RESEARCH USE AND ITS IMPACT ON SECONDARY EDUCATION: TAKE-UP OF DIFFERENT KNOWLEDGE MOBILIZATION STRATEGIES

by

Shalini Lydia Arjomand

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Graduate Department of Theory and Policy Studies
Ontario Institute for Studies in Education
University of Toronto

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Abstract

This project is based on a study supported by the Canadian Education Association. The project examines how research activities have been implemented and carried out in nine secondary school districts across Canada. The main research questions are to understand how school districts organize to embed knowledge from external research in their secondary schools and to understand the impacts of small-scale interventions intended to increase the use of research in secondary schools and districts. This thesis documents a part of the greater project with a focus on educators’ knowledge about two main areas related to secondary school improvement: success factors for students and student pathways/trajectories. Data were collected through questionnaires, teleconference calls and individual communication with district leaders. The study concludes that it is difficult to know the impact of the interventions; impact seems modest but a few key elements have been identified that facilitate take-up of the research activities.
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Dedication

For my mother, Dorothy Mascarenhas, who worked tirelessly to make all things in life possible for her children.
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Chapter One: Introduction

In secondary education throughout Canada there is an increasing awareness of the role research can play in student achievement and school improvement. The Ontario Ministry of Education’s Research and Evaluation Strategy includes: Applying research and evaluation to support evidence-based policy and program decisions and practices; building individual and organizational research capacity; and fostering collaboration between the ministry, researchers and educators across Canada (Ontario Ministry of Education, 2010).

‘Knowledge mobilization’ (KM) is a term that describes the use of research-generated knowledge. KM includes everything between the creation of new knowledge and applying it. The process of KM is interactive, nonlinear, multidirectional, requires collaboration, and is interdisciplinary (Sudsawad, 2007). Cooper, Levin and Campbell (2009) describe the use of knowledge as a social process which has multiple, iterative phases involving the generation of new research, its communication and application, and the contextualization of research to particular environments and needs of user groups (Cooper et al., 2009, p. 166).

This thesis documents findings from a collaborative research study carried out by the Knowledge Mobilization team at the Ontario Institute for Studies in Education (OISE). The purpose of the team’s KM work is to improve the contribution of research to policy and practice in education. The team is involved in projects that assist in getting research knowledge to have an impact in the field of education. The team is also interested in work that brings research to practitioners, and in this particular research study was looking at research use in secondary education. Research use in education
remains modest (Cooper et al., 2009, p. 159), and there is little literature that explains and measures impact of interventions to increase research use in education (French, 2005; Lavis, Ross, McLeod & Gildiner, 2003; Walter, Nutley & Davies, 2003). This thesis is an analysis of an effort to increase KM around secondary education in a number of Canadian school districts through the implementation of interventions to increase research use. The main research questions being addressed are to understand how school districts organize to embed knowledge from external research in their secondary schools and to understand the impacts of small-scale interventions intended to increase the use of research in secondary schools and districts.

This chapter begins with an introduction to knowledge mobilization in education – exploring the relationship between knowledge and behaviour, defining research in context of this study, and briefly looking at how research take-up happens in school systems. Following the introduction to knowledge mobilization is the background and overview of this study.

**Why Knowledge Mobilization Matters**

Knowledge mobilization is the use of research-generated knowledge. What counts as research knowledge in education is often debated, because not all kinds of knowledge are from research. Here research is defined as knowledge that has been created through a formal process of inquiry with some relation to canons of accepted academic work; it has been validated, is reliable and usable (Levin, 2004). Research knowledge is considered objective and generalizable to many contexts (Nutley, Jung & Walter, 2008, p. 61).

There are many reasons for school administrators to use research evidence in decision making; it increases student achievement and it reduces the effects of political
factors and other influences that take away from focusing on improving teaching and learning (Honig & Coburn, 2008, p.582). Schools and school districts have influence on creating a demand for research use among administrators and teachers: Changing practice to use research is influenced by social contingencies around people’s work. There is a lot of evidence that shows that it is difficult but possible to change the behaviour of most people: A key part of these efforts is changing organizational practices and structures (Levin, Sá, Cooper & Mascarenhas, 2009).

Knowledge mobilization goes beyond disseminating research knowledge to practitioners; it includes multiple activities (Sudsawad, 2007). The major focus of KM is what happens after dissemination, how connections are built between various parties, how networks are used and how collaboration is promoted. More important are the processes that are put into place to allow for the various phases of knowledge mobilization, from creation of products, to use, dissemination and evaluation. Creating products such as newsletters and wikis that present research knowledge in accessible ways is one of the first phases in KM. Dissemination of research takes place in many ways including use of products (such as summaries, videos, online documents), attendance at events (PD events, seminars) and through informal networks, which may be more difficult to uncover. The main challenge of KM is the use of research to change thinking and behaviour, both attitude and practice.

Knowledge mobilization matters because when a culture of research use exists, decisions are better informed by evidence leading to policies and practices that can increase student achievement and improve schools.
**Change: Knowledge and Behaviour**

It is very hard to know where people’s ideas come from, and it is also hard to know how ideas and knowledge are related to behaviour. Some oft debated questions in KM are, does intention and thinking precede action, and is KM about knowing something or is it about doing? KM is both about knowing and changing behaviour practically, and requires change in attitude to initiate the new behaviour. Nutley, Walter and Davies (2007) describe research use as, “a continuum stretching from conceptual ‘use’, such as raising awareness, through to instrumental uses for adaptations to practice” (as cited in Cooper et al., 2009, p. 167). When people know of research findings, some degree of KM has occurred, however, as Cooper et al. (2009) note,

> It seems that moving ideas into practice requires a rather different kind of knowledge and a different way of using it.
>
> The knowledge of what to do is different from the knowledge of how to get it done, but both are critical to stronger research-practice connections. (p. 167)

Being exposed to new knowledge can be an impetus to change behaviour, but knowledge is only one factor that shapes behaviour – and often is not the most powerful one. Although the literature often discusses KM as research use by and behaviour change of individuals, organizational settings also matter greatly, as education takes place in structured settings and systems. Organizational change is therefore another important element in affecting the individual administrator’s behaviour. The study on Research Use and Its Impact on Secondary Education explores the facilitators and barriers in implementing research activities to build research capacity in Canadian secondary school districts.
Research Take-Up

Little is known about knowledge mobilization in schools and school systems (Cooper et al., 2009, p. 166). What needs to be explored is how school systems find, share and use research and what are facilitators and barriers of doing this. Levin (2004) writes that impact occurs when, “research, in any of its multiple forms, makes a difference to subsequent actions that people take or refrain from taking” (p. 2): When schools do take-up research how much do KM efforts result in change in belief and how much results in change in behaviour?

A focus throughout this thesis is the barriers and facilitators of KM work in school systems. Some barriers to research take-up by practitioners include when new knowledge does not fit with prior knowledge and belief, when new knowledge or practice does not fit with self interest, and when the proposed change does not seem feasible – people aren’t able to see how to change practice (B. Levin, OISE KM Meeting, personal communication, October 2008). Some facilitators of KM are incentive systems, and social support from colleagues and the work community. Brown (1997) argues that, “if educational research aims to have some impact on practice, then its ideas and findings have to change educators’ understandings” (as cited in Hargreaves, 1999, p. 243), he goes on to write that ideas have to enter the “common-sense discourse of communities” (p. 243) of practitioners and policy makers. Informal discourse in educator’s communities can be leveraged to influence research take-up, but there is still little understanding of how this takes place.

In an interview at the American Educational Research Association (AERA) conference in 2008, Ben Levin and Charles Ungerleider, Canadian researchers in the field of KM, were asked to describe the biggest challenges in strengthening relationships
between research, policy and practice. They responded that one of the main challenges is not having the right research. Because research production mainly takes place in universities, the context of production, what is researched, who does it and how it is carried out can be a barrier to use when the research is not meaningful to the users. Although research production is important, it is not the focus of this study.

A second challenge that they discuss that is more relevant to our study is the inadequate systems and infrastructure to support research use in school systems. A culture of research use can be built through building capacity in individuals and the organization to use research. Though people may be disposed to consider evidence from external research, most do not possess the knowledge they would need to evaluate evidence, thus a principal challenge is to help decision makers and practitioners to understand how to evaluate and apply evidence of various kinds (B. Levin, AERA interview, personal communication, May 2008).

Another barrier is that there are not enough connections between the context of research production and the context of use. Levin notes the importance of third party or mediating agents to direct and mediate communication between those who produce research and communities of practice that would benefit from it (Levin, 2004, p. 7).

**Research, Policy and Practice**

Knowledge Mobilization is trying to bridge what practitioners know from doing, with what academic researchers know from a wider sample of experiences and empirical evidence. Both perspectives are valid and together can help address approaches which are solely relativist as well as approaches that are too general and lack context. Collaboration between school administrators, practitioners and researchers is important.
There are conditions in organizations that can support evidence use; use is shaped by the evidence itself as well as organizational and institutional factors and by policy (Honig & Coburn, 2008). The process of evidence use is complex and consists of multiple subactivities which themselves have political dimensions (Honig & Coburn, 2008) as well as social and economic dimensions. Levin (2004) writes that research is only one influence on human action, its impact is mediated by larger social and political processes (p. 2). Thus, a strategy to increase research use in school systems requires collaboration between researchers, administrators and educators as well as multiple lines aimed at increasing both organizational and individual capacity for research use.

**Canadian Education Association and Research Supporting Practice in Education**

The study, ‘Research Use and its Impact on Secondary Education’ was funded by the Canadian Education Association (CEA) and was carried out by the Knowledge Mobilization team at OISE, as part of the ‘Research Supporting Practice in Education’ (RSPE) program.

The RSPE is a program of research and related activities aimed at learning more about knowledge mobilization in education. The research team is involved in conducting and sharing the results of empirical studies to strengthen the evidence about KM and research use in education. RSPE is located at OISE - University of Toronto and is supported with core funds from the Canada Research Chairs program. Ben Levin, Canada Research Chair in Education Leadership and Policy, is the principal investigator, working with academic colleagues and graduate students. One of the team’s conclusions from its work and that of others is that KM efforts can be described as involving the creation of
products (such as reports), events (such as conferences) and networks (ongoing interactions among groups of people) (RSPE, 2009).

The CEA is a bilingual, federally incorporated non-profit organization which was founded in 1891. The CEA initiates and sustains dialogue throughout Canada influencing public policy issues in education. The organization regularly undertakes research, or joins research partnerships, in areas that have the potential of advancing policy and practice in support of student learning (CEA, 2009).

The RSPE program endeavours to build collaborative interaction between KM scholars and specialists: Research studies conducted by the KM OISE team are collaborative in nature and involve researchers, practitioners and intermediaries.

**Background to the Study**

A research culture is best described as one in which individuals and the organization collectively have developed a capacity to find, share, use, evaluate and apply evidence. Developing this capacity facilitates a process of ‘knowledge development’ in which new evidence is sought in order to validate or change one’s beliefs, and to improve practice (Cooper et al., 2009, p. 161). Few studies have been done to understand research use in secondary school systems. The OISE KM team has found few systematic approaches to KM in education, suggesting that there is a limited capacity of education organizations to use research (Levin et al., 2009). For this reason, the RSPE program is engaged in KM empirical studies to understand facilitators for building research capacity in education.
Honig and Coburn (2008) conducted a comprehensive review of research literature on the use of evidence in the decision-making process in district and central offices to help education policy researchers and policy makers understand the conditions that support evidence use. One limitation of this research was that in most studies reviewed the user of evidence was generalized to ‘the district’ – it was not known which administrators were using the evidence and whether ‘the district’ referred only to the central office or also to the schools it governs. The second limitation was that these studies use the term ‘evidence’ broadly.

Another KM in education study conducted by Dagenais, Janosz, Abrami, Bernard and Lysenko (2008), funded by the Canadian Council on Learning (CCL), looked primarily at teacher use of research findings in the province of Québec – investigating what types of research findings are used and why they are used. The questionnaire, which used an attitude and self-reporting behavioural measure, was developed to survey school practitioners in the province of Quebec. Questions explored the principal dimensions about the use of research-based information: type of research used, type of utilization, frequency of utilization, factors influencing utilization such as practitioners’ opinions about research, their individual expertise, activities informing practitioners about research findings and organizational factors. There were 2425 responses from school practitioners. The majority of participants in this study were teachers (82%). The study was useful in identifying that education consultants are most likely to use research findings, followed by principals and lastly teachers. The study also reports by user group organizational features that influence use of research by these groups:
Consultants consider it important to have time to read or to train in the use of new techniques. They also consider professional development important, as do school principals. For teachers, the most influential factor with respect to research utilization is how a teacher views research. (p. 6)

While the research study conducted by the OISE KM team has elements that are similar to the work done by Dagenais et al. (2008), it focuses primarily on those in leadership roles in secondary schools in school districts across Canada with a greater emphasis on behaviour related to research use in school districts as opposed to attitudes towards research.

The CEA has been working with a network of secondary schools across Canada implementing a program called ‘What did you do in school today?’ (WDYDIST) (CEA, 2008). This program explores student social, academic and intellectual engagement. The initiative includes an on-line student survey with a set of measures that allows schools to understand students’ experiences of engagement in learning. The student survey uses the same platform as the “Tell Them From Me” survey that was developed by The Learning Bar Inc., which is also currently being used by school districts across Canada. The data from the survey provides schools with ways to understand what students are doing in class, and how they feel about their assigned school work and learning experiences. This WDYDIST project is an initiative that helps schools to collect data locally and compare it to a wider sample of schools, for the purpose of understanding the teaching practices and learning processes that engage students. This collaborative research and development
model is an example of schools engaging in the production of research. As ten out of the eleven participating districts are involved in the WDYDIST, and there is potential in each of these districts to be engaged in evidence based practice, the study ‘Research Use and its Impact on Secondary Schools’, seeks to explore the existing research culture in these school districts and how research capacity can be developed through specific interventions to increase research use.

**Overview of the Study**

This study carried out by the CEA and the OISE KM team was connected to the CEA’s WDYDIST project. The purpose of the overall study is to learn about the ways research is encountered and used to shape policy and practice in Canadian secondary schools. The network of participating school districts is interested in substantial change in secondary education. The schools and districts were partners in developing the project and interpreting its results.

The study targets superintendents, principals and others with designated leadership roles in secondary schools and districts across Canada. The study involved a survey that was administered in May 2008, followed by a phase in which interventions to increase research use were implemented in participating school districts and concluded with a post-intervention survey that was completed in December 2009. This thesis documents a part of the project with a focus on educators’ knowledge about two main areas related to secondary school improvement: success factors for students and student pathways/trajectories. Six knowledge claims related to success factors for students and student pathways/trajectories were identified, and respondents indicated their level of agreement with the claim, and also identified the sources of their knowledge of the claim.
Profiles of the research practice in each of the school districts were created based on responses to an online survey. Schools then implemented the interventions needed based on the research practice of the district.

The interventions were designed around the knowledge claims in education. The purpose of these interventions was first to understand what types of research activities are most effective in secondary school districts, and second to measure the effect of the research activities on beliefs about the specific claims in education. This thesis reports specifically on what was learned about carrying out the interventions in varying secondary school districts across Canada.
Chapter Two: Literature Review

The literature reviewed for this study is organized thematically. The first section in this chapter looks at the literature related to KM interventions, focusing the discussion on the complexity of the ideas of use and research, and what is known about research practices that are related to greater KM.

**KM Intervention Literature**

Most of the research work in KM has focused on improving researcher practices through better dissemination tools and products, and partnerships with schools (Cooper et al., 2009, p. 167). There hasn’t been as much focus on the use of evidence and understanding of research in the education sector’s training and development as there has been in the health care sector. In the education pre-service program curriculum and instruction courses are in greater demand than courses that emphasize theory and evidence, therefore educators lack foundational training in research and evidence-use creating certain behaviour patterns. As compared to health care practitioners, little is known about how educators find, share and use research, and few organizations in education have the capacity for supporting KM (Honig & Coburn, 2008).

The ideas of research and its use are complex: There is the question of how to operationalize evidence when it is known; there’s a lack of evidence on what interventions work to help increase research use; some things are known about individual factors that influence research use, and much less is known about organizational factors that influence research use. In this section some of the existing literature on Knowledge Mobilization interventions is discussed, as well as what is known generally about the effectiveness of KM strategies and the various approaches that have been used for
increasing research use. I provide a summary of a taxonomy that was created to categorize the mechanisms that drive research impact in different interventions.

There is a vast amount of research being done in the field of education; however, there is little experience in learning how to transfer this knowledge into the realm of action and operation. There has been more interest in these issues in recent years, and different initiatives and strategies are being used, however there is a lack of evidence on their value and impact (B. Levin, AERA interview, personal communication, May 2008).

Much of the emphasis of knowledge mobilization strategies has been on changing the behaviour of research providers to enable adoption and use of new research knowledge. Nutley et al. (2008) discuss two approaches to research use: The rational-linear approach and the interactive approach. In the rational-linear approach, with the focus on research providers, research is only disseminated in one direction to practitioners who then implement the recommended practices. The interactive approach to research use on the other hand considers practitioners and enables them to adapt research findings to different contexts. The flow of knowledge in this model is multi-directional, in which practitioners’ knowledge of their local context and practice problems can help shape and transform research. Whereas the rational-linear approach assumes that knowledge is objective and generalizable, the interactive approach assumes knowledge is context-specific and research use is unpredictable. A better approach requires a balance of both the rational-linear approach and the interactive approach in which knowledge flows in multiple directions, with a knowledge alignment between both researchers and practitioners and beyond this with policy makers. In such an approach, which is supported by evidence in health (Lavis, Lomas, Hamid & Sewankambo, 2006;
the philosophical underpinning is that knowledge is on a continuum of being generalizable and must be moderated by knowledge gained from experiences that are context-specific.

Several approaches have been experimented with for linking research to action. These approaches have been outlined in the work of Lavis et al. (2006) who defined the types: Supply-push, user-pull, linkages and exchanges, and an integrated approach. In the supply-push approach, similar to the rational-linear approach above, emphasis is on the research providers to push new evidence to research users, whereas the user-pull approach is when users, aware of an area where there is a lack of information, request research. Linkages and exchange help create partnerships between researchers and users to engage in research collaboratively so these are similar to the interactive model discussed earlier. The integrated approach combines elements of the three approaches above. The literature related to KM interventions show that multifaceted interventions that have a combination of methods have more impact, and that the passive dissemination of information is generally ineffective in altering behaviour though it could be useful in raising awareness (Sudsawad, 2007, p.14).

The Research Unit for Research Utilization (RURU) in Scotland developed a taxonomy of interventions that are outlined by Walter et al. (2003). The taxonomy includes eight categories of mechanisms that drive research impact in different interventions. These mechanisms include: dissemination, education, social influence, collaboration, incentives, reinforcement, facilitation and multifaceted initiatives. This taxonomy helps to understand the kinds of research impact which might be achieved with different interventions: Some interventions may be designed to increase conceptual
research use (knowledge, understanding and attitudes) and others may aim to have an impact on behaviour.

