THE CASE OF A KNOWLEDGE MOBILIZATION INTERMEDIARY,
CONNECTIONS FOR STUDENTS, IN AN EDUCATION PRACTICE SETTING:
CONNECTING POLICY TO PRACTICE

by
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ABSTRACT

This study is an attempt to understand knowledge mobilization (KMb) efforts using a KMb intermediary, Connections (multidisciplinary transition teams to support students with Autism Spectrum Disorders), in real practice settings. This study explores the experiences of six teachers, specifically, their awareness and implementation of a research-embedded education policy (Policy Program Memorandum No 140), their perceptions of three KMb strategies (networks, products, and events), and their perceptions of enablers and barriers to KMb efforts within Connections.

I conducted a qualitative multi-case study (n=6) that allowed me to organize the data by specific information-rich cases for an in-depth study of the interactions among policy, KMb efforts, and practice. Because the KMb intermediaries occurred across multiple school sites, these cases allowed me to explore the similarities and differences in KMb efforts. Each intermediary consisted of a multidisciplinary team (7-10 participants from different disciplines with a variety of expertise).

Teachers cited several factors influencing implementation of PPM 140 into practice: the role of parents, the availability of time and human resources to implement the policy, and the perception that this policy is implemented with a targeted group of students at the possible expense of other students. Teachers identified three main enablers (leadership, the availability of multidisciplinary expertise, and the availability of resources) and three main barriers (relationships, misunderstanding of roles and contexts, and inequity of PPM 140) to KMb efforts. The development of relationships was the
most powerful enabler and the lack of relationships was the most powerful barrier to all other activities that occurred within the intermediary.

Despite the availability of knowledge mobilization frameworks, there are still very few empirical studies of how knowledge is actually mobilized in education practice settings. This study adds to the KMb literature in three ways. First, it adds to the limited research on KMb intermediary efforts to facilitate implementation of a research-embedded education policy. Second, this study adds to the literature on how knowledge is mobilized in practice settings through the use of three specific KMb strategies (networks, products, and events). Third, it establishes a more comprehensive understanding of enablers and barriers of research-policy-practice interactions by examining how the KMb process unfolded in real practice settings. This study can provide an example of ways in which efforts can be intentionally planned at system, organizational, and individual levels for more effective KMb.
ACKNOWLEDGEMENTS

I would like to express my gratitude to my supervisor, Dr. Amanda Cooper, for her never-ending patience as I juggled family, work, and research. She challenged me to think critically, ask more questions, and see the value in every step of the research process. She gave me the extra nudges I needed just when I needed them.

I would also like to thank my committee member, Dr. John Freeman, who kept me thinking about the purpose and significance of my research from day one. His voice stayed with me through this past year, and I thank him for pushing me for clarity. His attention to APA detail is appreciated!

Finally, I want to thank my family. My journey started with a gentle push from my father, and it was his voice telling me "work smarter, not harder" during long hours of writing when I tended to go off on tangents. A huge thank you to my children - Mackenzie and Jake - who often had to "wait just one more minute." They trekked to the library with me, asked questions throughout the process, and understood when I had to read or write instead of play. To my husband Paul – I can't thank him enough for all his encouragement and reminders that eventually there would be a completion date! He never once complained when another pile of papers appeared on our kitchen table or when I asked him to print just one more copy for me to edit. This thesis belongs to my whole family.
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LIST OF ABBREVIATIONS

ABA: Applied Behaviour Analysis
AIP: Autism Intervention Program
ASD: Autism Spectrum Disorder
SSP ASD: School Support Program - Autism Spectrum Disorder
BEA: Behaviour Expertise Amount
C1, C2, C3: Consultant 1, 2, 3
CEC: Council for Exceptional Children
CODE: Council of Ontario Directors of Education
GREB: General Research Ethics Board
IBI: Intensive Behaviour Intervention
IFL: Institute For Learning
KMb: Knowledge Mobilization
MOE: Ministry of Education
MCYS: Ministry of Children and Youth Services
PPM: Policy Program Memorandum
Ontario District School Boards (DSB) are increasingly being asked to find methods of mobilizing research-based knowledge into policy and practice. Past linear models set research producers and research users on opposite sides with research assumed to be informing practice in a unidirectional flow (Havelock, 1969). Research to practice processes do not follow linear paths directly from the research laboratory to the classroom. The processes are complex and dynamic and demand the use of specific strategies and dissemination mechanisms if research-based knowledge is to be mobilized effectively in education (Campbell & Levin, 2012; Coburn & Stein, 2010; Cooper, 2014; Cooper & Levin, 2010; Cordingley, 2008; Levin, 2004; Nutley, Walter, & Davies, 2007).

Knowledge mobilization (KMb) is about improving linkages among research, policy, and practice. The Ontario Ministry of Education (MOE) refers to knowledge mobilization (KMb) as “the ways in which well-validated bodies of knowledge about education, resulting from extensive empirical enquiry are connected to, or influence, policy and practice in the education system” (Ontario Education Research Panel). Cooper (2014) defines KMb as:

Intentional efforts to increase the use of research evidence (data collected through systematic and established formal processes of inquiry from widely accepted bodies of empirical work, rather than from single studies) in policy and practice at multiple levels of the education sector – between individual, organisational, and system levels. ... [KMb] occurs through iterative, social processes involving interaction among two or more different groups or contexts (researchers, policymakers, practitioners, third party agencies, community members) in order to improve the broader education system. (p. 1)
Research-practitioner collaborations are a key strategy for bringing forward specific educational approaches that are deeply rooted in research but can be directly implemented in the classroom. Coburn and Stein (2010) provide a synthesis of research focusing on partnerships and collaborations that cites the importance of three key areas of effective collaboration: (1) partnerships that embody trust, shared mental models, and ongoing communication; (2) role of specific tools or products that bridge the gap between research and practice; and (3) conditions that facilitate and foster knowledge development in practice. Studies further confirm the importance of interpersonal relationships as a significant variable in shaping professional practice (Borko, 2004; Coburn & Stein, 2006; Cochran-Smith & Lytle, 1999; Grossman, Wineburg, & Woolworth, 2001; Hindin, Morrocco, Mott, & Aguilar, 2007; Nutley et al., 2007; Wood, 2007). Gagnon (2011) also describes this process as an “intensely social process” (p. 25) that takes place within a complex system of interactions. Gagnon suggests the potential effectiveness of embedding a knowledge broker (intermediary) within a system to move knowledge to action by focusing on ongoing monitoring, dissemination, and uptake of research. Identifying the key message, audience, transfer or exchange method, and expected outcomes are all critical components (Gagnon, 2011; Kramer & Wells, 2005; Lomas, 2007; Mitton, Adair, McKenzie, Patten, & Perry, 2007).

This study explored knowledge mobilization efforts through an intermediary: third party efforts to facilitate interaction between research producers and users in order to increase research use in the education sector (Cooper, 2014; Honig, 2004). The intermediary, Connections for Students (referred to as Connections throughout this
Connections for Students is defined in a joint memo by the MOE and the Ministry of Children and Youth Services (MCYS) as:

*Connections for Students* is centred on multidisciplinary, student-specific and school based transition teams that are established approximately six months before a child prepares to leave Intensive Behavioural Intervention (IBI) services delivered through the [Autism Intervention Program] to Applied Behaviour Analysis (ABA) instructional methods in the publicly funded school system. The transition team continues to support the student for at least six months after leaving the AIP and starting or continuing school. (2010b, p. 1)

This study did not seek to investigate and understand the characteristics of Autism Spectrum Disorder (ASD) or to conduct a program evaluation of *Connections* (a brief explanation of both ASD and *Connections* are provided to the reader for background information); rather, ASD and *Connections* are the backdrop to explore how knowledge mobilization of evidence-based strategies occurred via an intermediary.

**Policy Context and Timeline**

It is not surprising that, with the rise in the demand for evidence-based policies and practices, the Ministry of Education would encourage district school boards to engage in KMb efforts. In order to more fully understand the context within which the policy investigated within this study was developed, it is important to present: a) a brief explanation of why ASD has made research - policy - practice dialogue so critical for the MOE and district school boards; and b) a timeline and explanation of the activities leading up to the development of the policy and the subsequent KMb intermediary, *Connections*. 
**Autism Spectrum Disorders**

ASDs are complex lifelong neurological disorders affecting sociability, communication, and behaviour. Historically, students with ASD have been segregated from their typically developing peers as being “neither educable nor trainable” (Ferraioli & Harris, 2010, p. 19). There has been an increasing trend to include students with disabilities, including autism, in general education classrooms (Ferraioli & Harris, 2010; Harrower & Dunlap, 2001; Hart & Whalon, 2011; Reiter & Vitani, 2007). Students with ASD represent a highly heterogeneous population; the individual characteristics of the student’s autism must be understood when determining the type and intensity of the intervention being implemented (Harrower & Dunlap, 2001). The symptoms can range from mild to severe and can impact all areas of development including social, communication, and behaviour (restricted, repetitive, and stereotyped patterns of behaviour, interests, and activities) domains (Happe & Firth, 1996; Heflin & Simpson, 1998; National Research Council, 2001). Given the inclusion of students with ASD in Ontario classrooms, it is essential that educators have the knowledge and ability to serve these students with evidence-based teaching methods (National Epidemiologic Database for the Study of Autism in Canada, 2012).

Designing programs for students with autism continues to present multiple challenges to many teachers. There are limited data regarding how often educators implement evidence-based strategies in their classrooms (Martens, Daly, Begeny, & VanDerHeyden, 2011). Since “behavioural methods that foster the learning of appropriate and desirable behaviours should be at the core of educational planning”
(Simpson & Smith Myles, 2007, p. 180), it is reasonable that teachers would be provided ongoing opportunities to learn and practice using these methods. Many teachers report that they consider themselves less than able to serve the needs of students identified with autism (Busby et al., 2012; Simpson & Smith Myles, 2007).

A critical factor for effectively teaching students with autism is the availability of training, consultation, coaching, modelling, and constructive feedback for teachers (Busby et al., 2012; Grey, Honan, McClean, & Daly, 2005; Park & Chitiyo, 2011; Ruble, Usher, & McGrew, 2011; Segall & Campbell, 2012; Takahashi, 2011). Teachers are often considered to be the most significant variable accounting for gains made by students with autism; thus it is alarming that “personal preparation remains one of the weakest elements of effective programming for children with autistic spectrum disorders” (National Research Council, 2001, p. 224). For additional information regarding ASD, see Appendix A.

