support and encouragement along the way. I deeply appreciate the advice and expertise of Dr. Kathy Witherow, who approached me with the topic of this research and for sharing her work and insights with me.

Last but certainly not least, I thank my family, friends and colleagues for their patience and encouragement on this journey. I owe a very special thank you to my mother, Christine Jefferson, who has always been my cheerleader and my inspiration.

Table of Contents

Abstract

There has been much interest in knowledge based decision making in both the private and public sectors, especially in the field of education. However there is a paucity of research that provides insights into how school board leaders access, analyse and utilize available knowledge in their decision making. Through an online survey and face to face interviews, this study examined the processes and practices used by trustees at English public school boards in Ontario in order to determine the facilitators and barriers that affect how, why and when, they access, and use digital information to inform their decision making on board level issues. The response rate to the survey was over fifty percent ($n = 164$) with a fairly equal number of males and females. Participants represented all age groups, board types, years of experience and levels of education. The research found that trustees primarily use more traditional online sources (email and news sources) but felt that other sources (Twitter, educational journals) were impactful on their decision making when used. Barriers to effective knowledge mobilization were identified, including lack of time, lack of remuneration, lack of skill and problems finding reliable and relevant information online, although few were found to be significant to the majority of trustees surveyed. Enabling factors focused on the needed for a third party repository of reliable information from trusted sources. The paper concludes with some recommendations that can be utilized to help support trustees in accessing quality information to inform their decision making as well as suggestions for further research.

(Keywords: knowledge mobilization; school boards; trustees; evidence-based decision making)

1 Introduction

In Ontario, publically elected school boards are entrusted to make decisions on a regular basis that collectively affect the education of over two million students and over twenty billion tax dollars (Ministry of Education, 2013). Since qualification for office does not require a background in education, trustees are not necessarily educators, nor do they come from an educational background, yet they must routinely make decisions on educational issues as part of their prescribed duties. To be most effective, it is important that these decisions are based on sound knowledge and incorporate the latest thinking in education (Witherow, 2013). If school board leaders do not have accurate, up to date information on which to base their decisions, then the decision making process could be flawed and may not lead to the best outcomes for students (Doyle, 2002).

With an increased focus on school board accountability for student outcomes (Davies, Nutley & Smith, 2000), the knowledge level of trustees becomes increasingly important. Understanding how this group of school board leaders accesses and utilizes information, particularly the plethora of information made available online, is a key factor in understanding if trustees are well informed decision makers. Given the growing wealth of information that is available in this digital age to anyone with internet access, it is important to know if trustees are accessing this information to become more knowledgeable on educational issues and if not, what barriers exist that are preventing them from ensuring they are well informed on the issues they must make decisions on.

Trustees in Ontario, Canada come from a wide range of backgrounds – from firefighters to retired superintendents. Their relationship with both the internet and information in general, can be quite varied. Supporting these diverse individuals so that they can understand the importance of knowledge based decision making and have the skills necessary to access, assess and interpret available information is essential to ensuring that sound educational decisions are being made across the province.

There has been little research done on how trustees use digital knowledge to inform their decision making. Given what is at stake in the decisions they are making, it is worthwhile to examine the knowledge mobilization strategies used by these school

board leaders in order to better understand the barriers and facilitators to their knowledge mobilization process. Examining what information trustees are accessing and how they ensure its trustworthiness can be crucial to understanding and providing supports to this level of decision makers to ensure their decision making is informed and more likely to lead to sound decisions that positively affect student outcomes.

1.1   Overall Research Question

This project examines the key research questions of how school boards leaders (trustees) access, analyze and utilize available digital knowledge to inform their decision making and what are their attitudes are towards using online information, specifically looking at the barriers and supports to knowledge mobilization in a digital world.

2   Literature Review

2.1   Overview

While there is a lack of published research specifically focused on how school board leaders access, analyze and utilize available knowledge to inform their decision making, there is a great deal of literature, in general, on knowledge mobilization in the field of education. This literature review will provide a broad understanding of what the literature says about knowledge mobilization particularly how it relates to decision making within school boards. The significance of this area of study rests on an understanding of why knowledge needs to be mobilized, specifically the importance of knowledge-based decision making. Because this research project will be looking at school board trustees, who are political players on the educational decision making stage, there will be a focus on factors that influence knowledge mobilization in a political environment.

This literature review will by look at the importance of knowledge-based decision making in education (also referred to as evidence-based decision making) including the debate over terminology. Next, it will examine knowledge mobilization in a general context to provide a background for this study. Then five main themes will be addressed including gaps in the research, overall challenges of the knowledge mobilization process, knowledge mobilization in a political environment, specific barriers, and supports that can help or hinder individuals from using knowledge to inform their decision making.

2.2   Knowledge-Based Decision Making in Education

The extraordinary availability of information due to the growth of the internet is described by Peter Leveques (2013) as "access on steroids" (p. 22). This tremendous increase in access to information means that there are not only more possibilities for people to easily obtain research, but also for researchers to disseminate their findings to a wider audience (Cooper, Edelstein, Levin & Leung, 2010; Levin, 2012). With the growing availability of research there has been an increasing interest in how knowledge

is used to inform decision making (Campbell & Fulford, 2009; Cooper, Levin & Campbell, 2009; Dobbins, Rosenbaum, Plews, Law & Fysh, 2007; Hemsley-Brown, 2005; Levin, 2008, 2010, 2011a, 2012; Levin, Sa, Cooper & Mascarenhas, 2009; Organization for Economic Co-operation and Development, 2007). Many researchers in the field of education argue that using research to inform policy and practice leads to higher-quality decisions and ultimately to improved outcomes for students (Cooper et al., 2009; Doyle 2002; Levin, Cooper, Arjomand & Thompson, 2010; Sheppard, Galway, Brown & Wiens, 2013).

The increased recognition of the importance of knowledge to support policy making can be attributed to not only developments in technology that have enabled more access to information, but also to a number of other factors. These include: a better educated, well-informed public, the growing size and capabilities of research departments, and an increased emphasis on scrutiny and accountability in government (Davies et al., 2000). As more evidence is available, researchers have increasingly turned their attention to understanding how research informs policy and practice (Cooper & Levin, 2010; Levin et al., 2009; Nutley, et al., 2007; Witherow, 2011).

According to Witherow (2011),

Linking research to practice is no longer optional, but required, for educators. We are living in a knowledge-based society and preparing students to be global citizens. With this in mind, educators need to be able to make decisions based on the most up-to-date information on what works. (p.3)

Because of the desired link between research and improved outcomes, decision making based on knowledge derived from research has become a part of the current culture of education (Doyle, 2002; Witherow, 2011). While knowledge-based decision making may becoming the norm for school based educators (teachers, principals), the literature reveals that the role of research in informing educational policy decisions made by politicians such as trustees, is relatively minor (Cooper, et al., 2009; Davies, et al., 2000;

Galway, 2006; Levin, 2004; Levin et al., 2010; Nutley, Walter, & Davies, 2007; Sheppard, et al., 2013).

A new study entitled *School Boards Matter,* produced by two Canadian universities and the Canadian School Boards Association, found that only 12% of school board trustees felt that data-driven decision making was taking place at their board (Sheppard et al., 2013). The responses in the study suggested that, although knowledge-based decision making may not be used regularly at the board level in Canadian school boards, trustees still recognized it as a meaningful part of many boards' decision-making processes. Public policy makers recognizing the importance of research in informing decision making is also evidenced in the Government of Alberta's (2010) discussion paper *Inspiring Action on Education* which devotes one of its core Policy Directions to striving for research informed decision making. Although there are no clear data that suggest that policy decisions are becoming more research based, public policy makers are beginning to recognize the value of knowledge-based decision making (Sheppard et al., 2013).

Because the *School Boards Matter* study (Sheppard et al., 2013) is the only published empirical examination of knowledge-based decision making with respect to school board trustees and very few studies (Galway, 2006) have looked even more generally at education policy makers' use of knowledge to inform decision making, there is a clear need for more research in this area, specifically with respect to digital resources..

2.2.1 Defining Knowledge

Researchers of knowledge-based decision making often debate how to define the terms *knowledge, research* and e*vidence,* which are used interchangeably within the literature. Examining how the concept of research knowledge is applied to knowledge-based decision making and the field of knowledge mobilization will help to frame the context of this study.

Since knowledge-based decision making is about how research evidence is used in policy and practice, it then becomes important to understand what is meant by the terms *knowledge*, *research*, and *evidence* in this context. Throughout the literature these terms are often disputed (Edelstein, 2011; Nutley et al., 2007). While Hemsley-Brown (2005) provides a very formal definition of research, Levin (2011a) argues for a broader definition: "Knowledge deriving from formal research...[is] not the only kind of knowledge, or even the most prevalent affecting policy and practice in education" (p. 15). He adds that despite the fact that formal research should play a bigger role in education, in reality research findings are often replaced by informal personal and social knowledge. Levin acknowledges a broader definition of knowledge is appropriate when studying knowledge-based decision making, but he questions where to draw the line and asks if opinion pieces should be counted as research or knowledge (Levin, 2011b). Many other authors agree with the broader definition and offer debate how broadly to define *research*, *evidence* and *knowledge* (Cooper et al., 2009, Davies, et al., 2000; Galway, 2006; OECD, 2007), but the question of what counts as *knowledge* is not answered definitively in the literature, and some suggest that it has not even been adequately studied (Galway, 2006).

In keeping with the general consensus of the literature, and for the purposes of this paper, the definition of knowledge should not be limited to only formal research evidence but to expand the understanding that the "knowledge" in knowledge mobilization refers to a wide variety of forms of knowing.

2.3   Knowledge Mobilization

The concepts of knowledge-based decision making and knowledge mobilization are interconnected. In order to use knowledge to inform decision making, the knowledge must be mobilized or transferred from the point of origin (e.g., university research departments) to the end user (e.g., policy decision makers and practitioners). But knowledge mobilization is more complex than just moving knowledge from one sphere to another. It also includes using that knowledge to inform decision making and practice (Campbell & Fulford, 2009).

Knowledge mobilization has been described as multi-dimensional and encompasses many different fields including education, health care, criminal justice, social and welfare policy, transportation, etc. (Davies et al., 2000; Witherow, 2011). These different sectors use different terms for the mobilization of knowledge including: *knowledge brokering, knowledge exchange, knowledge management, knowledge transfer, knowledge translation and knowledge utilization* (Levin 2008; Ontario Institute for Studies in Education, 2013). In the field of education, the term primarily used is *Knowledge Mobilization* (Cooper et al., 2009; Edelstein, 2011; Levesque, 2012; Levin, 2008; Witherow, 2011).

There are many variations on the definition of knowledge mobilization, however it is broadly accepted in the literature that knowledge mobilization refers to the many ways that stronger connections can be made to bridge the gaps between research, policy and practice (Cooper et al., 2010; Edelstein, 2011; Levin, 2011a; Nutley, et al., 2007). Specifically, knowledge mobilization is defined as the process of "getting the right information into the hands of the right people at the right time so as to influence decision making" (Dobbins et al., 2007, p. 9; Levin, 2008, p. 12).

2.3.1 Defining Mobilization

Just as the term *knowledge* is debated in the literature on knowledge mobilization so are the terms *use* and *mobilization,* which are used interchangeably in the literature (Cooper et al., 2009; Davies & Nutley, 2008; Edelstein, 2011). The literature describes mobilization of knowledge as ranging from direct use of research evidence to inform decision-making, to indirect use of ideas from various sources to improve understanding and build knowledge (Cooper et al., 2010; Edelstein, 2011; Nutley, et al., 2007). Although "use" can be defined reading a research report or accessing an online source, simply reading about research is not the same putting the findings from that research into action (Campbell & Fulford, 2009). *Mobilization* implies effort and direction in an ongoing process, not just a single event (Cooper et al., 2009; Nutley et al., 2007). Looking at research use across a number of fields, Nutley, et al. (2007) reported that the common understanding of '*research use'* is when "findings from research have direct

impact on the actions of front-line practitioners or local or national policy makers" (p. 33). However, they also noted that research use is rarely such a straightforward process of simply applying research to policy and practice (Nutley, et al., 2007).

Mobilization can also include using knowledge to legitimize practices and policy decisions. Galway (2006) refers to this form of use of knowledge as "shopping for research" (p. 183) and questions this type of practice because the research is not being used to inform decision making but is cherry picked to justify positions already held. This particular use of research, often witnessed in a political environment, will be discussed in more detail further on.

The consensus of the literature on knowledge mobilization suggests *mobilization* be considered in a very broad sense, including instrumental direct use as well as the types of indirect use that influence the way people think about policy issues (Nutely et al., 2007).   For the purposes of this paper *mobilization* should be defined in the broadest sense possible in order to capture the myriad of ways in which school board trustees are using information to inform their decision making.

2.4   Gaps in the Research

In the field of education, there is much less empirical research on knowledge mobilization than in other sectors such as health and social welfare (Cooper et al., 2009; Levin, 2008; Witherow, 2011). Even though there is some education-based literature focusing on how researchers mobilize knowledge to end users (Cooper et al., 2009; Dobbins et al., 2007; Levin 2012), little research is available looking at the process from the perspective of the end user (Davies et al., 2000; Levin, 2008; Levin et al., 2010). Many authors have identified a need for more empirical research into understanding where educators and policy makers get information and how the knowledge they find online is used (Cooper et al., 2010; Davies, et al., 2000; Edelstein, 2011; Hemsley-Brown, 2005; Levin 2010). Galway (2006) suggests that there are not only gaps in our understanding of knowledge mobilization in education, but that research in this area is so

lacking that the questions that need to be asked have not even been properly formulated yet.

Knowledge is often built over time through multiple interactions involving various sources of research as well as informal personal and social knowledge (Davies & Nutley, 2008, Levin, 2011a). Consequently, the impact of research is "often indirect and long term and can be difficult to track" (Davies & Nutley, 2008, p. 3). The complexity of interactions may partially explain the lack of empirical research in this field (Davies & Nutley, 2008). Although examining research use can be difficult (Cooper & Levin, 2010), given the increasing focus on school board accountability and improving student outcomes, it is worthwhile investigating how knowledge mobilization strategies are being used by school board leaders to inform decision making (Witherow, 2011).

2.5   Challenges of Knowledge Mobilization

There is little empirical research on knowledge mobilization in education and the extent to which education leaders use research in their decision making (Fusarelli, 2008; Levin, 2011b), however a number of authors (Cooper et al., 2010; Doyle, 2002; Edelstein, 2011; Fusarelli, 2008; Galway, 2006; Hess, 2008; Levin, 2012) have examined the general challenges associated with the knowledge mobilization process.

Although Hemsley-Brown (2005) asserts that changes in technology have reduced the usefulness of experience in decision making and that educators are turning to the findings from research to supplement experience-based knowledge, most authors found that the converse was in fact the case. Research was not actually being used in a meaningful way by decision makers in education (Cooper et al., 2010; Edelstein, 2011; Fusarelli, 2008; Hess, 2008; Levin, 2012). The challenge for educators is to move "intuition-based" to knowledge-based decision making (Doyle, 2002). Hess (2008) maintains that the real challenge is to understand *how* and *why* research does or does not shape policy, which raises the question: "Why hasn't research been used more often by school leaders to improve educational practice?" (Fusarelli, 2008). Despite the absence

of empirical evidence to answer this question, there is some speculation related to barriers and the mobilization process.