In this section several strategies for KM have been introduced. Each approach is suited to different user needs and contexts. The question is which interventions or strategies might have a greater impact in changing research practices in secondary school contexts. One review of literature showed that educators hold positive views of research, but indicated low use of research by educators (Dagenais et al., 2008, p. 2), which suggests there are other factors beyond a positive attitude towards research that influence research use both by individuals and organizations. The following sections look at what is known about effective practices that lead to greater KM. The sections covered are: The benefits of having formal organizational structures to support KM; The need to make research accessible and relevant; Resources, context and capacity; and KM work facilitators.

**Formal Organizational Structure**

A lot of the KM research has been done around the work of nurses to understand the factors that influence research utilization. The majority of what has been written about concerns individual factors affecting research use as opposed to organizational factors. Estabrooks, Floyd, Scott-Findlay, O’Leary and Gushta (2003) outline the following six categories of determinants that were developed after initial review of studies on research utilization in nursing: Beliefs and attitudes, involvement in research activities, information seeking, professional characteristics, education, and other socio-economic factors (p. 506). All of these determinants are characteristics of individuals; of more interest to the field of education is how to understand practitioner behaviour and
organizational behaviours, for the purpose of greater research take-up by both individuals and organizations. Research take-up cannot be an individual activity alone, organizational learning and decision-making within the school districts play an important role (Nutley et al., 2008, p. 64). In this section what we know about how organizations can affect individual practitioners is presented.

It is not realistic to think that most practitioners, particularly teachers and school administrators, will be able to seek out research evidence intensively, interpret the evidence and use it in their day-to-day practice (Honig & Coburn, 2008; Nutley et al., 2008). Practitioners have little time to look up research because of the number of responsibilities and demands on their time. They may not themselves be skilled at finding relevant research; in many areas one would have to read a large number of studies to be well informed about any particular issue which may not be feasible for teachers and school administrators who have many issues to face in their daily work. Furthermore, teachers and school administrators as individuals may not have autonomy to change practice based on research evidence – this depends on the structures within the organization.

Practices within an organization are based to a large extent on history, tradition and convenience (Cooper et al., p. 169). Organizational structures themselves are complicated, and the use of research is embedded in both personal and organizational beliefs and practices. These, Levin (2004) writes can include personal and organizational goals; the standards, policies and culture of the organization or occupation; the practical tasks that confront people every day; and predispositions and beliefs that are personal as well as occupational (p. 6). Given this, organizations do have an effect on individual
practitioners, and the existing patterns of behaviour and practices within an organization’s culture influence research take-up and the kinds and forms of knowledge that can be put into practice (Cordingley, 2008; Levin, 2004; Newton & Sackney, 2005; Nutley et al., 2008). Organizations can offer reinforcements to change behaviour, but more than this it is through its social practices, instruction and systems, and opportunities within the infrastructure to access research where organizations can impact research take-up. Organizational practices are very important in shaping the way individual professionals engage with research.

Nutley et al. (2008) propose three models for research use. The weakest of the three models in promoting research use among a large number of practitioners is the research-based practitioner model in which practitioners are responsible for keeping informed about the latest research: As discussed above this is not realistic for school practitioners and administrators who have many demands on their attention and time. The embedded research model is one in which research enters practice and reaches practitioners indirectly by becoming embedded in systems, processes and standards (e.g. inspection frameworks, national or local policies, procedures and tools). The responsibility in this model shifts to those who are in policy and service management roles who act as intermediaries in translating research into ‘frontline practices’ (p. 65). While this model can change practice among a large number of practitioners, it does not allow them to engage in interpreting and translating the research themselves. The third model is the organizational excellence model in which research-informed practice occurs at the level of organization through leadership, management, organizational structure and culture. The embedded research and organizational excellence models both use the
organization’s policies and culture to influence research take-up. The strength of this model is that it encourages use of external research, as well as provides an environment to experiment and generate internal research findings that can impact practice (p.65). This model potentially generates research partnerships with universities or other research organizations.

The organizational excellence model requires capacity building within the organization. Taylor-Powell and Boyd (2008) write about the organizational structures that enable research take-up, these include: communication structures that facilitate information flow; program structures that are organized around relevant issues; the ability of the organization to facilitate action, inquiry and problem solving at a group level; learning structures; and data management systems to facilitate the creation, management and use of data (p. 63). It’s these structures within the organization that can be built and developed in order to better facilitate research take-up.

In addition to considering the context of secondary schools when implementing interventions, the existing organizational structures within the school district can be leveraged in order for the interventions to have a greater impact in changing research practices in secondary schools. The organizational structures can also influence how research can be made more accessible and relevant to practitioners, another major factor found in the literature that has an influence on research use.
Making Research Accessible and Relevant

The KM literature to date has mostly focused on the characteristics of the research and how it is presented to practitioners. Making research accessible and relevant also includes that new research initiatives be aligned to current activities; ensuring that the users see the importance of the research; and that the research can be linked to action and is relevant to the local context. Some suggestions are given in the literature that can assist in making research more accessible and relevant to practitioners; these are discussed below.

Characteristics of research materials that are appreciated by education practitioners are: relevance, accessibility, usability and the degree of difficulty in being able to apply the research to their area of work (Dagenais et al., 2008, p. 3). Unfortunately, the way researchers write is a barrier to research use among teachers and school administrators. Cordingley (2008) points out that teaching is a practice that is practical and interpersonal and practitioners need to “connect intellectually, practically and emotionally with research knowledge and be able to see how they can apply this knowledge to their specific contexts” (p. 38). Suggestions for making academic writing more practical – is for it to be clear, simple, short and jargon-free; interventions and knowledge in action should be described in detail, focusing on both action and evidence; evidence should be presented in context of how it was used by practitioners in the related study and how it lead to school improvement; the research methods should be summarized and suggestions for finding out more about the research should be offered (Cordingley, 2008, p. 39). Some focus is being given now to the needs of the practitioner audience in writing publications, and to investigating the issues that are most relevant to practitioners.
Another issue discussed by KM researchers is the need for practitioners to believe in the value of research. Levin (2004) and French (2005) bring up the relationship between perceived quality of research and potential for utilization – “Research affects practice only as they [teachers and administrators] become convinced that the ideas or practice suggested will actually improve their work or lives in some way” (Levin, 2004, p. 5). Thus, research needs to make sense to practitioners and be relevant to daily practice. It is suggested that to increase the relevance of research in daily practice that practitioners engage in the research or even aspects of the distribution and use of research within their school system.

Dagenais et al. (2008) highlight the importance of involving teachers in the research process, which promotes research utilization by teachers and their colleagues (p. 3). Involving teachers in the research process requires that the capacity for collaboration is built, and this takes time. The Teacher and Learning Research Program developed in the study by Cordingley (2008) seeks that researchers involve practitioners in identifying research questions, designing research processes and interpreting results: By the end of the program after a span of six years there was evidence of collaboration between researchers and practitioners. Though this may be effective in some cases, it is not a practical approach for increasing research-use across a system by a large number of practitioners because of the time required by the practitioners to engage in research. At another level collaboration between policy-makers and researchers is also needed. Research as Levin (2004) writes, acts on behaviours and beliefs of practitioners through social and political processes, thus the link between research, policy and practice needs to be strengthened.
As another example of engaging practitioners, one Ontario school district that has been active in creating an internal research infrastructure within the board has emphasized engagement and action oriented research activities as the major outcome feature for knowledge mobilization. In a document presenting the history and learning from their initiatives, this school district described the importance of including members who have long engagement and credibility within the school district, as well as key stakeholder groups, in the planning and delivery of all knowledge mobilization strategies. There has been a strong emphasis on knowledge exchange, the value of multiple perspectives, and ongoing co-creation and evolution of knowledge between many participants (Short, Garner, Rizzo & Ungerleider, 2009). In the KM work of this school board they have also found that aligning and integrating research with current activities and initiatives has been an important aspect in helping practitioners engage with the research. Boundaries are made around the work so that teachers and administrators do not become overwhelmed with the amount of information available, research activities are focused on specified areas relevant to the district’s school improvement goals and the research provided is linked to activities currently taking place within the district.

An example of how this school board links research activities to current district priorities is in the set up of their research infrastructure. It is a team of researchers that works directly with the school’s executive council. Every year in designing the Annual Operating Plan and School Improvement plan, members of the research team are included so that district initiatives are aligned to the research projects of the team. Often times the team works with superintendents to collect school data to inform policy development. As an example the district has been focusing on early year’s literacy and
implementing 21st century skills across schools. The research team has been working with the teacher literacy consultants and literacy improvement teachers to investigate computer tools that can help supplement literacy skills in the classroom and that can be practiced at home. In this investigation, the teachers and research team identified a software tool developed by a Canadian University and have now trained teachers to use the tool as supplementary activities in the classroom. In this research process the teacher consultants and literacy teachers explored research materials reporting on use of the tool, as well as appropriate assessment tools that go beyond simply assessing literacy benchmarks to using progress monitoring literacy assessment tools for students. In this case the research team helped the teacher consultants to collaborate with university research teams, and to use research to select software and assessment tools to support early year’s literacy in the school district.

One of the characteristics discussed above that makes research more relevant to practitioners is research that focuses on both action and evidence. Linking research to action requires creating ‘actionable messages’ in research reports and the use of push efforts to disseminate the research, along with support for action based on the messages (Lavis et al., 2006, p. 621). Actionable messages have strong supporting evidence and can be created from reviews of literature or from single studies that have a strong case. Once the actionable message has been identified, Lavis et al. (2006) suggest that the message be tailored to the needs of different user groups for greater take-up. Furthermore, Lavis et al. (2006) identify the key element in linking research to action is the use of research-informed strategies to encourage support action based on the messages, and then evaluating the impact of the strategies.
A practical application for how to share research and link research to action that came out of the Teacher and Learning Research Program (Cordingley, 2008, p. 42) was the creation of evidence-informed reflective activities: Each activity included a question that focuses on a teacher’s tasks, presentation of evidence followed by an experimental reflective activity to support trying out the practice and to encourage further exploration. The presentation of research in this example moved beyond summaries to involving individual teachers in experimenting with the research.

An aspect of practitioner engagement in research includes opportunities to interpret evidence within local teaching and administrative contexts. Actively interpreting evidence so that it could be applied within specific teaching contexts was needed before teachers could accept the research findings (Cordingley, 2008; Nutley et al., 2008). A successful practice was the collective interpretation and analysis of data by teachers and administrators to validate what was being presented. As researchers and school administrators try to provide practitioners with actionable messages from the research, these efforts should also include factors about the local applicability of the actionable message (Lavis et al., 2006, p. 625). In some studies it was found that externally generated evidence was less credible than internally generated evidence, and was more likely to be ignored (Honig & Coburn, 2008, p. 579). Local data such as performance data is used more in school districts by administrators to inform policy, the challenge now is in making large-scale research accessible and relevant.
Capacity, Context and Resources

In the previous sections literature was presented related to KM interventions, facilitators for KM work, organizational structure and the impact on individuals within the organization as well as how research can be made more accessible and relevant. This section builds on the section about formal organizational structures to develop further the influence of individual and organizational capacity, context and resources on research take-up.

Several models for knowledge mobilization are described in Sudsawad’s (2007) work. Features of these models include a focus on increasing quantity, quality and accessibility of knowledge, and the use of research to enhance effective decision making and practice. Another important feature of the models is the ability to enhance the capacity of knowledge users and the organizations (Levin, 2008). The characteristics of the individual that influence research take-up are experience, familiarity with the research process and utilization, and attitudes, beliefs and opinions regarding research; Characteristics of the organization include location of the school and the territory it is within, its academic context and its institutional and professional culture (Dagenais et al., 2008, p. 3). Furthermore, a good predictor of research utilization is the dynamic between cultures of the organization and of the individuals within the organization: “Differences between the culture of research and that of users leads to lack of communication and lack of knowledge utilization, whereas more sustained and intense interaction increase the likelihood of utilization” (Landry, Amara & Lamari, 2001, p. 335). To better understand the dynamics between the individual and organizational culture of research, the characteristics of each found in the literature are explored below.
The discussion of capacity building will begin with individuals. It is important to know the capacity and beliefs of users as this would assist in designing appropriate research activities. Capacity and beliefs include teachers’ and administrators’ tacit knowledge which as Cordingley (2008) writes is operationally challenging because practitioners themselves are unaware of their existing tacit knowledge. Practitioners may underestimate their knowledge and dismiss research findings as commonly held beliefs, or they may also over-estimate how well they’ve been able to implement research findings into their own practice. Existing beliefs and knowledge needs to be articulated so that new ideas can be evaluated and incorporated into conceptual frameworks of practitioners.

In the program of engaging teachers in research discussed by Cordingley (2008) she cites the finding of Marshall and Drummond (2006) that only 20% of the teachers involved in new strategies of assessment for learning and its practices used the methods and approaches designed in accordance with the research findings. For example these teachers were able to discuss the key messages from research but used the tools and new ideas in practice without understanding the rationale or relating the new ideas to their existing beliefs. Thus the new ideas did not change beliefs and knowledge, and teachers couldn’t use the new knowledge to change their students’ learning experiences beyond mechanically using the new tools. The authors conclude in this study that research-based knowledge can only improve teacher practice if the new beliefs change existing knowledge. This observation highlights that research can be used conceptually (i.e. changing beliefs and attitudes) or instrumentally (i.e. changing behaviour). In this case though behaviours were changed, beliefs and knowledge were not, so that extensions of
practice beyond the specific context were not possible. Similarly, Hargreaves (1999) argues the importance of a close relationship between the research used by practitioners to and their routine practices because it could otherwise lead to “distorted or illegitimate applications” (p. 244), if the rationale behind change in practice is not understood. Research use in these examples depends on the previous research capacity of individual practitioners, which includes their prior knowledge and beliefs, though others would argue that behaviour can precede belief; that as we do something new our beliefs change.

The complexity of the dynamics of individual and organizational research capacity and how they influence each other should be understood in order to implement appropriate research activities. An assessment of research capacity would evaluate the individual’s and the organization’s capacities to acquire, assess, adapt and apply research. As discussed before, the organizational environment plays a role in encouraging research use. District culture, norms and models of professional practice all influence research use by individual practitioners; new models of professional practice need to be created and applied to incorporate research use in practice and decision making (Honig & Coburn, 2008).

Research capacity in organizations has been difficult to measure because of the limitation of tools to assess organizational learning and change. Individual capacity is linked to the ‘context of the individual’, their prior knowledge, beliefs and experiences; similarly an organization’s capacity is also linked to its context such as historical context and experience, and social and political forces and policies that shape organizational structures. Organizations that deliver education need to improve their capacity to find,
share, understand and use research in order for research to have some impact (Cooper et al., 2009, p. 169).

Sudsawad (2007) defines ‘context’:

Context can include the physical environment in which practice occurs; characteristics that are conducive to research utilization, such as operational boundaries, decision-making processes, patterns of power and authority, and resources; organizational culture; and evaluation for the purpose of monitoring and feedback.

(p. 10)

One of the KM models presented by Sudsawad (2007) identifies culture, leadership and evaluation as being three key themes under ‘context’. Organizations that have a strong collaborative, learning and research culture, strong leadership and effective evaluation processes would have more successful research utilization.

Different approaches to research use should be implemented depending on an organization’s capacity and context; for example the rational-linear approach discussed above is better suited for an organization that has little experience with research and limited capacity, because research is disseminated to practitioners who implement recommendations. The interactive approach would work better with an organization with greater research capacity because there is more opportunity for practitioners to participate in experimenting with the recommended practices, and adjusting them to specific contexts. Likewise the different models for research may be relevant for different stages of research within a project, for different research questions and findings, and for
different uses (conceptual vs. instrumental). The key finding in study by Landry et al. (2001) is that knowledge or research utilization depends on the users’ contexts more than on the attributes of research products.

In a study of research use by school district central offices, Honig and Coburn (2008) identify social capital within and outside of the organization as an influence on evidence use. Internal social capital consists of relationships between groups within the school district, and high levels of trust between administrators, practitioners and the community: This results in increased evidence use because higher levels of collaboration increases access to research; higher levels of trust would result in practitioners valuing the research materials provided by the administrators; and internal social capital also shapes incorporation of evidence by developing common schemas for interpreting and incorporating evidence in decisions, in participatory processes such as meetings (p. 597). External social capital comes from the connections that are external to the school district; these may include professional associations and providers of research. These connections allow greater access to research and the external organizations can help to link research to local contexts. Though high trust internally may also lead to the exclusion of external influences such as research because internal evidence is seen as more credible, research use facilitators within the district can help to build trusted relationships with external research organizations as will be discussed in the next section.

The final point of discussion in this subsection is about resources. Resources and supports are needed to sustain capacity building for research utilization (Taylor-Powell & Boyd, 2008, p. 40). Resources that assist in research utilization include social support of colleagues and time. Allocating time for research engagement and getting the right
research to the right people at the right time are both important for increasing research
take-up in school districts. Often for teachers the only resources for changing practice
come from professional development. Corcoron, Fuhrman and Belcher (2001) offer an
apt criticism of professional development in school districts in contributing to research
utilization. In this paper one of the main difficulties encountered by the district studied in
creating an evidence-based decision make culture was that the professional development
for teachers was not informed by empirical research. The staffs leading the PD were
themselves not part of an evidence-based culture and there was no evaluation by
administrators of the impact of the PD on practice or student performance, nor did they
have linkages to the research community. The conclusion made by Corcoron et al. (2001)
of PD as a resource in the three districts studied was that it was not based on evidence of
what is effective.

The next section, a discussion of the literature on KM facilitators, addresses how
individual and organizational capacity can be developed, and appropriate resources
provided for effective research take-up.

*Need for a Facilitator*

At the 2008 AERA conference, when asked about the current strategies in KM
that are seen as most successful, Levin and Ungerleider responded that the key to KM
work is to establish ongoing personal relationships that support knowledge and use of
research: specialist mediation and brokerage skills play an important role in these
relationships in mobilizing research, which includes making it more available and
accessible. In addition to specialist mediation by individual facilitators, intermediary
groups such as the media, civil society groups and professional associations can serve as
an interface between researchers and users; facilitators and intermediary groups have important roles in linking research to action (Lavis et al., 2006, p. 620).

In one of the KM models described by Sudsawad (2007), ‘facilitation’ is a key element: “Facilitation is defined as a technique in which one person makes things easier for others” (p. 10). In this model facilitators, who are appointed individuals that may be internal or external to the organization, help individuals and groups to understand how they can apply evidence to practice. The areas in which facilitators can help in promoting research take-up among practitioners are by increasing the credibility of research; making research more available and accessible; creating better linkages to action and practice; facilitating better linkages to researchers.