**MOE Activities and Timeline**

The MOE began the process of changing beliefs about the need for evidence-based instructional methods for students with ASD and, ultimately, to change the practice of teachers. The MOE deliberately engaged a number of educators (teachers and educational assistants) in a variety of awareness building activities prior to issuing Policy Program Memorandum 140: Incorporating methods of Applied Behaviour Analysis (ABA) into programs for students with autism spectrum disorders (Appendix B) to all Ontario district school boards. ABA is an instructional approach in the education of students with ASD using methods based on scientific principles of learning and
behaviour. Table 1 provides a timeline of activities that occurred between 2003 and 2010. Each activity is discussed in greater detail following the table.

Table 1
Timeline of MOE Activities 2003 – 2010

<table>
<thead>
<tr>
<th>2003</th>
<th>2004</th>
<th>2006</th>
<th>2007</th>
<th>2010</th>
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<tr>
<td>MOE organized a conference to examine research surrounding evidence-based practices for teaching students with ASD</td>
<td>Autism Spectrum Disorder School Support Program established in Ontario</td>
<td>• Training workshops provided by the Geneva Centre for Autism to professionals (teachers, educational assistants) working with students with ASD  • Ministers' ASD Reference Group is established to provide recommendations to the MOE and the MCYS</td>
<td>• Ministers' ASD Reference Group released report: Making a Difference for Students with Autism Spectrum Disorders in Ontario Schools: From Evidence to Action (2007b)  • PPM 140 is released in response to the Ministers' ASD Reference Group recommendations (2007c)  • Resource Guide for teachers is released: Effective Educational Practices for Students with Autism Spectrum Disorders (2007a)</td>
<td>• Behaviour Expertise Grant is established to provide specialized funding to school boards (continued to present date)  • Connections for Students model is initiated (continued to present date)</td>
</tr>
</tbody>
</table>

In 2003, the MOE organized a conference in partnership with the Autism Society of Ontario (now Autism Ontario), Geneva Centre for Autism, Council of Ontario Directors of Education (CODE), and the Council for Exceptional Children (CEC) to examine the current research surrounding evidence-based practices for teaching students with ASD. Following the conference, the Ministry provided regional information and
awareness forums to educators across the province working directly with students with ASD at the school level.

In 2004, the Autism Spectrum Disorder School Support Program (ASD SSP) was established through a partnership across the Ministry of Children and Youth Services (MCYS), the Ministry of Education, and all Ontario school boards. Upon request for service or training from a school board, the ASD SSP assigns an autism consultant to the teacher requesting support for a defined period of time and provides material resources, suggestions, and information about implementing ABA methods within the classroom.

From 2006-2008, the MOE funded training with the Geneva Centre for Autism for educational assistants working directly with students with ASD. Funding for educators to attend the Geneva Centre for Autism Summer Training Institute is still available on an annual basis with the number of paid registrations determined by board student population (for example, a board with approximately 12,000 students receives 12 paid registrations). The Summer Institute continues to serve as a link between research and practice by highlighting ABA methods via case studies and keynote speakers from the field. The Geneva Centre for Autism also hosts a symposium every two years highlighting keynote and workshop presentations from researchers in the field of autism, round table discussions with researchers (including graduate students), and individuals with autism. There is no funding provided by the MOE for educators to attend this specific research-rich event. It is up to individual district school boards to use funds to send teachers.
In 2006, the Ministers’ ASD Reference Group, including practitioners, researchers, and parents, was established to provide recommendations to the Minister of Education and the Minister of Children and Youth Services on effective, evidence-based educational practices. The Reference Group prepared a report outlining short- and long-term recommendations (*Making a Difference for Students with Autism Spectrum Disorders in Ontario Schools: From Evidence to Action, 2007b*). In response to the recommendations of the Ministers’ ASD Reference Group, the MOE released PPM 140 in May, 2007. PPM 140 states that school boards “must offer students with ASD special education programs and services, including, where appropriate, special education programs using ABA methods” (PPM 140, 2007c). Specifically, teachers must use the following principles of ABA: (a) an individualized program to meet unique learning profiles; (b) positive reinforcement; (c) data collection and analysis; (d) emphasis on the generalization of skills; and (e) documented plans for transitions across activities, environments, semesters, and grades (see Appendix C for additional information about each evidence-based strategy listed in PPM 140).

Policy frameworks sometimes require teachers to understand current research evidence, and PPM 140 can be considered such a policy. If teachers do not understand the evidence-based strategies listed in the policy, it may be challenging for them to actually comply with the policy. The MOE monitors the implementation of PPM 140 on an annual basis through a survey that is completed by every school principal. Principals submit the survey to the central board office. The central board office uses the information from the survey to determine next steps in terms of policy implementation.
The evaluations and snapshots are used by each school board to further inform its own professional development.

To build on previous initiatives, the MOE also developed a resource guide for educators called *Effective Educational Practices for Students with Autism Spectrum Disorders* (2007a). This resource is intended to serve as a support for educators in planning and implementing effective programs for students with ASD. It includes information, strategies, best practices, sample materials, references, and resources for further reading. Educators are encouraged to continue to monitor the growing body of literature on ASD for their own learning. A variety of additional educational guides and policies such as *Learning for All: A Guide to effective assessment and instruction for all students* (2013a), *Caring and Safe Schools in Ontario: Supporting students with special education needs through progressive discipline, Kindergarten to Grade 12* (2010), and *PPM No 119: Developing and implementing equity and inclusive education policies in Ontario schools* (2009) have intersected with PPM 140 and provide further direction on how educators are expected to respond to students with ASD within the general education classroom.

Finally, funding through a specialized grant has been provided to school boards since 2010-2011 to support deeper implementation of PPM 140. The Behaviour Expertise Amount (BEA) is one of six special purpose grants within the Special Education Grant envelope provided to school boards. The BEA grant can only be used for students who require special programs, services, and equipment. It may be used for hiring a professional with expertise in ABA methods, conducting staff training, and
accessing resources. The amount of the BEA grant is calculated using a base plus average daily enrolment (ADE) model. The additional amount is calculated by multiplying the fiscal year ADE of pupils of each school board by a predetermined dollar amount (see Table 2). The total amount of the BEA grants to school boards has increased from 2010 (the year it was introduced) to 2014.

Table 2  
Provincial Average Daily Enrolment (ADE) and Behaviour Expertise Amount Grant (BEA)

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Daily Enrolment (ADE)</th>
<th>Behaviour Expertise Amount ($)</th>
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<tr>
<td>2010-2011</td>
<td>1,902,203</td>
<td>Base Amount: $80,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x $2.68 per pupil</td>
</tr>
<tr>
<td>2011-2012</td>
<td>1,890,589</td>
<td>Base Amount: $83,615</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x $2.80 per pupil</td>
</tr>
<tr>
<td>2012-2013</td>
<td>1,878,520</td>
<td>Base Amount: $84,223</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x $2.80 per pupil</td>
</tr>
<tr>
<td>2013-2014</td>
<td>1,863,738</td>
<td>Base Amount: $84,331</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x $2.82 per pupil</td>
</tr>
<tr>
<td>2014-2015*</td>
<td>1,845,665</td>
<td>Unavailable at this time</td>
</tr>
</tbody>
</table>

*Projected
www.edu.gov.on.ca/eng/funding/1415/funding15/pdf

Connections

Further to PPM 140, a specialized program, Connections for Students (Connections), mandated that educators and Autism Intervention Program (AIP) providers offer support to students moving from IBI (intensive behaviour intervention - a clinically supervised treatment program) to full-time school with a direct focus on implementing ABA strategies in the classroom (see Appendix D for an understanding of the distinction between IBI and ABA in the school context).


*Connections* is a joint collaboration between the Ministry of Child and Youth Services and the Ministry of Education. All publicly-funded school boards and IBI providers started province-wide implementation of the *Connections* program in March 2010. *Connections* establishes a multidisciplinary team to support the transition of a student from government-funded IBI to full-time school with a focus on implementing the principles of ABA; hence it is a student-specific, school-based transition program. Planning is child-centred with both short- and long-term goals clearly established during regular meetings (every four to six weeks) over the course of approximately 12 months. The transition team is established including at a minimum, parents, the school team (principal, classroom teacher, special education resource teacher), board staff with autism expertise (the ABA Advisor position funded through the BEA grant), the school board *Connections* lead for the program, an autism resource consultant from Pathways School Support Program (ASD SSP), and the IBI clinical supervisor and instructor therapists (for the first six months prior to discharge from IBI). The team is established approximately six months before a child prepares to leave IBI services. The *Connections* team continues to support the student for at least six months after leaving IBI and starting or returning to full-time school. *Connections* is a mandated program. Teachers and principals do not have a choice in whether or not they participate. If a parent consents to the program, the school, board staff, and ASD SSP consultant must also become members of the multidisciplinary team.

Regularly scheduled meetings provide the opportunity to discuss the student’s learning profile, mastered and current goals, maintenance programs, and the
implementation of evidence-based ABA strategies included in PPM 140 (e.g., strategies that have been deemed effective for the student by the multidisciplinary team). School teams are presumed to be provided with ongoing consultation, coaching, and modelling of ABA methods both in and out of the classroom by the IBI providers and school board staff (ABA Advisor). Research regarding ABA principles is assumed to be provided to teachers on the Connections team so that they have a better understanding of the underlying theories and may be in a better position to understand, implement, and evaluate ABA strategies once the team has disbanded.

**Significance of the Study**

Frameworks have been developed to support knowledge translation (also referred to as knowledge utilization, knowledge exchange, research transfer, and research utilization – I use the term knowledge mobilization). Despite the availability of these frameworks (Jacobson, Butterill, & Goering, 2003; Ward, House, & Hamer, 2009), there are still very few empirical studies of how knowledge is actually mobilized in education practice settings. This study explores knowledge mobilization (KMb) efforts using Connections as an example of a KMb intermediary: third party efforts to facilitate interaction between research producers and users in order to increase research use in the education sector (Cooper, 2014). This qualitative study should help develop a more comprehensive understanding of the enablers and barriers of research-policy-practice interactions using a KMb intermediary by investigating how the process unfolds in practice settings. This study should also add to the limited amount of literature on
teachers’ perceptions of implementing research and policy based on KMb efforts. The findings of this study may influence how policymakers and school boards facilitate the creation of conditions that are conducive to effective research-policy-practice interactions.