Some authors (Dobbins et al., 2007; Levin, 2012) contend that having research available does not mean that it will be used in decision making because of barriers such the inaccessibility of the research to the user or the user's lack of time or skill set. These barriers will be discussed in more detail in section 2.7.

Levin (2012) speculates that part of the challenge lies with the universities who are more focused on conducting the research than sharing it. It is a challenge for those who could benefit from the research (e.g. policy makers) to know that it even exists. However, knowledge mobilization is not only the responsibility of universities communicating their research to the end user. It is also the responsibility of the end user to actively seek out relevant research when faced with significant decision making. However, information seeking behavior does not appear to be occurring in education in meaningful ways (Davies et al., 2000). Further empirical research is needed to identify the factors that influence knowledge mobilization in order to understand why information seeking behavior is not more prevalent, particularly with school board decision makers such as trustees.

2.6   Knowledge Mobilization in a Political Environment

To understand why politicians, such as trustees, do not seek out research in a more substantial way, it's important to examine the challenges associated with knowledge mobilization within a political environment. Of all the challenges to the knowledge mobilization process, none are more complex than those encountered in a political environment. Notwithstanding, Witherow's (2011) assertion that knowledge-based decision making is becoming the norm in schools, Levin (2011b) found that school boards often made decisions without research evidence, relying on personal opinions and experience instead. There is much discussion in the literature about the rationale for this, yet no empirical evidence exists to identify the factors that influence how trustees use research to inform their decision making.

Aside from practical considerations such as resource allocation, financial constraints, and government or school board strategic plans (Campbell & Fulford, 2009) in the political setting of a school board, research evidence must also compete with a wide range of other factors related to local politics and self-interest. The literature cites many examples of these factors including personal attitudes, beliefs, values and experiences, public opinion and expectations, advocacy from special interest groups, political biases, dependencies, loyalties and associations as well as the avoidance of negative media attention (Campbell & Fulford, 2009; Fusarelli, 2008; Galway, 2006). Policy decision making for politicians is therefore a much more complicated process than that implied by a straightforward knowledge-based approach (Davies et al., 2000).

Doyle (2002) maintains that political decision making is not knowledge based at all, but rather it is intuition based. Levin (2010a) argues that intuition may actually come from knowledge of which the bearer is unaware because people's beliefs are shaped by various kinds of 'knowing', not just formal knowledge. If "the political world is ... shaped by beliefs more than facts" as stated by Levin (2001, p. 10), this presents an interesting challenge when looking at how trustees mobilize knowledge to inform their decision making and it brings back the question raised earlier of what really counts as knowledge to these decision makers.

The literature reveals some interesting empirical evidence on the use of knowledge by education leaders with respect to who is making the decisions, whether they are elected decision-makers (such as trustees and ministers of education) or staff (school board superintendents or ministry bureaucrats). Data from the survey conducted by Sheppard et al. (2013) showed that board staff such as superintendents put a higher emphasis on external research, whereas, elected trustees placed more value on what they heard from students, parents and constituents. Galway (2006) also concluded that research knowledge did not influence the policy decision making for politicians. While senior bureaucrats would rather use research evidence to inform policy, they claimed that it is often supplanted by various political considerations.

Black (2001) speaks to the conflict between research informed decision making and the realities of policy-making in a political arena by outlining six reasons why research evidence has little influence on public policy making. These reasons include:

1. policy goals that may be motivated by political, social or financial factors;
2. research which may be seen as incomplete, irrelevant, of poor quality or simply not available;
3. a lack of consensus about the research evidence due to its complexity and the potential for different interpretations;
4. decision makers valuing other forms of knowledge that include personal experiences, opinions of colleagues or knowledge from other sources;
5. policy advisors whose knowledge base and preparedness may be weak and
6. conditions might not be right for policy change.

Expanding on Black's (2001) notion that the available research may at times be deficient or irrelevant to a given policy issue, Davies et al. (2000) caution that in the absence of quality research there is more room for politics to intrude, which allows the factors outlined above by Black (2001) to take on a larger role in the decision-making process.

When research is available, in a political environment it is not always used in an unbiased way. Galway (2006) found that politicians tend to be selective in what research they used, minimizing or emphasizing findings that suit their purpose in order to exert influence over the decision making process.   Research can be used as a political strategy to give the illusion of authority and to legitimize political choices (Cooper et al., 2009). Political decision makers tended to look for and use research to either undermine the positions of others or support positions they already held for other reasons, rather than using the research to inform their decision making prior to taking a position (Davies & Nutley, 2008; Galway, 2006; Levin, 2008). This has been described by Davies and Nutley (2008) as a misuse of knowledge mobilization because knowledge "is not being used for elucidation, but instead becomes a tactical tool in political conflict" (p. 9). It is therefore not enough to simply know *if* trustees are accessing research. but whether they are actually *using* the knowledge gained from research to inform their decision making, or merely to justify a preexisting position.

Although there is little evidence in the literature that politicians use research to inform their decision making, even if it is available and accessible, the public still expects

politicians to base their decisions about education policy on available knowledge (Galway, 2006). Because of the public nature of education, some authors question whether the public would be satisfied with a strictly evidence-based approach that did not allow for some political judgment (Galway, 2006). Researchers may be isolated from the various factors that local politicians are confronted with and the research they produce may not reflect all considerations that must be included in the decision making process (Hess, 2008). The trustee responses in the Sheppard et al. (2013) survey concurred with the need for local realities (such as representations from stakeholders, budgets, strategic plans) to have a role in educational decision-making. Balance must be struck between generalized research and the complexities faced by local school boards (Cooper et al., 2009).

Levin (2011b) found that even though research did carry some weight in the political arena, it was considered much less than other political factors. He refers to this as 'democratic' decision making and asserts that because it is not widely understood by researchers, it is often misconstrued as a 'deficiency' in decision making rather than an inevitable outcome of decision making in a political environment. There is more research needed to understand the factors that influence research use in political decision making in the domain of education. Examining barriers and supports experienced by school board trustees will shed light on this little studied area.

2.7 Barriers to Knowledge Mobilization in Education

Barriers to knowledge mobilization can be categorized into three distinct areas: characteristics of the research, characteristics of educators, and characteristics of the institution in which they work (Fusarelli, 2008; Levin, 2008). Each of these will be discussed in turn.

2.7.1 Characteristics of the Research

A number of authors recognize that some barriers to knowledge mobilization in education reside in key characteristics of research such as inaccessibility, volume, lack of quality, relevance or credibility, lack of clarity about practical application and an

inconsistency of results (Fusarelli, 2008; Levin et al., 2010; Witherow, 2011). With respect to inaccessibility, the route of dissemination and the level of technical language used in the research can prevent decision makers from obtaining and understanding information required to make decisions (Witherow, 2011).

Regarding volume, several researchers (Cooper et al., 2010, Doyle, 2002, Hemsley-Brown, 2005) note the overwhelming amount of research is a significant barrier to effective knowledge mobilization for decision makers who are pressed for time and cannot possibly sift through all the research available. Levesque (2013) suggests that it is not a problem of too much volume of information, but rather a problem of not enough filter, as consumers of research often do not have the ability to filter down the plethora of available information to just the pieces that would be most useful.

With regard to the merit of research, several researchers point to a lack of availability of research that is relevant, credible and of high quality (Dobbins et al., 2007; Doyle, 2002; Levin, 2008). Doyle (2002) concludes that the "education knowledge base has been so incomplete…board members are often forced to fly by the seat of their pants" (p. 33). The literature implies that there is both too much research to digest and at the same time not enough quality, relevant research to properly inform decision makers.

Finally even when research is available and in sufficient quantities, there are often questions around its applicability to practice (Hemsley-Brown, 2005, Witherow 2011). Research can be its own barrier to uptake when it is seen as ambiguous or there appears to be a lack of synthesis across multiple studies (Hemsley-Brown, 2005, Levin, 2010). Fusarelli (2008) blames this on the research community who "rarely reaches consensus about which education policies work best and rarely conducts research on the practical problems faced by school leaders" (p. 366). The net result is that education leaders are often faced with a confounding mass of conflicting low quality research which becomes a substantial barrier to use (Fusarelli, 2008), however these barriers have not been studied with respect to school board trustees.

2.7.2 Characteristics of Educators

Some barriers to effective knowledge mobilization rest with the individual user and include their knowledge and skills, attitudes and values, lack of time and political self-interest. These barriers can be significant obstacles for policy makers when it comes to using research in their decision making.

Levin et al. (2010) assert that decision makers sometimes may not be knowledgeable enough to find current, relevant research and fully understand both its quality and meaning. While many authors similarly cite lack of skills in finding and interpreting research as a significant barrier to knowledge mobilization (Landry et al., 2012; Levin, 2008; Witherow, 2011), Dobbins et al. (2007) claim that it is limited training that is the underlying cause for this lack of skills. The *Training Modules for School Governance* research report that looked at Ontario school board trustee attitudes towards technology (Landry et al., 2012) found that trustees struggled due to lack of familiarity and comfort with technology.

Personal attitudes and values of school board leaders, such as viewing educational research with cynicism or a lack of interest in research, are other causes for concern (Davies et al., 2000; Fusarelli, 2008; Witherow, 2011). Hess (2008) adds impatience, polarization and competing interests to the list of attitudinal barriers that prevent policy makers from accessing research in a more significant way. Furthermore, school leaders tend to value personal experience and that of their colleagues much more than research evidence (Dobbins et al., 2007; Levin, 2010; Levin et al., 2010; Maynard, 2007). Since educational leaders "play a role in fostering or interrupting use of research" (Levin, 2010, p. 310) these attitudinal challenges become problematic for research uptake across the whole system.

Limited availability of time is also identified by many authors as significant barrier for individuals in mobilizing available knowledge to inform decision making (Campbell & Fulford, 2009; Davies et al., 2000; Dobbins et al., 2007; Hemsley-Brown, 2005; Witherow, 2011). This is compounded when put together with other identified

barriers such as volume of information, lack of research skills, poor dissemination of information, all of which make accessing research even more time consuming.

When it comes to elected officials, Hess (2008) points out a further barrier to using research. Since politicians are often rewarded for addressing constituency needs, "they may have valid reasons not to focus on the scientific merit of research — especially when 'rigorous' research undermines a favored program or implies politically painful action" (Hess, 2008, p. 355). Even though this can be seen as an individual barrier it is also identified as an overall challenge to knowledge mobilization in a political environment. While Hess (2008) refers to politicians in general, these barriers have not been examined with respect to elected education representatives.

2.7.3 Characteristics of the Institution

The cultural and organizational characteristics of an institution such as a school board can have a large impact on knowledge mobilization. According to the literature, the most significant institutional barrier to using research to inform decision-making is resistance to change within organization (Davies et al., 2000; Dobbins et al., 2007; Levin, 2008). Research use is further hampered when there is an overall institutional distrust for information generated outside the system (Davies et al., 2000). Levin (2008) points to a lack of infrastructure that supports research use as well as pressures of within the organization that push in directions which are contrary to available research, as factors that undermine knowledge mobilization as well. More concrete institutional barriers include limited financial resources (Dobbins et al., 2007) and slow bandwidth (Jaded, 1999, in Cooper et al., 2010) which also impact the use of knowledge by decision makers within the organization. All of these institutional deficiencies combine to present a significant barrier to those within the system accessing and utilizing research to inform their decision making. More research is needed to determine how these barriers affect school board leaders in particular.

2.7.4 Summary

Many barriers are identified in the literature on knowledge mobilization from barriers that are a result of the research itself to those that reside with the educator to barriers that are specific the institution in which the educator work. How much each of these barriers impact trustees accessing online information to inform their decision making has not been adequately studied. Studying which factors present the most significant obstacles to knowledge uptake would lead to a better understanding of what supports trustees need to more effectively utilize knowledge in the boardroom.

2.8   Facilitators and Supports for Knowledge Mobilization

The list of barriers to effective knowledge mobilization in education is long, but there are at least five categories of facilitators that support knowledge mobilization (Campbell & Fulford, 2009; Cooper et al., 2010; Levesque, 2013; Levin et al., 2009; Witherow, 2011). Levin et al. (2009) created a framework similar to Nutley et al. (2007) with three broad areas to categorize facilitators of knowledge mobilization. These categories include: characteristics of the research, characteristics of educators, and the role of third parties as distributors of knowledge (Levin et al., 2009, p. 7). The category of "characteristics of the institution" is also important, echoing the categorization of Fusarelli, (2008) from the preceding section, in order to identify the supports that can be provided by the organization in which the educator works. Finally, the role of the internet as a distributor of knowledge is considered a facilitator because of its prominent role in increasing the accessibility of information (Cooper et al., 2010; Edelstein, 2011). Each of the five facilitators for supporting knowledge mobilization will be discussed in turn

2.8.1 Characteristics of the Research

The first facilitator, characteristics of research, encompasses the perceived quality of the research and how accessible it is to the end user (Levin et al., 2009). School boards are more likely to use research if they are aware of its existence, if it is in a format that is easily accessible, and if the information is deemed, by the user, as relevant to the

circumstances (Cooper et al., 2010; Sheppard et al., 2013). As previously discussed, *accessibility* can refer to both the route of dissemination as well as the level of technical language used in the research (Witherow, 2011). Furthermore, research is more likely to be used when the findings agree with prior expectations (Hemsley-Brown, 2005).

2.8.2 Characteristics of the Educators

The second facilitator identified by Levin et al (2009) is characteristics of the educators. It refers to the important role attitude and background play in knowledge mobilization. Witherow (2011) speaks to the significance of the individual's attitude and their belief that using research evidence is important. Levin et al. (2009) suggest important facilitators to effective knowledge mobilization include the individual's research background as well as their level of interest in research.Witherow (2011) concurs that those "who were engaged in academic studies were more likely to access research" (p. 25).

2.8.3 Role of Third Parties as Distributors of Knowledge

The third facilitator is the role of third parties as distributors of knowledge. Because most people do not get their knowledge by reading original studies, the role played by third party distributors of knowledge can be important (Cooper et al., 2009; Davies et al., 2000; Galway, 2006; Levin, 2012; Sheppard et al., 2013; Witherow, 2011). These distributors include mass media, professional development providers, professional associations, lobby and advocacy groups, think tanks, bureaucrats and other policy entrepreneurs (Galway, 2006; Levin et al., 2009; Levin, 2012). These bodies "act to connect the 'production' context with the 'use' context against a broader social and intellectual fabric of generally accepted wisdom, conventions and ideas" (Galway, 2006, p. 234). Third party facilitators can sift through large volumes of research and provide stakeholders with relevant, meaningful and timely access to quality research that has been synthesized and summarized and clearly conveys the intended application to policy and practice (Cooper et al., 2010; Dobbins et al., 2007; Witherow, 2011).

Although researchers may feel that these intermediaries have the potential to distort or misrepresent their work, multiple studies report that adapting research for certain groups of users increased the likelihood that the research would be used in a practical way (Cooper et al., 2010; Edelstein, 2011; Levin, et al., 2009; Levin, 2012; Witherow, 2011). Third party facilitators not only have a role to play in translating and synthesizing research for target audience but they also perform the function on endorsing the research and therefore lending it more credibility (Witherow, 2011).