One of the difficulties in using research is that practitioners often mistrust research: “User organizations do not know what sources to turn to, what sources to trust, or how to identify high quality work” (Levin, 2004, p.10). Corcoron et al. (2001) identify lack of credibility from practitioners about important research as a barrier to using research, this stems from a lack of research on key issues, lack of readily available summaries and even contradictory findings. Honig and Coburn (2008) found that school administrators rejected evidence based on the source of evidence especially if the research sites were not similar to their own. In some studies externally generated evidence was seen as less credible than internally generated evidence. Building credibility around important research can be facilitated if the user organization can work with and through the most ‘credible messenger’ who may also have influence with peers (Lavis et al., 2006; Taylor-Powell, 2008). This individual would be familiar with the local context of the users and trusted for their expertise in identifying valid research.
Availability of research is another major barrier to research use (Honig & Coburn, 2008). The research available can be outdated and not publicly available: Many schools have web portals which are not managed well, and “many researchers and research institutions still have no organized approach to making their work readily available” (Cooper et al., 2009, p. 166). Websites which contain research materials do not connect these materials with the varying needs of different audiences (Cordingley, 2008, p. 42), making research less accessible to practitioners. Just as students need individualized instruction, teachers and administrators need personalized materials that can be connected to their professional context, and as mentioned they may not have the time to delve into research to find what is relevant. In the discussion of characteristics of research, research summaries and reports were most useful to practitioners.

A challenge in disseminating research is getting research in the hands of practitioners in a timely way so that it can be used in decision-making. Often evidence comes in a form that makes it difficult to use for decision-making: There might be too much evidence for practitioners and administrators to understand, or schools might not have technological infrastructure to sort through performance data and make sense of it and incorporate it into decision-making (Honig & Coburn, 2008). The facilitator can mitigate these barriers by finding relevant and good quality research; tailoring research to the needs of the practitioners that they work with directly; creating short summaries that ‘make sense’ of research and that can be more easily used; and creating processes and systems within the organization to properly disseminate research in a timely way to keep up with the decision-making.
Facilitators need to have a multi-level approach with evidence-based strategies to link research to action. One of the facilitator’s responsibilities is to help users learn to make sense of the evidence and apply it themselves as part of their professional learning. In learning how to apply new knowledge to their own contexts, the facilitator would help the practitioner by re-framing and organizing the research in the arena of practice by actively modeling new strategies and ideas (Cordingley, 2008, p. 46).

As research capacity is built within a school, facilitation responsibilities can be distributed among several school leaders for subject specialization. Cordingley (2008) writes about the UK’s professional development being devolved to schools and local leaders, with the purpose that schools would start to take account of research evidence about best practice in their professional learning – thus leaders in schools begin to act as facilitators of researcher-practitioner interaction (p. 42). As research capacity is built, local and subject specialized facilitators would better understand the challenges facing practitioners in the school. Oftentimes evidence may be interpreted in so many ways that applying research to practice can become ambiguous, unfocused and misguided; the expertise of a facilitator of research brings focus in formulating plans for action.

Finally, another major area in which a facilitator of research can assist is in creating better linkages and exchange relationships between researchers and users. These exchange relationships need to:

- Create opportunities for the user to use research beyond the specific study;
- Be based on meaningful partnership;
• Be supported by skill development programs that allow participating researchers and users to develop their capacity to engage in mutually beneficial partnerships. (Lavis et al., 2006, p. 346)

As a summary, four interconnected categories that are important for research utilization are the need for a formal organizational structure that promotes research use; the need to make research more accessible and relevant; the importance of capacity, context and resources; and the need for a research facilitator.

**Conceptual Framework**

The relationships between research, policy and practice are complex. From the literature reviewed research impact and research take-up seems more to be a characteristic of organizations and professionals more than of individuals (Cooper et al., 2009), suggesting that there are things that school districts can do to increase research take-up among school administrators.

In trying to understand what has been done in the area of interventions for increasing research take-up the literature points to a focus on dissemination tools and the creation of research related products for practitioners. These strategies involve changing the behaviour of the research providers to change the format of the presentation of their research in order to make these more accessible to practitioners. These linear strategies alone of providing research findings to practitioners have not been successful in increasing the widespread use of research (Levin, 2008; Nutley et al., 2008). There is a lack of evidence on what makes interventions successful in increasing research use. We also don’t know how to put evidence that is known into useful practices and action for school leaders and practitioners. This research project has been an attempt to understand
better what activities can be carried out in school districts to increase research use in secondary schools.

From the literature we know about some individual characteristics of practitioners that can contribute to more research use but we don’t know much about the organizational factors that influence research use. A few models have been created that describe some organizational approaches, these include the Nutley et al. (2008) embedded research model and the organizational excellence model. These models focus on capacity building within the organization in the areas of communication, program development, developing learning structures, facilitating action and building capacity around data management.

This study starts from the framework developed by Levin (2004) and similar framing by Nutley et al. (2007) suggesting that knowledge and use of research in schools depends on: characteristics of the research, characteristics of the educators and schools and role of third parties as distributors of knowledge.

| Characteristics of the research | • Accessibility  
|                               | • Perceived quality |
| Characteristics of the educators and schools | • Research background  
|                               | • Interest level  
|                               | • Supporting processes and structures |
| Role of third parties as distributors of knowledge | • General and professional media experts  
|                                                       | • Professional development providers |

*Figure 1.* Characteristics that influence Research take-up.
The conceptual framework above ties the various elements of the literature together which have been discussed in the literature review in the themes of formal organizational structure, making research accessible and relevant, capacity, context and resources, and facilitation. The literature shows that like other professionals, educators have limited direct knowledge of current research (Cooper et al., 2009), and the work of Dagenais et al. (2008) shows that use of research among education professionals is irregular (p. 5). For the purposes of this study, 'research' is defined broadly to mean any systematic gathering and use of data or other forms of evidence to address a theoretical, practical, or policy problem (Levin et al., 2009). As the research team engaged in the study of KM strategies in secondary school districts that could potentially increase the use of research by educators, two areas were the focus: The first area was with respect to the organizational structures in school districts to facilitate research use by educators and the second area looked at what strategies are more effective.

The research questions which this study and paper seek to address are:

- How do school districts organize to embed knowledge from external research in their secondary schools?
- What are the impacts of small-scale interventions intended to increase the use of research in secondary schools and districts?
Chapter Three: Research Design and Methodology

In this chapter the research design and methodology are presented, describing briefly the data collection and analysis procedures, and in more detail the design, implementation and monitoring of the interventions.

Research design

The literature review about KM interventions shows us that there isn’t enough research that discusses KM interventions in education, the impact of interventions and the ways in which we can evaluate impact. This has led the OISE KM research team to be interested in the extent to which districts can intervene to increase KM activity with a focus on evaluating the impact of these small-scale KM efforts. In the design of this study we have tried to understand better what KM activities can be carried out in secondary school districts and how these school districts organize themselves to use external research in their work.

The design of the research included three phases which will be discussed in greater detail below. The first stage was to assess education leaders’ knowledge about important issues related to student success and to determine the sources of this knowledge as they relate to research evidence. The second stage of the research design was to implement KM strategies across the districts. The third stage included re-administering the survey to measure if beliefs and practices had changed post-intervention.

Cooper et al. (2009) discuss the problem of research tools and approaches when trying to measure knowledge mobilization, since it is difficult to measure change in thinking and behaviour with a survey or interview when for the most part people are not
aware of the processes themselves (p. 168). These processes, as discussed in the literature review, are largely shaped by contextual and organizational features that are difficult to capture in surveys and interviews that focus on the individual (p. 168). Thus research methods that are suitable for measuring organizational change need further development. This being said, the primary method used in this study was an online survey, which was then supported with interviews from conference calls across districts and communication with individuals in leadership roles from each district. These took place throughout the course of the study and allowed me to understand what was happening in each district, among individual administrators and at a district level.

Discussions with district leaders in the conference calls and individual communication centered on the main research question of the impacts of the small-scale interventions that were designed to increase the use of research in the secondary schools and districts. As school leaders implemented these KM strategies, I observed the ways in which each school district was organizing to incorporate knowledge from external research into their work.

District and Participant Selection

Ten school districts from the CEA’s network, with over 100 secondary schools participated in this research study, along with an additional district which was outside of this network. Nine of these eleven school districts implemented the interventions. The CEA network enabled us to have access to schools that already had an interest in improving district research practice through their involvement in CEA’s WYDYDIST.

To understand the scope of participation of each district, school district profiles were created reporting the size of each school district, which was measured by the
number of secondary schools; the number of secondary school administrators; and the
district research infrastructure based on information on the school district websites.

At the start of the study, school district administrators from the ten school districts
that are part of CEA’s WDYDIST project were contacted. The invitation letter
highlighted how this study would support the work that these districts were doing about
evidence-informed practice and policy. The proposed study was presented to them, and
feedback was requested by email about how the study could complement the WDYDIST
work that many of the school leaders within these districts were working on. In this letter
the names for district liaisons were requested who were able to commit to facilitating the
research activities. The responsibility of these liaisons was to collaborate with the
research team by providing feedback during the research process, administering the
survey within the district and implementing KM strategies within the district. As of early
May 2008, collaboration was set up between the research team and 23 school leaders
across eleven school districts. These leaders ranged in role from district superintendents,
to student success coordinators and instructional support teachers as well as people whose
roles included improving research use in the school district.

School districts volunteered to participate in this collaborative research study.
Each district benefited from participation through receiving data on research use and
practice in their district and in comparison to the other districts and overall study results.
Each district was offered the opportunity to implement research activities designed and
supported by the OISE research team which would help to improve research use in the
school district.
The following table provides an overview of the districts identified by the
intervention they participated in; the research activities as interventions will be discussed
later in this chapter. The number of district educational leaders is included in the table
below with their designated title.

Table 1

*Intervention 1: District Size and Liaisons*

<table>
<thead>
<tr>
<th>District Identifier</th>
<th>Size (number of schools)</th>
<th>District Liaisons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3. Student Success Coordinator</td>
</tr>
</tbody>
</table>
| Website District B  | Small (less than 5)      | 1. Superintendent of Education  
|                     |                          | 2. Assistant Superintendent – Instructional Services  
|                     |                          | 3. Instructional Support Teacher |
| Website District C  | Medium (around 10)       | 1. Superintendent of Education  
|                     |                          | 2. Coordinator of Research and Evaluation |
| Website District D  | Small (less than 5)      | 1. Assistant Superintendent |
| Website District E  | Small (5-10)             | 1. Principal on Assignment |

Table 2

*Intervention 2: District Size and Liaisons*

<table>
<thead>
<tr>
<th>District Identifier</th>
<th>Size (number of schools)</th>
<th>District Liaisons</th>
</tr>
</thead>
</table>
| Study Group District A | Medium (around 10)  | 1. Superintendent of Education  
|                     |                          | 2. Secondary Division Leader  
|                     |                          | 3. Elementary Division Leader |
| Study Group District B | Large (more than 10) | 1. Director of Research, Planning and Systems Management  
|                     |                          | 2. Secondary School Principal |
| Study Group District C | Large (more than 10) | 1. Superintendent of Education  
|                     |                          | 2. Coordinator of initiatives and information |
Table 3

*Intervention 3: District Size and Liaisons*

<table>
<thead>
<tr>
<th>District Identifier</th>
<th>Size (number of schools)</th>
<th>District Liaisons</th>
</tr>
</thead>
</table>
| Data District A     | Small (5-10)             | 1. Superintendent of Education  
|                     |                          | 2. Assistant Superintendent  
|                     |                          | 3. District Vice Principal |
| Data District B     | Small (less than 5)     | 1. Superintendent of Education  
|                     |                          | 2. Consultant with School Improvement Program |
| Data District C     | Large (more than 10)    | 1. Manager of district office of research |

*Data Collection and Procedures*

The initial proposal for funding was submitted by Dr. Ben Levin and Dr. Creso Sá to the CEA in December 2007. The proposal was accepted in March 2008; the ethics protocol was submitted and approved by The University of Toronto’s Office of Research Ethics in May 2008. During the month of April the survey was drafted and the research team completed a literature review that informed the survey.

The study consisted of three phases which were carried out from February 2008 through December 2009. *Phase 1* (February-October, 2008) involved gathering survey data from educational leaders (superintendents, principals and others with designated leadership roles in schools or districts) in the network schools and districts about their knowledge and use of research related to secondary education and developing a better understanding of the factors supporting or impeding this use. *Phase 2* (Sept 2008 – July 2009) involved conducting selected interventions intended to strengthen the use of research; three different interventions were implemented in a total of nine districts. *Phase 3* (September 2009 – December 2009) involved re-administering the original survey in order to measure the
impact of these interventions, including an examination of whether there are higher levels of agreement on the knowledge claims resulting from the interventions. This thesis documents the first phase of this project briefly but focuses on the implementation of interventions in the second phase.

Figure 2. Three phases of the research study.

Most surveys of research use ask respondents for their beliefs and opinions on research issues, but studies have shown an expressed belief in something does not mean that behaviour corresponds with that belief. The survey developed for this project collects data on the actual activities of secondary schools in relation to research, on behaviour rather than perceptions and attitudes since self-reporting about behaviour is likely to be more accurate than self-reports of attitudes.

The survey had two parts. The first part explored district research practices by asking educational leaders about research-related activities that the literature suggests are connected to greater knowledge mobilization. In this section there were eleven questions in total, the first four questions ask respondents about the importance of research in their
district’s practice; whether research resources are posted on their district’s website; their knowledge of an institutional research infrastructure in the district; and their knowledge of the district’s participation in collaborative research activities. The remaining seven questions in this section collect frequencies of individual and district research activity – participation in research focused discussions, events and activities, school practices, the reporting and analysis of various data sources, citing of local data within district and school documents, and time spent involved in research activities. In particular the questions focus on activities that involve creating connections among people, since the evidence indicates that these connections are more powerful in changing what people do than are activities such as simply communicating research findings (Lavis et al., 2006, p. 346).

Part two of the survey assesses what people know about certain claims related to student success; each of these statements was based on significant empirical evidence. This part of the survey is described in detail in the following section. The survey was designed to be a measure of what people know; the impact of implementing the interventions in the district could be assessed in the post-intervention test if knowledge about particular research findings had increased after implementing the interventions.

Ethical review procedures for the University of Toronto and the selected school districts were followed. For the University of Toronto the ethics review proposal was submitted, along with the Survey, and Participant Invitation letter (Appendix A & B). The proposal was approved by the University of Toronto Ethics review board in May 2008. The survey opened with a consent and information letter to which participants needed to agree to before proceeding to the survey. This letter contained contact information for University of Toronto’s Office of Research Ethics. The letter indicated the respondents were free to decline to answer any question or withdraw from the study
at any time; all participants were anonymous on the electronic surveys; and no identifying information would appear in any written report. The data from the surveys was stored electronically and anonymously with the intent of being destroyed upon completion of the study.

After the ethics proposal was approved, the eleven participating school districts were contacted. In the first communication district liaisons were requested from each school district; in the second communication each liaison was asked to review and comment on the research practice survey. The survey was then piloted with 20 secondary school administrators. After receiving feedback from these administrators the survey was revised and in mid-May 2008 the web survey along with the Participant Invitation letter were distributed to all the liaisons in each of the participating eleven school districts who then circulated the survey and letter to their secondary school administrators.

**Survey Design for Knowledge Claims**

The second part of the survey focuses on six knowledge claims related to success factors for students. Knowledge claims are ideas that have strong empirical support from research. The questions in the second part of the survey assessed whether leaders in the districts agreed with these claims, the sources of their knowledge of the claim and the importance of each source. The sources in the survey are drawn from the research, which emphasizes the importance of experience or professional relationships in shaping behaviour in comparison with knowledge of empirical evidence (Levin, 2008).

Knowledge claims related to success factors for students were based on research on the factors (both in and out of school) that may influence outcomes including the impact of student background, course choices, engagement levels, school supports, parent
engagement, etc. with a focus on the most powerful influences and how they operate. Knowledge claims related to student pathways and trajectories were based on research on the short and long-term destinations of students and the pathways to reach those destinations including the proportions of students with different post-school destinations, factors influencing those choices, ability of schools to predict and hence plan effectively for student choices.

Six knowledge claims were presented; some statements were worded consistently with the evidence while others were worded opposite to the evidence to avoid response bias (See Appendix A for survey). Below is a diagram outlining the structure of the second part of the survey:

![Figure 3. Structure of the second part of the survey.](image-url)
Questionnaire Data Analysis

The survey was designed to take approximate ten minutes to complete. The web survey tool used was OISE’s Survey Wizard. The survey was distributed on-line through the district liaisons in May 2008. A participant invitation letter was created that outlined the purpose of the research and the ways in which it would support secondary school improvement. District liaisons were provided both with an electronic copy of the participant invitation letter (Appendix B) and the link to the web survey. Consent to participate in the study was requested and received electronically at the beginning of the web survey. The twenty three district liaisons were asked to distribute the web link and invitation letter by email to their network of secondary school leaders within their district. Strategies that district liaisons used to increase response rates within their districts included reminders sent out by emails and announcements at administrative meetings. Some districts circulated the invitation through specific committees that focused on issues related to student success and student pathways and trajectories. The data was collected on the OISE’s Survey Wizard data base and was then exported to both SPSS and MS Excel for analysis.

Data analysis involved creating frequency tables and bar charts of responses to each question, per district, and overall survey responses. Based on a review of the data a letter was sent to each school district in August 2008 with a summary of initial survey responses as well as suggested interventions for each district. The interventions are described in the next section.
As responses were being analyzed profiles of each participating school district were created. The school district research profiles highlight elements of research culture and the sources of knowledge for each of the knowledge claims, in comparison to overall responses; these were distributed in January 2009 to districts.

**Interventions Design and Procedures**

The second phase of the study involved collaborating with the participating districts to develop concrete steps to increase the value of research in the work of secondary schools. In June 2008 a letter was sent to each district liaison outlining the second phase of the project (Appendix C). Because the district liaisons were in a range of roles from superintendents to student success coordinators and research officers they were in the best position to decide which interventions were best suited to their own districts.

In this letter some activities were suggested that would help increase the value of research in the secondary schools, a request was made to the districts for suggestions of what types of activities they would prefer and what they thought would work. Below are listed the activities derived from the literature which were presented to the district liaisons along with a short discussion summarizing feedback from the liaisons:

*Creating study groups around research issues*

District liaisons felt that this would be a good activity for their school leaders and that this would provide school leaders time to think through research and its implication for student success. Some district liaisons also felt that this would be a good space for developing additional ideas for dissemination of research. Leaders talked about current
initiatives in the form of book clubs and teacher learning communities in which these research study groups could be embedded.