Conceptual Framework

My conceptualization of the knowledge mobilization process draws from Levin’s (2004) model of research impact and Cooper’s (2014) model of intermediaries’ roles in knowledge mobilization in education. Levin’s model shows KMb as three interacting domains: research production contexts, research use contexts, and the intermediary activities that connect the two. Cooper’s model built on Levin’s third domain by examining the role of intermediaries in KMb efforts including: (1) types of organizations (government, not for profit, for profit, and memberships); (2) organizational features (mission, scope, target audience, size, resources, and membership composition); and (3) knowledge mobilization processes (strategies, functions, and dissemination mechanisms).

This study expands on the third element of Cooper’s model, specifically, the KMb processes (strategies, functions, and dissemination mechanisms) that operate within an intermediary. Cooper’s (2014) definition was used to guide this study as it most closely captures the interactive processes that occur when connecting knowledge from research to practice.

I have added the policy context of PPM 140 to these conceptions of KMb in order to capture the interplay between PPM 140 and the Connections program. Research is embedded directly into PPM 140: this embedding is different than many other education
policies. PPM 140 has a direct impact on practice. I have also included the social context as it permeates all domains of my conceptual model (research, KMb interactions, and practice). Whereas Cooper’s (2014) study investigated Canadian research brokering organizations (third party intermediaries that connect research producers and users and serve as a facilitator for KMb), my study explored small multidisciplinary teams (7-10 participants from different disciplines and holding a variety of skills and expertise) operating within real practice settings. This study examines the role of specific strategies Cooper’s work ascertained (products, events, and networks) as key strategies for facilitating (or hindering) linkages and partnerships across stakeholders. My model illustrates the intermediary role of Connections as a point of interaction among research (widely accepted body of work on Applied Behaviour Analysis), policy (PPM 140), and practice (Figure 1).
Figure 1. Conceptual Framework: KMb Intermediary Role (research-policy-practice interactions).
Research Questions

The purpose of this study is to understand KMb efforts using an intermediary in real practice settings. In order to explore these efforts in depth, I developed three research questions.

1) What are the teachers' perceptions of research-embedded education policy (PPM 140)?
   a) How familiar are the teachers with PPM 140?
   b) What factors influenced their decision whether or not to implement this policy into their classroom practice?

2) What are the teachers' perceptions of the KMb strategies (networks, products, and events) that were used in the Connections program?

3) What are the teachers' perceptions of enablers and barriers to KMb efforts related to the Connections program?
CHAPTER 2: LITERATURE REVIEW

There is growing pressure to ensure that education policies and practices are based in research. Intermediaries are increasingly being explored and defined in the literature as a mechanism to bridge the gap between research and practice (Campbell, 2011; Coburn & Stein, 2010; Cooper, 2014; Cordingley, 2008; Honig, 2004; Levin, 2004; Lomas, 2007; Manion, Buchanan, Cheng, Johnston, & Short, 2009; Ward, Smith, House, & Hamer, 2012). There are a variety of examples that highlight the intentional efforts to mobilize knowledge across individual, organizational, and system levels. Together these studies have set the stage for further empirical work in the use of intermediaries to mobilize knowledge.

This chapter considers the current literature about KMb in education and is organized into three sections: (1) theoretical understandings of KMb including the use of intermediaries in KMb efforts; (2) KMb strategies (networks, tools, and events); and (3) the characteristics of KMb efforts including interpersonal connections, shared understandings, and common language.

Theoretical Understandings of Knowledge Mobilization

The Work of Honig

Honig (2004) recognizes that, given the growing pressure for educators to use evidence-based policy and practices, education leaders are increasingly calling upon intermediaries to assist with implementation. Honig acknowledges that researchers face
challenges when defining an intermediary, determining what it does and the processes it uses. Intermediaries are defined by Honig as:

Organizations that occupy the space in between at least two other parties. Intermediary organizations primarily function to mediate or to manage change in both those parties. Intermediary organizations operate independently of these two parties and provide distinct value beyond what the parties alone would be able to develop or to amass by themselves. At the same time, intermediary organizations depend on those parties to perform their essential functions. (p. 67)

Honig (2004) identifies intermediaries as a network of partnerships. The interactions that occur within the intermediaries and their distinctive functions are of importance to my study. Connections can be considered an intermediary, although it does not fit into Honig’s tight definition as it does not operate independently of the two parties (research producers and research users). Instead, the space “in between” the two parties is a collaborative multidisciplinary partnership formed to mobilize knowledge into practice. Connections performs as a KMb intermediary that has the potential to mediate change between both organizations (i.e., education and children and youth services) in terms of understanding one another’s roles, policies, mandates, and organizational structures.

Honig (2004) used a qualitative case study design to develop a purposive sample of four intermediaries that focused on policy implementation within one school district in Oakland, California. Each intermediary operated between two parties (policymakers and implementers) to leverage change in both parties. Analysis of the data revealed that the primary function of the intermediaries was to provide resources (knowledge of sites and policy systems, social and political ties to sites and policy systems, and an administrative infrastructure) necessary for implementation of policy.
The functions of an intermediary and its ability to perform those functions are context specific with constraining and enabling conditions that vary even when the intermediary operates within the same conditions (e.g., under the same policy and with the same mandate). Relationships that operate within connected and coordinated ways is suggested as a linkage between policymakers and implementers. While Honig’s (2004) study examined a single strategic case, it still offers insight into lessons for practice. In sum, Honig found that the intermediaries faced resource gap challenges during their collaborative policy implementation. Fiscal constraints over time jeopardized the survival of the intermediaries. Implications for future study highlights the importance of strong leadership and the role of relationships in helping to augment resources necessary for implementation.

**The Work of Levin and Cooper**

Levin (2004) explores the impact of education research within a larger social and political framework. He posits that research impact can happen through these frameworks and offers avenues for building bridges between research and practice, while recognizing the importance of social processes. Levin suggests that research impact has three elements: (1) the context of research production; (2) the context of research use (the views, capacities, and structures through which organizations find and use research); and (3) the connections and interactions between research producers and research users that occur through third party mediation. This third element suggests developing linkages between research producers and research users through intermediaries. Levin outlines steps that can be taken to deepen the linkages and connections, notably: (1) make better
use of existing venues for effective exchange noting face to face contact as vital to building trust and interest; (2) use professional development as a key means to bringing research to practice; and (3) use conclusions drawn from substantial bodies of research to develop effective syntheses for practice purposes. The Connections program applies each of these principles to some degree, namely the opportunity for in-person interactions, the provision of professional development (types are explored), and the use of evidence-based strategies (as listed in PPM 140).

Cooper (2014) expands on Levin's (2004) model by emphasizing the iterative social processes involving interaction among groups or contexts when using research to inform and improve policy and practice. A multi-case research design was used to identify all educational research-based organizations (RBOs) across Canada. Her study investigates the nature of the work of Canadian intermediaries in knowledge mobilization through the examination of three domains. First she developed a typology of RBOs in education based on location in the broader education system and funding sources. Second, organizational features were explored to better understand how these features relate to KMb efforts. While individual work is regarded as important, organizational and system levels are suggested to offer insight into how KMb can shape individual behaviour and professional practice in different contexts. By understanding the organizational variables, it may be easier to target resources for the most effective impact. Previous studies have focused on individuals rather than organizational and system levels even though many factors affect KMb at all three levels. Third, KMb
processes and dissemination mechanisms are explored. Cooper also adds resources (people and money) to Honig’s (2004) diverse list of the functions of intermediaries.

Cooper (2014) outlines a typology of six brokering strategies: research products (e.g., reports, policy briefs, fact sheets), capacity building (e.g., toolkits, research FAQs), non-research (e.g., strategic plans, editorials, promotional materials), events (workshops, conferences), networks (e.g., network push, directories of contacts), and media (e.g., press release, newspaper). Analysis of the data revealed that most organizations focus more on the creation of research-based products than on event and network strategies. My study explored which brokering strategies (products, networks, and events) are perceived to be the most important in facilitating KMb efforts and how the interplay among the strategies influences the delivery of evidence-based policy and practice.

Further analysis of strategies by Cooper (2014) highlighted eight brokering functions: linkage and partnerships (facilitating connections among diverse stakeholders through event and network strategies), awareness (increasing awareness of empirical evidence on a topic), accessibility (tailoring products to target audiences), policy influence (using research to stimulate policy priorities), organizational development (building strategic KMb plans and processes or evaluating existing programs and practices), implementation support (providing assistance with KMb initiatives), engagement (making research appealing to more senses), and capacity building (facilitating professional learning and skill development around KMb). While these brokering functions are not explicitly explored in my study, many of them do apply to the Connections program, as Connections performs most of these functions.
One of the problems cited by Cooper (2014) is that, despite the growing recognition of the importance of KMb intermediaries to research use in policy and practice, KMb still remains a largely underexplored role in education. Cooper’s study extends the knowledge about organizations that act as brokering intermediaries in education in an effort to offer more clarity and direction for third party work. This work is important to KMb research as it is the first study to map intermediary work in Canada and provides a much needed baseline of empirical data about its role in research use. Exploring three levels (individual, organizational, and system) provides insight into the variables that may impact KMb intermediary work, suggesting implications for other countries and sectors, researchers, practitioners, policy makers, intermediaries, and funders. My study also considers individual, organizational, and system levels, as classroom teachers and students comprise the individual level, multidisciplinary teams work across broader school districts at the organizational level, and PPM 140 represents system-level efforts to increase KMb for ASD.

**Other Theoretical Understandings**

Other researchers have attempted to develop a framework for knowledge translation or exchange through understanding user contexts and transfer mechanisms (Coburn & Stein, 2010; Cordingley, 2008; Jacobson et al., 2003; Ward, House, & Hamer, 2009). Jacobson et al's. (2003) framework for knowledge translation includes five domains. The researchers would need to understand each of the five domains in order to facilitate knowledge translation: (1) the user group (the context in which the user group is situated); (2) the issue (questions about the practices and purposes in relation to the user
group, which may have an effect on the user group); (3) the research behind the issue (consideration of the different orientations user groups have towards research); (4) the researcher-user relationship (relationship or linkage variables that facilitate knowledge translation such as trust and rapport); and (5) dissemination strategies (practical strategies including three key intertwined processes: awareness, communication, and interaction).

The framework offers a way in which researchers can increase awareness of the type of information about user groups that may facilitate knowledge translation (Jacobson et al., 2003). Once again, my study, considered through this lens, looks at: (1) teachers situated in classrooms; (2) understanding the characteristics and type of the issue and how it may affect the user group (teachers); (3) how the teachers perceive and use research in their practice during Connections and how the broker may facilitate KMb by understanding the teachers' orientations toward research; (4) the factors that influence knowledge translation including the role of trust; and (5) practical strategies for disseminating knowledge within Connections.