Provincial and national school board trustee associations such as Ontario Public School Boards' Association (OPSBA), Canadian School Boards' Association (CSBA), Ontario Catholic School Trustees′ Association (OCSTA), Ontario Student Trustees′ Association /l′Association des Élèves conseillers et conseillères de l'Ontario (OSTA-AECO), can play a vital role as third party distributors of knowledge as they would have credibility with the trustee stakeholder groups they represent given their role as representatives. Sheppard et al. (2013) also see a role for these associations as advocates for use of technology to increase access to information to inform decision making.

Third party organizations play a powerful role as enablers of knowledge mobilization, however their nature and functions have not been thoroughly studied and are not well understood (Levin, 2008). In order to get a better understanding of the value of these facilitators in knowledge mobilization, Edelstein (2011) suggests there is a need to work with third party distributors to study how research that is available online is actually being used. The literature is clear that there is a critical role for third party distributors of information to play in the knowledge mobilization process but more research is needed to fully understand their role.

2.8.4 Characteristics of the Institution

The fourth facilitator noted by Fusarelli, (2008) is characteristics of the institution in which the consumer of information works. Both the characteristics and the supporting processes and structures of the organization are essential to effective knowledge mobilization (Levin et al., 2009).   Supports that could be provided from the institutional level include: financial, administrative support, time, technology supports, tools to build

capacity, networks, leadership and a supportive environment (Levesque, 2013). Witherow (2011) adds culture, infrastructure, resources, and leadership to this list of organizational factors that facilitate research uptake.

The literature suggests that in order to support knowledge mobilization at the institutional level there must be a concerted effort within the organization to develop a culture that supports and values professional learning and seeks to build capacity for its staff to both understand and to use evidence presented in research and apply it to policy (Campbell & Fulford, 2009; Hemsley-Brown, 2005). These efforts would include professional development to improve research skills, facilitating collaboration amongst staff, building strong professional learning networks and providing at a range of communication methods to disseminate information (Campbell & Fulford, 2009; Hemsley-Brown, 2005; Witherow 2011).

2.8.5 Role of the Internet as a Distributor of Knowledge

Although not specifically identified in Levin's framework of facilitators of knowledge mobilization, one of the greatest supports for information access that should not be overlooked is the internet (Cooper et al., 2010). Edelstein (2011) articulates that it is not only the internet's ability to host multiple formats and that most educational organizations now have their own websites, but that most of the information online is open source, that research is no longer limited to just academics. Anyone with an interest and access to the internet can obtain large volumes of research information not previously available to the general public. The internet is a quick and easy way to get information and because of this, the format of research is changing. Research is no longer just found in peer reviewed journals but on web pages and in research summaries meant to reach out to a wider audience (Edelstein, 2011). The internet has created increased access to research that has never been possible and is therefore an important facilitator of knowledge mobilization. With this increased access to knowledge provided by the internet there is the ability to have more open debates and discussion on important policy issues which are not confined only to the traditional experts of the past (Davies et al., 2000).

2.8.6 Summary

The list of facilitators and supports shows great potential to shift the balance from largely intuition-based decision making to more knowledge-based decision making by using identified supports to more effectively mobilize knowledge. The supports identified have been largely theoretical and have not been studied in the domain of school board trustees. Empirical research is needed to understand how trustees specifically can be better supported to access reliable online information to inform their decision making.

2.9 Conclusion

In a digital age, with the increasing and ubiquitous availability of information, all indications are that research will continue to be an important part of educational decision making (Cooper et al., 2009). Due to the many links between research-informed policy and high quality outcomes, knowledge-based decision making by policy makers should be more prevalent than is currently described in the literature. This review of the research on knowledge mobilization has looked at both the importance of knowledge-based decision making and the process of knowledge mobilization, including the debate around how key terms should be defined. Five main themes were identified including existing gaps in the research, overall challenges of knowledge mobilization, how knowledge is mobilized in a political environment, as well as the specific barriers, and supports that can help or hinder individuals from using knowledge to inform their decision making.

It is well established that knowledge based decision making leads to better student outcomes, however only one study could be found that looks specifically at key school board decision makers', trustees', use of evidence to inform their decision making (Sheppard et al., 2013). While the study concluded that research was not being used in decision making by the vast majority of trustees, it did not seek to understand the factors that caused some trustees to look for evidence to inform their decision making, while others did not. More empirical research is needed to better understand why trustees are not seeking research to inform their decision making in more substantial ways.

Based on this review of the literature, the debate over what is to count as *knowledge* and *research,* as well as how broadly to define *use* and *mobilization* is not conclusive. There was seen, however, a general consensus to apply these terms as generally as possible in order to ensure that all forms of knowledge mobilization are recognized and investigated (Cooper et al., 2009, Davies, et al., 2000). For the purposes of this study, these terms will be defined in the broadest possible sense in order to encapsulate the multitude of ways in which trustees use information to inform their decision making.

While much is written about knowledge mobilization in a theoretical way, many authors spoke to the gaps in empirical research in this field, especially with respect to educators and policy makers (Cooper et al., 2010; Davies, et al., 2000; Edelstein, 2011; Hemsley-Brown, 2005; Levin 2010). Given that education policy making is such a high stakes undertaking, questions will continue to be raised about the extent to which educational policy is grounded in research-based knowledge (Galway, 2006). Even though studying and measuring research use can be difficult (Cooper & Levin, 2010; Davies & Nutley, 2008), it is worthwhile to examine how and when school board decision makers use knowledge, where they acquire it, and how they determine its trustworthiness, as this is a noticeable gap in the current studies on knowledge mobilization.

The literature also reveals that political policy makers may place other influences ahead of research in informing their decision making, although it does not specifically address trustees. Cooper et al. (2009) disparage that policy making will continue to be influenced in large part by political pressures rather than research, but others are more hopeful. Given the increased attention to partnerships and community engagement in education, along with the increased interest in knowledge mobilization, Sheppard et al. (2013) are more optimistic that research will be more readily available and that school boards will engage more in research initiatives. Studying the factors that influence trustees in engaging with research will help to address the gap in the current body of knowledge of the decision making process of elected representatives.

Not only were multiple challenges and barriers to effective knowledge mobilization outlined in the literature, but there are also identified numerous supports. Of particular note was the potential of third party facilitators to increase research utilization by educational policy makers. The research in this area is mainly theoretical and little empirical research has been conducted specifically addressing the challenges, barriers and supports experienced by and needed for school board trustees. In order to fully understand the challenges and barriers experienced by trustees and be able to put in place supports that would help them to access knowledge to inform their decision making, more empirical research looking at barriers and supports is needed.

By studying the current state of knowledge mobilization with elected school board leaders it is hoped that new opportunities and possibilities for knowledge mobilization can be developed. When there is a "strengthening [of] connections between research, policy and practice...we all benefit from an improved education system including, most importantly, the students in our schools" (Cooper & Levin, 2010, p. 366). Empirical research specifically focused on how school board leaders access, analyze and utilize available knowledge to inform their decision making is needed in order to make these stronger connections between research, policy and practice.

3   Method

3.1   Sample Description

The participants in the study consisted of 164 school trustees sampled from the total population of 330 English language public school boards across Ontario, for a response rate of 50%. The sample was one of convenience where trustees were invited to participate. Respondents represented a wide variety of boards urban (11%, $n = 16$), rural (15%, $n = 22$) and those that were an urban/rural mix (75%, $n = 111$), with a cross section of large (26%, $n = 41$), medium (38%, $n = 60$), and small (36%, $n = 56$) boards. Males (48%, $n = 79$) and females (52%, $n = 85$) were equally represented. Age groups, based on Tapscott's (2008) categorization, ranged from the Net Generation (1977 − present, 4%, $n = 7$), Generation X (1965 − 1976, 11%, $n = 18$), Baby Boomers (1946 − 1964, 67%, $n = 109$) to those born before 1946 (18%, $n = 30$).

There was a good cross section of levels of experience in the role of trustee represented in the sample with those with less than two terms of office being the largest group (38%, $n = 62$), two to four terms (29%, $n = 48$), four to seven terms (21%, $n = 35$), and the smallest group being those who had served more than seven terms (12%, $n = 19$). One elected term of office in Ontario was fixed at three years up until 2006 and four years from the 2006 municipal election until present.

All levels of education were represented with the 95% (n=156) of those sampled having at least some post secondary education. Those with only high school education represented only 5% of the sample ($n = 8$). Other levels of education were more evenly distributed: some college or university education (19%, $n = 31$), college graduates (18%, $n = 30$), university graduates (32%, $n = 53$), and those holding graduate degrees (26%, $n = 42$).

From those that indicated on the survey their willingness to participate further, 10 respondents were selected based on availability, to participate in a 15 − 20 minute interview to share their insights in more detail (Appendix B). Interviewees selected represented a cross section of boards across the province.

3.2   Procedure

Invitations were sent to 330 English language public school trustees in Ontario via their board email to participate in a 10 to 15 minute, anonymous, online survey inquiring about their use of digital information to inform their decision making (Appendix A). In order to avoid bias, 12 trustees from my own board were not consulted in either the survey or interviews.

After completing the survey, participants were asked if they would be willing to participate in a follow up 20-30 minute interview (Appendix B) to gain more insight into how they use digital information to inform their decision making. Participants were asked to email the researcher if they wished to participate in the interview so that there would be no connection between their personal survey data responses and the participants contact information.

A cross sample of 10 of the 20 participants who were willing to take part in an interview was selected based on providing a cross section of gender, geographical location and type of school board.

Participation in the survey and interview was voluntary and results were kept confidential.

3.3   Data Collections Tools

3.3.1 Survey

There were 10 multiple choice demographic and characteristic questions; three, five-point Likert questions focusing on media use and barriers, as well as four open-ended questions (Appendix A). After designing the survey it was vetted by seven former trustees to ensure that the intention of the questions was clear and that the categories that were provided were representative.

Multiple choice questions. The first five multiple choice questions collected demographic data on the participants such as age, gender, experience, education, size and

type of school board. The next five questions enquired about their attitudes towards technology (comfort with computers, use of online information at board meetings) and their role as a trustee (importance of role, engagement, bringing motions to the board).

Likert questions. Participants were requested to fill out three tables, the first inquiring about which online media they use to inform their decision making. They were given 10 examples and asked to rate each one on a five-point Likert scale from *often* to *never*. See Appendix C for full description of media types used in these questions. The internal reliability coefficient for the 10 item, media use scale was 0.78.

The second table inquired about the usefulness of each of these 10 online sources (Appendix C), asking participants to rate the sources from *extremely useful* to *not at all useful*. The internal reliability coefficient for the 10 item, media usefulness scale was 0.84.

The third table inquired about barriers participants experienced. The survey provided 10 possible barriers, asking for participants to rate them from *very significant barrier* to *I don't find this to be a barrier*. While some barriers were identified in the review of the literature, such as *lack of time*, *lack of skill*, *conflicting research* (Dobbins et al., 2007; Doyle, 2002; Levin 2008; Witherow, 2011) others were more specific to trustees who are not addressed in the literature (*lack of remuneration, lack of interest, lack of access to technology*). The internal reliability coefficient for the 10 item, barriers scale was 0.75.

3.3.2 Open-Ended Questions

The first three open ended questions probed for more information on when trustees look online for information to inform their decision making, how they ensure its trustworthiness, and what supports would help them access reliable online information. Identifying effective supports for knowledge mobilization was a key theme in the literature (Campbell & Fulford, 2009; Cooper et al., 2010; Levin et al., 2009; Witherow, 2011). The last two-part question inquired about whether or not participants felt they

could trust staff provided reports and their rationale, as these are the primary means by which trustees traditionally receive information.

3.3.3 Interview Questions

The interviews probed for detail on barriers and best practices that participants were encountering in accessing digital information to inform decision making through seven open ended scripted questions (see Appendix B for interview questions). The first question asked how trustees at their board were informed of information pertaining to issues coming to the board for decision. In order to gather feedback on how trustees access information and what barriers they experience, the next two questions asked participants to think of specific situations where they needed more information and describe what transpired. Other questions inquired about obtaining information through their board's research department, staff reports, or on their own. The last two questions inquired about supports needed to access online information and advice they would give new trustees on accessing online information, in order to identify supports that new trustees may need.

3.4   Data Analysis

3.4.1 Survey Data (Multiple Choice and Likert Scale Questions)

Frequency analyses were performed on
- all data to ensure there were no outliers
- all demographic data to ensure that the sample represented a good cross section of trustees
- *Use of Online Media* (Research Question 1)
- *Perceived Usefulness of Online Media* (Research Question 1)
- *Barriers* (Research Question 4)
- *Board Provided Equipment* (Research Question 4)

Internal reliability tests were conducted to ensure the reliability of the three Likert scale questions:

- *Use of Online Media* (Research Question 1)
- *Perceived Usefulness of Online Media* (Research Question 1)
- *Barriers* (Research Question 4)

Correlation analyses were conducted for:

- *Use of Online Media* and *Perceived Usefulness of Online Media* (Research Question 1).
- Demographic data and Likert data on *Barriers* (Research Question 4)
- Participant characteristic data and Likert data on *Barriers* (Research Question 4)
- *Board size* and *board provided equipment* (Research Question 4)
- Demographic data and C*ombined Use of All Online Sources* (Research Question 6)
- Participant characteristic data and *Combined Use of All Online Sources* (Research Question 6)
- Demographic data and *Comfort with Computers* (Research Question 6)
- Demographic data and *Online Information at the Board* (Research Question 6)

3.4.2 Open-Ended Questions

Responses to open-ended survey questions were sorted and categorized and themes were formed. Responses were then revaluated to categorize by each of these themes.

Frequency analyses were conducted for each of the open-ended questions:

- *Reasons for Seeking Online Information* (Research Questions 2)
- *Should Trustees Rely Solely on Staff Reports* (Research Questions 2)
- *Rationale for Relying on Staff Reports* (Research Questions 2)
- *Ensuring Trustworthiness* (Research Questions 3)
- *Supports for Accessing Online Information* (Research Questions 5)

3.4.3 Interview Questions

Interviews were transcribed and analyzed for themes to determine commonalities with open-ended questions in the survey and to discover any potential new themes. (Research Questions 1, 2, 3, 4 and 5).

3.5   Key Research Questions

To examine how school boards leaders (trustees) access, analyze and utilize available knowledge to inform their decision making and to examine what their attitudes are towards using online information, the following questions were targeted in the data analysis:

1. How are trustees making use of online media to inform their decision making?
   (survey data – questions 13 and 14, interview data – question 2)

2. In what circumstances do trustees seek out online information?
   (survey data – questions 16 and 19, interview data – question 5)

3. How do trustees ensure the trustworthiness of digital information they access?
   (survey data – question 17, interview data – question 6)

4. What are the barriers (including attitudinal) for trustees in accessing digital information?
   (survey data – question 15, interview data – question 3)

5. How can trustees be supported to better access reliable online information?
   (survey data – question 18, interview data – questions 4 and 7)

6. What factors influence trustees in accessing digital information to inform their decision making?
   (survey data – questions 2 through 12, interview data – question 1)

4   Results

4.1   Use of Online Media

4.1.1 Frequency of Media Use

Survey data. Participants were asked to rate which online media sources they used to inform their decision making on a Likert scale (question 13, Appendix A). Online media sources used most frequently were email ($M = 4.3$, $SD = 0.9$) and news sources ($M= 3.7$, $SD = 1.2$). Online research articles ($M = 3.2$, $SD = 1.2$) and online educational journals ($M = 3.2$, $SD = 1.2$) were used, on average, only *sometimes*. The remaining online sources were used *rarely* or *never* (Table 1).