**Developing a system to share research articles**

This activity was fairly positively received as well. Some districts mentioned existing systems such as teacher conference spaces, e-groups and blogs – but most agreed that something more than simply putting up research online was needed to increase use of the materials.

**Using short research summaries as material for staff meetings**

Districts suggested that this would work well in schools that were ready but not for all schools. They said that it would be best to select schools that were ‘research-ready’.

**Developing small grants for teachers or schools to engage in action research**

District liaisons said this intervention would only work if it were accompanied by workshops and coaching on high-quality classroom inquiry. Liaisons noted that capacity for research design, measurement and analysis needed to be built for this to be successful. Some leaders were very keen about the idea as it was something they wanted to build in their districts.

**Annual event/PD days/Conferences**

Generally school leaders did not seem too responsive to this idea and noted that these things tend to be one-off events with limited impact on behaviour. Suggestions were to have these events as a structured action day or a series of days with time to think about and try new strategies each day. The importance of creating opportunities for
networking and conversation was emphasized as well as the importance for speakers to
draw on research.

Research leadership teams

Many school leaders weren’t sure what this would look like and were generally
unsure about whether their school district would have human resources and capacity to
commit to a team that focused on rigorous research activity.

Research issues included in principals’ meeting agenda

Some district liaisons felt that this would work well in their schools but others felt
that research would have a stronger impact within Principal Learning Team meetings.

District liaisons in these initial conversations related thoughts about embedding
research into their school practice in ways consistent with the literature on KM. These
suggestions included linking research with other successful change practices in secondary
schools, demonstrating the impact of research locally, and using teacher leaders to
facilitate research. One district (Data District C) which has been actively involved in KM
work suggested additional activities which included an alignment exercise, a decision-
making exercise and an evidence bank exercise as are described below:

Alignment exercise

This exercise involves taking a look at district or school policies that are relevant
to secondary schools (i.e., attendance/lates, school start time, discipline, supervision
schedule) and determining the degree to which these structures are aligned with research
(e.g., on student engagement). This exercise would help to identify gaps and to begin a
cornerstone about the role of research in our current practices.
Decision-making exercise

This exercise would help to make explicit the frameworks that are drawn upon in making decisions at the system, school, and classroom level. Specifically, this exercise would build “consultation with research literature” into the checklists for consideration on existing and new templates.

Evidence Bank exercise

This exercise entails creating an evidence bank and sending out teaser statements related to secondary education findings regularly to maintain interest.

All of these suggestions were shared by email with the district liaisons. Once district research profiles were created the research team suggested certain interventions to each district; these interventions were suggested based on the responses to the initial survey and feedback from district liaisons, along with the goal of balancing participation in each intervention option by district size. In August 2008 a letter (Appendix D) was sent to each district sharing preliminary results from analysis of the pre-intervention survey. In this letter each district’s proposed intervention was listed along with starting suggestions for implementation beginning September 2008.

The interventions were carried out during the 2008/2009 school year. The three interventions varied in intensity, with the first being the most passive and the third being the most active. The research team was interested in knowing if more intensive interventions would produce a greater impact than more passive ones.
**Intervention 1 System to share research articles:** The first intervention involved the research team providing districts (through a website) with some readily-available sources of good research (including both executive summaries and full reports) on secondary schools and student success that could be distributed and used as each district chose (Appendix E). Nutley et al. (2003) suggest increased dissemination of research related products using online mediums as an intervention mechanism that increases research use and impact. The literature on research use also suggests shorter research summaries have the potential to increase use and impact (Cordingley, 2008; French, 2005; Landry et al., 2001; Nutley et al., 2007).

**Intervention 2 Study groups around research issues:** The second intervention involved creating study groups of district leaders (6 to 10 people in a group) who would meet a few times during the year to discuss important research on secondary school improvement. Districts using this intervention were provided with the relevant materials (including executive summaries and guiding questions to accompany research reports). Sections from the summaries and guiding questions can be found in Appendix F. This intervention arises from literature that suggests creating time and space for practitioners to discuss and collaborate on research increases impact; likewise, adaptation of research products is also suggested throughout the literature (Cordingley, 2008; French, 2005; Honig & Coburn, 2008; Lavis et al., 2006; Nutley et al., 2003; Taylor-Powell & Boyd, 2008).
Intervention 3 Districts conducting research: The third intervention involved districts conducting research to track former students’ post-high school destinations, and to use these data to inform district planning for secondary schools. Districts were provided with a methodology and survey instrument for this intervention, which was carried out by secondary students as part of a course (Appendix G). This intervention arises from the literature that suggests evidence may be more persuasive when stakeholders are involved in a collaborative process to design and conduct research initiatives that reflect the local context (Cordingley, 2008; Denis & Lomas, 2003; Lavis et al., 2006; Nutley et al., 2003). The complete student activity guides can be found on the Research Supporting Practice in Education website:


Teleconference Data Analysis

A second source of data for this paper is information and experiences gathered from conversations with the district liaisons, and more formal teleconferences arranged for all districts to participate in. During the project there were five formal teleconferences with the participating school districts and many informal calls and e-mails with district liaisons. Guiding questions were set for each meeting and distributed to participants prior to the meeting. The data for the study draws upon all interactions with the districts both formal and informal. Five conference calls with district liaisons took place between September 2008 and June 2009. All teleconferences with the districts were recorded and transcribed by the research team. Informal communications such as email messages and individual conversations with district liaisons were catalogued by district and intervention as supporting sources of information.
The teleconference calls and framing questions are described in greater detail because these were structured to gather data from experiences in implementing the interventions. Below the topic and guiding questions for each call are outlined, with the number of participants, and the purpose of the call.

**Intervention 3: Conference call for districts conducting Research - November 3rd, 2008**

The purpose of this conference call was to discuss the initiation of engaging classrooms and schools in collecting data about former students’ post-school destinations. From this call district liaisons in two districts shared their implementation plan and the stage at which students and teachers had been involved in the research project.

Participants included:

- OISE Research team: 5 people (2 primary investigators and 3 research assistants)
- Data District B: 2 people (Superintendent of Education and Consultant for School Improvement Program)
- Data District C: 1 person (Manager of district research office)

**Intervention 3: Conference call for districts conducting Research – January 2nd, 2009**

The purpose of this call was to touch base with district liaisons to share learning from having implemented or initiated this intervention within the district.

Participants included:

- OISE Research team: 3 people (1 primary investigator, 2 research assistants)
- Data District A: 3 people (Assistant Superintendent, District Vice Principal, Administrative Assistant)
• Data District B: 2 people (Superintendent of Education and Consultant for School Improvement Program)
• Data District C: 1 person (Manager of district research office)

Intervention 1: System to share research articles - March 2nd, 2009

The purpose of this call was to share learning from implementing the intervention.

Participants included:
• OISE Research team: 4 people (2 primary investigators, 2 research assistants)
• Website District A: 2 people (Student success coordinator and Superintendent of Education)
• Website District B: 1 person (Instructional Support Teacher)
• Website District C: 1 person (Coordinator of Research and Evaluation)

Intervention 2: Study groups around research issues - March 17th, 2008

The purpose of this call was to share learning from implementing the intervention.

Participants included:
• OISE Research team: 5 people (1 primary investigator, 3 research assistants)
• Study Group District A: 2 people (Superintendent of Education and School Division Leader)
• Study Group District B: 1 person (School Principal)
• Study Group District C: 1 person (Coordinator of initiatives and information)
Conference call for all participating districts - June 29th, 2009

The purpose of this call was share learning across all districts from implementing the three interventions.

Participants included:

- OISE Research team: 3 people (1 primary investigator, 2 research assistants)
- Website District B: 2 people (Instructional Support Teacher and Assistant Superintendent for Instructional Services)
- Study Group District A: 2 people (Superintendent of Education and School Division Leader)
- Study Group District C: 1 person (Coordinator of initiatives and information)
- Data District A: 2 people (Assistant Superintendent and District Vice Principal)
- Data District B: 1 person (Superintendent of Education)
- Data District C: 1 person (Manager of district research office)

Questions framing discussions dealt with experiences in carrying out the intervention, how research knowledge was shared, impacts of the interventions and next steps post intervention. Based on the level of implementation a combination of the questions below were included in the conference calls.

Experiences with the intervention

1. What have been your experiences in carrying out this intervention – facilitators and barriers?

2. How have you used the materials – research reports, discussion materials, data collected?
Dissemination/Action based on research knowledge

1. Have the interventions contributed to the school improvement process?

2. What are the ways you are distributing /disseminating research materials or learning from interventions? How has this research disseminated to the school level?

3. Does anyone know the extent to which there are links being made from the people involved back to their school communities and their practitioners there?

4. How can we leverage in some way or identify and capture the informal teacher networks that already exist and try to use them as a conduit for research?

Research Impact of the Interventions

1. Is there anything that has contributed to more/or less take-up/impact

2. How did your colleagues feel about this as an intervention, did people come away feeling like this was worth doing and that this was time well spent? Any observations about changes in the way people think about research?

3. Have you noticed any resistance to particular kinds of research or research in general?

4. What can be done to make research most useful and productive to districts and schools as you go about the work of improvement?

5. How do we cultivate readiness among administrators, teachers and parents for research use?
Next Steps / Post-Intervention

1. How can we work with all of the various surveys that our schools are participating in, and combine the data so that it is comprehensive?

2. Are there opportunities for school districts to have somebody whose job it is to have a connection to research? – task of being on the lookout for relevant research, bringing it to people’s attention, build that into the key events/conversations.

3. Is there any interest is doing something that’s broader than your own District?

As each district implemented each research activity, intervention experiences and learning were documented and shared with the research team through reports sent by email and periodic conversations scheduled with district liaisons to ask if any support was needed. Some districts were more active than others in seeking out information and support from the research team.

Classroom and KM Team visit Data Analysis

Another source of information came from participation in one school district’s Knowledge Mobilization team meetings. This particular school district was involved in the more active intervention involving schools collecting their own data. This district has a research infrastructure which consists of teachers, social workers, and school leaders who are interested in knowledge mobilization in their school district.

As the research study was collaborative, members from OISE’s research team were also invited to participate in the team meetings in this district, as well as visit the teachers and students in the classrooms that were implementing the interventions. Communications from these meetings were also documented, transcribed and themed
similar to the teleconference transcripts. There were ten KM team meetings during the year and six classroom visits in total.

The purpose of the classroom visits was to work with teachers and students to support their efforts in carrying out this intervention. Initial meetings with each teacher were for the purpose of sharing the method for implementing the intervention for collecting former student data, and student activities that could be integrated into lessons to help students develop the research skills to carry out the intervention. The research team participated in brainstorming sessions with students, made presentations about research ethics and conducted workshops for basic data analysis.

**Limitations of the Study**

Limitations of the study include the survey itself, the participants we were able to enlist, the diversity of the districts we were working with and the many barriers to measuring impact.

**Survey and Implementing the Interventions**

The survey as discussed above was designed to assess research practices in secondary school districts. As was previously discussed, a limitation to survey as a data collection method is that it relies on self-reporting and it is difficult to capture practitioner’s concept of research and the informal discourses that take place in the work place. Another limitation of the survey is that it is more difficult to capture organizational research practices as compared to individual research practices. Other researchers (Amo & Cousins, 2007; Newton & Sackney, 2005) have tried to overcome this limitation by designing surveys that investigate research use, using case studies that uncover individual practice as well as the group’s collective knowledge structures. Another method used to
understand organizational research capacity is through group interviews, which was also used in this study to supplement the survey data.

A difficulty encountered in carrying out the study, was in enlisting the support of practitioners both teachers and administrators in the districts. School administrators and teachers along with their multitude of responsibilities, found it difficult to see the importance of implementing the interventions in their daily practice. Working with secondary school leaders who were already stretched for time, lead to delays in implementing interventions and in non-completion of interventions in some districts.

In this study the eleven participating school districts were very diverse, ranging from size, locations in urban and rural settings, extent of previous district research capacity and the time available to commit to the study. The process of designing the interventions was collaborative allowing for school districts to modify the activity to meet the needs of their individual and unique contexts; however, in carrying out the interventions practically there are many challenges in being able to account for the dynamic and interactive educational environments.

**Measuring Impact**

It is difficult to conceptualize measurement of KM in a quantifiable manner, because measuring knowledge, belief and behaviour is difficult and because KM takes place in rapidly changing systems (Short, 2009). There are two things that are needed to assess impact. The first is to assess change in practice and in behaviour; how results are shared, is research being talked about at staff meetings, and circulated through newsletters for various audiences. The second thing that is the hardest to assess is once research practices are implemented, what is the result of these changed practices, for
example have outcomes for students changed, or has there been school improvement. These of course are beyond the scope of this study but it gives us a sense of the time it takes to have any measurable impact. Lavis et al. (2003) describe that KM measurement tools should examine both whether research is used and how it is used.

Thus the major limitation in this study is the ability to design a tool that can measure individual and organizational research use, measure how it is used and the impact of research use on the system: These measures are difficult to capture and quantify. Amo and Cousins (2007) identify some evidence of change in practice that should be measured:

- Evidence of learning;
- Changes in actions or behaviour;
- Changes in affect or attitude;
- Other impacts e.g. social justice, opportunity, networking.

(p. 20)

Lavis et al. (2003) identify more difficult measures specifically related to how research is used and its impact:

- Best ways of transferring knowledge;
- Facilitators of research knowledge uptake;
- Creation of cultural shifts;
- How (routinely) an organization’s use of research knowledge informs decision-making.

(p. 167)
A KM measure more specific to this study which is also difficult to measure is the extent to which links were made from the school administrators involved back to their school communities and their practitioners. Although this was also outside of the scope for this study, for future studies measuring impact of research on these various knowledge users may require different measures and a different level of measurement.

From the onset of this study it was recognized that time is a major factor in changing practice, and the time required varies according to the dynamics of capacity, resources, and infrastructure in each school district. Thus, the other question is whether we are able to measure any potential impact of the interventions in the time frame allotted for this study, recognizing that change happens incrementally over time.

**Approach to analyzing data**

As discussed, data for this study were drawn from a number of sources including the initial ‘Research Use and Impact Survey’, teleconference calls, communication with individual district liaisons, classroom visits and participation in KM team meetings.

The data analysis began with analyzing the survey responses, which provided some initial insight into the research practices of each school district. The initial steps in analyzing the data were to look at the overall responses to the ‘Research Use and Impact Survey’. Valid responses included those who had responded to more than 85% of the survey questions. Trends were highlighted, and responses to knowledge claims were analyzed as well as sources of that knowledge. Frequency tables for each question on the survey were created. The preliminary report was distributed in August 2008, followed by an interim project report in July 2009.
After looking at overall trends in responses to questions, we looked at each individual district’s responses to the survey. Each district’s individual responses were summarized in a district profile and distributed to districts in January 2009. These data were further supported by the information gleaned from communication with district liaisons. The transcripts from the teleconferences, KM meetings, individual communication and classroom visits were read, and comments were coded and organized thematically mapping the themes that came out of the literature about KM interventions. This analysis had an overarching framework of trying to understand what districts were doing along these four lines of action to embed external research into the practices of educational leaders as well as looking at what people said about the impact of the interventions on increasing research use within the district.
Chapter Four: Findings

This chapter highlights some of the main current research practices as per the survey focusing on the knowledge claims responses. The second part of this chapter discusses the implementation of the interventions – how they worked and why they worked. In trying to understand how schools organize to embed knowledge from external research in their secondary school districts four themes that came out of the literature review help to organize the experiences from implementing the interventions, these are: Formalized organizational structures; Making research accessible and relevant; Capacity, context and resources; and the Need for research facilitators.

Results from Survey I: Research Practice

The initial survey was administered in May 2008. The 188 secondary school leaders responded to the survey; respondents were principals, vice principals and ‘others’ (curriculum consultants, department heads and social workers). Respondents reported a wide range of years of experience in the leadership role. Most respondents have a masters degree or above. They work in districts and schools of varying sizes. As noted in the preliminary analysis of the research practices, the OISE KM team in the project’s interim report (Levin et al., 2009) write,

Overall the respondents were strongly positive about the extent to which research is used in the district. There is more similarity than difference across districts (in research use) – generally the responses were positive and mean scores on items did not differ very much across districts. (p. 14).
Though the majority of secondary school leaders surveyed (85%) agreed that research is evident in the ways it is related to practice within their district, survey results and conference calls with participants showed lower levels of research use. Self-reported amounts of time educational leaders actually spend engaging in research related events, research related reading and research related networking are low. Figure 4, below, taken from the CEA Research Use Interim Report (2009) shows the levels of research use by educational leaders. A significant number (64%) of educational leaders report spending very little time (0-5 hours per month) on research related reading, 47% of respondents spend 2 hours or less per month in research related events and 52% of educational leaders spend between 0-2 hours per month in research related networking.

![Time Spent on Research](image)

**Figure 4.** Time spent on research.
District capacity for research and infrastructure was reported as being small with less than half (45%) of respondents noting that their district had an institutional research infrastructure (i.e. the physical, informational and human resources dedicated to conducting research).

**Results from Survey I: Knowledge Claims**

The second part of the survey asked respondents their views of six statements regarding student success and student pathways and trajectories in secondary schools. Each statement was based on significant empirical evidence. The six knowledge claims were:

- **KC 1**: Students who fail a single course in the first year of secondary school are at a much greater risk of dropping out of school.

- **KC2**: Disconnection and disengagement with the school culture and school community are major contributors to students leaving school.

- **KC3**: Schools with similar student demographics can and do have very different student achievement outcomes; suggesting that some schools are more successful than others at supporting student success (e.g. timely graduation).

- **KC4**: The quality of teaching and learning in the secondary school is one key factor that influences student pursuit of post-secondary education.
• **KC 5**: Secondary school performance and grades predict post-secondary school success with a high degree of accuracy. [Note: this is a reverse phrased claim; the evidence actually indicates that high school grades are only a moderate predictor of post-secondary success.]

• **KC 6**: The majority of students believe that secondary school prepares them well for post-secondary school life. [Also a reverse indicator; the evidence indicates that most students do not feel they have been well prepared.]

For each knowledge claim we asked about:

1. Whether leaders in the districts agreed with these claims; or, in other words, whether their beliefs were consistent with available bodies of evidence.

2. What were the sources of evidence they used (including research reports, professional development events and conferences, colleagues and professional networks, personal experience, and local data).

3. The importance of each source of evidence they referred to.

In what follows, the responses to each of the knowledge claims are charted along with the sources of knowledge of the claim.
KC1: Students who fail a single course in the first year of secondary school are at much greater risk of dropping out of school.

![Pie chart showing level of agreement with KC1]

**Figure 5.** Level of Agreement with KC1.

For this claim there is some disagreement about whether the claim is true. About a quarter of the respondents disagree with the claim. The source of knowledge of the claim shows that a research related resource, ‘Data collected in your school/district’ is ranked more important a source of knowledge than colleagues or professional networks.
KC2: Disconnection and disengagement with the school culture and school community are major contributors to students leaving school.