Ward et al. (2009), building on the work of Jacobson et al. (2003), identified 18 studies that describe the implementation of a specific knowledge transfer mechanism and approximately 63 different theories or models of knowledge transfer across diverse fields. Many of the models show that no single approach is effective in all contexts but do recognize that the social activity that occurs moves models away from narrow linear descriptions toward a broader explanation of the process. Ward et al. (2009) defined knowledge transfer as: “The process of transferring knowledge into action where knowledge included tacit knowledge, new ideas or innovation as well as research and
other evidence” (p. 158). The idea of including tacit knowledge in addition to research-based knowledge is a potential enabler to collaboration between disciplines (Borko, 2004; Hiebert, Gallimore, & Stigler, 2002). The implication for understanding the role of external (from other disciplines) and local (practice) knowledge within KMb intermediary efforts is an area that emerges within my study.

Ward et al. (2009) identified five common elements of the knowledge transfer process: (1) problem identification and communication; (2) knowledge, research development, and selection; (3) analysis of context; (4) knowledge transfer activities or linkage interventions; and (5) knowledge, research utilization (p. 160). The most common element noted in models examined in their synthesis are knowledge transfer activities (dissemination) and linkage interventions (interaction, dialogue, and the use of intermediaries). The elements can also be arranged into three different transfer processes: linear, cyclical, and multidirectional. The multidirectional process involves a variety of stakeholders and activities and emphasizes the personal nature of the process. The roles and attitudes of, and relationships among, stakeholders are included in this type of model. My study explores the type of transfer processes that occur within Connections and the types of knowledge transfer activities and linkage interventions that were used.

Coburn and Stein (2010) use qualitative cases to generate theoretical development in KMb. They chose eight projects that met the following criteria; they were established, existed for five or more years, had a track record, and were viewed as successful (p. 9). Two additional cases were selected as they were emerging at the beginning of the study and were included in order to study research-practice interaction in detail and in real
time. Similar to Honig (2004), Coburn and Stein (2010) consider the interactive space between research and practice, and their selected cases focus on the nature of linkages and factors that facilitate interactions within the space. The cases demonstrate the intentional efforts to bring research and practice together and the multiple pathways through which the interactions may operate. Together the cases highlight three key themes: network (collaboration), tools, and events, all of which have been cited as KMb linkage activities (Baxter, 2010; Cooper, 2014; Datnow & Park, 2010; Ikemoto & Honig, 2010).

**Knowledge Mobilization Strategies**

**Networks (Collaboration)**

Networks can be an effective mechanism for knowledge mobilization. Networks are established to address a common concern with efforts aimed at bringing research and practice together through interactive processes. The success of a network is based on collaboration, pooling of expertise, and shared knowledge (Coburn & Stein, 2010; Gagnon, 2011; Haythornthwaite, 2006; Kramer & Wells, 2005; Manion et al., 2009).

Several studies in KMb are provided by the health sector (for examples, see Fournier, 2012; Lomas, 2007; Mitton et al., 2007; Ward et al., 2012). It is encouraging to see other studies emerging that cross over from health into education. One notable Canadian example includes the work of the Child and Youth Mental Health Information Network. It is an emerging collaboration of five partner organizations (The Provincial Centre of Excellence for Child and Youth Mental Health, The Offord Centre for Child
Studies, Children’s Mental Health Ontario, Evidence-Based Education and Services Team (E-Best), and eMentalHealth.ca) that seek to bring research to practice in children’s mental health through knowledge exchange activities. The partners engage all system levels to create a culture change that supports the sharing of information and the process of embedding evidence-based practices in services. Together they facilitate and enhance one another’s work as they bring experience and leadership to the task of knowledge mobilization. The partners are moving away from passive knowledge transfer processes and into more interactive activities where commonalities among stakeholders are identified and networks are established so that information, services, resources, and products can flow in multidirectional ways. This partnership highlights the complementary knowledge exchange activities and joint initiatives that are occurring within Ontario. Some of the partners within this network supported the Ontario Ministry of Education in the development of the resource document, Supporting Minds: An Educator’s Guide to Promoting Students’ Mental Health and Well-Being (2013b), thus bridging the research-practice gap between health and education. Other examples of cross-Ministry collaboration are emerging to address specific needs including the intermediary considered in this study.

Kramer and Wells (2005) suggest the goal of the network strategy is to transfer knowledge, resulting in knowledge use, not just dissemination, by: (1) targeting a specific audience; (2) making knowledge from research accessible, understandable, and useful in practice settings; and (3) generating context-specific knowledge through personal interactions and linkages. The authors examine the process of transferring a complex
body of knowledge about safety/ergonomics from a research institute to practitioner-based settings within Ontario's Health & Safety Prevention system using a network-based strategy. Kramer and Wells found that knowledge, resources, activities, and learning flowed between different social structures within the networks, changing the behaviour of individuals and organizations.

Kramer and Wells (2005) identify key lessons for using networks as a KMb strategy. First, networks are created and maintained by facilitating the flow of information, services, and products. Second, networks are dynamic and require cultivation through frequent interactions. Third, someone (e.g., a knowledge broker) is needed to bridge the research and practitioner communities, and to facilitate the exchanges of resources, information, and activities. Fourth, a champion who can establish strong links with other participants in the network can facilitate and maintain network building and interactions.

Coburn and Stein (2010) provide two examples of design research (research-practitioner collaboration) projects that establish productive collaborations among networks. The cases highlight the interactive processes that occur across research and practice and recognize the complexity of collaborative work among multidisciplinary networks. The first project involves researchers and teachers working together to create curricular materials for large-scale use (Engle, 2010). Phase one of the project includes understanding how leaders can lay the groundwork for productive multidisciplinary work, while phase two demonstrates how trust and knowledge of others' expertise allows researcher and teacher roles to diverge while still maintaining collaboration. The second
project involves efforts of district-level practitioners, teachers, and researchers to move toward transformative system-level goals through curriculum development (D'Amico, 2010). The first phase of the project yields insight into how expertise of teachers and researchers are used in different contexts. The second phase demonstrates the shift in focus from curriculum design to professional development design. This shift in design resulted in new roles for teachers as they moved from curriculum designers to lead teachers, and for researchers as they moved from researchers of subject-specific learning to research of professional development.

*Connections* brings research and practice closer together through interactions among multidisciplinary networks. The process allows for knowledge, resources, activities, and learning to occur through intentional interactions and linkages. The goal of networks is usually focused on improving practice by coming together to close the evidence-practice gap. My study provides an in-depth view of how networks can be used as an effective KMb strategy while recognizing the complexity of collaboration.

**Products (Tools)**

Tools are suggested to be a key mechanism of intermediary work. Tools are “artifacts that embody research knowledge in ways that are directly useable in practice” (Coburn & Stein, 2010, p. 73). In linear models, tools are viewed as a means of disseminating research knowledge directly to practitioners with little to no interaction occurring. Coupled with interaction, tools can engage practitioners in new work practices and deepen their activity with and understanding of research (Baxter, 2010; Cochran-Smith & Lytle, 1999; Cooper, 2014; Datnow & Park, 2010; Hatch & White, 2002;
Ikemoto & Honig, 2010). The cases noted by Coburn and Stein (2010) illustrate how research and practice can be bridged by scaffolding the learning of practitioners so that they can use the tools in practice while maintaining the integrity of the research. The *Connections* program uses various tools, such as data collection forms, information fact sheets, meeting minutes listing ABA strategies, resource guide books, and research summaries, in order to engage teachers with research through interaction (e.g., modelling, discussion).

Datnow and Park (2010) show how the mechanism of dissemination in combination with extensive practitioner professional development gives practitioners the opportunity to learn how to implement tools that embody research knowledge. They studied the Success For All Foundation (SFAF), which outlined a comprehensive set of tools to improve students’ reading performance at two Success For All (SFA) schools in California. SFA was implemented in the 1990s across several hundred elementary schools over three decades. This case shows the importance of shifting from a linear model to “goal-focused implementation” where research knowledge is embedded directly into tools that practitioners then adapt to meet their local contexts (p. 73). *Connections* can be considered goal-focused as research (principles of ABA) is directly embedded into the tools developed for teacher use. Teachers have the freedom to adapt the tools to meet their practice context. My study explores teacher perceptions of tools and whether or not they used or adapted tools and if so how.

Datnow and Park (2010) conceptualize the relationship between research knowledge and practitioner knowledge using the work of Hatch and White (2002) and
Cochran-Smith and Lytle (1999). Hatch and White identify two issues about knowledge: (1) how to capture knowledge so that schools can use it; and (2) how knowledge developed by researchers outside of schools relates to local knowledge of educators. Cochran-Smith and Lytle (1999) provide three ways that research knowledge and practice knowledge can come together: (1) knowledge for practice (commonly referred to as formal knowledge and theory where research is translated for practice and teachers are considered to be the consumers); (2) knowledge in practice (practical knowledge where knowledge is embedded into practice and teachers reflect on their practices to deepen their own knowledge and expertise); and (3) knowledge of practice (teachers learn when they generate local knowledge of practice and question their practice through action research and communities of practice) (Cochran-Smith & Lytle, 1999). Datnow and Park (2010) use their case study to demonstrate how tools can move from knowledge-for-practice (linear model) to knowledge-in-practice (multi-directional model).

Ikemoto and Honig (2010) use sociocultural learning theory to ground their analysis of how the Institute For Learning (IFL) used tools to guide the thinking and actions of leaders who were involved in efforts to improve teaching and learning at all levels of their organization. The IFL is located in the Learning Research and Development Center at the University of Pittsburgh and has assisted more than 25 urban districts in using research since 1995. Ikemoto and Honig investigated the IFL’s efforts to link research and practice and the role of tools. They studied the data from two mixed-methods studies of IFL’s collaboration with eight districts and found that tools coupled with “assistance relationships” (p. 94) can engage practitioners with research and new
practices. IFL leaders drew from cognitive science research to design tools that assisted practitioners with identifying research-based concepts, engage with these concepts through targeted professional development, and then apply them in their practice.