Table 1. *Use of Online Media Sources to Inform Decision Making*

Item	Mean[1]	*SD*	Don't Use[2]	Sometimes[3]	Freq/Often[4]
Email (*n*=159)	4.3	(0.9)	3%	16%	81%
Online news sources (*n*=156)	3.7	(1.2)	13%	24%	63%
Research articles (*n*=155)	3.2	(1.2)	25%	41%	35%
Twitter (*n*=148)	2.2	(1.4)	63%	18%	19%
Online journals (*n* =152)	3.1	(1.3)	30%	36%	34%
Facebook (*n*=149)	2.1	(1.3)	69%	16%	15%
Blogs (*n*=148)	2.1	(1.2)	67%	20%	13%
Clipping service (*n*=144)	2.0	(1.4)	72%	9%	19%
Google Scholar (*n*=140)	1.5	(1.0)	85%	9%	6%
Reddit (*n*=140)	1.1	(0.5)	96%	3%	1%

[1] Five point Likert Scale (1 – Never to 5 – Often)
[2] Never and Rarely
[3] Sometimes
[4] Frequently and Often

Regarding the total use of online media (sometimes, frequently and often), the four most used resources were email (98%, *n*=155), news sources (87%, *n*=136), research articles (76%, *n*=118) and educational journals (70%, *n*=106). Trustees used social media resources such as Twitter (37%, *n*=55), Facebook (31%, *n*=46), blogs (33%, *n*=49)

and clipping services (28%, *n*=40) rarely. Google Scholar (14%, *n*=21) and Reddit (4%, *n*=6) were almost never used (Figure 1).

Figure 1. *Online Media Sources Used to Inform Decision Making*
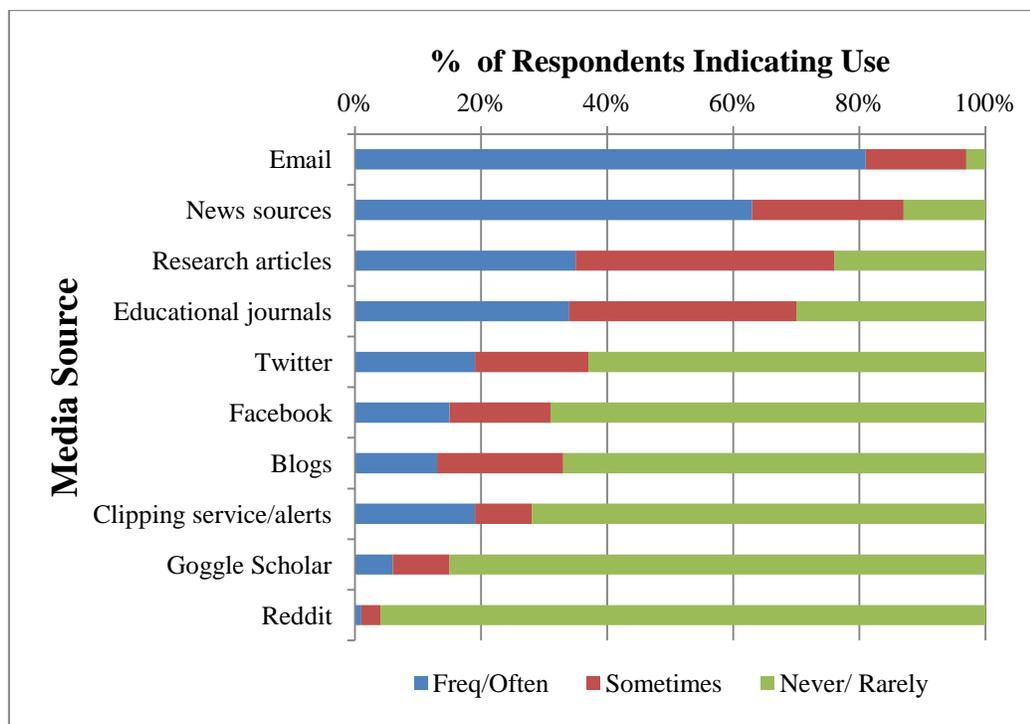
Interview data. When asked in the interviews about accessing online sources when looking for more information to inform decision making, responses mirrored those of the survey. Additionally many trustees interviewed mentioned using the Ontario Public School Boards' Association (OPSBA) website and those of other school boards as frequent sources of information. These were not choices offered in the survey. "We have such limited resources we don't want to reinvent any wheels. We want to be able to learn from what others have done."

4.1.2 Perceived Usefulness

Survey data. Participants were asked to rate the usefulness of online media sources on a Likert scale (question 14 in Appendix A). Media sources identified as most useful by respondents were email ($M = 3.8$, $SD = 1.0$), news sources ($M = 3.3$, $SD = 1.2$), research articles ($M = 3.1$, $SD = 1.2$), and educational journals ($M = 2.9$, $SD = 1.2$). The remaining sources were perceived as minimally useful (Table 2).

Table 2. *Perceived Usefulness of Online Media Sources on Decision Making*

Item	Mean[1]	*SD*	Minimal[2]	Useful[3]	Highly Useful[4]
Email (*n*=157)	3.8	(1.0)	9%	34%	57%
Online news sources (*n*=155)	3.3	(1.2)	25%	30%	45%
Research articles (*n*=147)	3.1	(1.2)	29%	31%	40%
Educ journals (*n*=152)	2.9	(1.2)	37%	32%	31%
Twitter (*n*=148)	2.0	(1.2)	73%	16%	12%
Clipping service (*n*=138)	1.9	(1.3)	74%	10%	16%
Blogs (n=145)	1.9	(1.0)	75%	17%	8%
Facebook (*n*=151)	1.7	(1.0)	80%	12%	8%
Goggle Scholar (*n*=135)	1.5	(1.0)	86%	9%	5%
Reddit (*n*=135)	1.1	(0.4)	96%	4%	0%

[1] Five point Likert Scale (1 – Not at All to 5 – Extremely Useful)
[2] Not at All and Somewhat
[3] Useful
[4] Very Useful and Extremely Useful

4.1.3 Correlation Between Use and Perceived Usefulness

The correlations between frequency of use and corresponding perceived usefulness for each media source were significant and positive (ranging from $r = .65$ to .85, $p<.01$) (Table 3).

Table 3. *Correlations Between Each Media Source Used and It's Corresponding*
Perceived Usefulness Rating

Item	r	n
Clipping service/alerts	.85**	135
Twitter	.83**	142
Goggle Scholar	.82**	129
Blogs	.78**	143
Facebook	.77**	145
Research Articles	.75**	144
Educational Journals	.71**	147
News sources	.70**	151
Reddit	.67**	129
Email	.65**	156

**$p<.01$ (2-tailed)

4.2   Reasons for Seeking Information from Online Media

Open-ended survey question. Participants were asked "In what circumstances do
you find it most helpful to look for online information to inform your decision making?"
(question 16 in Appendix A). Four strong themes emerged from the 179 comments
participants made about why they look online to inform their decision making. The most
common theme was a need for more information to make a decision (61%, *n*=54),
followed by a need for comparison (20%, n=35), needing information on a specific issue
(12%, *n*=21), and general research purposes (10%, *n*=17). Seven percent (*n*=13) claimed
they do not go online to inform their decision making (Table 4). Sample comments for
the top four themes are presented in Table 5.

Table 4. *Reasons Trustees Go Online for Information (n=174)*

Item	n	%
When I need more information to make a decision	54	61%
For comparison	35	20%
When I need information on a specific issue	21	12%
For general research purposes	17	10%
I do not go online for information	13	7%
To get alternate views	12	7%
To educate myself	9	5%
To look at public opinion/trends	8	5%
For background	8	5%
To clarify/verify	8	5%
For new ideas	4	2%

Table 5. *Reasons Trustees Go Online for Information: Sample Comments from Open-Ended Questions*

Theme	Sample Comments
Need more information to Make Decision (*n* = 54) **Description:** Comments in this category focused on trustees feeling that they did not have all the information they needed to make a decision.	"When the board reports aren't fulsome enough." "Sometimes information is withheld hoping you do not discover it." "Evidence based decision making is very important to me. So many decisions have to be balanced between funding and research, and we don't usually get reports that reference the research." "When I need to gather more independent knowledge, to assist me in my decision making."
Need for comparison (*n* = 35) **Description:** Comments in this category focused on the need to compare what is happening at other school board districts when making decisions.	"When it's a decision of great significance for students, controversial, introducing change for stakeholders, I find it important to consider research, experiences of other districts, information on implementation issues, information on potential outcomes" "To ensure we are offering programs that students need and similar to those of surrounding boards." "Review of other board bylaws, regulations- to compare how we either conform or do things differently."
Need information on a specific issue (*n* = 21) **Description:** Comments in this category focused on the need to look for information online for specific issues.	"When writing a report or making a decision or trying to find out the news on a specific item or referring to current stories or issues." "During particularly 'hot-topic' issues in our board, i.e., boundary studies, accommodation reviews, etc." "I only use online research as a reference to weigh conflicting sides of an issue."
General research (*n* =17) **Description:** Comments in this category focused on the need for trustees to go online for general research.	"Scholarly research online is very helpful." "Having online access opens a door to new research opportunities." "Researching the latest relevant academic articles."

Interview data. Trustees interviewed echoed the responses of shown in the open-ended survey question. Some expressed that they felt that onus was on them to "take the initiative and go online and look" for information to inform their decision making. "It's almost like being an investigative reporter." A further theme emerged in the interviews

around using research to legitimize political choices. Trustees commented that: "Sometimes you're looking for confirmation, sometimes you're looking for something different to think about." Others expressed frustration. "While I'd like to look online, I often can't find the information I'm looking for."

4.2.1 Staff Reports

Open-ended survey question. Participants were asked "Should trustees rely solely on staff reports to inform their decision making on major issues facing the board?" (question 19a in Appendix A). Open-ended comments were categorized into six categories: *absolutely not/never, no, not always/not solely, depends, mostly yes* and *yes*. Almost 70% of trustees ($n = 100$) noted that they would not rely on staff reports. Nearly one quarter of the trustees ($n = 34$) responded that trustees should not always rely solely on staff report. Only 8% of the trustees ($n = 12$) claimed that they believed that trustees should rely on staff reports for the most part.

Open-ended survey question. The above survey question "Should trustees rely solely on staff provided reports to inform their decision making on major issues facing the board?" was followed by the questions "Why? Why not?" to better understand participants' rationale for their answer regarding relying on staff reports (see question 19b in Appendix A). Over one quarter of participants surveyed (26%, $n=43$) noted that they could not rely solely on staff reports because they felt that the reports were biased. Other top themes that emerged for not wanting to rely solely on staff reports were needing more information from other sources (18%, $n=30$), needing another point of view (17%, $n=28$), and needing to do their own research (15%, $n=25$). Of those surveyed seven percent ($n=12$) commented that trustees should not rely solely on staff provided reports because they felt that it was the role of trustees to authenticate what is reported by staff. Finally, seven percent ($n=11$) commented that trustees should rely on these reports as it was the role of staff to provide accurate information (Table 6). Sample comments for each of these themes are presented in Table 7.

Table 6. *Rationale for Relying, or Not Relying, on Staff Reports (n=167)*

Item	n	%
Staff reports felt to be biased	43	26%
Need more information/other sources	30	18%
Need another point of view	28	17%
Need to do own research	25	15%
This is the role of trustees	12	7%
This is the job of staff	11	7%
Importance of questioning	10	6%
Need to verify	7	5%

Table 7. *Reliance on Staff Reports: Sample Comments from Open-Ended Questions*

Theme	Sample Comments
Staff reports felt to be biased or skewed (*n*=43)	"Staff reports are often biased and subject to the internal politics of the board." "Sometimes staff present limited information that leads to the conclusion they would like to see." "Too often staff rely on their experience rather than good research to develop reports. Reports often include recommendations relying on unsupported or unsubstantiated conclusions. We need to do this, trust us."
Need more information /other sources (*n*=30)	"Trustees should look to other sources besides Board Staff for information. That is the beauty of the information highway as we have it today. Having availability to online information opens up a whole new world!" "Staff from time to time miss the bigger picture and do not provide all of the information in our board." "Trustees should develop a network of contact from across the province to help with decisions. Trustees from other boards can help."
Need another point of view (*n*=28)	"Quite often their views are their own and not what students or parent's views are." "It is important to include public opinion. These days its simply watching forums/comments or threads on articles." "Community views must always balance out the needs of the bureaucrats."
Need to do own research (*n*=25)	"A fairly well informed trustee should be able to make his/her decision based on self research information, common sense/gut feeling and trust." Trustees should be able to research different topics and come to their own conclusions. "If my research can duplicate their results, I am more than happy to support them." "Trustees need to research in order to ask relevant questions......ie questions that may not have been covered or raised in a staff report." "Trustees must always do their own "due diligence" when it comes to informed decision-making."
This is the role of trustees (*n*=12)	"Trustees represent the public and should consider issues independently from Board Admin staff." "Staff are not accountable to the community, whereas, I am." "Part of our role is to ensure that the board is moving in the right direction and to do that we must ask questions and do our own confirming research. If we do not do these thing we are just rubber stamping what is brought to us so what is our role?"
This is the job of staff (*n*=11)	"They are the people we hire to provide these reports." "If you don't trust staff, there is a bigger issue to deal with." "Staff reports take into consideration logistical challenges such as the ability to deliver, accessibility, etc. vs. highly publicized or idealized issues."

Interview data. Comments from the interviews produced similar themes but with more depth, including how bias was not necessarily seen as a negative, the lack of depth of staff reports and the desire to understand both sides of an issue (Table 8).

Table 8. Staff Reports: Sample Comments from Interviews

Theme	Sample Comments
Bias	"If your admin believes very strongly one way, their reports are going to be written through that bias and so it does become important to get different information and make your own decision." "I think they provide information from a system perspective. I call it a 'special lens'. Bias has a negative connotation."
Not enough information	"rushed and there's not enough information provided" "We'll get a four page report that is in fact only an introduction to the report we would have hoped to get; without any web links, without significant documentation, without any reference to the data that it was developed from that would be informative. So we have to do it ourselves."
Difference of roles	"Staff have their role to provide information within a certain context and with certain parameters, what's driving that decision is funding, whereas trustees are politicians. Not that we don't trust recommendations from staff but we don't have to work under the same parameters that staff have to work under so we can be a little broader in our efforts to find out information."
Need to look further	"I sometimes worry that we see an over reliance on only staff reports and [we need to] make sure that people are reaching out further than that."
Balanced perspective	"We need to have a balanced view. We need to be able to consider all perspectives. Even if it is sometimes just understanding what the objections or concerns might be with that position, despite that I might still support it, I like to still understand what is being said."

4.3   Trustworthiness of Online Media

Open-ended survey question. Participants were asked "How do you ensure the information that you receive from online sources (media outlets, blogs, twitter, email, etc.) is trustworthy?" (question 17 in Appendix A). Six main themes emerged with almost half of the participants (47%, *n*=85) stating that they looked at sources of the information (if it came from a source they felt they could trust or multi sources) to judge trustworthiness of the media. Another 19% (*n*=34) of comments revolved around comparing, cross-checking and verify with their own research. Some trustees (12%, *n*=22) asked other trustees and educators about whether information found online was trustworthy. Eleven percent of participants (*n*=19) indicated that they viewed online media with skepticism and six percent (*n*=10) stated that they relied on their own

knowledge and experience. Finally six percent (*n*=10) indicated that they did not use online information (Table 9). Sample comments for each of these themes are presented in Table 10.