Figure 7. Level of Agreement with KC2.

Figure 8. Sources of knowledge for KC2.

For this claim there is overall agreement. The sources of knowledge of the claims indicate personal experience and colleagues or professional network have the most influence.
KC3: Schools with similar student demographics can and do have very different student achievement outcomes; suggesting that some schools are more successful than others at supporting student success (e.g. timely graduation).

Figure 9. Level of Agreement with KC3.

Figure 10. Sources of knowledge for KC3.

For this claim there is overall agreement. The sources of knowledge of the claims indicate personal experience and colleagues or professional network have the most influence.
KC4: The quality of teaching and learning in the secondary school is one key factor that influences student pursuit of postsecondary education.

For this claim there is overall agreement. The sources of knowledge of the claims indicate personal experience and colleagues or professional network have the most influence.
KC5: Secondary school performance and grades predict postsecondary school success with a high degree of accuracy.

For this claim there is overall disagreement. The sources of knowledge of the claims continue to show that personal experience and colleagues/professional network are most influential. Respondents reported weaker use of evidence-based sources, such as research reports and data collected in the school, with fewer than 40% rating these as very or extremely important.
KC6: The majority of students believe that secondary school prepares them well for postsecondary school life.

For this claim there is overall disagreement. The source of knowledge of the claims show an evidence-based source, ‘Data collected in your school/district’, is ranked higher than colleagues or professional networks for this claim. Respondents continue though to report weaker use of evidence-based sources, with percentages fewer than 40% rating these as very or extremely important.
For 3 of the knowledge claims, most respondents “agreed” with the weight of empirical evidence around that claim:

- **KC2**: Disconnection and disengagement with the school culture and school community are major contributors to students leaving school. [Knowledge Claim worded consistently with evidence] (94% agree or strongly agree)

- **KC3**: Schools with similar student demographics can and do have very different student achievement outcomes; suggesting that some schools are more successful than others at supporting student success (e.g. timely graduation). [Knowledge Claim worded consistently with evidence] (79% agree or strongly agree)

- **KC4**: The quality of teaching and learning in the secondary school is one key factor that influences student pursuit of post-secondary education. [Knowledge Claim worded consistently with evidence] (87% agree or strongly agree)

On 3 other claims, there was no agreement among our respondents on what is ‘true’:

- **KC1**: Students who fail a single course in the first year of secondary school are at a much greater risk of dropping out of school. [Knowledge Claim worded consistently with evidence] (63% agree or strongly agree but 24% disagree or strongly disagree). Notably, the two Ontario districts, where this issue has been the subject of much attention, reported substantially higher levels of agreement with this claim.
• **KC5**: Secondary school performance and grades predict post-secondary school success with a high degree of accuracy. False. (39% agree or strongly agree but 36% disagree or strongly disagree) [Note: this is a reverse phrased claim; the evidence actually indicates that high school grades are only a moderate predictor of post-secondary success.]

• **KC6**: The majority of students believe that secondary school prepares them well for post-secondary school life. False. (37% agree or strongly agree but 36% disagree or strongly disagree) [Also a reverse indicator; the evidence indicates that most students do not feel they have been well prepared.]

For all of the knowledge claims, respondents report many sources of influence on their views. Figure 17, below shows the sources of knowledge reported on the pre-intervention survey. Numbers represent the frequency of responses for each source across all six knowledge claims: ‘Personal Experience’ is ranked as the most important source of influence followed by colleagues or professional network. Direct contact with formal evidence-based sources and professional development appeared to play a weaker role in shaping opinions across all districts.
Ranking sources of knowledge for all knowledge claims

Respondents reported more use of evidence-based sources, such as research reports and data collected in the school, in relation to the three claims that had the most agreement. Figure 18 below shows on the horizontal axis the knowledge claims ranked from KC2, the claim that had the most agreement by secondary school leaders, to KC6 which had the least amount of agreement. The bars depict the percentage of respondents that use both research reports and data collected by schools combined, as the most important source of knowledge that shaped their opinion. The chart shows that the claims in which there was the most agreement (KC2, KC4 and KC3), respondents reported more use of research reports and data collected in the school.

Figure 17. Ranking sources of knowledge for all knowledge claims.
There is more variance across all claims for use of evidence-based sources such as research reports and data collected within schools; meaning that overall the responses which selected ‘Data Collected’ within schools and ‘Research Reports’ as sources of knowledge, across all of the claims were the most widespread lacking consistency. This suggests that school leaders are not consistent in their use of evidence-based sources across all of the knowledge claims; at times some leaders may feel that evidence-based sources were very/extremely important in shaping beliefs and at the same time other leaders would indicate that these were not at all important. There was less variance in responses for the sources ‘Personal Experience’ and ‘Colleagues’.

*Figure 18. Use of evidence-based sources of knowledge for each knowledge claim.*
Interventions and the Implementation

A main purpose of this study was to examine the extent to which relatively simple interventions could change district research practices. Each district was invited to participate in one of the three interventions designed. We organize and report on the implementation of the interventions in relation to three categories that emerged in this phase of the study.

1. **Organizational structure**: refers to any existing structures that districts had in place that they utilized in order to implement the intervention and to specific roles that individuals in the district played in increasing research use.

2. **Implementing the intervention**: This category reports how much each district used the research materials and implemented the interventions.
3. **Dissemination, action and follow-up**: This category describes how each district disseminated the intervention research materials. We also report on any concrete action that took place as a result of districts participating in the interventions.

The following tables provide an overview of the districts identified by the research activity they participated in; the research activities as interventions will be discussed later in this chapter.

Table 4
*Intervention 1: District Profile and Identifier*

<table>
<thead>
<tr>
<th>District Identifier</th>
<th>Pre-existing organizational structures (date of origin)</th>
<th>Activity surrounding Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website District A</td>
<td>Student success team (2007)</td>
<td>- moderate (accessed materials and reported circulating materials)</td>
</tr>
</tbody>
</table>
| Website District B  | - Committee focusing on factors affecting non-completion (2008)  
                       - Professional growth teams (2000)                      | - high (districts created binders for each member of team; compared district data to national trends; created action mandates from discussions) |
| Website District C  | - Learning leaders in each school which meet periodically to discuss priority issues (2005) | - none (did not access materials) |
| Website District D  | - none reported                                       | - none (did not access materials) |
| Website District E  | - none reported                                       | - none (did not access materials) |
Table 5  
**Intervention 2: District Profile and Identifier**

<table>
<thead>
<tr>
<th>District Identifier</th>
<th>Pre-existing organizational structures (date of origin)</th>
<th>Activity surrounding Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Group District A</td>
<td>- administrator discussion groups around priority issues including secondary and elementary school leaders (2003)</td>
<td>- moderate (met regularly, but really the interaction was around the pre-existing structure, not the intervention or new materials)</td>
</tr>
<tr>
<td>Study Group District B</td>
<td>- no facilitator</td>
<td>- low (only met once)</td>
</tr>
<tr>
<td>Study Group District C</td>
<td>Coordinator for research and information</td>
<td>- high (materials used in district wide PD event)</td>
</tr>
</tbody>
</table>

Table 6  
**Intervention 3: District Profile and Identifier**

<table>
<thead>
<tr>
<th>District Identifier</th>
<th>Pre-existing organizational structures (date of origin)</th>
<th>Activity surrounding Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data District A</td>
<td>-none, project carried out by VP in central office</td>
<td>- moderate (modified survey, did not deploy survey)</td>
</tr>
<tr>
<td>Data District B</td>
<td>-none, project carried out by district SO</td>
<td>- moderate (used student council to administer survey as student voice project, low response rate, no analysis conducted)</td>
</tr>
<tr>
<td>Data District C</td>
<td>-formalized research infrastructure facilitating project</td>
<td>- high (Carried out by Grade 12 students in 3 schools as part of a school course; survey adapted and administered; high response rate; multiple products created from data analysis)</td>
</tr>
</tbody>
</table>
**Intervention 1: System to share research articles**

In this intervention, the research team set up a website with research resources to be used at the discretion of each district.

The three active districts in this intervention included one small and two medium-sized school districts. Each district had some existing organizational structure in place which permitted practitioners to discuss student success and professional development. These student success teams were formalized in two districts in 2007 and the other in 2008.

Five school districts were initially assigned this intervention, of which three participated and carried out the intervention to some extent reporting on experiences. The two school districts (Website districts D & E) that did not attempt to implement the interventions also had low response to the initial survey. Two of the three participating school districts (Website districts A & C) did not make use of the resources provided by the project website. This is consistent with the literature that suggests more passive strategies for dissemination have less impact (Nutley et al., 2008).

Website district A, simply selected two reports focusing on student success, specifically the risk and protective factors that influence early school leavers. They framed the reports with guiding questions to look at the real application of the research: They found that there was a more positive response to the research in this format.

Website district C, though they incorporated the concept of research in the work that they are doing with collegiate renewal by using an inquiry approach allowing teachers to find research that they were interested in, they haven’t specifically used the resources on the website.
Website district B, however, not only made extensive use of the materials but also contacted the research team asking for more! This district used the organizational structure in place, a committee that looked specifically at improving graduation rates, that the district utilized as a conduit to distribute and discuss the research. Facilitators from this committee created a binder for each member which included all of the materials from the website. In meetings they began by using the executive summaries. They then asked members to focus on two articles and to share the interesting facts in depth with the rest of the committee. A third step in the use of the materials was to compare district data to match trends that were exposed in the national picture presented in the research reports.

Among the three districts that attempted this intervention, dissemination of research took place through the school leaders who are members of the committees or student success teams. Website district B, which was most active in using research resources from the website, formed subcommittees with action mandates which came out of these discussions. There was greater alignment of different committees around related issues; for example the literacy team worked more closely with the team dealing with transitions to secondary school allowing both teams to look at the role of literacy in student success in the first year of secondary school. This district has found that the intervention has given them the context or lens through which they can look at their own data more effectively. In some cases, it has reaffirmed what they already believed and, in other cases, it has identified gaps in the data that they are collecting which gives them a reason to delve into the district data further.

The participating districts plan to follow-up by incorporating research into PD; identifying leaders within the school district that can help facilitate the use of research in
departments; as well as experimenting with using Web 2.0 and Web based technologies to co-edit documents, comment on research materials, and share learning.

**Intervention 2: Study groups around research issues**

In this intervention, the OISE team provided districts with research related materials for three study group sessions. Materials included executive summaries, the full report as well as guiding discussion questions. OISE was not involved in organizing these groups or coordinating the meetings; districts decided the best way to proceed with these tasks.

Three districts, one medium and two larger-sized districts implemented the study groups. Study Group district A, has had study groups in place since 2003 which were initially led by the former superintendent, but today are organized by the division leaders and have rotating facilitators. These groups involve both secondary and elementary school leaders. Study Group district B consisted of five school principals who initiated the group themselves; in this district there wasn’t a facilitator for the group. Study group district C employed the ‘Coordinator for research and information’ at the district level to recruit nine principals and to facilitate the sessions.

The three districts involved with this intervention created study groups or used their existing study group to meet throughout the year to discuss research related to student success and student pathways and trajectories. Responses from educational leaders participating in this intervention were positive. Study group district A, struggled though in keeping the discussions related only to secondary school students since their existing groups consisted of elementary and secondary leaders, and they didn’t use the study materials provided. Study Group district B had difficulties in meeting regularly
because they did not have an individual facilitating the groups. Study Group district C was the most successful in implementing this intervention, which can be attributed to focused groups, and having a facilitator who organized the group and ensured engagement with the materials by the principals.

In communications with the study group facilitators and some participants after the intervention phase, these districts shared their plans for introducing research into their school’s collaborative/planning team meetings and administrative meetings. Principals are trying to increase informal conversations with their staff around these topics. District leaders from the three districts that were introduced to each other through the research team’s telephone conferences have been communicating with each other through email sharing models for school improvement. In Study Group district C a concrete action that materialized was the group’s presentation of research related to secondary school student success at a PD session for the Association of Secondary School Administrators which consists of 55 members in the school district. This study group also invited a speaker from an organization that researches and evaluates programs that support students to go on to PSE, broadening their network with external organizations.

**Intervention 3: Districts Conducting Research**

The research team provided districts with a post-school destination survey for students to administer with previous students from a particular cohort. This included setting up the survey online and sending the districts the data files after they had administered the survey. The research team also provided each district with an instructional package outlining how to conduct data analysis. The research team was not involved in co-coordinating and planning different avenues to present the findings of the
post-school destination surveys to leaders; participants decided the best way to share their findings with district leaders.

Two small (Data districts A & B) and one large school district (Data district C) attempted to implement this intervention. In Data district A and B, the project was carried out through central office by the district vice principal or superintendent. Data district C was the only school district participating in the study that had a formal research infrastructure in the form of a district research team. This team facilitated the project. All three districts had experience in conducting similar surveys in the past of graduates through the central offices.

Each district required different resources and support from the research team throughout this intervention. One district used only the initial support, and another modified the survey instrument somewhat. Though the district leaders made efforts to combine the ‘Post School Destinations’ surveys with other surveys being administered in the district, they lacked the time and the districts lacked the capacity to work with teachers and students to collect and analyze the data. The intervention in these two districts (Data districts A & B) did not move beyond creating and uploading the survey.

The third district had substantial ongoing support to implement this project and also seemed to have the most success with the intervention. Data district C was able to carry out the intervention to completion, involving three secondary schools and Gr. 12 Data Management students. The intervention was carried out as part of the math course. Graduate respondents were recruited through posters, postings on websites, Facebook and personal pages, personal emails and by word of mouth. At the end of the term, student presented their findings to their school vice principal, math teacher and representatives
from the district research team. This based on the observation of the district research
team representative, was a powerful learning experience for the students. In this district
there were a total of 242 students and former students who responded to the surveys.

The follow-up and actions that came out of this intervention took place only in
Data district C. The district research team in Data district C and district leaders in the
other two participating districts identified the need to align the various surveys that are
being carried out in their districts. They shared that teachers and administrators feel that
there are too many surveys and they don’t know how to use the data. As a follow-up
throughout the summer months one student, in Data district C, participated in an
internship in which she worked with three surveys that were conducted in her school that
year around student engagement and how schools prepare students for post-school life.
She created a report and video which shared and compared results from the three surveys
demonstrating that the various initiatives can be aligned and the data can be used to
provide a more comprehensive view of student experiences. Further action involved
sharing these reports and video with school leaders through the principal’s online
network and student success leaders within the district. Future action suggested by the
district research team was to connect the work in this intervention with the work of other
committees in the district.

Effects of the Interventions

Although it is difficult to assess impact, these interventions appear to have had
small effects. Only three of the nine districts were able to carry out the intervention to
completion.
In trying to understand the impacts of the small-scale interventions, three factors were identified that contributed to the effectiveness of the intervention. These three factors were found in common in the districts that carried out the interventions: alignment with current district initiatives; having someone whose designated role was related to research use; and using research within pre-existing committees that focused on issues related to the research themes selected for this study. These factors are discussed more thoroughly below within the context of the themes that arose from the literature review on KM.

**Formalized Organizational Structure**

The school districts that utilized formalized organizational structures within their district were better able to carry out the interventions through to completion. Website district B was able to have widespread use of the research related resources provided by the OISE team because they utilized their formal committee that was organized to look at graduation rates in their school district to share research; Study Group district C was successful in reaching out to a large number of school administrators and building external links with researchers because of the time that was set aside in the district for the formalized study groups and research related PD day; Data district C was able to secure participation of teachers and principals because of the processes that were already in place through their existing research infrastructure within the school board.

Through implementation of the KM strategies we have seen that some districts were able to incorporate research use into formal structures and processes through formalizing study groups and through pre-existing committees and teams that are looking at ways to improve student success. School leaders noted the importance of assigning
readings for meetings as a way of creating a formal space for teachers to engage in research related reading.

KEY QUOTATION:

- “One of the ways to encourage research use is to have an assigned reading done prior to a meeting. That seems to be the most effective way of getting our administrators to read the articles. You’ll always have the people who are keen, who are going to go to the website and read research regardless of whether they’re coming to the meeting but, on the flip side, you’ll also have the people who wouldn’t read it unless there was a structure put in place that made that happen.” (Superintendent)

One of the unique features in Data district C is that they had a research infrastructure in place consisting of staff dedicated to research and a learning team of people from the school community which was created to help build research capacity in the school district. As this is one of the districts that spent the most time in carrying out the intervention, it deserves some attention in highlighting some of the functions of research infrastructure in place. In a conference call with the manager of this research department, the development of the team and its work was described.

KEY QUOTATION:

- “We had the idea that we might actually be able to do some KM work and contribute to the field in school districts. So very deliberately we pulled together people from the board, early adopters is I guess what you might call them, people that we knew that were already on the path and easy to engage in KM work, but from a lot of different levels so we have superintendents, and teachers, and then pairing that with people who are doing some work with a research perspective and brought those people together. We try to help the school district community to use research to inform practice, to do research and to share research.” (Manager of District research department)

The learning team meets once a month after school hours. The learning team provides a forum for investigating knowledge mobilization strategies, and research take-up in schools. Staff in the research department coordinate and facilitate interventions
within the school district (both internal and external research); they engage in consultation with practitioners who come in and ask about research to practice connections, or staff development; and the department is also involved in district communications where they look at how to share external research and what is being learned through local research in the district.

Formal organizational structures, such as formalizing study groups, committees, and research departments discussed above were helpful in facilitating the interventions. In all cases when research was embedded into the work of these structures there was greater take-up of the intervention and more support given to it by school leaders and the school community.

Research is part of a learning process both for individuals and organizations; it requires less change and effort to integrate research into existing organizational processes – it is how it gets integrated into these processes that determines what difference research will make. In the examples of the school districts involved in this study, research was integrated into committee meetings, learning team meetings, and PD days: Where research is integrated into organizational processes it becomes easier to incorporate it into every day practice.

**Making Research Accessible and Relevant**

Both the literature related to knowledge mobilization and the experience of implementing the interventions in the school districts, show that the nature and format of research material affects use. Other aspects related to accessibility include research that is provocative and engaging; linking research to practice; using research that is relevant to the schools’ context and aligning research throughout the school district.
**Making research accessible and readable**

In the resource website and study group interventions educational leaders were provided with research articles. School leaders that implemented these interventions talked about the importance of making the articles more readable; by using executive summaries to organize the information that is relevant the materials were more likely to be used. Another school leader talked about making the research user friendly and accessible through web-based strategies and tools. Some schools districts involved had central web portals available to share research within the district, however on the whole these were underutilized this is also consistent with the literature that says that passive KM strategies do not work well. In one school district where a central web portal does work, people register to link to the portal and a few site administrators are responsible for sending material to the registered users.