The IFL case study suggests that tools scaffold the learning of practitioners by enabling thinking and action. Tools must help practitioners deepen their engagement with particular ideas based in research and constrain and enable thinking and action. Ikemoto and Honig (2010) refer to the importance of understanding the type of tool being used, conceptual or practical. Conceptual tools take the form of “principles, frameworks, and ideas” (p. 95) and include frameworks that can be applied across many settings. Practical tools take the form of “practice, strategies, and resources” (p. 95) that have local and immediate use in a practice setting. Thinking shifts practitioner action when using conceptual tools, whereas action shifts thinking when using practical tools. My study explores the nature of tools in Connections and whether they are considered to be conceptual, practical, or a combination of both. For example, a fact sheet summarizing the principles of ABA can be considered conceptual, while an individualized data collection form for a specific student developed using the principles of ABA can be considered practical.

Ikemoto and Honig (2010) cite the potential of intermediaries in helping practitioners engage with research-based tools by embedding research in tools and helping practitioners to understand how to “maintain the integrity of those ideas when using the tool” (p. 96). Social opportunities are suggested as a means through which practitioners engage with the tools and with others, which can lead to shared
understandings that could not happen if the practitioner operated alone. Modelling how to use the tool in practice can also assist the practitioner by allowing the practitioner to see how research-based tools can be implemented in a practice setting. Together these two cases demonstrate the ways in which tools can be used as a mechanism to mobilize research knowledge into practice. *Connections* offers teachers opportunities to observe tools being used in different settings (e.g., classroom and IBI therapy).

**Events**

Events are another KMb strategy used to bridge research and practice. Events can be used to facilitate linkages and partnerships and can support the implementation of research-based tools. Events such as professional development opportunities (e.g., workshops, conferences, individual interactions) can allow for direct dissemination, reflection, and dialogue about research (Borko, 2004; Cooper, 2014; Grossman et al., 2001). Borko (2004) proposes that change to classroom practice relies on teachers; thus educational scholars and policymakers are considering the importance of professional development and capacity building events to knowledge mobilization. Borko maps the terrain of research onto teachers’ professional development. As shown in the previously cited cases included by Coburn and Stein (2010), professional development is a necessary factor in the implementation of research-based tools. Professional development is considered to be naturally occurring in all *Connections* programs through a variety of avenues, such as multidisciplinary team meetings, one to one interactions (e.g., between ASD SSP consultant and the teacher), and school, board, and MOE workshops. My
study explores the different types of professional development that were provided and teacher perceptions of the professional development.

Knowledge Mobilization Characteristics

Interpersonal Connections

Lomas (2007) suggests that more formal recognition of the interpersonal role of knowledge brokering is needed to determine its value as a knowledge mobilization mechanism. Lomas claims that “interpersonal connections needed to bridge this know-do gap” could be developed through the use of knowledge brokers (Lomas, 2007, p. 129). Lomas promotes a linkage and exchange model as a way of connecting research to action and highlights the role of social interaction and interpersonal networks. He states that this “social focus points to human interaction as the engine that drives research into practice” (p. 130). Lomas provides examples of knowledge brokering activities dating back to the 1800s but focuses on more recent examples such as the Canadian Health Services Research Foundation. Lomas defines knowledge brokering as:

All the activity that links decision makers with researchers, facilitating their interaction so that they are able to better understand each other’s goals and professional cultures, influence each other’s work, forge new partnerships, and promote the use of research-based evidence in decision making. (p. 131)

Lomas (2007) further outlines the attributes and skills of knowledge brokers within the health services field, which could be replicated by brokers operating in an education context. Brokers:

- are entrepreneurial (able to network, problem solve, demonstrate innovativeness)
- are trusted and credible
• are clear communicators
• understand the cultures of both the research and decision-making environments
• are able to find and assess relevant research in a variety of formats
• can facilitate, mediate, and negotiate
• understand the principles of adult learning (p. 130).

Some or all of these attributes and skills may be necessary for intermediaries in Connections and are examined in an effort to understand their role in the work of KMb. Kramer and Wells (2005) cite building trust and credibility as a cornerstone of establishing goodwill when developing inter-organizational networks to facilitate knowledge exchange, noting the importance of the knowledge broker in building trust. When attempting to mobilize knowledge within a multidisciplinary partnership, the KMb broker needs to be aware of the significant role of relational trust to KMb efforts.

Nutley et al. (2007) suggest that research can alter knowledge and understanding and, when used, “may be as much about shaping attitudes and ways of thinking as having a direct influence on decision making” (p. 34). When research is used, there is an interaction among the findings of the research, the knowledge, and the experiences and attitudes of the educator. Nutley et al. suggest that knowledge brokers (individuals or agencies) can sift through and disseminate research findings and act as a “bridge between the research and policy communities” (p. 63). Knowledge brokers have the potential for translating research for practitioners to ensure that findings are targeted to the right people at the right time. While the research to policy connection is focused upon using knowledge brokers, there are also encouraging studies emerging that examine the use of brokers in practice communities. My study explores the intermediary role of Connections in KMb.
The role of leadership within KMb efforts is considered important to the effectiveness of any collaborative partnership, including the work of an intermediary. Leaders assume three main roles: (1) architects; (2) information brokers; and (3) boundary spanners (Smith & Wohlstetter, 2001). Architects ensure that structures are in place to facilitate participation. Information brokers ensure that relevant information is distributed throughout the partnership, removing the requirement to sift through information. Boundary spanners act as liaisons with the external environment as both a speaker and a buffer for the partnership (Smith & Wohlstetter, 2001).

Leaders can be identified by virtue of their access to resources and their networking abilities. A leader has the ability to be the initial champion of the partnership in its emerging stages, ensure the activities within the group and the goals are in alliance, and get the partnership “back on track” if it diverges (Coburn & Stein, 2010; Wohlstetter et al., 2005). Cordingley (2008) suggests that leaders can play a key role in professional development by introducing research findings related to local contexts and ensuring that professional learning is personalized within the partnership.

The social context, particularly, the role of relationships in developing collaboration, is important for KMb intermediaries to understand. Bryk and Schneider (2002) conceptualize relational trust as a three-level system: (1) intrapersonal (individuals must discern the intentions of others); (2) interpersonal (role relations are formed by institutional structures and individual communities); and (3) organizational (decisions and consequences occur here). Three Chicago urban elementary schools engaged in decentralization reform are used to explore the utility of Bryk and Schneider’s conceptual
Bryk and Schneider (2002) suggest a dynamic interplay among four criteria (respect, competence, personal regard for others, and integrity) that together form the basis of relational trust. A deficiency within any of the four variables can undermine relational trust. Respect is described as the “recognition of the important role each person plays in a child’s education and the mutual dependencies that exist among various parties involved in this activity” (p. 23). Competence concerns the execution of role responsibilities. All stakeholders make judgements about issues regarding competence, but Bryk and Schneider found that application of the competence criterion involved significant irregularity in the education context. Principal competence (or incompetence) is often evident because the role is more visible, while teachers’ practices typically occur in private settings (e.g., the classroom). Relational trust may still exist when incompetence occurs but gross incompetence was shown to be corrosive to relational trust. Personal regard for others represents a commanding element of trust discernment in education contexts. Relational ties can be strengthened when members reduce others’ sense of vulnerability. Role set relations are also considered important variables as specific expectations and obligations characterize each role. Power bases can directly affect the nature of relational trust and, while there are visible power distribution levels (e.g., a principal is often perceived to have more power than a teacher), Bryk and Schneider found that no single role holds complete dominance; thus all members remain vulnerable to one another. Finally, integrity includes a consistency between what people
say and do. Integrity can promote solidarity among team members by conveying the message that the work is rooted in shared beliefs and values.

Shared Understandings

Gorman (2004) uses concepts from cognitive science and science technology studies and the metaphor of trading zones (how people from different cultures interact). Gorman outlines the conditions necessary to facilitate collaboration. He defines mental models as both individual and shared representations. Gorman argues that successful multidisciplinary partnerships will share mental models, which allows for contributions from all members. Members from diverse fields are then able to jointly contribute to the understanding of the collaborative work. In the context of collaboration, Gorman considers boundary object trading zones where different stakeholders view the object (or task) in diverse ways. Due to these different perspectives, divergent understandings arise leading to misunderstandings within the partnership. However, in a shared mental model, Gorman suggests common understandings will emerge, understandings that allow various partners to contribute to the development of new knowledge.

The literature considers two aspects, shared understanding of the task and shared understanding of the group. A shared understanding can connect members to each other in diverse and complex ways (Gorman, 2004; Tindale, Stawiski, & Jacobs, 2008; Wenger, 1998). Connections strives to develop shared understandings of both the purpose (task) and of the group (common understandings, purpose and meaning of the work). These shared understandings are particularly important since participants are from diverse backgrounds, and roles and responsibilities were shown to become
confusing in some cases. Shared mental models are needed to accommodate the interests and priorities of all stakeholders within the partnership. Partners need to learn and agree on certain aspects so that they know how to accomplish their work (Haythornthwaite, 2006). Knowledge about others including their expertise, approaches, and working styles helps to enhance collaboration as team members can use the skills of other team members.

My study considers the role of shared understandings, the use of common language in communication (Coburn & Stein, 2010; Gagnon, 2011; Grossman et al., 2001; Haythornthwaite, 2006), and the importance of relational trust and leadership to the productivity of collaborative work within a multidisciplinary partnership.

**Connections-Specific Research**

To date there is only one study related specifically to Connections. It explored the program within the concept of a personalized service for students (Gougeon & Bisnaire, 2011). This study had a sample size of nine parents and 10 service providers. The researchers collected information in three phases from different sources: literature and document review, questionnaires and semi-structured interviews with parents of children who had been or were currently in Connections, semi-structured interviews with staff from the Autism Program of Eastern Ontario who were involved in Connections, and child chart reviews to see if Connections informed treatment and personalized service for the child. Teachers (and practice settings) were not solicited for participation due to time constraints, limiting the perspectives to families and service providers. The synthesis review suggests an operational definition and conceptual model for
personalized services in the context of Connections in Eastern Ontario. Supports and barriers are identified along with potential and real impacts on service. Youth-focused outcomes-based collaborative assessment tools specifically for Connections are identified, described, and adapted. Gougeon and Bisnaire (2011) attempted to build on emerging theoretical and practical foundations that exist in the literature on personalized services. They used four guiding objectives: (1) to develop a tentative definition of ‘personalized services’; (2) to identify supports and barriers in the transition process between IBI and full-time school along with the causes and impacts of the supports and barriers; (3) to create a conceptual model for ‘personalized services’; and (4) to find and adapt child- and youth-focused outcomes-based collaborative tools.