Table 9. *How Trustees Ensure Trustworthiness of Information Found Online (n=180)*

Item	*n*	%
Check sources	85	47%
Compare/crosscheck/verify/own research	34	19%
Ask other trustees/educators	22	12%
Treat with skepticism	19	11%
Own knowledge and experience	10	6%
Don't use online information or N/A	10	6%

Table 10. *How Trustees Ensure Trustworthiness of Information Found Online: Sample Comments from Open-Ended Questions*

Theme	Sample Comments
Check sources/ multiple sources (*n* = 85)	"I weigh the information received by who or where it comes from. eg. OPSBA, other District School Boards, news letters from Shibley Righton LLP, and Parents for Education, I trust."
	"Very leery of claims of a qualitative survey etc and those from staff of Boards reporting only 'good news'."
	"I would check multiple sources and compare their information to be sure before trusting the source."
	"Consistency across online multi sources, and trusted sources."
Compare/ crosscheck/ verify/own research (*n* = 35)	"Cross referencing is really the best one can do...we are all at the mercy of taking things as literally as we choose."
	"I try to find polar perspectives and critiques. I look to official sources and academic sources. I use common sense and exercise caution."
	"Generally look for corroboration of important items through government/ educational, and or other websites."
	"I am careful to cross check information from any source, not just online sources."
Ask other trustees/ educators (*n* = 22)	"I regularly speak to our Director of Education about for his view on the information."
	"Ask Board staff about it."
	"I usually go to our board communications department to verify."
	"Check with other trustees both local and regional for verification."
	"The recommendation of education gurus and left leaning trustees I admire."
Treat with skepticism (*n* = 19)	"There is no way to ensure all info is trustworthy as each demonstrates their own bias."
	"With extreme caution. anyone can put anything on the online sources."
	"Healthy dose of skepticism."
	"Never act on a groundswell on social media"
	"I'm always somewhat skeptical, and rarely use blogs and Twitter for more than gauging public or group opinion on a certain issue."
Use my own knowledge and experience (*n* =10)	"Hopefully knowing about what I am researching lets me have an understanding of right and wrong material."
	"I'm a researcher. I analyse the methodology to gauge the reliability of the reports I'm reading."
	"I don't rely solely on refereed sources. I believe that my experience and background give me a good nose for the reliability of a source."
Don't use online information (*n* = 10)	"I seldom use these sources as I often don't find them trustworthy."
	"By never relying on it."
	"You can't."
	"I would not trust any online sources as you describe."

Interview data. Trustees interviewed were asked what advice (supports) they would give new trustees regarding accessing online information. Advice focused on actively looking for research and having tools available that would more easily enable finding good online resources as well as the need to verify any information received (Table 11).

Table 11. *Advice to New Trustees Regarding Accessing Online Sources: Sample Comments from Interviews*

Theme	Sample Comments
General Advice	"You need to be comfortable with computers; it's absolutely essential"
	"Be curious. Go out and search"
	"Listen and then go do some digging"
	"It's almost like investigative reporting"
Online resources	[They need to have a] "list of links"
	"A bank of good resources" [would be helpful]..
Need to verify sources	"Check your sources. Don't believe everything you read. It is the internet; it may not be true. "
	"Find out what might be the most trusted websites."
	"Be careful who the source is, if they have a particular self interest."
	"Weigh the information you get. Ask questions."

4.4   Barriers to Accessing Digital Information

Survey data. Participants were asked to rate a defined list of barriers they experienced in accessing online information to inform their decision making (see question 15 in Appendix A). Most respondents did not rate barriers as s*ignificant* or *very significant* with the exception of *lack of time* ($M = 2.4$, $SD = 1.2$). Other barriers identified were *finding reliable sources* ($M = 2.0$, $SD = 0.9$), *lack of technical skills* ($M=1.8$, $SD = 1.1$), *finding relevant information* ($M = 1.8$, $SD = 0.9$), *conflicting research* ($M = 1.8$, $SD = 0.9$), and *lack of remuneration* ($M = 1.7$, $SD = 1.2$). All other barriers were rated as a *slight barrier* or *not a barrier* ($M = 1.3$ to 1.4) (Table 12).

Table 12. *Barriers to Accessing Online Information to Inform Decision Making*

Item	Mean[1]	*SD*	Significant[2]	Barrier[3]	Not a Barrier[4]
Lack of time	2.4	(1.2)	24%	16%	60%
Finding reliable sources	2.0	(0.9)	8%	17%	76%
Lack of technical skills	1.8	(1.1)	9%	11%	79%
Finding relevant information	1.8	(0.9)	5%	13%	82%
Conflicting research	1.8	(0.9)	6%	16%	79%
Lack of remuneration	1.7	(1.2)	16%	6%	78%
Lack of research skills	1.4	(0.7)	2%	5%	93%
Lack of interest	1.4	(0.8)	4%	7%	89%
Didn't add to understanding	1.3	(0.7)	3%	4%	93%
Lack of access to technology	1.3	(0.8)	5%	5%	90%

[1] Five point Likert Scale (1 – I don't find it a barrier to 5 – Very significant barrier)
[2] Significant barrier or very significant barrier
[3] Barrier
[4] Slight barrier or I don't find it a barrier

Total barrier, determined by combining *slight barrier* to *very significant barrier*, was highest for *lack of time* (73%, *n*=118). Other prominent barriers included problems *finding reliable sources* (63%, *n*=101), *problems finding relevant information* (57%, *n*=91) and *conflicting research* (55%, *n*=87). Less significant barriers included *lack of technical skills* required to access digital information (44%, *n*=70), *lack of remuneration* (34%, *n*=55), *lack of research skills* (27%, *n*=41), *lack of interest* (26%, *n*=40) and *more information didn't add to my understanding* (25%, *n*=39). *Lack of access to technology* (19%, *n*=29) was a minimal barrier for most participants (Figure 2).

Figure 2. *Barriers to Accessing Online Information to Inform Decision Making*
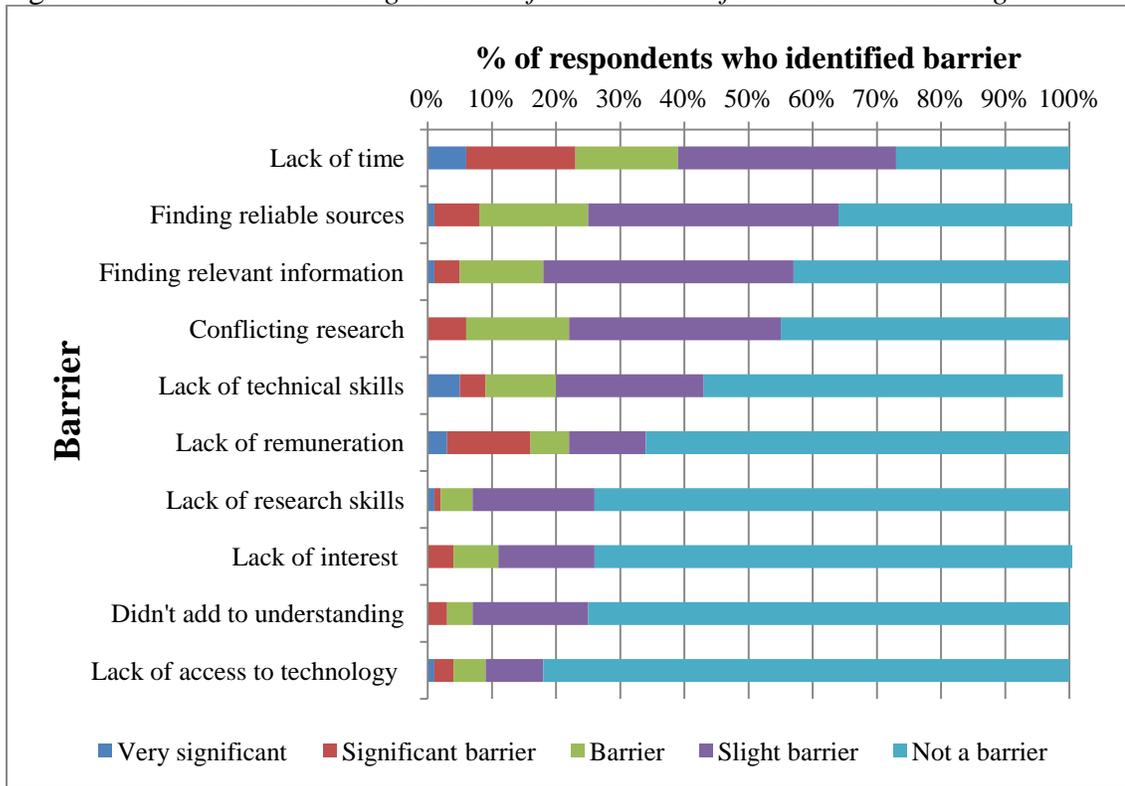
Interview data. In the interviews trustees identified many similar barriers to accessing online information (*lack of time, problems finding information, lack of skills)* with the addition of *fear* and *volume of information* as potential barriers (Table 13).

Table 13. *Barriers to Accessing Online Information: Sample Comments from Interviews*

Theme	Sample Comments
Time	Almost all interviewees indicated that 'time' was the biggest obstacle.
	"It's time consuming to go through everybody's' web sites and we're busy people."
Finding information	"Some web sites are not very searchable. You can't find the information."
	"While I'd like to look online, I often can't find the information I'm looking for."
	"I couldn't access it [online information] either because it wasn't available or I didn't do a good enough search."
Fear	"We have some trustees who are afraid of computers."
	"Fear [of technology] is a definite barrier."
Lack of knowledge	"Sometimes it's even knowing the right questions to ask. Sometimes I feel I don't even know enough to ask the right questions."
	Lack of "knowledge of process and procedure."
Volume of information	"The problem now is the noise that's out there."
	"Trustees fall into the trap of having to go with their own biases for lack of having anything concrete to go on."

4.4.1 Individual Differences in Barriers Experienced

Correlations between barriers and demographics. Participants were asked basic demographic questions including age, gender, level of experience as a trustee, level of education, size of their school board and the type of board (*rural, urban or mix*) (see questions 2 - 6 in Appendix A). Correlations between each of the six most significant barriers experienced by participants *(lack of time, problems finding reliable sources, problems finding relevant information, conflicting research, lack of technical skills and lack of remuneration*) and the demographic data participants provided in the survey revealed few significant findings (Table 14).

Age was positively correlated with "lack of time" ($r = .25$, $p<.01$, $n = 161$) and *lack of remuneration* ($r = .21$, $p<.01$, $n = 161$) and negatively correlated with *lack of*

technical skills (*r* = -.24, *p*<.01, *n* = 160). In other words, younger trustees expressed lack of time and compensation as barriers while older trustees experienced lack of skills as more of a barrier (Table 14).

Gender was also correlated with *lack of time*. Females indicated that they experienced this barrier more than males (*r* = -.27, *p*<.01, *n* = 161). Education (*r* = .16, *p*<.05, *n* = 161) was also significantly correlated with *lack of time* educated trustees found time to be more of a barrier than less educated trustees (Table 14).

Board size was significantly correlated with *lack of technical skills* (*r* = .17, *p*<.05, *n* = 153). Trustees from smaller boards indicted that this was a barrier more than trustees from larger schools. Trustees from larger boards felt *lack of remuneration* (*r* = -.19, p<.05, *n* = 154) was a barrier for them for than trustee from smaller boards (Table 14).

Table 14. *Correlations between Barriers and Demographics Variables*

Barrier	Gender	Age	Experience	Education	Board Size	Board Type
Lack of time	-.27**	.25**	-.02	.16*	-.13	-.00
Finding reliable sources	-.04	.04	-.06	.04	-.04	-.08
Finding relevant information	-.05	-.06	.02	.13	-.05	-.01
Conflicting research	-.15	.07	-.08	-.06	-.08	.04
Lack of technical skills	.08	-.24**	.05	-.08	.17*	.06
Lack of remuneration	-.08	.21**	-.14	.07	-.19*	-.01

* *p*<.05 (2-tailed)
**p<.01 (2-tailed)

Correlations between barriers and characterisitics. Participants were ask a series of questions about their role as a trustee (how engaged they were, how important they felt their role was, and whether they brought their own motions to the board table) as well as their use of technology (whether online information was referred to at the board and how comfortable they were with computers) (see questions 7 – 11 in Appendix A).

Comfort with computers was significantly and negatively correlated with *lack of technical skills* ($r = -.63$, $p<.01$, $n = 160$). Trustees who were less comfortable with computers felt lack of technical skills was a barrier. There was also a modest correlation between *comfort with computers* and *lack of time* ($r = .16$, $p<.05$, $n = 161$). *Comfort with computers* was also modestly correlated with *lack of remuneration* ($r = .17$, p<.05, n = 161). Trustees who were more comfortable with computers found lack of time and financial compensation to be a bigger barrier than those who were not as comfortable with computers (Table 15).

Importance of role was negatively correlated with *problems finding reliable sources* ($r = -.25$, p<.01, n = 160). *Importance or role* was also negatively correlated with *problems finding relevant information* ($r = -.18$, p<.05, n = 159) and *conflicting research* ($r = -.17$, p<.05, n = 159). Participants who felt their role as trustee was very important found barriers with finding reliable sources and with finding relevant information (Table 15).

Finally, *level of engagement* also showed a modest correlation with the barrier *problems finding reliable sources* ($r = -.19$, p<.05, n = 160). In other words, trustees who were engaged had more problems finding reliable sources than those who were less engaged (Table 15).

Table 15. *Correlations between Barriers and Characteristics Variables*

Barrier	Level of Engagement	Importance of Role	Making Motions	Online Info at Board	Comfort with Computers
Lack of time	.87	-.09	.14	.03	.16*
Finding reliable sources	-.19*	-.25**	.02	.06	-.03
Finding relevant information	-.12	-.18*	.09	.01	-.14
Conflicting research	-.14	-.17*	.06	.04	-.03
Lack of technical skills	.03	.12	-.14	.00	-.63**
Lack of remuneration	.01	-.07	.06	.04	.17*

* *p*<.05 (2-tailed)
**p<.01 (2-tailed)

Survey data. A frequency analysis showed that than 90% (*n* = 148) of participants indicated that their board provided trustees with a computer or laptop, two thirds were provided with home internet access (67%, *n* = 109), only half received a smartphone (52%, *n* = 86) and less than one quarter (21%, *n* = 35) had a board provided tablet or ipad.

Correlations of board size and board provided equipment. Board size was correlated with technology equipment boards provided to trustees and significant correlations were found with respect to the provision of tablets/ipads (r = .30, p<.01, n = 157) and smartphones (r = .60, p<.01, n = 157). Larger boards tended to provide these devices more often than smaller boards.

4.5   Supports for Accessing Digital Information

Open-ended survey question. Participants were asked "What supports would help you access reliable online information to use in your decision making?"(Appendix A, survey question 18). Responses were categorized into ten themes. The largest theme was *none/NA/unsure/already available* (28%, *n=42*). Other themes included recognizing the need for a third party repository of reliable information for trustees to access (18%, *n=27*) and the need for recommended trusted sources to go to for reliable information (14%, *n=21*). Other needed supports were technological based (10%, *n=15*), training (8%, *n=12*), and time/remuneration (7%, *n=10*) (Table 16). Comments on each of these themes are presented in Table 17.