**KEY QUOTATIONS:**

- “To increase use, you should make research user friendly and consider web-based strategies and tools.” (Superintendent)

- “Executive summaries work really well with our group. It gives us an opportunity to talk about the big picture but then interested people can go deeper with it, so that helped with the reading more than when the report has been long. It allows people a way in. When we unroll research more with teachers in classrooms, we’ll be looking for relevant snippets, more pieces and then giving people the website where they can continue to read and research.” (Instructional Support Teacher)

- “The executive summaries are great because it can give an overall snapshot of what the research is about. It provides a simplified way of organizing that information.” (Assistant Superintendent)

What was reinforced through the interventions is that accessibility and readability of research is important to educational leaders and makes it easier for school leaders to use the materials as well as share them.
**Using research that is provocative and engaging**

Another element that increases the use of research is if the research is provocative and engaging. School leaders who participated in the study groups noted the importance of choosing pieces that help stimulate deeper thinking and discussion, as well as create a sense of urgency to use the knowledge base presented because it can have an impact on student achievement.

**KEY QUOTATIONS:**

- “From our experience that provocative piece is important for our discussion about research; you do want to have disagreement or academic dissonance to help the discussion move along.” (Coordinator of Initiatives and information)

- “The big part for us as an administrator is to create a sense of urgency, then you demonstrate that through some of the data and what are the issues here, once people see the urgency there is more willingness to look at something else.” (Principal)

**Linking to practice**

The literature repeatedly points to the importance of research users seeing the connection between research and their own work. Educational leaders in the study groups echoed the same point, and spoke about how they linked the research resources that were provided by the OISE research team in the interventions to specific plans for action.

For the study group intervention questions for districts to consider were included with the executive summaries. Educational leaders told us that the executive summaries and the guided questions acted as a reflective lens allowing them to consider their own district in relation to the broader provincial and national picture.
KEY QUOTATIONS:

• “I’ll speak to the early school leaver’s research. Once we were able to move to a real application of the research, that’s when we noticed some positive response to the research and, as a result, we’ve continued to use the protective factors in our work with transitions to Gr. 9.” (Coordinator)

• “We have a committee in our district looking specifically at non-completion. We have representatives from elementary, middle and secondary on our teams as well. We created a binder for each participant on the team. In most cases, we just used the executive summary to start. Then we tried to find whether we had district data to match the trends that were exposed in the national picture. Out of this committee, we are now looking at action. We keyed in on the link between attendance and students dropping out of school. Now we have a subcommittee looking at attendance and tracking right back into elementary. We’ve also done work with our reading assessment from K to 9, looking at the links between literacy and non-completion and also looking at transitions between middle and high school with actions.” (Lead Teacher)

In conference calls with some of the educational leaders there was a sense that research initiatives were being forced upon them from the district level. One district leader said frankly that “schools aren’t taking this on willingly.” This brings up the point of valuing research: When participants were able to see the value of research in their day to day practice there was more take-up, support for and participation in the interventions. As one school leader put it, research needs to be ‘timely’, it has to fit into what schools and districts are dealing with immediately.

Alignment

One frustration voiced in the conference calls is the feeling that schools are being ‘surveyed to death’. One way to make all of these surveys and data relevant is when there is alignment among the many initiatives taking place in the district or at a provincial level. As noted earlier in this paper, one district found it useful to align data gathered from different surveys and to create a single report from the many surveys.
This same district is creating more receptivity for data work through creating a district calendar for survey administration in the schools – this calendar is distributed to the school community so that everyone is aware of what tools are being used and when they or their students will be asked to participate in surveys throughout the year. Sharing the bigger picture of how all of the research initiatives are linked helps people to make sense of what’s happening so that these research practices do not become overwhelming.

**KEY QUOTATIONS:**

- “We have a Ministry Satisfaction survey in our province, so we put our grad survey this year into the Ministry Satisfaction survey. We just have over surveying going on in our district… A lot of teachers are not seeing the purpose of so many surveys and are asking what are we doing, what is done with the results that we are getting.” (District Vice Principal)

- “I definitely see a need to relate the district’s research use agenda to the ‘data day’ work in schools.” (Coordinator of Initiatives and information)

- “This work becomes relevant when there is alignment. These research activities are really an extension of our current initiatives; we have aligned them with the high school review initiative… As we start to get data out of WDYDIST we can use this through the same sort of channels, student groups, and discussion groups to think about what we’re doing.” (Superintendent)

**Capacity, Context and Resources**

The usual barriers to KM, the need for structured time and resources, were also mentioned in conference calls with education leaders. Beyond resources and time, the importance of building research capacity to take-up research activities was brought up.

Structured time and monetary resources are discussed vastly in the literature. More than monetary resources participants spoke about the need for human and organizational resources (Short, 2009), not having people to plan and coordinate the
interventions, and the difficulties posed by not having sufficient meeting time among colleagues.

Levin (2008) writes that an important feature of improving district research practices is the ability to enhance the capacity of knowledge users and the organizations. As discussed above, there are individual and organizational characteristics that influence research take-up. The complexity of the dynamics of individual and organizational research capacity and how they influence each other should be understood in order to implement appropriate research activities.

Several people remarked during the conference calls about the need for having both a readiness and capacity for research in the district; readiness for research needs to be cultivated before hand to get full support to engage in research activities and capacity needs to be built with time and incrementally. Starting small with relevant topics and showing people how research can help is essential. In addition to building organizational capacity to collect data, and use research, the capacity for educational leaders to identify good sources of research is necessary. And a final note about considering context in the implementation of interventions – knowing the readiness for research, research capacity, current research practices and needs of the school board is critical to developing research activities that will help to further build on existing capacities.

KEY QUOTATIONS:

• “To my point earlier… I mean you couldn’t start at having a research infrastructure immediately. We’ve been able to get to a place now where we can have the depth of taking it to that level. You can get there, it just takes time.” (Manager)

• “In our district we used an inquiry approach, allowing teachers to search for research materials that were of interest to them. Admittedly, some materials used were not good sources of research.” (Coordinator of Research and Evaluation)
KEY QUOTATIONS:

• “We did do a graduate survey last year through a mail out, and only got a 10% response rate. We did a better job this year because we collected the email addresses when they were in grade 12, and were able to connect with graduate students more easily.” (District Vice Principal)

• “Among teachers there is a fuzziness about what research really is and what it does and finding the right research which is one of the things we tried to do with the study group. Research is so far on the edge of people’s everyday lives that thinking, gathering research and being aware of it just doesn’t fit into their day. And that’s a big thing is just introducing it and creating that space for research use.” (Coordinator of initiatives and information)

**Need for a Facilitator**

The CEA interim report (Levin et al., 2009) for this study reports on the need for having a facilitator in school districts for KM. The facilitator role is needed for coordinating and setting up meetings, picking research materials and preparing executive summaries and guiding questions as well as facilitating the research discussions to keep it focused and make it more meaningful. Other important roles that a facilitator could engage in include creating linkages with external research organizations such as universities as well as with teachers’ federations to encourage their support of research. Facilitators help align research with current priority initiatives; they can help infuse research into existing PD; and help to foster grassroots interest and support of research.

In the districts which were able to carry out the interventions successfully there was at least one person whose formalized role was to increase research use in the district. These views as reported in the interim report (Levin et al., 2009) are consistent with the KM literature on intermediaries an area which the OISE KM team is now exploring.
KEY QUOTATIONS:

• “We are looking at ways of supporting teachers to access and utilize research….hence….the need for a facilitator, and I think for many of us, that’s still where we are at. Increasing research use still requires that. For the most part, the majority of teachers will not seek research out on their own, unless there is someone there that prompts them to do so or facilitates it.” (Coordinator, Website District A)

• “I think one of our struggles is that we don’t have a formal facilitator.” (Secondary School Principal, Study Group District B)

• “It is important to have a facilitator who will bring skills to keep people in the discussion.” (Elementary Division Leader, Study Group District A)

• “My view is that you first make people understand why you do it, why you have research. That’s the thrust of what my role has been – I’ve tried to talk about evidence as a rationale for doing something.” (Coordinator of initiatives and information, Study Group District C)

• “I do think there is a huge role for us as knowledge brokers, of moving things along that also it helps if we know our local context so we’re able to take from the material and align it with things we are already doing in our districts, it is pretty important to have someone in-house to do that work.” (Manager, Data District C)

Reflections Post-intervention

In the project-end conference call all districts were invited to participate to share their learning with each other. Though the immediate effects of the interventions were small, participants shared their thinking about research use and reflections for what their districts can do long-term. This section highlights some of these reflections.

In one district that implemented the study group intervention, leaders spoke about together making research a priority with the support of the association of school administrators for their region.
“After our very first session because of the participation of secondary administrators, they decided to make research a focus over the next couple of years, that had a very immediate impact and the incoming president [of the principal and vice-principal’s association] has agreed to this.” (Coordinator of initiatives and information)

District leaders from this same school district that carried out study groups, and participated in research presentations to school leaders at a PD activity noted that individuals were making many efforts in terms of incorporating research into their practice, but there needs to be a way to bring these together within the organization as a whole so that collective learning can occur from these practices.

“The topic came up of how do we gather that kind of existing and disparate practice [research practice] together and that was one of the main topics of conversation that went into the general discussion part of the PD day and people described some of the things they were doing... I'm wondering about sharing these on a website or during some organized event.” (Coordinator for initiatives and information)

All leaders in the project-end conference call agreed that it was important to make efforts to include research into the agendas of leadership and administrative meetings with the purpose of building capacity to have research influence decision making.

“My intention is to share that [research impact survey results] at our next leadership team meeting and talk about it as a group, and see how people respond, what this actually means, how can we do a better job of having research influence our decision making and thinking. I think it will generate some good discussion.” (Superintendent)

“One of the areas that we can get this engagement discussion around these research topics is to create the venues for it, non-administrative topics on the agenda which is related to research and strategies.” (Superintendent)
The district leaders involved in the study remarked that many school districts are now asking school leaders to use evidence in designing programs and policy development. This is being used as a way to encourage evidence-based practice among school leaders.

**KEY QUOTATION:**

- “The board also on a regular basis is asking us for evidence, we are making sure that for a particular thing we want to do is grounded in research of some kind so we are continually being asked for that by the board. Slowly but surely research is being incorporated into what it is we are trying to do in various schools.” (Coordinator of Research and Evaluation)

Leaders from the districts during the project-end call concluded that they will continue looking for ways to infuse research into the current initiatives and organizational processes of their school districts.

**KEY QUOTATION:**

- “Alignment is a huge piece it's trying to find out what the current priority initiatives are tacking research to those, whether that has to do with PLCs, that's a great avenue for infusing research that's what collaborative inquiry is all about. Or if it's what the Ministry mandate is coming through and making sure that people are paying attention to the literature in terms of choosing some of the strategies that's really important.” (Manager)

The key messages from the post-intervention reflection emphasize the importance of administrator support for research activities and making research a district priority; synthesizing and showcasing research activities by individuals and small groups in the district so that it can influence organizational research practices; building capacity to use evidence-based practices in decision making and across all activities right into the classroom; and infusing research into the current initiatives and organizational process of the school district.
Chapter Five: Discussion and Conclusion

This chapter returns to the major research questions for this study, and comments on which interventions worked effectively and why.

Effort and Research Impact

In the above discussion observations and experiences from implementing KM strategies in nine school districts were reported. What emerged from the literature review about KM were four major themes which were further supported by the discussions with school district leaders. In returning to the questions presented at the beginning of this thesis, I have learned that there are many ways in which districts can organize to embed knowledge from external research in their secondary schools. Depending on the KM strategy implemented and the capacity and resources existing in the school board, more or less effort is required. In thinking about the practical implications for school leaders when designing KM strategies to embed knowledge from external research here are some things that should be considered:

1. Research use is stronger when it is incorporated into existing organizational processes within the school board. These can be through central web portals or registered e-groups that are monitored; through formalizing study groups or through existing committees that focus on particular issues for which there is supporting evidence to help shape practice, or in which there are ways for the committee to collect data to help inform practice.
2. In designing the KM strategies the human resources available to support the activity and existing research capacity must be considered so that the activity doesn’t become overwhelming or burdensome on top of the day-to-day duties of education leaders and teachers.

3. When sharing research, the format should be easily readable (i.e. use plain language research summaries), and the content should be relevant and engaging. Users should be able to see the value in using the research knowledge in their daily practice. Some ways in which research can be made more accessible and relevant is if it is presented in ways that link the knowledge to practice. Research activities and initiatives make more sense to practitioners when the many initiatives are aligned together and aligned to district priorities.

4. Finally research facilitators are imperative to this work. Having someone within the school district who is dedicated to coordinating research initiatives, building external networks and building research capacity among research users will result in greater support and take-up of the research activities.

It is difficult to say which of our three interventions worked most effectively to improve the use of research in and for secondary schools because it was difficult to measure impact and dissemination of research knowledge in the short period in which this study was carried out. In each intervention there were some districts that were successful in terms of carrying out the intervention to completion and involving the most members from the school community (leaders, teachers and students). The most
successful districts were those which, we observed through the conference calls and individual communications as the interventions were being implemented, had a high level of engagement.

An important aspect in the discussion of the effectiveness of interventions is the amount of effort and resources required to implement an intervention. In a study of implementing interventions with nurses, French (2005) evaluates impact in terms of effectiveness and practicality of the activity. The following are some suggested questions to consider in measuring impact of interventions (French, 2005, p. 239):

1. Effectiveness: Did an intervention do what it was intended to do?

2. Practicality: What were the practical consequences of implementing the intervention in terms of degree of functionality?

3. Effort: Level of ease or difficulty with which an intervention can be implemented.

As mentioned it is difficult to measure impact of these small-scale interventions because KM work is a long term commitment to building capacity incrementally. However it is important to discuss the effort and practicality of the interventions. The first intervention, the system to share website resources, was fairly simple and required little effort by the research team or by people in the district. It was designed to be a passive intervention in which districts were simply asked to share the website throughout the district. Passive interventions have little impact in research take-up according to the
literature reviewed for this study; a conclusion confirmed here with only one out of the five districts assigned to this intervention using the materials. However, the one district that did use all of the website resources, and requested additional resources did so by using the resources within the organizational structure of a committee that focused on improving graduate rates. Though this intervention required little effort to create or use, one district was able use the materials effectively in their work.

The second intervention of study groups for education leaders, was a moderate intervention in terms of the effort and resources required to create the study materials and discussion questions, and for school leaders to meet together periodically throughout the year. Only one district was able to carry through this intervention effectively by completing all the discussion groups. The learning from these discussion groups had reached the network of principals and vice principals in the region through a PD day. From the conference calls this district reported that it was relatively simple to organize the meetings once there was a committed group of leaders.

The third intervention of districts collecting data was more intense and required a large amount of effort on the part of both the research team and the district administrators. Most districts did not have the human resources and time to support this research activity, and they weren’t able to get sufficient buy in from the school community to carry the activity through. In the one district that was able to do this successfully they already had staff dedicated to research that supported teachers and students to accomplish the project; also there were already processes in place that allowed teachers to engage in this inquiry work. Interestingly, though the intervention was more intensive, it did not appear to have more impact than the other interventions in
terms of the number of school administrators that were engaged in this work or reported changes in research knowledge and practices.

These observations suggest that there is still much to learn about what KM strategies are most likely to result in greater research take-up in schools. The success of interventions was different across the various practice contexts of varying capacity and resources available for KM. The experience from this project is that the majority of districts were not able to implement the interventions either from lack of capacity or lack of interest across the district community. However, in districts that were successful in carrying out the interventions, the interventions were most effective where they were aligned with current district initiatives; when there was someone whose designated role was related to research use; and when research was used in pre-existing committees that focused on issues related to the research themes selected for this study.

**Practical Implications and suggestions for further research**

Practical implications from this study involve the development of the roles of researchers and school districts in supporting stronger research-practice-policy links. Researchers can help improve the take-up of research by making their work available in forms that practitioners are more likely to read and use. Furthermore as researchers begin to study a particular area it would be useful to engage practitioners as partners in the formulation of research problems; in this way researchers can address through their research the needs of the educator, making the work more interesting and useful to educators.

Building ongoing relationships between researchers and educators will create better grounds for use and engagement in research by educators. These collaborations
help develop professional learning communities and help to develop trusting relationships. Partnerships also open up new opportunities for educators to take on different leadership roles.

An important feature to develop within the school district is a culture of inquiry, in which school administrators and educators themselves are deciding the issues that are important for them and for which they require research. As this culture of inquiry is strengthened, school administrators and educators would be able to choose the partnerships with researchers who are doing work in the areas that are important and relevant to the needs of the school district.

Suggestions for further research are around aligning the research study with current priorities in the school district as well as around measurement of research impact. In retrospect we could have aligned this study with the data schools were already collecting from WDYDIST through the CEA network. Interventions could have been designed and implemented to help make use of WDYDIST data: For example, the study groups and knowledge claims in the survey could have been related to the theme of engagement and themes arising from the WDYDIST data.

A second area for further research would be to go beyond research use by administrators to research use by teachers. There are many teacher networks that already exist in school districts which could be leveraged as conduits for research.

A final suggestion for further research development relates to the measurement of research impact. In this study participants were school leaders which included principals and vice-principals, curriculum developers, department leads, student success leads, and research coordinators. The study could be enhanced by creating a measurement tool for
different audiences to capture the experiences of those who are using research to make decisions and those who are using research to help change immediate practice.

We know from this work that research use depends on the characteristics of individuals, as well as organizational features and practices, so another area of development in the measurement of research use should be to capture organizational features and practices. Some examples in which this could be done is to measure cultural shifts that facilitate use of research knowledge – are educators in the school district asking for research in specific areas? Are there discussions around research knowledge at administrative meetings? And are teacher and principal learning communities using research knowledge in their discussions?

Conclusion

The field of education is only at the early stages of learning about knowledge mobilization and what works as KM strategies in school systems: Though a lot has been learned in this research study, there is much more that needs to be done. Areas to explore further include finding ways to measure impact and to track ways in which knowledge is disseminated through informal networks of school leaders and teachers.

KM strategies need to incorporate multiple approaches and include many dimensions. School leaders in this study identified many sources of knowledge that shape their beliefs the most important being personal experience, which is a consistent finding in the literature. Honig and Coburn (2008) write that school administrators use multiple forms of evidence to ground a decision, “they [superintendents] tend to use a broader range of evidence than that currently promoted in federal policy, including information generated by practitioners through their experience” (p. 586). When designing KM
strategies we should take into account these multiple sources of evidence. Teacher and school administrator inquiry should be encouraged to test knowledge gained from personal experience against evidence – this knowledge can then be shared with other practitioners. Building this kind of capacity though requires much more than a single line of action of disseminating reports or collecting school data; Cooper et al. (2009) write “building KM capacity to apply research involves fostering sustained interaction and collaboration” (p. 166).