One of the most prominent findings is that personalized services occur when all stakeholders have a shared understanding, common language for communication, and a shared vision for the student being supported. Personalized services are comprised of multidisciplinary partnerships that are created and sustained through procedures and supports and where services are intended to be evidence-based. A framework of personalized services was developed including three components: procedures and supports, shared vision, and common language. Gougeon and Bisnaire (2011) proposed that these three components engage each other in ways that allow other supports to become possible including caring and competent teams, open communication, and buy-in. In combination, these components can lead to “flexible and responsive care” (p. 5). They found that an absence of one or more supports results in barriers to personalized services.
Gougeon and Bisnaire (2011) highlighted the importance of common language, shared understandings, and shared mental models to KMb efforts. These are prominent themes in the literature on collaboration (Coburn & Stein, 2010; Gorman, 2004; Gougeon & Bisnaire, 2011; Kaats & Opheji, 2014). Shared mental models are those knowledge structures held by team members that contain similar content. These mental models show how each team member's knowledge may contribute to learning. Shared mental models can facilitate effective collaboration and are context-specific. Collaboration is often confronted with challenges of establishing common frames of reference and shared understandings. These challenges might require negotiation to build and maintain a shared conception of a problem.

My study may fill a gap from Gougeon and Bisnaire (2011), as teachers were interviewed, thus adding the important practice perspective. Connections provides the context for intermediary knowledge mobilization efforts through intentional interactions, the design and implementation of tools or products to bridge research and practice, and events rooted in research (e.g., professional development opportunities). Together, these efforts facilitate the development of conditions that may help to engage teachers with research and policy.
Summary of the Literature

The literature on knowledge mobilization illustrates the importance of the social context (particularly relationships) and the many forces at work that either facilitate or hinder efforts to integrate research into practice. With the growing pressure to ensure that education policies and practices are based in research, educators are enlisting intermediaries to support with policy and practice implementation. Knowledge mobilization strategies are increasingly being explored within education contexts as a means to bridge the gap between research and practice (Campbell, 2011; Coburn & Stein, 2010; Cooper, 2014; Cordingley, 2008; Honig, 2004; Levin, 2004; Lomas, 2007; Manion et al., 2009; Ward, Smith, House, & Hamer, 2012). Intermediary brokering functions (e.g., linkages and partnerships, awareness, accessibility, capacity building, and engagement) and strategies (e.g., networks, products, and events) are important to consider in context when using an intermediary to support research-practice partnerships (Cooper, 2014).
CHAPTER 3: METHOD

This chapter describes the qualitative research design that was used for my study. A qualitative case study approach was used as it explored a "bounded system" (case over time) through in-depth data collection involving multiple sources of data (documents and interviews). My multi-case study (n=6) allowed me to organize the data by specific information-rich cases for an in-depth study of the interactions that occurred within a KMb intermediary, Connections. Because Connections occurred across multiple school sites, these cases allowed me to explore convergences and divergences of findings. This approach allowed for a holistic understanding of a phenomenon within a real-life context (Creswell, 2009).

This study was conducted in three phases. First, a comprehensive document analysis was conducted including a review of the following: (a) all common documents specifically related to Connections produced by the MOE, MCYS, and Pathways for Children and Youth (e.g., memos, guidebooks, fact sheets) and provided to school boards across Ontario; (b) all common documents related to Connections written by the special education department of the Eastern Ontario school board and provided to each teacher participating in Connections within this school board and in my study; and (c) education policy PPM 140 (Policy/Program Memorandum: Incorporating Methods of Applied Behaviour Analysis (ABA) into Programs for Students with Autism Spectrum Disorders (ASD). In phase two, I conducted in-person, one hour, semi-structured interviews with six teachers involved in Connections. In phase three, I examined the specific
Connections files that corresponded with each teacher participant including multidisciplinary meeting agendas, meeting minutes, consent forms, team contacts, and other documents specific to the case (e.g., student-specific tools or research summaries).

**Procedures**

**Ethical Considerations**

Ethics clearance was obtained from the General Research Ethics Board (GREB) at Queen’s University prior to data collection (Appendix E). Ethics clearance was then obtained by the Ontario district school board included within my study. This study was low risk to participants with no foreseen social, emotional, or physical risks. A Letter of Information and Consent Form (Appendix F) were emailed to participants with signed copies returned in person prior to data collection. Participants were given the opportunity to withdraw at any time before, during, or after the study. The anonymity of participants in the study was protected at all times. No school board staff members (e.g., principals) were informed of the teachers who were participating. Each participant was given a pseudonym and, where students, schools, parents, administrators, or ASD SSP consultants were named, their names were replaced with roles (e.g., student, school, parent, principal, and ASD SSP consultant).

During data collection, analysis, and the writing of my thesis, the written records and audio files were kept in a locked filing cabinet in my home office. All computer files were password protected. All research data will be destroyed after five years of the completion of the study. Paper data will be shredded and digital data deleted at that time.
Role of the Researcher in Connections

I was involved with Connections as the school board lead from 2009 to the spring of 2013. My role was to initiate Connections with each school team (provide a school board developed Connections guidebook and meet with the team to review PPM 140 and the Connections mandate). After that, I organized the initial meeting with the external partners, school teams, and parents. At the first multidisciplinary meeting of Connections, I provided an agenda including discussion items such as PPM 140, the purpose of Connections, the timeline for Connections, and a form with all multidisciplinary team members' names and roles. This agenda was consistent for every Connections case. Prior to this first meeting, parents were provided with the school board developed parent guidebook to Connections, which was the same as the school team's guidebook. I attended and chaired all Connections multidisciplinary team meetings and completed and distributed the meeting minutes, but I did not attend the consultations between the teachers and the ASD SSP consultants and ABA Advisor unless requested. Meeting minutes were distributed within 48 hours of the meeting, and team members were invited to clarify or request amendments. I led one to three Connections at any given time.

While I had a working history and knowledge of the participants and the Connections process, I did not ever have any control or influence over teacher assignments nor did I hold evaluative authority. Prior to conducting the interviews, I changed positions and was no longer the school board Connections lead. Given my involvement in Connections, I had an advantage to conducting this study and the
interviews. Due to my familiarity with the program and processes, I feel that my probes were much more focused and elicited more detailed responses that might not have been possible from a third party interviewer who was less familiar with the process. I also acknowledge some of the drawbacks to my existing relationships with the participants, namely researcher bias. My personal bias was monitored through reflexivity, which demanded rigorous examination of my personal and theoretical commitments for “framing the research problem, generating particular data, relating to participants, and developing specific interpretations” (McMillan & Schumacher, 2010, p. 332). I was aware of this process of self-scrutiny throughout the study and used a reflexive journal to monitor and evaluate my subjectivity and perspectives due to my involvement in the Connections program.

Recruitment

The inclusion criteria for teacher participation required that: a) the teacher participated in Connections within the last three years, and b) if the teacher was involved in Connections at the time of the interview, the program would have ended by December 2013. This date was determined to ensure that Connections was completed prior to the interviews in order to have a full program perspective. There were a total of 16 Connections cases within the school board between 2010 and 2013. Within the 16 Connections cases, three teachers participated in two Connections each (total of six Connections cases), one teacher retired in June 2013, and one teacher moved out of province. Neither of those two teachers was asked to participate in the study. Two Connections cases closed (one student moved school boards one month into the process
and the other was cancelled by the parent). Three Connections cases were closed after December 2013 excluding them from the study as per the inclusion criteria. Consequently, after reviewing 16 cases, six teachers met the inclusion criteria and were included in the study, one of whom was a replacement for the retired teacher.

After determining the participants who met inclusion criteria, I examined their Connections case files a second time including meeting agendas, meeting minutes, consent forms, student records, team contacts, and any other documents attached to the case (e.g., tools developed specifically for the teacher). Each teacher was contacted by email or in-person so that I could explain that I was a Master of Education candidate and share my research focus. I asked the teachers if they would be interested in participating. Each teacher said she was. I forwarded them a Letter of Information and Consent Form and terms of reference (Appendix G). All teachers had the opportunity to ask me questions prior to signing the consent. Three teachers wanted to confirm that their principals would not know about their participation. Teachers were assured that all information was confidential, and pseudonyms would be used to protect their identities. The school board was not identified nor were the individual schools. Once consent forms were signed and received, I began to arrange interview times and locations with each teacher. All interviews were conducted outside of school hours in a location of the teacher's choosing. I reminded all teachers that they had the notes from their Connections cases available to them if they wanted to review them prior to the interview (a copy was available in each school and I had a copy if the school copy was unavailable). I asked teachers to bring products (tools) if they still had any available. When meeting with
teachers, I advised them that they could ask for clarification of a question, refrain from answering a question, or withdraw from the interview or the study at any time.

Data Collection

Participants

Connections multidisciplinary team members generally include the principal, classroom teacher(s), special education resource teacher, special education consultant (school board Connections lead/chair), and school board Applied Behaviour Analysis Advisor (boards have different names for this position but within this study it is referred to as the ABA Advisor), ASD SSP consultant (Pathways for Children and Youth), parent/guardian, clinical supervisor for IBI, IBI lead therapist (Pathways for Children and Youth or private IBI provider), and additional people or agencies who may support the student in or outside of school (e.g., occupational therapist, physical therapist, speech language therapist, Children’s Aid Society, Community Living). The Connections team profiles for this study are included in Table 3. Teachers have been given pseudonyms to protect their identities. Bolded students are those Connections cases that were discussed. Teachers were given the option to talk about one or both students if they had two Connections cases. Each chose to speak about only one.
**Table 3**

**Connections Team Profiles**

<table>
<thead>
<tr>
<th>Teacher Profile</th>
<th>Student Profile</th>
<th>ASD SSP Consultant</th>
<th>Number of Team Members</th>
<th>Length of Connections Process</th>
</tr>
</thead>
</table>
| Amanda, elementary special education resource teacher for Student 1; secondary special education resource/classroom teacher for Student 2 | **Student 1:** Male, Grade 2, regular classroom  
**Student 2:** female, Grade 11/12, special education partial integration placement  
--- | Student 1: C1  
Student 2: C1 | 7  
9 | 9 months  
13 months |
| Catherine, elementary special education resource/classroom teacher | Male, Grade 2, special education partial integration placement | C2 | 10 | 8 months |
| Laura, secondary special education resource/classroom teacher | **Student 1:** Male, Grade 10, special education partial integration placement  
Student 2: Male, Grade 12, special education partial integration placement | Student 1: C3  
Student 2: C3 | 10  
7 | 11 months  
11 months |
| Maria, elementary special education resource teacher | Male, Grade 3/4, regular classroom placement | C2 | 9 | 10 months |
| Lynn, elementary classroom teacher | Female, Grade 1, regular classroom placement | C2 | 10 | 11 months |
| Dara, elementary classroom teacher | Male, Grade 2/3 (moved from Amanda’s school to Dara’s school) | C1 | 8 | 9 months with Amanda in one school; final 3 months in another school with Dara |

*Note.*  
a Student’s **Connections** program spanned over two academic grades.  
b Special education partial integration placement – student is in a special education resource program with a full-time classroom teacher who holds special education qualifications (as per Ministry of Education definition).
Documents

My case study examined a number of documents. Documents were organized according to the sequential phases in my data collection and analysis including: (1) common documents created to provide information and direction to all Ontario school boards by the MOE, MCYS, and Pathways for Children and Youth; (2) common documents produced by the special education department within the Eastern Ontario school board involved in this study provided to each Connections team; and (3) case-specific Connections files including multidisciplinary meeting agendas, meeting minutes, consent forms, team contacts, written correspondence shared among all team members, and other documents specific to the case (e.g., student-specific tools, research summary).