Table 16.   *Supports for Accessing Online Information (n=153)*

Item	*n*	%
None/NA/unsure/already available	42	28%
Third party repository of reliable information	27	18%
Recommended trusted sources	21	14%
Technological supports	15	10%
Training	12	8%
Time/remuneration	10	7%
Access	7	5%
Person to go to	6	4%
Direct links	6	4%
Other	7	5%

Table 17. *Supports Needed: Sample Comments from Open-Ended Questions*

Theme	Sample Comments
None/NA/ unsure/already available (*n* = 42)	"I guess I am not sure what supports I do not have available to me."
	"I have all the supports I need, especially a wide circle of informed constituents."
	"I'm not sure I would use anything more than I already do. I'm just too busy."
Third party repository of reliable information (*n* = 27)	"One point shop would be ideal!"
	"Links shared by our professional library directed at Trustees."
	"A central location or web sight that catalogues all educational subjects on the internet."
	"Perhaps a educational forum that recommends articles."
	"One place to find links to proven reliable sources."
	"If there was an online agency, such as OPSBA, which vetted some of these for me, that would be helpful."
	"If credible organizations added comments to support or oppose the information posted."
Recommended trusted sources (*n* = 21)	"Links from trusted sources."
	"Advice from the Provincial organization on reliable resources."
	"More knowledge of reliable sources of information."
	"If the info was endorsed by another educational entity such as OPSBA, NSBA...College or University."
	"Having reliable information readily available to trustees."
Technological supports (*n* = 15)	"More reliable internet connection." "Continuous fast access."
	"Our school board should provide technology - phone with data plan."
	"A portable yet powerful device (laptop); cloud computing to access articles found at home office later at board table."
	"Internet and hardware tools are provided by my board and essential tools of a trustee's job."
	"Provision of access to education journals past pay walls."
Training (*n* = 12)	"Training is required as comfort level not high." "More PD for trustees - relating to technology." "Training on how to access credible information or sites." "Technical training and support is helpful." "Having some training on how to assess information for valid analysis would be helpful for all trustees on our board." "I can see some fellow trustees needing additional training."
Time/ remuneration (*n* = 10)	"More time and, as time is money, more money to justify the expenditure of time."
	"Cross/referencing and double checking sources is time consuming."
	" More time and a commitment from gov't to better remuneration. The position demands a lot but pays part time honoraria."

Interview data. Similar supports were identified by trustees interviewed including *independent third party repositories, trusted sources, technology*, *training* and *time* with the additional comments regarding making technology feel safe for those who are unfamiliar and the need for boards to give "permission" to trustees to be able to access board resources (Table 18).

Table 18. *Supports That Would Help Trustees Access Online Information: Sample Comments from Interviews*

Theme	Sample Comments
Technology:	"They need equipment, smartphones, money for technology and training. You can't assume everyone has technology knowledge."
	[Boards need to] "make available something that trustees can take away and use, whether it's a tablet, a netbook, a laptop, whatever it is that they feel comfortable with."
Training/skills:	[There needs to be] "a base line of competence"
	Supports needed:
	- "better trustee induction programs" - "workshops, training"
	"Everyone needs to know the process to access information"
	"Being computer literate" [would help].
Independent third party:	"A source to go to independent of the board"
	[Information needs to be] "easily accessible and central"
	"If we could provide more support to each other. If there was a site we could go to [to ask questions]."
	Seven out of ten trustees mentioned OPSBA as a place to go for independent information.
Identified trusted sources:	Trustees said they needed:
	- "one very easily accessed listing of everybody's websites: school boards, associations, ministry, whatever, all in one place"
	- "a data base of links – ones that are qualified"
	- "a bank of good resources"
	- "to have all the information in one place so it's easy to get at"
Other supports identified:	Comments around lack of time indicated that any supports that saved time would be very helpful.
	"We need to make it [use of technology] safe for those who are afraid"
	[Trustees need] "permission to access board resources"

Interview data. Trustees interviewed were also asked about their views on accessing the board's research department when they needed more information. A large majority of trustees interviewed indicated that their board did not have a research department. Without exception they did not feel that the board's research department was a resource they could access as an individual trustee, evidenced in comments such as "We have been told so many times that there weren't the resources there to answer our questions" and "The problem is that boards can't typically afford the quality research that is needed to answer all the questions."

Survey data. Trustees were asked which information technology devices and services for accessing online media sources were provided by their board or for which they were reimbursed by their board. Most trustees (88%, *n=145*) were provided with a computer or laptop and home internet access (63%, *n* = 103). More than half of the participants (52%, *n* = 86) indicated that they were provided with or reimbursed for a smartphone such as a Blackberry or iPhone (Table 19).

Table 19. *Board Provided Devices and Services to Access Online Media Sources*

Does your board provide or reimburse for these devices/ services?	Computer/ Laptop	Tablet/ iPad	Smartphone with internet access	Home internet access
Yes	88%	21%	52%	63%
No	7%	71%	40%	32%
Partially	2%	6%	1%	2%
Not Sure	2%	2%	7%	4%

4.6   Influencing Factors

Correlation between combined use and demographics. Participants' combined use of all online media showed significant negative correlations to board size. Trustees from larger boards were more likely to use a variety of online media sources ($r = -.30$, $p<.01$, n = 128). Other demographic data such as age, gender, level of experience or education, showed no significant correlations (Table 20).

Table 20. *Correlations Between Combined Use of All Online Sources and Demographic Data*

Item	r	n
Board Size	-.30**	128
Board Type	.00	122
Gender	-.06	133
Age	.12	133
Experience	-.03	133
Education	.12	133

**p<.01 (2-tailed)

Correlation between combined use and characteristics. Participants' combined use of all online media showed significant positive correlations to their level of comfort with computers ($r = .33$, $p<.01$, $n = 133$), the frequency with which they brought their own motions to the board table ($r = .27$, $p<.01$, $n = 133$) and the frequency with which online information is referred to at their board when making decisions ($r = .35$, $p<.01$, $n = 133$). Trustees, who were comfortable with computers, brought their own motions to the board table and those that indicated a high frequency for information obtained online being referenced at their board, were more likely to use online sources. No significant correlations were found with their level of engagement or the perceived importance of their role as a trustee (Table 21).

Table 21. *Correlations Between Combined Use of All Online Sources and Characteristic Data*

Item	r	n
Comfort with Computers	.33**	133
Making Motions	.27**	133
Ref to Online Info at Board	.35**	133
Importance of Role	.13	133
Engagement	.05	133

**p<.01 (2-tailed)

Correlation between comfort and demographics. Participants' level of *comfort with computers* and frequency of *reference to online information at the board* had few significant correlations to the demographic data they provided. The only significant correlations to *comfort with computers* was the participants' age ($r = .35$, $p<.01$, $n = 164$) suggesting younger trustees are more comfortable with computers (Table 22).

Table 22. *Correlations Between Comfort with Computers and Demographic Data*

Item	r	n
Board Size	-.13	157
Board Type	-.01	149
Gender	-.12	164
Age	.35**	164
Experience	-.14	164
Education	.14	164

**$p<.01$ (2-tailed)

Correlation between online information at the board and demographics. *Reference to online information at the board* showed a modest negative correlation to the size of the school board to which trustees belonged ($r = -.20$, $p<.05$, $n = 157$), suggesting larger boards were more likely to use online sources when discussing decisions at the board (Table 23).

Table 23. *Correlations Between Reference to Online Information at the Board and Demographic Data*

Item	r	n
Board Size	-.20*	157
Board Type	.07	149
Gender	-.06	164
Age	.02	164
Experience	-.03	164
Education	.02	164

* $p<.05$ (2-tailed)

Correlations between board size and board specific characteristics. Board size was negatively correlated to trustees *making motions* ($r = -.36$, $p<.01$, $n = 157$) and *reference to online information at the board* ($r = -.20$, $p<.05$, $n = 157$), indicating that participants from larger boards are more likely to bring their own motions to the board and that online information is more frequently referred to at larger boards (Table 24).

5   Discussion

The purpose of this study was to investigate the attitudes and behaviors of school board trustees in accessing, analyzing and using online information to inform their decision making. While there has been much interest in the field of knowledge mobilization in recent years (Campbell & Fulford, 2009; Cooper et al 2009; Levin, 2010, 2012), particularly with the increased access to information afforded by the internet, this area of study is lacking in empirical research looking specifically at political decision makers such as school board trustees.

Specifically, this study examined six questions:

1. How are trustees making use of online media to inform their decision making?

2. In what circumstances do trustees seek out online information?

3. How do trustees ensure the trustworthiness of digital information they access?

4. What are the barriers (including attitudinal) for trustees in accessing digital information?

5. How can trustees be supported to better access reliable online information?

6. What factors influence trustees in accessing digital information to inform their decision making?

Each of these questions will be discussed in turn.

5.1   Use of Online Media

To date, there has been no substantive research conducted on the use of on online media by school board trustees to inform decision making. Some data is available from the *School Boards Matter* study (Sheppard et al., 2013) on trustees' use of online media to connect with constituents and their use of the Canadian School Boards' Association website (CdnSBA.org) as a source of information but it does not look at online media used to inform decision making in a larger way.

The current study surveyed 164 school board trustees in Ontario and found that trustees get their information from a wide variety of online sources, primarily email (81%) and news sources (63%). They do not make use of other online media such as educational journals, Google Scholar, Twitter, Facebook, Reddit, clipping services or Google Alerts in a substantive way. Email and news sources were also the top rated media sources for impact on decision making. Only two other media sources showed substantial impact on decision making - research articles and educational journals. Other media sources (Twitter, clipping services, Blogs, Facebook, Google Scholar and Reddit) were not seen as useful for decision making. A correlation analysis showed that all media source options had significant correlations between use and usefulness, indicating that even the sources that were not being used in a substantive way (clipping services, Twitter, and Google Scholar) were still perceived as impactful on decision making.

More traditional forms of communication (email and news sources) may be perceived to be more accessible than newer social media (Twitter, Facebook, Reddit) or academic media (educational journals, Google Scholar, research articles). Perhaps it is a lack of familiarity with non-traditional media sources and difficulty in accessing academic sources that is keeping trustees from using these resources to inform their decision making. Training targeted at familiarizing trustees with a wider range of resources might be beneficial, particularly in light of the results discussed in 5.6 with respect to the positive correlation between *computer comfort* and *use of online sources*. Future research could include a qualitative study asking trustees why they use certain online resources more than others.

In the interviews, many trustees mentioned accessing the Ontario Public School Boards' Association (OPSBA) website and those of other school boards for information to inform their decision making. Comments around use of these websites also showed up frequently in the open ended questions in the survey. Had *OPSBA* and *school board websites* been offered as choices of online media sources in the survey, it is speculated that they would show up as *frequently used* online sources based on these comments. The tendency to access OPSBA and school board websites might be attributed to trustees' familiarity with these resources. Given that a large number of trustees seem to

be accessing the OPSBA website (www.OPSBA.org) to inform their decision making, further research exploring the ways in which trustees use this website and how it could be developed to provide the kinds of knowledge trustees are seeking online would be worthwhile.

References to school board websites and third party organizations such as OPSBA, support the conclusions of Levin (2008), Edelstein (2011), Witherow (2011) and others who suggest that third parties have an important role to play in the distribution of knowledge. The supports afford by third party distributors will be discussed in more detail in section 5.5.

It is interesting to note that despite 72% of trustees reporting that they do not use *clipping services* to inform their decision making, OPSBA has been providing a daily clipping service via email to all public school board trustees, which they call *Media Reports,* since January 2013, three months prior to conducting the survey. The low use rate reported for *clipping services* on the survey may reflect that trustees may not have been aware of this service, that they view this service as *email* or *online news sources*, or that they are not using this service in a substantive way. More research would be needed to determine the reason why *clipping services* is not being reported.

Results from the survey and interview data indicate that trustees, while accessing a variety of online media, could be making better use of other online media that they find impactful such as clipping services, Twitter and Google Scholar. Investigating training opportunities and researching the role of OPSBA in providing information to trustees are two areas identified for further exploration.

5.2 Reasons for Seeking Information from Online Media

Previous research has not looked at the reasons trustees seek information online. In this study, participants indicated that they found it most helpful to look online for four main reasons. First, they looked online when they felt they did not have adequate knowledge to make a decision such as when board reports did not provide enough information. Second, they went online for comparison purposes with other boards and

districts to understand how they were handling similar issues. Third, they looked online to improve their knowledge on a specific issue, such as staffing, school closures, health and safety issues. Last they indicated that they sometimes went online for general research purposes, wanting to stay up to date on the latest knowledge in education.

Although school board staff are ask to provide trustees with information to help inform their decision making, the majority of trustees (93%) felt they needed to go online to get additional information. Trustees' perceived need to access more knowledge on their own may indicate a need to either improve the quality of staff provided information or to ensure that trustees have the ability to seek out this information on their own. A more detailed discussion of staff provided information reports is provided in the following section 5.2.1.

Only seven percent of respondents indicated that they did not go online for information to inform their decision making, meaning that seeking information online is the norm for trustees. This finding, although consistent with the comments in the literature (Cooper et al., 2010; Edelstein, 2011; Leveques, 2013) about the importance of the internet in providing increased access to information, is contrary to other authors (Cooper et al.,2009; Davies et al., 2000; Galway, 2006; Levin et al., 2010) who concluded that knowledge seeking behavior is not happening in significant ways. There are two possible reasons for this contradiction. The first reason is related to proposed definitions of *knowledge* and *use,* which is widely debated in the literature (Edelstein, 2011; Levin, 2011a; Nutley et al., 2007). For the purpose of this study, broad definitions of *knowledge* and *use* were used in order to encapsulate all types of information being accessed by trustees, whereas some authors adopted a more narrow definition of *knowledge use*.

The second reason that there may be a disconnect between the findings of this survey and the literature with respect to the number of trustees using online sources to inform their decision making is the potential bias of this study towards those who are comfortable using online resources. Because this survey was an online measure, those who did not participate would be more represented in the population that does not seek

information online. The seven percent who indicated that they do not go online for information may be not truly representative of all trustees. Future research could be done with a non-digital measure and could look at digital vs. paper based knowledge seeking behavior.

When asked in the interviews about reasons for seeking information online there was some alignment with what was seen in the literature around using research to legitimize political choices (Cooper et al., 2009). Further research is needed to fully understand the motivation behind information seeking behavior, whether it is to build knowledge or "shopping for research" to back up a previously held belief or political position (Galway, 2006).

The finding that 93% of trustees go online for information to inform their decision making aligns with the literature which claims that the internet is playing a prominent role (Cooper et al. 2009; Edelstein, 2011, Leveques, 2013). This finding also demonstrates that online media is a vital source of information for trustees. It is therefore critical to analyze these resources and the role they are playing in influencing the decision making of educational leaders and to provide support for trustees in using online sources.

5.2.1 Staff Reports

The use of staff reports to inform decision making has not been examined in previous literature. Because these reports are the primary way in which trustees are provided with information on issues coming to the board for decision, it is critical to examine the role they play in informing decision making and why trustees seek alternative resources for information.

A large majority of respondents (70%) indicated that trustees should not rely solely on staff reports to inform their decision making. Only eight percent felt that they could rely on staff reports all or most of the time. This finding is important because if trustees do not feel that they can rely on staff reports for information, where they get additional information and how they use it becomes increasingly important given what is

at stake – decisions that affect two million students in Ontario and $20 billion tax dollars (Ministry of Education, 2013).