Participants spoke about school board requirements for more evidence-based reporting, program development and decision making. This again is supported in the literature; Honig and Coburn (2008) write that ministries of education more and more are mandating reporting of data. Initial survey responses show that school leaders do use data in school reports – data that is ministry mandated such as graduation rates and literacy scores are reported most often. KM strategies should incorporate building capacity to collect and report on school data.

As I was first introduced to this work a few years ago through OISE’s KM research team I was puzzled by the question of what comes first, change in belief or change in behaviour. Dr. Levin during one of these meetings said, “Some say that behaviour depends on prior knowledge and others argue that behaviour can precede and change belief.” My personal understanding (recognizing that this is continually broadening with my engagement in this work) is that school districts play an essential role as learning organizations to help educators to improve knowledge (beliefs) and practices (behaviour) for the purpose of improving student achievement.
Changing educator practices is commonly mandated through policy changes within the district – however belief in these policy changes won’t follow unless educators are able to reflect on these new practices and broaden their understanding of the new behaviour. The school district is the organizational environment in which that space for reflection and action can take place. Knowledge mobilization then becomes more than just sharing new information with practitioners, but it is about districts creating spaces for practitioner learning and building individual and collective capacities to operationalize evidence into practice. As this capacity grows it will influence belief and practices, which in turn improves organizational structures to facilitate KM work – these two processes become mutually reinforcing. This is all good in theory but we have yet to systematically build on initiatives to improve KM work in school districts.

In creating KM strategies it is important to understand the context of the system and the people within that system. It is important to understand the frames of reference of the school leaders and practitioners before implementing strategies to encourage them to consider and use research in their practice. The KM strategies and activities have to fit into their worldview if it will be useful to them – KM initiatives have to make the case for how using research will actually help educators do their work better. KM work is about learning, that’s what schools aim to help students do – why wouldn’t they help teachers and school leaders do the same? Learning is at the heart of the process of knowledge mobilization. Cordingley (2008) articulates this point well: The more that education practitioners see this work as supporting personal learning the more willing they will be to use approaches suggested by research.
References


Appendices

Appendix A: Survey – Part 2 Knowledge Claims (Pre-Intervention)

Appendix B: Participant invitation letter

Appendix C: Letter to District Liaisons June 2008

Appendix D: Letter to Districts August 2008

Appendix E: Website of research articles

Appendix F: Discussion group key findings and questions

Appendix G: Post-school destinations survey
Appendix A

Survey – Part 2 Knowledge Claims (Pre-Intervention)

Research Use and Impact in Secondary Education

Principal Investigators: Dr Ben Levin and Dr Creso Sá from the Ontario Institute for Studies in Education, University of Toronto

This is a collaborative research project being conducted with the Canadian Education Association. You are invited to participate in this 10 minute on-line survey. The purpose of the study is to learn more about the ways that research is currently being used to support secondary school improvement, and to investigate ways that research can be made more attainable and relevant to practitioners at the secondary school level.

please continue

© Ontario Institute for Studies in Education of the University of Toronto
Information and Consent to Participate

This study has been approved by the Research Ethics Board at the University of Toronto. The research will be carried out in accordance with the University of Toronto ethical standards for research. You are free to decline to answer any question or withdraw from the study at any time without consequence. All participants will be anonymous on the electronic surveys, so the researchers will be unable to identify any individual responses. No identifying information will appear in any written report. All data will be stored electronically and anonymously and the files will be destroyed upon completion of the study. We see no potential risks to your participation in this study.

Should you have any questions regarding your rights as a participant please contact: Office of Research Ethics, University of Toronto, McMurrich Building, 12 Queen’s Park Crescent W, 3rd Floor, Fax 416-946-5763. If you have any questions about the research itself, please contact Ben Levin at OISE – blevin@oise.utoronto.ca or 416-978-1157.

Please indicate your consent to participate:
- Yes, I have read the above and I agree to participate.
- No, I do not wish to participate.

-- save and continue --

Part 2 – Knowledge Claims Relevant to Practice

A knowledge claim is a conviction or belief supported by some source of evidence. This final section of the survey focuses on six knowledge claims related to two areas of knowledge relevant to secondary schools. They are issues concerned with student success and student pathways. Student pathways and trajectories refers to short and long-term student destinations and the steps and directions that students may take to reach those destinations.

-- save and continue --
1. Students who fail a single course in the first year of secondary school are at a much greater risk of dropping out of school.

To what extent do you agree with the above statement?

--- select one ---

Please identify the significant source(s) of this information that supports your knowledge of this statement and indicate the degree of importance of this source in your acceptance of this particular claim.

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Specific examples of research reports:

Specific examples of events:
2. Disconnection and disengagement with the school culture and school community are major contributors to students leaving school.

To what extent do you agree with the above statement?

--- select one ---

Please identify the significant source(s) of this information that supports your knowledge of this statement and indicate the degree of importance of this source in your acceptance of this particular claim.

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Specific examples of research reports:

Specific examples of events:
3. Schools with similar student demographics can and do have very different student achievement outcomes; suggesting that some schools are more successful than others at supporting student success (e.g. timely graduation).

To what extent do you agree with the above statement?

--- select one ---

Please identify the significant source(s) of the information that supports your knowledge of this statement and indicate the degree of importance of this source in your acceptance of this particular claim.

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**Specific examples of research reports:**

**Specific examples of events:**
The quality of teaching and learning in the secondary school is one key factor that influences student pursuit of post-secondary education.

To what extent do you agree with the above statement?

--- select one ---

Please identify the significant source(s) of the information that supports your knowledge of this statement and indicate the degree of importance of this source in your acceptance of this particular claim.

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Specific examples of research reports:

Specific examples of events:

To what extent do you believe the above statement to be true?

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Please identify the significant source(s) of the information that supports your knowledge of this statement and indicate the degree of importance of this source in your acceptance of this particular claim.

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Specific examples of research reports:

Specific examples of events:
6. The majority of students believe that secondary school prepares them well for post-secondary school life.

To what extent do you agree with the above statement?

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Please identify the significant source(s) of the information that supports your knowledge of this statement and indicate the degree of importance of this source in your acceptance of this particular claim.

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**Specific examples of research reports:**

**Specific examples of events:**
Appendix B
Participant invitation letter

May 2008

We are writing to invite you to participate in a collaborative research project being supported by the Canadian Education Association. The project is called “Research use and impact in secondary education”. The investigators are Dr Ben Levin and Dr Creso Sá from the Ontario Institute for Studies in Education. The purpose of the research is to learn more about the ways that research is used to support secondary school improvement, and to investigate ways in which research could be made more useful to you and your colleagues. Invited participants are superintendents, principals and others in leadership roles in secondary education in nine school districts across Canada that are part of the CEA network.

We would like you to participate in a 10 minute on-line survey, to share with us your knowledge of important research findings related to secondary education, about any sources of that knowledge you can identify, and about the supports for and barriers to the use of research in your schools and districts. These data will be collected in May/June of this year, and reported back to each district shortly thereafter. From this study some concrete steps will be suggested to the districts to increase the value of research in your work. We then plan to re-administer the survey in the spring of 2009 to see what impact these interventions may have had on awareness and use of research on secondary education in the participating districts.

To ensure anonymity, we are not contacting respondents directly, but through their districts. Through its participation in this project, your district will get access to the literature review on secondary school student success and student pathways that the research team is compiling. Your district will also get results of the survey from your district with comparisons to other (anonymous) districts and the researchers will be available to talk with you and your colleagues about research use issues, both generally and specific to secondary education, during the course of the study. Districts will also have the opportunity to comment on the presentation of descriptive data, as well as offer their views on the researchers’ interpretation of findings.

Participation in the study is entirely voluntary. You are able to decline to answer any question or withdraw from the study at any time without consequence. All participants will be anonymous on the electronic surveys, so the researchers will be unable to identify
any individual responses, and districts will get only summary responses with no link to the individuals who provided them. All data will be stored electronically and anonymously and the files will be destroyed at the completion of the study.

Your participation will be an invaluable source of data for our study. You can access the 10 minute on-line survey at http://tobeinserted. In the first question of the survey you will be asked to indicate your consent to participate by responding Yes or No, after which you will be asked to proceed through the questions.

We see no potential risks to your participation in the study. This research has been approved by the University of Toronto’s Board of Ethics. Should you have further concerns, please feel free to contact the Office of Research Ethics, University of Toronto, McMurrich Building, 12 Queen’s Park Crescent W, 3rd Floor, Fax -946-5763. If you have any questions about the research itself, please contact Ben Levin at OISE.

Yours Sincerely,

Ben Levin and Creso Sá
Professors at the Ontario Institute for Studies in Education,
University of Toronto
June 15, 2008

On behalf of the research team at OISE and the Canadian Education Association we’d like to thank your district for your continued participation and support of the collaborative research project, “Research use and its impact in secondary education,” the purpose of which is to learn about the ways research shapes policy and practice in secondary schools. This project is part of a larger project in which CEA is working with a network of 10 school districts with approximately 100 secondary schools that are interested in substantial change in secondary education (see www.cea-ace.ca).

Your school district has provided us with valuable information through your participation in the on-line survey. The on-line survey will continue to be open until the end of June for those of you who are still interested in participating but are caught in the business of this time of year.

It is hoped that we can continue to collaborate to develop concrete steps to increase the value of research in the work of secondary schools. After the data analysis phase we will provide districts with a profile on the results from individual unnamed districts and from the study as a whole. These results will be in two main areas – a profile of your district’s ‘research culture’ and a profile of your leaders’ views on the six knowledge claims about secondary education, both in comparison to the larger study group. The next steps would be, and we can start this process now, to consult about possible activities and support structures that could be implemented in the next year to increase the value of research in the work of secondary schools. Questions that we can think about:

- What are the group’s suggestions for activities that can help increase the value of research in the work of secondary schools?
- Some ideas that we have found in the literature, and would like to test depending on the needs of each district are:
  - creating study groups around research issues
  - developing a system to share research articles
  - using short research summaries as material for staff meetings
  - developing small grants for teachers or schools to engage in action research
Regarding dissemination and exchange, the team is open to working with your district in whatever way is most suitable for you. Some districts have shared with us dates for their principals meetings and knowledge mobilization lab meetings which can be potentially good venues for us to discuss the development of the project and share materials. If you feel these would be appropriate forums for providing sharing information on research use you could provide the team with the dates for your planned meetings so that we could prepare bulletins to share. Another tool that can be used for communication between participants could be the Research Supporting Practice in Education website (http://www.oise.utoronto.ca/rspe/) and the site Wiki.

At any point please feel free to contact us by e-mail or telephone. We welcome any suggestions that you have about possible activities and support structures that could be implemented in the next year to increase the value of research in the work of secondary schools. We look forward to continuing this work with you.

Yours Sincerely,

Ben Levin and Creso Sá
Professors at the Ontario Institute for Studies in Education,
University of Toronto
August 21st, 2008

Dear colleagues,

We hope that everyone has had a great summer! With just a couple of weeks before your schools re-open we wanted to share with you some overall results for the research project, “Research use and its impact in secondary education.” The purpose of this study is to learn about the ways research shapes policy and practice in secondary schools. The study is being conducted by the Canadian Education Association and OISE, in collaboration with 11 school districts across the country that are interested in substantial change in secondary education. Again, we thank your district for your continued participation and support.

This study is one of very few that examines actual use of research in school practice in Canada (or, for that matter, internationally). It will produce evidence that will help your district and others across Canada, to get full value from research evidence as you continue to work to improve your school systems. Staff in your district have provided us with valuable information in the on-line survey. Below are some first results from the data – there is more to be said as we work with you to analyze it. Of the 11 districts that participated, 3 had a very small response so district analysis is not possible; 4 others had good response rates but because of small district size still had fewer than 20 respondents, which makes patterns unreliable. Four districts had more than 20 responses, so we can be reasonably confident that the results are representative. The following report includes overall trends, and some differences in district responses.

Basic demographics

We received a total of 188 complete responses to the survey. Respondents were divided roughly evenly among principals, vice principals and ‘others’, which include curriculum developers and department heads. Respondents reported a wide range of years of experience in the leadership role. Most respondents have a masters degree or above. They work in districts and schools of varying sizes.
Key Findings in district/school research culture

Overall the respondents are strongly positive about the extent to which research is used in the district. There is more similarity than difference across districts – generally the responses were positive and mean scores on items did not differ very much. Here are a few interesting highlights of our preliminary analysis:

- There was a lack of knowledge about institutional research infrastructure. For example, many respondents did not know if the district had an office or personnel involved in research, or if there were research materials posted on the district website. One exception was the Data District C, which has made a consistent effort in knowledge mobilization: 94% of respondents from this district knew that the infrastructure exists, suggesting that efforts to give more profile to research do have an impact.
- Substantial majorities of respondents in all districts reported that research was used at various kinds of school and district management meetings.
- Respondents report attending relatively few research-focused events.
- There was some disagreement about whether research plays an important role in the school/district. Although the overall response to this question was quite positive, most districts had at least a few people who responded negatively. The exceptions were Study Group District A and Website District B where all respondents were positive.

Key findings – six knowledge claims

On 3 of the 6 knowledge claims there was very strong agreement among participants overall and responses were consistent with the research. Knowledge claims in which there was strong agreement with research findings were:

- Disconnection and disengagement with the school culture and school community are major contributors to students leaving school. (94% agree or strongly agree)
- Schools with similar student demographics can and do have very different student achievement outcomes; suggesting that some schools are more successful than others at supporting student success (e.g. timely graduation). (79% agree or strongly agree)
- The quality of teaching and learning in the secondary school is one key factor that influences student pursuit of post-secondary education. (87% agree or strongly agree)

On 3 other claims, there was no agreement on what is ‘true’:

- Students who fail a single course in the first year of secondary school are at a much greater risk of dropping out of school. (63% agree or strongly agree but 24% disagree or strongly disagree). Notably, the two Ontario districts reported substantially higher levels of agreement with this claim.
• Secondary school performance and grades predict post-secondary school success with a high degree of accuracy (39% agree or strongly agree but 36% disagree or strongly disagree)

• The majority of students believe that secondary school prepares them well for post-secondary school life (37% agree or strongly agree but 36% disagree or strongly disagree)

Here are a few items with results we found interesting:

• For all the knowledge claims, respondents reported that personal experience is the most powerful influence on their views, followed by colleagues or professional network. Direct contact with formal research sources appeared to play a weaker role in shaping opinions across all the districts.

• Respondents reported weaker use of evidence-based sources, such as research reports and data collected in the school, in relation to the three claims that had the most disagreement.

Next steps

The next phase of the study involves collaborating with the participating districts to develop concrete steps to increase the value of research in the work of secondary schools. Based on our knowledge of the evidence, we are proposing to each district some fairly simple organizational supports for greater attention to research focused on the knowledge claims investigated in this study. We are asking each district to implement one or more of the following activities. Our selection of districts is based on your responses to the initial survey as well as our desire to balance participation in each option by district size.

The first activity involves providing districts with some readily-available sources of good research on secondary schools and student success (newsletters, websites, readings) that can be distributed and used as each district chooses. The five districts that we suggest use these materials are:

Website District A
Website District B
Website District C
Website District D
Website District E

The second activity involves creating study groups of district leaders (6 to 10 people in a group) who would meet a few times during the year to discuss important research on secondary school improvement. Our team will provide the relevant material to you. We are asking three districts to implement this strategy:

Study Group District A
Study Group District B
Study Group District C
The third activity is to implement an intervention to track your former students’ post-high school destinations and to use these data to inform district planning for secondary schools. Our team will provide a methodology and survey instrument for this activity, which we suggest can be carried out by secondary students as part of a course. The three districts that we suggest implement this activity are:

Data District A
Data District B
Data District C

We plan to re-survey all 11 districts next May to reassess the district research culture and probe potential impacts of these interventions.

We will be following up in the near future with our district contacts to see if you are agreeable to our suggested activity for 2008-09 and, if so, to work out details of how to proceed. Meanwhile we are also continuing to analyze the survey data and will provide a fuller report to all districts a little later in the fall.

We welcome any feedback, suggestions and thoughts on the data provided above and the suggestions for research activities to implement this year. We look forward to continuing to work with you on this study.

Yours Sincerely,
Ben Levin and Creso Sá
Professors at the Ontario Institute for Studies in Education, University of Toronto
Appendix E

Website of research articles

Research Use and its Impact on Secondary Education Intervention #1: Website of sources of research on secondary schools and student success

This activity involves providing the leaders in your district with access to some readily-available sources of research on secondary schools and student success which include newsletters, websites, journals and reports.

The purpose of this activity is to give access to research to the participating districts so that they can be circulated and shared with your secondary school leaders. Possible activities and uses of the materials may include discussing pieces of the reports at meetings, circulating key findings through your communication lists, or creating a newsletter for the district.

Literature Related to Secondary School Student Success


[Link to full report & summary]

This report begins with a survey of the literature on risk and protective factors associated with early school leaving. The report discusses the findings of a study that interviewed 193 young people in Ontario who have left school or are at risk of doing so. The report addresses the question of which factors help to ensure that students stay in school or return to complete their diploma, and the implications of the research for policy and practice.


[Link to full report & summary]

This article summarizes research that offers lessons on how to tackle the dropout problem, from identifying students who are likely to drop out, to intervention and prevention methods, as well as what to do when intervention and prevention aren’t enough.

[Link to full report & summary]
This report looks at data collected from 2003-2005 to determine factors affecting Ontario secondary school graduation rates, and projecting university and college enrolments. Various programs are examined, and a comparison is made between the programs of Ontario schools and the schools in provinces that have higher graduation rates.


[Link to full report & summary]
This paper sets out in brief an approach to improving student outcomes from secondary school, in particular higher graduation rates. Five areas requiring simultaneous attention are outlined that underlie such improvement and some of the main implementation challenges are discussed.

**Literature Related to Secondary School Student Pathways**


[Link to full report & summary]
This chapter looks at pathways followed by 18-20-year-old youth after high school. The study divides the youth into five groups according to their current school status. The characteristics of these groups are described, the self-assessed quality of the youth's skills after leaving high school are discussed, as well as barriers to post-secondary participation are examined.


[Link to full report & summary]
This report uses Statistics Canada’s Youth in Transition Survey (YITS) to study the pathways that youth take from education to the labour market and explores the important background factors associated with these pathways.

[Link to full report & summary]

This paper discusses second chance options that are available to young people who drop out of school but later wish to continue their formal education. This analysis examines data from three cycles of the older cohort of the Youth in Transitions Survey (YITS) to identify the characteristics of individuals who use the second chance system to complete high school or pursue PSE.


[Link to full report & summary]

The Class of 2003 survey was administered in New Brunswick, Manitoba, Alberta and Saskatchewan between May 2005 and July 2006 and was intended to provide data on high school experiences and reasons for not pursuing PSE. This report presents new research on barriers to post-secondary education (PSE) in Canada relating to interest and motivation, finances, and academic requirements.