Interviews

Patton (2002) describes the purpose of interviewing as the ability to enter into another person’s perspective and to gather his or her stories. I prepared an interview guide using a combined approach that allowed me the “flexibility in probing and in determining when it is appropriate to explore certain subjects in greater depth, or . . . to pose questions about new areas of inquiry that were not originally anticipated” (p. 347). One hour, semi-structured interviews were conducted with six teachers involved in Connections.

Nineteen questions were developed by using my conceptual framework as a guide (Appendix H). By developing standardized open-ended questions, I was able to ask questions that focused on the priorities of my study, namely my research questions. Standardized open-ended questions allowed me the flexibility to probe participants for
deeper responses. I developed four types of questions based on experience and behaviour, opinions and values, feelings, and knowledge (Patton, 2002). Each question was reviewed to ensure that it was clear and singular. I reviewed each question for clarity of language to ensure that words would make sense to participants. These questions were also reviewed and revised with my thesis committee with further feedback provided in the proposal colloquium. Any terms that might have been unfamiliar to participants were provided before and at the start of each interview (e.g., knowledge mobilization). I purposely asked questions about PPM 140 midway through the interviews so that I had a chance to establish rapport and comfort with participants in order to reduce the potential feeling of being "tested" about policy.

Teachers chose the time and location for the interview. Interviews ranged from 35 to 70 minutes. At the beginning of each interview and prior to recording, I provided teachers with a paper copy of the Letter of Information, Consent Form, terms of reference, and PPM 140. I provided time (approximately 10-20 minutes) for teachers to review all documents and started the interview when they indicated they were ready. I also had each Connections file available for reference. All teachers asked to review the contents of their team-specific Connections file (containing meeting agendas, meeting minutes, consent forms, team contacts, written correspondence shared among all team members, and other documents particular to the case such as student-specific tools and research summaries) prior to starting the interview. When I asked questions related to PPM 140, all teachers referred to the printed copy of the policy a second time. Some
teachers read through the entire policy prior to answering questions, while others only read parts of it.

During each interview, I made written notes capturing key phrases and topics that participants brought forward on their own (e.g., parent role in *Connections*) to include in my data analysis. I labelled each interview with the participant's initials, pseudonym, and date of interview on the digital recording and computer file. The audio recordings were saved on a hand-held digital recorder, Voice Recorder (iPhone application), and on my computer, each protected with a password. I listened to each interview within 24 hours of recording and made additional notes. I manually transcribed each interview and attached my notes to the end of the transcript. After transcription, each participant was sent a copy via email. Member checking (Creswell, 2009) allowed teachers to review their transcripts for accuracy prior to data analysis. Teachers were given two weeks to return comments, questions, or requests for amendments. No changes were made to content.

**Trustworthiness**

Many considerations were made throughout the research design, data collection, and analysis phases to promote trustworthiness of results. Given my involvement in *Connections*, I recognized the potential discomfort my role might cause for teachers and put measures into place to address my involvement as previously outlined in this chapter.

Multiple data techniques were used including interviews and document analysis (common and case-specific documents). The teachers expressed similar views illustrating the reliability of the data and emergent themes. I conducted a cross-data
reliability check between case-specific *Connections* documents and interview content. When a difference was noted between the interview content and the case-specific documents (multidisciplinary meeting minutes), teachers were given an opportunity to explain their perception of the difference. I sent the highlighted section of the transcript with the corresponding highlighted section of the meeting minutes to the appropriate teacher and asked for verbal or written clarification. This clarification procedure occurred in three cases. Each teacher responded within one week and offered an explanation.

I provided multiple opportunities for teachers to ask me for clarification or to clarify their own experiences before, during, and after the interviews. Using a semi-structured interview approach allowed me the latitude to probe for deeper responses or clarification, and to ask additional questions about topics that the teachers brought up. Some of the interview questions overlapped so that teachers could add to or modify their initial comments. My field notes written during the interview and after reading the transcripts, in addition to my reflexive journal, kept my thoughts and next steps transparent throughout all phases of this study. The combination of these strategies allowed me to construct and reconstruct the process to ensure that the individual analysis of each teacher's experience was accurately done and together presented a holistic representation of the phenomenon being studied.
**Data Analysis**

The experiences of each teacher were the smallest unit of analysis in my study. My study started with deductive analysis as I specified main variables based on my conceptual framework and research questions including awareness and implementation of PPM 140, teachers' perceptions of KMb strategies (networks, products, and events), and teachers' perceptions of enablers and barriers to KMb efforts. As I conducted subsequent analyses of interview transcripts, my analysis was inductive as themes emerged that were not part of my conceptual framework. After completion of each transcription and review of Connections files and field notes, I completed a case summary in an effort to understand individual cases in depth and to ensure that any emerging themes during analysis were context-specific.

I used my conceptual framework and research questions as an analytical framework by conducting content analysis for each transcript, looking for common words or phrases within each group of questions. I began with codes that corresponded with my research questions: policy awareness and implementation of evidence-based strategies, KMb strategies (networks, products, and events), and perceived enablers and barriers to KMb strategies. Use of research in teaching practice and perceived evidence of research during Connections were also included in initial coding. I constructed open codes and in-vivo (terms used by participants) codes to determine significant content.

I coded the interview transcripts manually rather than using computer software. I prepared pieces of chart paper with headings that matched my research questions. I assigned a colour to each participant and reviewed each transcript for repeating phrases
or words that related to each research question. I wrote the words and phrases on the chart paper in the colour assigned to the teacher. As themes emerged under each section, I further refined the codes until I had a total of 26. I conducted multiple readings of the transcripts in order to assist with cross-case comparison; identifying emerging themes that cut across all teacher experiences and assigning a colour to the emerging themes. When no new themes emerged from coding, data analysis of the interviews was complete. I transferred all information from the charts to a Word document including themes and quotations relevant to the themes.

Next, I examined Connections case-specific documents for differences between interview content and document content (specifically, multidisciplinary meeting minutes). When differences were noted, they were added onto the chart paper beside the teacher's contradictory phrase and circled. Differences were also added to the appropriate teacher's case summary. Differences were specifically noted in the area of feelings in relation to the overall experience or perceptions of interactions. Feelings (both positive and negative) were not shared during Connections multidisciplinary meetings, but teachers expressed these feelings during the interviews. Teachers were given the opportunity to review the transcript a second time alongside the meeting minutes to offer clarification or to add to their comments. Three of the six teachers had this discrepancy between interview content and document content (meeting minutes) and were able to express that what was said in meetings was not always their true feelings about the process. These comments were added to their case summaries and included in emerging
themes where appropriate. The reasons for the discrepancies are explored further in the findings and discussion chapters.
CHAPTER 4: RESEARCH FINDINGS

The qualitative findings from this study have been organized into three sections corresponding to the research questions and conceptual framework:

1) What were the teachers' perceptions of research-embedded education policy (PPM 140)?
   a) How familiar were teachers with PPM 140?
   b) What factors influenced their decision whether or not to implement this policy into their classroom practice?

2) What were the teachers' perceptions of the KMb strategies (networks, products, and events) that were used in the Connections program?

3) What were the teachers' perceptions of enablers and barriers to KMb efforts related to the Connections program?

What were teachers' perceptions of research-embedded education policy (PPM 140)?

Teachers were asked to comment on their perceptions of how PPM 140 was mobilized through the Connections intermediary including their familiarity with the policy and factors that influenced whether or not they implemented the policy into practice. PPM 140 includes strategies for implementation that are well founded in the literature regarding Applied Behaviour Analysis. It is a unique policy that builds research directly into the policy.
How familiar were teachers with PPM 140?

Teacher familiarity with PPM 140 ranged from minimal to comprehensive despite similar dissemination structures during *Connections*. PPM 140 was not familiar to all teachers despite the intensive support provided during *Connections* showing the reality of challenges to connecting policy and practice. When asked questions related to PPM 140, all six teachers requested to review the paper copy of the policy. They were all able to answer questions or offer comments regarding their understanding and experience with the policy. They were all able to identify each of the four core evidence-based strategies listed in the policy (individualized program, positive reinforcement, collection and analysis of data, and generalization or transfer of skills) and indicated that they used one or more of the strategies in practice with the student supported by *Connections* and with other students. While teachers perceived themselves to be implementing the evidence-based strategies listed in the policy, they did not connect the strategies directly to the policy. Instead they connected the strategies to *Connections* team members. Maria's comment supported this disconnect:

I don’t think the words would have ever been used…PPM 140 or anything like that but I don’t doubt that if we had to go back and look we would have been checking off and saying look, look at how we’re meeting all of that [PPM requirements] through this process [*Connections*].

Maria felt confident in her knowledge of PPM 140 and felt that she was using the strategies listed in the policy on a regular basis but, when asked if she thought other teachers in her school were aware of and implementing PPM 140, Maria answered:
No, I don't think they know, not that it hasn't been brought to people's attention.

It's like all the other policies we have. It's like everything else. I know we've sat and people have discussed it. We have a PA (professional activity) day that's specified (special education). Teachers are just not engaged.

Maria raised questions about policy dissemination and implementation but also about the engagement level of teachers. Dara indicated that she didn't "see it [PPM 140] as a policy. I kind of think of it as my job," while Laura stated that she felt PPM 140 was "talked about by everybody [Connections team] a lot of the time." Each of the teachers illustrated the differences in perceptions about PPM 140.