When asked in an open ended question to provide rationale for not trusting staff reports over one quarter of the trustees, indicated that they felt that these reports were biased. Some comments indicated an ill-intentioned form of bias, ("Staff/admin have a tendency to 'avoid' information so that they can achieve their outcome"; "staff often skew data to support their position"). Other comments suggested that the reports were unintentionally biased due the difference in viewpoint staff had versus the local trustee ("Staff reports represent one perspective, albeit a very important one"; "staff writing reports are focused on what works for the system and are frequently too close to the issues."). This criticism of staff reports indicates that, contrary to Levin's (2011b) assertion that research does not carry as much weight in a political arena, trustees do want impartial research. If they cannot get this from their staff, they are looking online to find the information themselves. Since staff reports are the traditional means by which trustees receive information about an issue on which they need to make a decision, the lack of trust of these reports is an important finding of this study because it highlights the need to ensure that trustees are accessing reliable information to inform their decision making.

5.3   Trustworthiness of Online Media

Previous literature has not examined how decision makers ensure the trustworthiness of online media. Two thirds of the comments made by participants in the survey indicated that they looked at the sources of the information they were accessing, sometimes checking multiple sources, verifying with their own research or cross checking to compare information, in order to ensure that the resource they were using was trustworthy. To a lesser degree, participants said that they checked with other trustees and educators or used their own knowledge to ensure trustworthiness of digital sources. In general the comments around how to ensure trustworthiness were vague and lacked specifics of how and when trustees knew that they could trust an online source.

A small number of participants indicated that they treated online information with skepticism or they did not use online information at all. Although how trustees ensure the trustworthiness of knowledge they access online has not been studied, cynicism and distrust of research was a barrier to knowledge uptake identified by Davies et al. (2000) and Fusarelli (2008). Overall trustees in this study did not find skepticism to be a significant barrier.

The interview responses to the question regarding what advice they would give to new trustees also yielded comments around ensuring the trustworthiness of online media sources yet they were unclear on how to go about vetting sources. This underscores the need to ensure that trustees are provided with support and training in knowing how to trustworthy media sources for both new and experienced trustees.

While it is encouraging that trustees are checking for trustworthiness of the information they receive online, further research is needed to ensure that they have the skills necessary to properly assess online sources before using them to inform decision making.

5.4   Barriers to Accessing Digital Information

Many barriers have been discussed in the literature (Fusarelli, 2008; Levin et al. 2010; Witherow, 2011) but no specific research on trustees has been conducted. In the current study, trustees did not identify any barriers as *significant* or *very significant* with the exception of *lack of time*. Nearly one third of respondents indicated that *lack of remuneration* was a barrier. Comments from the interviews and open ended questions demonstrated that these two barriers are interconnected ("More time and, as time is money, more money to justify the expenditure of time"). The *lack of time* barrier was identified in the research by previous authors (Campbell & Fulford, 2009; Davies et al., 2000; Dobbins et al., 2007; Hemsley-Brown, 2005; Witherow, 2011) as a barrier that is a characteristic of educators.

Other barriers identified in the survey are acknowledged in the literature as characteristics of the research itself. These include *problems finding reliable sources,*

problems finding relevant information and *conflicting research.* Although not identified as *significant* barriers by trustees, they were amongst the top barriers identified. These research barriers are similar to those identified by Fusarelli (2008), Levin et al. (2010) and Witherow (2011).

The literature also identifies *lack of skills* as a barrier to knowledge mobilization (Landry et al., 2012; Levin et al. 2010; Witherow, 2011) but does not distinguish between *lack of technical skills* and *lack of research skills*. Trustees in this study indicated that they found *lack of technical skills* to be a bigger barrier than *lack of research skills*. However, given the low use rate for online academic sources such as educational journals, Google Scholar, and research articles as well as the acknowledged *problems finding relevant* and *reliable sources*, it is possible that *lack of skills* is under reported in the survey. The implications for this finding are that trustees need training in both technical and research skills but some may not be aware of this need.

The survey confirmed that the barriers identified more generally in the literature were found to be true for school board trustees as well. More research is needed to explore the magnitude of these barriers on the knowledge mobilization process of trustees and to identify if there are other barriers that trustees are experiencing in significant ways.

5.4.1 Individual Differences in Barriers Experienced

Individual differences in barriers to knowledge mobilization have not been examined to date. When survey findings for individual demographics and characteristics were correlated with the barriers to knowledge mobilization, it was found that older trustees experienced *lack of technical skills* as a barrier more than their younger colleagues. This was predicted by Tapscott (2008) and his age categories which anticipate that use and comfort with digital technology would be greater with those in the younger *Net Generation* (born after 1977) category than their older counterparts. These *digital natives* (Prensky, 2001) who have grown up with digital technology tend to have a skill set and comfort level with computers that is not as common in older demographics.

In addition, *lack of time* was more of problematic for younger, female and more educated trustees. More targeted interviewing is necessary to identify the reasons for these demographics experiencing *lack of time* as a barrier more than their older, male and less educated colleagues.

When board size was correlated with the barriers it was found that trustees from smaller boards experienced *lack of technical skills* as more of a barrier than those from larger boards. This may be due to the availability of technology in larger boards that tend to supply devices such as tablets and smartphones more frequently to their trustees than in smaller boards. Future research is needed to explore the root of the cause of *lack of technical skill* and to determine what supports are needed for small boards to overcome this barrier.

These findings might indicate a need for training to be aimed at older trustees and those from smaller boards and an understanding that younger, female and more educated trustees may find lack of time a barrier to participating in any training.

Trustees from larger boards indicated a *lack of remuneration* as a bigger barrier to knowledge mobilization than those from smaller boards, even though trustees at larger boards receive a higher honourarium than those from smaller boards. This could be due to the higher cost of living in urban centre and needs to be investigated further.

When looking at the correlations between individual characteristics of trustees and barriers experienced, it was found that trustees who were more comfortable with computers found *lack of time* and *lack of remuneration* to be bigger barriers. Focused research looking at household income and occupations outside of being a trustee may reveal some insights into this finding.

Predictably, those who were not comfortable with computers felt that *lack of technical skills* was a bigger barrier. This finding echoes trustees' lack of comfort and familiarity with technology identified by Landry et al. (2012) as a barrier to trustees accessing online training.

Furthermore, it was found that participants who felt their role as a trustee was very important reported more difficulty finding reliable and relevant sources. Similar results were discovered with trustees who reported being more engaged as a trustee. Perhaps these findings reflect that trustees who find their role important and are more engaged have higher expectations of what qualifies as a quality resource.

These findings could help focus any training efforts by the Ministry of Education or OPSBA. Identifying that there is a segment of this population that is uncomfortable with technology means that this training cannot be strictly computer based. There is a need to examine in more detail why trustees experience these barriers to different degrees and to find out what they feel they need to overcome these barriers in order to help facilitate greater knowledge mobilization amongst this group.

5.5   Supports for Accessing Digital Information

Many supports for knowledge mobilization are mentioned in the literature such as technology supports, training and the role of third parties as distributors of knowledge (Campbell & Fulford, 2009; Cooper et al., 2010; Levesque, 2013; Levin et al., 2009; Witherow, 2011). Three quarters of the trustees surveyed felt that there were supports that they needed to help access online information. The two most common themes included comments about the need for third party distributors or repositories of information and the need for recommended trusted sources to be identified. These themes also showed up strongly in the interview responses. Over 30 comments in the open ended survey and interview responses specifically identified the Ontario Public School Boards' Association (OPSBA) as a source for information. As the association representing public school trustees in Ontario, the OPSBA is a natural third party to gather and distribute relevant information to trustees. Further research is be needed to identify if trustees find the information provided to them by OPSBA is reliable and relevant, as these are two areas that some considered barriers to knowledge mobilization.

The importance of third party distributors of information as a key support for knowledge mobilization has been investigated by a number of authors (Cooper et al.,

2010; Davies et al., 2000; Dobbins et al., 2007; Edelstein, 2011; Galway, 2006; Levin et al., 2009; Levin, 2012; Sheppard et al., 2013; Witherow, 2011). Although the nature and functions of third party facilitators have not been thoroughly studied and are not well understood (Levin, 2008) it is acknowledged in the literature that they play a vital role because, like OPSBA, they have the credibility with their stakeholder group. The ability of these types of organizations to sift through large volumes of information, synthesize and summarize it in a meaningful and relevant way, overcomes many of the barriers trustees indicated in the survey that they experienced such as problems finding relevant information, reliable sources, lack of time and research skills. Because of their ability to overcome so many of the barriers identified by trustees, further research specifically focused on how third party distributors can facilitate knowledge mobilization, is critical in order to support trustees in their online use of information to inform their decision making.

Other supports mentioned in the survey included a need for technological supports, identified by ten percent of participants in an open ended question. The survey also found that most trustees (88%) were provided with a computer or laptop and the majority (63%) with home internet access. Additionally over half the participants indicated that they were provided with a smartphone with internet access. These findings would indicate that while most trustees are being provided with the technology tools they need to access online information, this support is not being provided to all trustees in Ontario and is presenting a barrier to some in accessing online information to inform their decision making. It should be noted that the small number of trustees indicating a need for more technological supports may be under reported due to the survey being an online measure. Trustees without these technological supports may have had more difficulty accessing the survey.

Other themes related to supports provided for trustees included a need for training in accessing online information. Even though 44% of participants felt that *lack of technical skills* was a *slight* to *very significant* barrier, only eight percent indicated that training would be an important support. One possible reason for training not being a priority is that trustees felt other supports would be more helpful in overcoming the

barriers they experienced. For instance, a third party repository of reliable information may not been seen to require the same level of skills to access and therefore with this kind of support in place, trustees may have felt that they would not need additional training.

Likewise, additional time and remuneration were also identified by a small number (7%) as needed supports. This contrasts with the responses to the barriers question where 73% of participants felt *lack of time* was a *slight* to *very significant* barrier and 34% felt the same about *lack of remuneration.* It could be that most trustees were being realistic when answering the survey, knowing that increased time and remuneration were not practical supports that trustees could expect to receive and therefore did not identify these in their open ended responses to the question on needed supports.

Since many school boards have research departments specifically charged with accessing reliable and relevant research for the board, the ten trustees interviewed in this study were asked whether they could access this resource and if they felt the information they would receive would be unbiased. Seven out of the ten trustees stated that their board did not have a research department. This finding could mean that either this was not a standalone department within their particular board or that they were unaware of its existence. Of the three participants that acknowledged that they had a research department, all trustees felt that this was not a resource that they could access as an individual trustee. These trustees believed that there were issues with the cost of providing this resource to trustees. In looking at improving knowledge mobilization with school board trustees, it is natural to see a role for the board's research department. However due to the limited resources of school boards, it would be impractical that this resource could be made available to all trustees in all boards. Further research could be done to determine the number of boards with research departments or dedicated research staff and the role they feel they could play in helping to mobilize knowledge to trustees, even if just in providing training in research skills to those who feel they need it.

5.6   Influencing Factors

No analysis could be found in the literature that looked at factors that influence trustees use of online media for knowledge mobilization. Analysis for this study combined the scores for use for all online sources (email, Twitter, Facebook, educational journals, etc.). This *combined use of all online sources* was then correlated to the demographic and characteristic data and a number of significant correlations were observed. Trustees from larger boards were found to make more use of online sources than colleagues from smaller boards. This finding combined with the finding above (5.4.1) that trustees from smaller boards also report a *lack of technical skills* as a barrier, may suggest that helping trustees from smaller boards become more comfortable with technology and more familiar with the variety of online sources available would help knowledge mobilization amongst many Ontario trustees. Further research investigating the reasons why trustees from smaller boards need more help accessing online sources may prove insightful in understanding the reasons for these findings and if they pertain to any other, yet unidentified, subgroups of the trustee population, such as those defined by income or occupation.

The study also found significant positive correlations between *combined use of all online sources* and *comfort with computers*, which is expected and similar to the findings above (5.4.1) with respect to the correlation between *lack of technical skills* and *comfort with computers*. These findings stress the need to provide training to trustees who are uncomfortable with technology so that they will be more likely to make better use of knowledge available online to inform their decision making.

It was found that participants who indicated that trustees at their board often bring their own motions to the board table made greater use of online media. It would appear that at boards where motions are not developed only by board staff, that trustees feel the need to be better informed by seeking information online more often. Further research would be needed to understand whether *making motions* leads to more *online media use* or if more *online media use* leads to *making motions*.

Similarly it was found that trustees who indicated that information obtained online was referred to frequently at their board made more use of online media themselves. More research is be needed to better understand the causation of this finding, whether one leads to the other or whether there is another factor that accounts for this finding, such as board size.

When *comfort with computers* was correlated to the demographic data *age* was the only significant correlation, echoing the finding above that younger trustees are more comfortable with technology (5.4.1).

Frequency *reference to online information at the board* was correlated to the demographic data and the only correlation found was with board size. This finding again suggests the higher usage of digital technology with larger boards that was referenced at the beginning of this section.

Because *board size* was a factor for greater *combined use of all media* and also that *combined use of all media* had significant correlations with *making motions* and with *reference to online information at the board*, correlations were conducted between *board size* and *making motions* and *reference to information online* and found to be significant. From this there can be seen a cultural difference between large and small boards with respect to use of online information. Research looking at why large boards behave differently (bringing their own motions, referring to online information at the board, using more online media sources) is needed to explain these findings.

Many factors were found to influence trustee's use of online media sources including age, board size and their comfort level with computers. Training target at older trustees and those from smaller boards could help to improve comfort level and therefore their level of use of online sources to inform their decision making. More research is needed to understand the causation for the correlation between use of online media sources and other board behaviours such as trustees bringing their own motions and referring to online information at the board table.

5.7   Limitations

With a large sample size consisting of half of all of English public school board trustees from across Ontario, the results of this study can be considered to have good reliability and be statistically significant. The survey and interview questions were based on the research previously conducted in the knowledge mobilization field and piloted with seven former school board trustees to ensure that the intention of the questions was clear and that the categories that were provided were representative. Results were then triangulated with data from the multiple choice and Likert survey questions, the open-ended questions and the interview responses to ensure consistency and validity.

However it should be noted that there are a few limitations to the study specifically limitations of the measure, broadness of the study, need for more choices and clearer open ended questions.

First, due to the survey being only available online, there may be an overrepresentation of participants who have an ability or bias towards using digital media. By taking the time to respond to the survey, it might also be assumed that this method of data collection would also disproportionally represent those who were very engaged in their role as trustee, perhaps who also had an above average interest in research undertakings and did not find lack of time as much of an obstacle as those who did not or could not respond to the survey.

Second, because there was little research available specifically looking at trustees use of online knowledge to inform their decision making, it was difficult to tie this study to existing literature and a more broad approach was taken. A more focused, less ambitious study, may have yielded more specific and concrete results.

Third, OPSBA and school board websites should have been offered as choices for online media sources. As well, more demographic data could have been collected, such as household income, children in school, and occupations, to shed more light on the results.

Last although open-ended questions allowed participants to include diverse opinions, they can be difficult and time consuming to categorize. Clearer open-ended questions may have made categorization easier and cleaner.

5.8 Future Research

As this was an online measure, future research that used a combination of digital and non digital measures may help to encapsulate the responses of trustees that are not as comfortable with technology. Investigating knowledge mobilization with respect to digital vs. paper based knowledge may also shine some light on why some trustees are not accessing online information.