These websites contain research reports related to education:

Statistics Canada research papers
Publications from YITS (Youth in Transition Survey) and PISA (Programme for International Student Assessment) scores
Canadian Millenium Scholarship foundation, Millenium Research Series
Center for Public Education, Findings from Research
Canadian Council on Learning, Reports & Data
Canadian Education Association, Research & Policy

HRDC Human Resources and Social Development Canada

• Research: Literacy, Learning, Skills Development
• Learning Policy
Appendix F
Discussion group key findings and questions

Research Use and its Impact on Secondary Education Intervention #2:
Discussion group for district leaders

This activity involves implementing one or more study and discussion groups for district leaders who would meet three or four times during the year to discuss important research on secondary school improvement.

The purpose of the discussion groups is to give access to research to school districts, while providing some related discussion topics. Possible activities and uses of the materials may include discussing pieces of the reports at meetings, circulating key findings through your communication lists, or creating a newsletter for the district.

The following are suggestions for how you may want to organize the study group:

1. The group should consist of 6 to 12 people who are district leaders or in other leadership roles with respect to secondary education. Participation in the group is voluntary.

2. Three or four meetings should be set-up during the year.

3. Materials should be distributed to members a week or so prior to the meeting.

4. The Chair for the discussion sessions will review the agenda, report on any developments since the last meeting, review the questions, and facilitate the discussion.

5. As an extension of these activities you may wish to:
   a. Prepare a research informed PD session for your colleagues.
   b. Make connections to external research organizations and invite guest speakers to the group.
   c. Connect to you Principal’s Association to make a presentation about student success factors and pathways.

The research summaries created by the OISE KM team can be found on the Research Supporting Practice in Education website at http://www.oise.utoronto.ca/rspe/Empirical_Studies/CEA_Research_Project.html. The key findings from each article with the discussion questions can be found below.
Early School Leavers: Understanding the Lived Reality of Student Disengagement from Secondary School

Summary


The summary below includes key findings followed by a 4 page summary of excerpts taken from the full report. http://www.oise.utoronto.ca/rspe/Empirical_Studies/CEA_Research_Project.html

Key Findings regarding early school leavers in Ontario:

- This report details the findings of a qualitative study designed to understand the processes of disengagement from school, and of early school leaving, from the point of view of 193 young people in Ontario who have themselves left school or are at risk of doing so.
- Early school leaving is the result of a long process of disengagement and alienation that may be preceded by less severe types of withdrawal such as truancy and course failures.
- Disengagement can best be defined in the following terms:
  - A process and/or pathway (often non-linear) toward adult status
  - Inter-relational rather than individual
  - Contingent on promises (kept or broken) between people
  - Multi-dimensional across micro, meso and macro levels
  - A complex, often emotional, decision to leave school
- The voices of various groups of youth were heard. Shared risk factors across groups included low socio-economic status, the need to take on adult roles while in school, “place” and culture, risk-taking activities, issues with attendance and school failure, negative relations with school personnel; flawed school cultures; and issues with passive or irrelevant curriculum.
- Protective factors at the school and community levels. These included alternative schools, caring and supportive teachers, and school climates which were caring, flexible, and proactive. Families and self determination also played a major protective role for these young people.
- Many of these young people experienced multiple risk factors along their pathways to disengagement.
Discussion Questions:

1) How do statistics of early school leaving from our own school district compare with the national and provincial numbers? Does our school district have a way to track the number of early school leavers and to record their experiences?

2) The school related risk factors often described by youth respondents include a lack of flexibility and/or passivity on the part of school personnel or policies, having been made to feel unwanted in the school system by school personnel, having had negative relationships with teachers and curriculum that was too difficult. Do we collect data that can allow us to analyze the effect of some of these school related risk factors on our students?

3) Which protective factors help to ensure that students stay in school or return to complete their diploma? How are the findings similar/different to those in report “The second chance system: Results from the three cycles of the youth in transition survey” by Looker, E. D., Thiessen, V. (2008).

4) How do our own district’s prevention and intervention strategies compare with the core secondary school structure and class room strategies outlined in the section on research for policy and practice? Which of our own strategies have been effective/ineffective, which strategies can be improved?
Key Findings regarding secondary school students that dropout and those who return:

- First Nations youth are more likely to be school dropouts and in the second chance group. All of the identified population groups – First Nations, visible minority immigrants, European immigrants, Canadian-born visible minority youth – have higher odds of returning for a “second chance” than Canadian-born youth of European ancestry.
- Males are more likely to drop out of school, and are less likely than females to avail themselves of any second chance options.
- Second chancers were more likely than dropouts to be from Quebec.
- Limited parental education and/or being part of a large family increases the child’s risk of dropping out and not returning.
- Taking Math and language at the highest level had a consistent and large impact on those who returned to school. The barriers facing dropouts and second chance youth is as much or more in the courses taken and how far they went in high school, not only how well they performed.
- The impact of academic engagement on being a second chance youth makes it clear that disengagement is an issue.
- Innovative use of Information and Communication Technology (ICTs) may be one way to entice students to stay in school and to return once they have left.
- Those who expect to go to university have much higher odds of being in the second chance group rather than being a dropout.
- Students who said their peers planned to attend Post-secondary education (PSE), were less likely to drop out and if they did were likely to return to further their education.
- Participation in volunteer activity impacts returning once one had left school.
- Students with self reported health problems are more likely to drop out of school.
- Those who enter into a marriage or equivalent relationship, have a child and/or leave the parental home early are more at risk of dropping out.
Discussion Questions:

1. What programs and strategies does your district have to help retain students? Are there targeted programs designed specifically to give students a “second chance”? In the context of the above analysis, what elements have worked in your programs and what can be done differently?

2. What should be the balance between efforts to increase retention and getting students back once they have dropped out?

3. What particular groups in your district need special strategies for retention? What would those strategies be?

4. How can schools work with community service organizations to encourage students to stay in school, or return to school? What type of community involvement activities are currently built into your programs, or can be built into your programs that help retain students, or encourage them to return?
Key Findings on barriers to post-secondary education (PSE):

- There are three types of barriers to PSE: informational/motivational; financial, and academic.
- Informational/motivational barrier: lack of motivation to pursue PSE or a lack of information about the advantages and cost of PSE.
- Financial barrier: there are three types of financial barriers – price constraints (i.e. price of education is too high for the expected return); cash constraints (i.e. those who cannot raise sufficient funds to attend post-secondary institution) and debt aversion (i.e. those who are unwilling to borrow to finance PSE).
- Academic barrier: difficulties meeting courses and grade requirements for admission to PSE.
- Although first-generation students (i.e. the first generation in a family to pursue PSE) did not report more barriers to PSE than children of parents with some PSE experience, the study has found through the examination of first-generation students’ primary source of financial support for PSE activities that they were twice as likely to rely on government student loans to finance their education than students whose parents had some PSE experience. Also, first-generation students were more likely to face academic barriers and were less likely to report grades of 80 percent or higher than students whose parents had some PSE experience.
- Aboriginal students were less likely to have participated in PSE than non-Aboriginal students due to geographic barriers, financial barriers and social barriers. However, Aboriginal students enrolled in a post-secondary program reported educational aspirations similar to those of other students.
- Factors that were most important in explaining post-secondary attainment included: gender; disability; Aboriginal status; high school grades; parents’ education; dependents, and the level of support from parents and other significant role models.
Discussion Questions:

1. What programs or strategies, if any, does our school district have in place to prepare students for post-secondary education?

2. Does our school district track students who continue on to post-secondary education (even up to 3 years after leaving school)? Does your school district conduct any data analysis? If so, how does our school district collect and use this data? If our school district does not collect, use, or analyse data, why not?

3. The survey indicated that high school has not fully prepared students for post-secondary education, training and work. Do we think these findings are similar/different in our school district?

4. What factors may prevent students from continuing on to post-secondary education? What programs or strategies are effective/ineffective in improving post-secondary participation?
Improving the Transition from Middle Grades to High Schools: The Role of Early Warning Indicators

Summary


The summary below includes key findings followed by a 4 page summary of excerpts taken from the forum brief. 
http://www.oise.utoronto.ca/rspe/Empirical_Studies/CEA_Research_Project.html

Key Findings on secondary school graduation:

- Education factors such as failing grades and low test scores are often cited as the reasons for students dropping out of secondary school.
- Students who are socially or academically unprepared for the eighth to ninth grade transition are also at risk of dropping out of secondary school.
- There are early warning indicators that can identify potential secondary school dropouts as early as sixth grade.
- Robert Balfanz’s research findings:
  - Students are at risk of dropping out in the early secondary grades (grade 6-9) because of three factors: attendance, behaviour, and course failure.
  - Sixth grade students with poor attendance, behaviour, or course failure have extremely low graduation rates.
  - Course failure is a better predictor of graduation outcomes than test scores.
  - Students in high poverty school districts who struggle and become disengaged in the early secondary grades do not graduate (20 percent or less graduation rates).
  - Students in high poverty school districts who successfully complete early secondary grades are likely to graduate (75 percent or more graduation rates).
- Elaine Allensworth’s research findings:
  - Graduation is determined by performance in high school courses.
  - High school course grades predict college success better than test scores, and students’ behaviour are the main drivers of course success and failure.
  - Attendance is 8 times more predictive of failure than prior test scores.
  - Although prior academic ability is important for high course grades, attendance is the stronger predictor of course grades.
  - Students’ performance in their courses is the key determinant of high school graduation and college readiness.
Craig D. Jerald’s research findings:
- Using data can help in making better decisions and goals. It can also help in pursuing those goals more efficiently and effectively.
- Secondary school dropout prevention results have been discouraging due to weak interventions and poor identification of students at risk.
- Effective interventions are intensive and expensive, so using data to ensure efficiency and effectiveness is important.
- Data can be used to target schools for assistance and interventions.

Discussion Questions:

5. How does your school district determine students who are at risk of dropping out of secondary school? What intervention programs and strategies has your school district implemented to increase secondary school graduation rates?

6. How does your school district deal with attendance, behaviour, and course failure issues? How do we engage students in learning and in their schoolwork? Are there strategies in place?

7. Does your school district collect and use data to determine students at risk of dropping out of secondary school? Does your school district conduct any data analysis? Is there a data system in place? If so, how does your school district collect and use this data? Is the data used to determine post-secondary success? If your school district does not collect, use, or analyse data, why not?

8. How does your school district prepare students for post-graduation? Are there strategies in place to prepare students for post-secondary education? What are these strategies?
Appendix G

Post-school destinations survey

Intervention #3: Student Survey on Post-Secondary School Destinations

This research activity involves implementing an intervention to track your former students’ post-high school destinations and to use these data to inform planning. The methodology and survey instrument for this activity are provided below. We suggest that the survey can be carried out and analyzed by secondary students as part of a credit course.

The purpose of this activity is to help schools to collect data about their students’ post-secondary destinations. This data can drive school improvement with regard to programs and policies that can have an impact on student success by understanding your students’ pathways and trajectories.

Survey: Can we predict which students go where?

This activity has been designed to assist schools to collect data regarding the post-school destinations of their students.

Rationale: By tracking students’ post-school destinations, schools will have the data to inform school improvement regarding student pathways and trajectories. Patterns based on student achievement, school participation, and pathways taken in high school compared to post-school destinations may help evaluate the effectiveness of school programs.

Method: By monitoring destinations of former students, schools can determine whether there is any correlation between secondary school achievement, participation in activities, pathways and post-school destinations. This activity is intended to be student and teacher-led, and the end product will be data created by students that can be used by secondary school administrators and leaders.

1. The activity consists of a questionnaire that can be administered over the phone or as a web survey. The research will follow appropriate research ethics guidelines on privacy and voluntary participation
2. Grade 11 or 12 students could carry out this research study as part of course work for a class. There should be a teacher liaison from each participating school and a district liaison that is in a senior leadership role. We have used this method before with high school students with very good results both in terms of quality research and learning for the participating students.
3. Current students would contact former students and invite them to participate in the study. Participants in the study will be all students who were registered in grade 11 at any point in the 2005/2006 school year, as drawn from school records. Schools would provide former students’ names and contact information to the teacher liaisons for the study.

4. Students will get a list of all former students and call them to invite them to participate in the survey. They will provide the option of a phone or web survey that would take approximately 10 minutes (30 factual questions). Students will send links to the web survey via email to the former students. Collecting data via the web survey would save you the time of having to manually enter the data. If the phone interview is being carried out, students must enter the data into the MS Excel form provided on website above.

Consent and Ethics
Schools that will participate in the project will require each participant to sign a consent form. The consent form can be signed electronically. Each participating district may have to consult their research ethics board. If teachers or students require more information regarding research ethics and designing consent letters, the research team would be happy to help with this process and provide samples on the instruction website.

Some suggested readings related to data collection in schools:

   This study showed that research engagement helps school leaders to develop their schools and make them exciting places to work. This booklet aims to help you to understand more about research engagement and to envisage how it could work in your school.

   Reviews the literature and difficulties of school follow-up studies. Describes the purpose, design, and methodology of the Peel Secondary Follow-up study. Shows how results from the first round of the study raise important issues about students' expectations and how they are or are not borne out.

Survey
The survey takes about 10 minutes to complete and consists of 30 questions. The survey has been adapted from the Seven Oaks/WRNET Telephone Survey. Suggestions and Student/Teacher instructions on how to analyze the data will be provided on the activity website.
Post Secondary School Destination Survey

This activity has been designed to assist schools to collect data regarding the post secondary destinations of their students.

Rationale:
By tracking students’ post secondary destinations, schools will have the data to inform school improvement regarding student pathways and trajectories. Patterns based on student achievement, school participation, and pathways taken in high school compared to post-secondary destinations may help evaluate the effectiveness of school programs.

Method:
By monitoring destinations of former students, schools can determine whether there is any correlation between secondary school achievement, participation in activities, pathways and post-school destinations. This activity is intended to be student and teacher-led, and the end product will be data created by students that can be used by secondary school administrators and leaders.

This survey takes about 10 minutes to complete and consists of 30 questions.

Consent and Ethics:

Schools that are participating in the project will require each participant to sign a consent form. The consent form can be signed electronically. Each participating district may have to consult their research ethics board. If teachers or students require more information regarding research ethics and designing consent letters, the research team would be happy to help with this process and provide samples on the instruction website.

Please let us know if you have any suggestions, questions or require other information.

Do you consent to participate in this survey?

☐ Yes
☐ No

Gender

☐ Male
☐ Female
Are you a Canadian by birth, landed immigrant, a refugee or other?

- Canadian by birth
- Landed immigrant
- Refugee
- Other
- Don't know

If you are other than a Canadian by birth please indicate when your residency in Canada began:

- Prior to 1998
- 1998 or later

Is English your first language?

- Yes
- No

A: High School Experience

This section of the survey asks some questions about the academic aspects of your high school experience.

Did you complete your high school diploma?

- Yes
- No

Which year did you graduate?

- 2007-2008
- 2006-2007
- 2005-2006
- Not yet
Which high school did you last attend?

How many credits in total did you obtain in high school?

- More than 30 credits
- 30 credits
- 26 - 29 credits
- 25 or fewer credits

Can you recall how many courses in total you may have failed or may have withdrawn from during your time in high school?

- None
- One to three
- Three or more

Indicate your approximate average mark during grade 11.

- Mostly A's
- Mostly B's
- Mostly C's
- Mostly D's
- Mostly F's
Was there at least one teacher during your time in high school that you thought knew you well and cared about you as a person?

- Yes, there was one teacher
- Yes, there was more than one teacher
- No

<table>
<thead>
<tr>
<th>Did you think that most of your courses challenged you to use your intellectual abilities?</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did you think that most of your school work and courses were interesting?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Did you think that the atmosphere in the school was friendly?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Did you think that you were treated fairly in high school?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Overall, did you enjoy high school?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

B: Future Plans and Goals

The next few questions are about what your plans and goals were when you were in grade 11:

When you were in grade 11, did you have a specific career goal in mind?

- Yes
- No
When you were in grade 11, what did you plan to do immediately after high school?

- [ ] Go to university
- [ ] Go to college
- [ ] Attend another form of post-secondary training
- [ ] Work
- [ ] Other
- [ ] Undecided

If other, please specify:

________________________________________________________________________

Has your career goal changed since grade 11?

- [ ] Yes
- [ ] No

If yes, what caused you to change your career goal?

________________________________________________________________________
C: Education and Training Experience

The following questions are about your education and training experience:

________________________________________________________________________

Are you currently enrolled in a certificate, diploma or degree program OR since leaving high school have you been enrolled in any certificate, diploma or degree program?

☐ Yes, currently in a program.
☐ Not in a program now, however was in a program since leaving school.
☐ No, I have not enrolled in an education program since leaving school.

________________________________________________________________________

How many different education programs have you enrolled in?

☐ One
☐ Two
☐ Three
☐ More than three
☐ Not applicable

________________________________________________________________________

What type(s) of certificates, diplomas, or degrees have you taken education/training towards?
(Please select as many as apply)

☐ A trade/vocational or registered apprenticeship diploma or certificate
☐ A college diploma or certificate
☐ A bachelor's degree
☐ A graduate diploma
☐ A private business school diploma or certificate
☐ A diploma recognized by or issued by an employer or business only
☐ A diploma, certificate or license from a professional association
☐ Any other
If other, please specify:

________________________________________________________________________

Have you completed a certificate, diploma, or degree for the program(s) you have taken?

☐ Yes
☐ Still enrolled
☐ No
☐ Not applicable

How important were the courses you took in high school for preparing you for further education and training?

☐ Very important
☐ Important
☐ Not very important
☐ Irrelevant
☐ Not applicable

D: Work Experience

The next questions are about your work experience:

Are you currently employed?

☐ Full-time
☐ Part-time
☐ No
☐ Not applicable
If you are currently employed, has this been your main employment since leaving high school?

☐ Yes
☐ No

Would you describe this job as a permanent or temporary job?

☐ Permanent
☐ Temporary
☐ Not applicable

If other, please specify:

________________________________________________________________________

This question relates to how your high school experience applies to your current work.

How important were the courses you took in high school for developing your work skills?

☐ Very important
☐ Important
☐ Not very important
☐ Irrelevant
☐ Not applicable
E: Extra-curricular and Volunteer Activities

The next questions are about extra-curricular and volunteer activities:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did you participate in extra-curricular activities when you were in high school?</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>Have you ever given your time to a group or organization as an unpaid volunteer?</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>Have volunteer or extra-curricular activities had a significant impact on your educational or employment experience?</td>
<td>☒</td>
<td>☐</td>
</tr>
</tbody>
</table>

Is there any advice you would like to give this year's grade 11 students based on your experience?

Is there any advice you would like to give schools about what they should do to provide a better educational experience, or to help students prepare for future training or work?
Do you have any other comments that you would like to add?

Thank you very much for your time. The information you have provided is very important and will help us understand the connections between education and post-secondary school destinations.