More qualitative studies are needed looking at why trustees use certain online media sources more than others and what other resources they use that were not provided as choices in the survey. Qualitative research should also focus on other barriers that trustees experience, not mentioned in the multiple choice portion of this survey, and the magnitude of these barriers on decision making.

Given the multiple mentions of OPSBA in the survey and interviews, as well as the many literature references to third party distributors of knowledge, it is important to investigate in more depth, the way trustees are making use of the OPSBA website, how it could be developed to provide the knowledge that trustees are seeking and the extent to which trustees find the information provided by OPSBA to be reliable and relevant. Research is also needed to determine why the clipping service provided by OPSBA was not reported in a more substantial way.

Board level research is needed that focuses on the role of school board research departments, and in their absence, research leads, in facilitating knowledge mobilization with trustees and the ways in which they could play a bigger role including ensuring that trustees have the skills necessary to assess the trustworthiness of information found online. The role of staff reports in trustee knowledge mobilization is another key area for future research, looking specifically at ways in which perceived biases can be reduced

and how staff can provide a more complete synopsis of all of the research available, not just that which supports their case.

Research is also needed that builds an understanding around the factors that influence trustees in accessing online media sources such as why women, educated and young trustees find lack of time to be more of a barrier than do other trustees, why smaller boards find lack technical skills to be more of a barrier and why large boards tend to have more trustees who make their own motions, reference online information at the board table and use online media sources to a greater degree and if there are other factors that influence knowledge mobilization amongst school board trustees.

6   Summary and Conclusions

Although the field of knowledge mobilization and evidence-based decision making has received a great deal of attention in recent years, there is a gap in the research looking at how elected school board trustees, access, analyze and utilize available knowledge in their decision making. With no official training for office, this group of elected officials is collectively responsible for the academic achievement and well being (Ontario. Education Act, 1990) of over two million students and over 20 billion in tax dollars in Ontario (Ministry of Education, 2013). How their decisions are informed is therefore worthy of investigation. This research project aimed to better understand how trustees in the province's public school boards are making use of online information to inform their decision making, what barriers exist and what supports are needed. The large sample size of the online survey coupled with in depth interviews generated an abundance of valuable data that adds important insight to the body of knowledge on this subject.

This research project posed six key questions which were investigates including the type of online sources trustees are using, the reasons they seek information online, how they ensure that the information they access is trustworthy, the barriers they experience, the supports that are needed and the various factors that influence their use of online information. Seven specific recommendations and nine areas for future research have been summarized and listed in the next section.

The research from this study showed that trustees tended to mainly use more traditional online sources such as email and news sources. However it was also revealed that trustees who used other sources such as educational journals, Twitter and online research articles, found these sources to also be impactful on their decision making. Assisting trustees in accessing a wider variety of online sources through training and other supports could lead to more informed decision making as trustees found many different sources to be useful in their decision making.

The finding that the vast majority of trustees are going online to look for information when they feel that staff reports are insufficient or potentially biased, is

significant for two reasons. First, knowing that trustees are not relying solely on information provided by staff but accessing information on their own, indicates a critical need to ensure that the information they are accessing is accurate and trustworthy. Second, this finding has implications for staff who develop these reports to look at how to ensure that their reports are not only complete and unbiased but that their trustees also consider them to be so. If trustees cannot rely solely on the information in staff reports, than it becomes increasingly important that they are supported in their efforts to find their own information online.

Although most trustees indicated that they try to ensure the information they obtain online is trustworthy, their comments on how they go about this were vague and revealed that there is more work to be done in ensuring that trustees have the skills necessary to properly assess online information before using it in their decision making.

No barriers were identified in this study as being significant to the majority of trustees, however there were a number of barriers that were significant to some participants that paralleled what was found in previous literature on knowledge mobilization with other groups. Lack of time was the biggest barrier, followed by lack of remuneration. Comments from the interviews confirmed that these two barriers can be interrelated, when trustees who receive a low salary do not feel that they can or should spend a large amount of time with this work. Lack of skills was significant to a portion of those surveyed. Given that the study was based on an online measure, it is probable that trustees who experienced these barriers were underrepresented in the sample.

When individual differences in barriers experienced were looked at, older trustees and those from smaller boards were found to view lack of skill as a bigger barrier, while younger, female and better educated trustees found lack of time to be an issue. Trustees, who felt, to a greater degree, that they were engaged and that their role as trustee was important, were more likely to indicate that finding relevant and reliable sources of information was a barrier. These findings could be used to help focus training efforts of school board associations, school boards and the Ministry of Education.

Trustees surveyed and interviewed were able to identify a number of supports that they needed to more effectively access online information to inform their decision making including the need for a third party repository of information and the need for recommended trusted sources to be identified. These two supports are inter related and could be provided by a reliable third party organization that trustees already trust, such as trustee associations such as OPSBA which is already performing this function to some extent and mentioned specifically by a large number of participants. Providing information central through a trusted source would help to overcome many of the barriers that trustees reported in the research such as lack of time and problems finding reliable and relevant information. The role of third party distributors of information was discussed a great deal in the literature on knowledge mobilization as being as playing a powerful role as enablers of knowledge mobilization although their nature and function has not been well studied to date.

The literature did not explore the factors that influence trustees use of online information but this research study did reveal a number of influencing factors including age, board size and comfort with computers. Although the findings for age and comfort with computers were predictable, it was also found that larger boards had significantly more trustees who used online media, referred to online sources at the board table and brought their own motions to the board. These boards also provided more technology supports to their trustees. More research is needed to better understand the causation for these correlations.

The research for this study focused only on how trustees use online information to inform their decision making but there is a need to look at knowledge mobilization in a more general way with this group of elected decision makers, including the motivation behind knowledge seeking behavior. The literature asserts that knowledge mobilization in a political environment has some striking differences to what occurs in the population in general. In a political environment there are many factors that influence decision making that can trump research, from practical considerations such as financial constraints to pressures from special interest groups and the avoidance of negative media. This area has not been well studied and could provided some useful findings for school

boards and the Ministry of Education as they strive for a more evidenced approach to decision making.

It is hoped that the findings and recommendations from this study can be used to better support trustees in accessing the extraordinary amount of knowledge made available with access to the internet so that decisions being made at school boards across Ontario can lead to the best outcomes for our students.

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Appendix A – Trustee Survey

Part 1 – Multiple Choice Questions

 1. Consent question.

Demographic questions

 2. Which categories best describe your board? Choose one from each

  A) Size: (Large - enrolment exceeds 64,000 pupils; Medium – enrolment between 22,000 – 63,999 pupils; Small - enrolment less than 22,000 pupils)

  B) Type: (Urban; Rural; Mix)

 3. What is your gender?

  (Male, Female)

 4. Which category includes the year you were born?

  (Pre 1946, 1946 – 1964, 1965 – 1976, 1977 – present)

 5. How much experience do you have as a trustee?

  (Less than 2 terms; Between 2 - 4 terms; Between 4 - 7 terms; 7 terms or more)

 6. How would you describe your level of education?

  (High school or less; Some college or university; College graduate; University graduate; Graduate degree)

Attitudes and Characteristics Questions

 7. How would you rate your comfort with computers?

  (Very comfortable, Comfortable, Somewhat comfortable, Not very comfortable)

 8. Do trustees at your board bring their own motions to the board table (as opposed to staff provided motions)?

  (Often, Sometimes, Rarely, Never)

 9. How often do trustees at your board refer to information obtained from online sources when discussing decisions before the board?

  (Often, Sometimes, Rarely, Never)

 10. How important is your role as a trustee to you?

  (Very important, Important, somewhat important, Not very important)

 11. To what extent are you engaged in the decision making at your board?

  (Very Engaged, engaged, somewhat engaged, not very engaged)

 12. Does your board provide or reimburse you for:

  (Yes; No; Partially)

  Computer/ Laptop, Tablet/iPad, Smartphone with Internet Access (i.e., iPhone, Blackberry), Home Internet Access, Other (please specify)

Part 2: Likert Scale Questions
Online Media Use

13.   I use the following digital media to inform my decision making as a trustee:

	Often	Frequently	Sometimes	Rarely	Never
Twitter					
Facebook					
Reddit					
Blogs					
Online news sources					
Email					
Online educational journals					
Google Scholar					
Google Alerts/Clipping service					
Research Articles					
Other:					

Usefulness of Online Media Sources

14.   I would describe the impact of these sources on my decision making as:

	Extremely Useful	Very Useful	Useful	Somewhat Useful	Not At All Useful
Twitter					
Facebook					
Reddit					
Blogs					
Online news sources					
Email					
Online educational journals					
Google Scholar					
Google Alerts/Clipping service					
Research Articles					
Other: _____					

Barriers to Online Media Use

15.   How significant would you rate these barriers?

	Very significant barrier	**Significant barrier**	**Not very significant barrier**	**Slight barrier**	**I don't find this to be a barrier**
Lack of time					
Lack of remuneration					
Lack of technical skills required to access digital information					
Problems finding relevant information					
Problems finding reliable sources of information					
More information doesn't add to my understanding					
Conflicting research					
Lack of interest					
Lack of research skills					
Lack of access to technology to access online sources					
Other: _____					

Part 3: Open Ended Questions

15. In what circumstances do you find it most helpful to look for online information to help inform your decision making? Why?

16. How do you ensure the information you receive from online sources (media outlets, blogs, Twitter, email, etc.) is trustworthy?

17. What supports would help you to access reliable online information to use in your decision making?

18. a) Should trustees rely solely on staff provided reports to inform their decision making on major issues facing the board?

   b) Why? Why not?

Appendix B –Interview Questions

1. Can you tell me about how decisions are made at your board on important system issues, specifically how are trustees informed of the pertinent information pertaining to issues coming to the board for decision?

2. Can you think of a situation when you wanted to get more information on an issue that was coming to the board for discussion and describe for me the various ways you went about accessing more information i.e. what sources did you use?

3. A) Can you describe a time when you felt you didn't have enough information to make an informed decision?

   B) Why do you feel you weren't able to get all the information you needed? Specifically, what were the barriers to accessing relevant information that you encountered?

4. Do you feel you are able to access the board's research department as an individual trustee? Do you feel the information from them would be unbiased?

5. In the survey the vast majority of trustees indicated that they felt that trustees should not rely solely on staff provided reports when it comes to large controversial decisions. Why do you feel it is important for trustees to access information on their own regarding important board decisions?

6. What advice would you give to new trustees regarding accessing online information to help inform their decision making?

7. What supports do you feel would help you access information more easily?

Appendix C – Online Media Sources

Media Source	Description	Address/ example
Twitter	"an online social networking and microblogging service that enables users to send and read "tweets", which are text messages limited to 140 characters. Registered users can read and post tweets but unregistered users can only read them" (Wikipedia, http://en.wikipedia.org/wiki/Twitter).	https://twitter. com/
Facebook	"an online social networking service…Users … may create a personal profile, add other users as friends, exchange messages, and receive automatic notifications when they update their profile. Additionally, users may join common-interest user groups, organized by workplace, school or college, or other characteristics... As of September 2012, Facebook has over one billion active users" (Wikipedia, http://en.wikipedia.org/wiki/Facebook).	https://www.face book.com/
Reddit	"a social news and entertainment website where registered users submit content in the form of either a link or a text post" (Wikipedia, http://en.wikipedia.org/wiki/Reddit).	www.reddit.com/
Blogs	"A blog (a contraction of the words *web log*) is a discussion or informational site published on the World Wide Web and consisting of discrete entries ("posts") typically displayed in reverse chronological order (the most recent post appears first)" (Wikipedia, http://en.wikipedia.org/wiki/Blogs).	http://oedb.org/ ilibrarian/top- 100-education- blogs/
Online news sources	"Many news organizations based in other media also distribute news online" (Wikipedia, http://en.wikipedia.org/wiki/News_media).	http://www.ebiz mba.com/articles /news-websites
Email	"Electronic mail, most commonly referred to as email or e-mail since c. 1993, is a method of exchanging digital messages from an author to one or more recipients" (Wikipedia, http://en.wikipedia.org/wiki/Email).	loraleac@gmail. com
Online educational journals	"a peer-reviewed periodical in which scholarship relating to a particular academic discipline is published. Academic journals serve as forums for the introduction and presentation for scrutiny of new research, and the critique of existing research. Content typically takes the form of articles presenting original research, review articles, and book reviews" (Wikipedia, http://en.wikipedia.org/wiki/Academic_journal).	http://www.ht2. co.uk/ben/?p=36 7
Google Scholar	"a freely accessible web search engine that indexes the full text of scholarly literature across an array of publishing formats and disciplines." (Wikipedia, http://en.wikipedia.org/wiki/Google_Scholar)	https://scholar. google.ca/
Google Alerts/ Clipping services	"Google Alerts is a content change detection and notification service, …that automatically notifies users when new content from news, web, blogs, video and/or discussion groups matches a set of search terms selected by the user. The results are delivered as an email digest to a gmail account" (Wikipedia, http://en.wikipedia.org/wiki/Google_Alerts). "A media monitoring service, a press clipping service or a clipping service … provides clients with copies of media content, which is of specific interest to them … what they provide may include documentation, content, analysis, or editorial opinion, specifically or widely" (Wikipedia, http://en.wikipedia.org/wiki/Clipping_service).	www.google. com/alerts
Research Articles	This category was added to encompass all articles that trustees accessed that might not be contained in a traditional peer reviewed journal such as conference papers and other articles derived from research.	http://www.edu. gov.on.ca/eng/re search/aera2009_ kipaper.pdf

Appendix D – Summary of Recommendations and Future Research

Recommendations:

1. Trustees should be provided with training to help access a wider variety of online media sources.

2. School boards staff should investigate how their reports to trustees can better provide the information trustees are seeking to inform their decision making.

3. Trustees should be provided with training to ensure that they understand how to gauge the trustworthiness of online sources.

4. Focus technology skills training on trustees from smaller boards.

5. Focus research skills training on trustees who are more engaged in their role as trustee (i.e. those who are involved in trustee activities outside of their boards).

6. Strengthen the important role of trustee associations as third party distributors of knowledge to ensure trustees are getting quality information to inform their decision making.

7. Ensure that all trustees receive the necessary technology supports to access online information.

Future Research:

1. Using a non digital measure, explore how trustees inform their decision making with both online and non digital information.

2. Qualitative study to look at why trustees use certain online resources more than others and what other resources they use that were not provided in the survey.

3. Research examining the magnitude of the barriers to knowledge mobilization experienced by trustees as well as identifying other barriers not looked at in this study.

4. Investigate the role of trustee associations, such as OPSBA, play as third party distributors of knowledge and how their role, and their website, can better support knowledge mobilization for trustees.

5. Examine the role of board research departments and research leads in aiding effective knowledge mobilization and the role they can play in training trustees on research skills.

6. Targeted interviews to identify why certain barriers (i.e. lack of time) are more prominent among certain demographics (i.e. young, female, educated trustees) or types of boards.

7. More demographic information (income, occupation) is needed to help explain why some barriers are more significant to some trustees and not others and whether there are other factors that influence trustees use of online information.

8. Research focused on better understanding the link between use of online information and trustees bringing their own motions to the board table.

9. Studying factors that influence decision making in a political environment such as a school board to better understand the factors that influence decision making over and above simply research (i.e. public opinion, personal biases) and to better understand the motivation behind knowledge seeking behaviour with politicians.