**What factors influenced their decision whether or not to implement this policy into their classroom practice?**

There were four factors most cited by teachers as influencing implementation: parents/guardians (perceived parent knowledge of PPM 140 in teacher accountability), availability of support staff to implement requirements of policy, time to prepare and implement evidence-based strategies, and inequity (fairness to students not served by PPM 140). Teacher perceptions of parent knowledge of PPM 140 varied across cases. Maria didn't think that the parent on her team knew about PPM 140 or that "it's alive." In contrast, Amanda saw PPM 140 as driving the process and commented that the parent was:

So much more well-informed on what our [school staff] responsibilities were under that policy. So that kept it absolutely on the table…. I mean that’s what
drives the whole thing, that policy so even if we’re not referring to it as PPM 140 all the time, we’re still talking about it.

Although Amanda felt she had a good understanding of PPM 140, its contents, and the expectation that she be implementing the policy into her practice, her comment suggested that, given that the parent was considered well informed, feelings of pressure and accountability were high. These feelings raise a question about whether or not the implementation of PPM 140 would be less intensive if the parent were not considered to be well informed. Two teachers (Amanda and Laura) made direct comments about parent knowledge of the policy as a potential impetus for learning about and implementing the policy with greater commitment. Parent knowledge increased the feeling of teacher accountability, which, in turn, kept the policy at the forefront of the interactions.

All teachers felt that there were factors that influenced implementation of PPM 140. The most cited enabler was the provision of additional human resources to support the teacher in implementation of the strategies listed within the policy. Lynn stated that, if she had been handed the policy, she would have disregarded its significance had it not been for the support of the team. She noted that Connections was involved in supporting the child as well as the staff who were trying to implement the policy. Without the team support, the policy “would have been nothing, it would have been just paper.” With targeted resources supporting PPM 140, Lynn felt more capable and willing to implement the policy. The availability of resources is examined in further detail in the section regarding enablers and barriers.
Teachers all understood the requirements of PPM 140 but admitted that implementing all the elements of the policy was challenging. The following barriers to implementation were listed: a high student-teacher ratio that prohibited implementation of some of the core strategies listed in the PPM, the amount of time and availability of support staff, and the belief that PPM 140 targeted one group of students at the possible expense of other students (e.g., students with ASD are perceived by teachers in this study to receive more attention than students with other exceptionalities or needs). Each of these barriers is examined in further detail in the enablers and barriers section of the findings.

What were teachers' perceptions of the KMb strategies (networks, products, events) that were used in the Connections program?

Networks (Collaboration)

Networks can be a powerful pathway to changing teacher practice by creating regular social contact and building collaborative interactions across disciplines (Cooper, Levin, & Campbell, 2009). Connections provided teachers with a time-committed network of 7 to 10 team members over a timeframe of 6 - 12 months. All teachers indicated that some or all of the following factors influenced their perception of positive or negative collaboration during Connections: feeling safe, respected, and valued; trusting others; having open and honest communication; and having all team members act in a professional manner. Although all teachers expressed this same understanding of what they thought collaboration was supposed to be, their actual experiences ranged from
overwhelming, stressful, uncomfortable, and inflexible to a sense of community and solidarity. While some teachers (Catherine, Maria, and Lynn) had the same ASD SSP consultant, their experiences were different (refer back to Table 2). Collaboration was ultimately impacted by the perception of positive relationships. Relationships are discussed in the section regarding enablers and barriers to KMb efforts.

Two of the six teachers felt that the team was not supportive. Laura noted “I found the whole Connections thing myself stressful…I found going to the meetings stressful…We wanted the best for the student but I found those meetings challenging.” Laura recalled feeling “obligated” to participate in Connections and that she had little choice about whether or not she wanted to interact with the network. She found the personalities to be hard.

What was needed and what was trying to be created was a team, but because there were some strong personalities at the table, it was hard for everybody. It was hard for me to be comfortable at the table because I did feel like I was being told sometimes at a lot of points what to do [by the parent and outside agency].

All teachers expressed that strong (demanding) personalities impacted their willingness to collaborate, decreased their comfort level with interactions, and decreased the likelihood that they would implement recommendations.

Catherine did not like team members offering recommendations without understanding the dynamics of the classroom and the needs of the student. She recalled inviting the ASD SSP consultant into her classroom several times thinking that “If you want to have a [say] and direct then you really need to be here and live the life.”
Catherine recognized that a strategy that works one day may not work the next or in all situations and that infrequent interaction between her and the ASD SSP consultant and the school board ABA Advisor was not helpful. “I didn’t see it [collaboration] help my team that are directly involved [classroom team of teacher and educational assistants]. And it didn’t help the kids in the end I didn’t find.” Catherine felt that, at times, the board ABA Advisor and the principal made her job more difficult:

I found it tricky because often [the ABA Advisor and the principal] were able to meet and talk about things but I got things second hand…so she [ABA Advisor] would talk to me and then she would talk to [the principal] and what [the principal] took from it was different from the conversation I had with her [ABA Advisor] so having a conversation with the three and not having the conversation….I didn’t feel that was a team. I really didn’t and if anything it made my job harder. A lot harder.

Catherine stressed the importance of being able to be involved in communication and often felt that she was being told what to do.

She [ABA Advisor] came in a couple of hours every couple of weeks and then would talk to the principal about what occurred during that time and that was gospel…I found like that was gospel and I found that that hindered my job and made it more difficult for me.

This perception of being excluded from important discussions between the ABA Advisor and the principal created a negative experience of collaboration for Catherine. This situation exposed feelings of vulnerability and highlights the importance of open communication and trust.

All teachers were able to cite one or more examples of situations that demonstrated a feeling of effective collaboration. Lynn stated that “we’re all here
together to support each other…what a valuable thing for a child to know or an adult – we’re here for you.” Maria felt that collaboration was “huge” because the “Connections team was very cognizant of making things manageable and having things that would work for the school team.” She felt “lucky to be part of it,” and she has grown in her knowledge because of her participation.

The perception of whether or not team members had knowledge and strong skillsets in their discipline was important to all teachers. "I guess that’s part of the beauty of it [collaboration] and yet part of the mystery. I never felt that I had to be in control and know everybody. They’re all doing their job" (Lynn). Lynn described the idea of being a part of a team that allows for different people to have different roles. Four of the six teachers recalled that they could ask questions of the different team members at any time and felt that, if they could not have openly asked questions, the process of collaboration would have been hindered. Amanda summarized this sentiment by stating “You’ve got a whole team of experts and if you can’t rely on them without hesitation then there’s no point.” Amanda had positive relationships and felt safe asking questions:

I mean every question has be a safe question, no matter how dumb you think it is…It's like a classroom – you have to be able to take risks for sure because you know as a teacher a lot of this is new. I'm not 100 percent sure what's happening in the IBI setting and I need to be able to ask questions that might make me feel as though I should know the answer and I don't and I never had [any] hesitation to ask anything.

Dara echoed this view:

I guess trust is important because you have to be able to really express what you're feeling and not feel like you are belittled and that your viewpoint isn't seen as important, right? So trust and good communication.
The importance of being able to utilize the expertise of others, feeling safe, and having good communication was important to both Amanda and Dara. Catherine presented a different experience and perceived a lack of expertise in her case:

It was a bit of trick because of having her [ASD SSP consultant] around but not having her really being able to help in any way, like being part of the team, but not being part…that was a bit awkward.

Catherine felt that someone who has “walked the walk a million times, that’s a difference…but someone who has taken a course, great strategies, but they just need to make sure they’re knowledgeable.” Amanda's, Dara's, and Catherine's comments demonstrate the differences in teachers regarding how they think they are perceived by others and how they perceive others within multidisciplinary interactions. Understanding the factors that contributed to these perspectives may help to support the shift from teacher isolation to more visible interactions (Hindin et al., 2007).

Lynn felt that the ASD SSP consultant was the person with whom she collaborated most frequently, but that she initially felt the consultant was “aloof, not really in touch.” Lynn hoped that the consultant grew from the experiences in the classroom because she was coming from the perspective of “here’s the book, this is the way it’s supposed to go versus here’s the book, this is what we try to do, oops, let’s go back and look some more, oops, let’s keep trying.” Lynn initially questioned the skill set of the consultant and her ability to be able to mix her academic knowledge with the realities of the classroom, which initially impacted Lynn's willingness to trust the strategies that were being recommended by the ASD SSP consultant. As Connections
unfolded, the ASD SSP consultant grew in her knowledge about the classroom dynamics, showing the possibility of a positive research-knowledge and practice-knowledge relationship.

When teachers felt the collaboration was strong they referred to “team” and “collaboration” more often within their interview and were able to give more examples and input about other questions (e.g., products, events, policy, and practice). When teachers felt collaboration was weak or stressful, the teachers tended to go back to those feelings throughout the interview and found it more difficult to find positive examples.

**Products (Tools)**

Teachers were asked about the tools (resources, documents, protocols, or any materials) provided by any team member during *Connections* and whether or not they implemented any of the tools into classroom practice. All six teachers felt that the most valuable tools were those that were tailored to the unique needs of the student and could be easily implemented and amended as needed by staff in the school environment. The most referenced tools were those that focused on data collection (for an example, see Appendix I). Three of the six teachers felt that the tools were tailored to the student and were manageable for staff use. Amanda noted:

> There was always a huge and really welcomed emphasis on the fact that everything they [ASD SSP consultant, ABA Advisor] did they wanted to be really practical and user friendly and not overwhelming for the team of people in the classroom who had to implement it. So I would say the products for me on the frontline in the classroom were definitely one of the most valuable things that came out of this [*Connections*].

Tailoring the tools to the student and ease of use for staff was important to teachers. The creation and implementation of research-embedded tools were considered
to be collaborative by Amanda and Maria. They were jointly created by the teacher and either the ASD SSP consultant or ABA Advisor (or both), trialed with the student, and then amended as needed to fit both student and teacher needs. Amanda commented that:

[If the tool] wasn't exactly right we would tweak it. Maybe take out a couple categories or change it and you know I never felt as if 'oh I wonder if I can ask if we can make this a little bit more simple.' I mean it was always, I always felt like it was all about us.

The ability to amend the tools demonstrated the importance of feasibility to the users and the perception that the team member would support the teacher in making the changes.

Although tools were evident in every case, the development and use of them differed. Dara and Laura felt the tools were limited to the beginning of Connections and then school staff took over the creation of additional tools. School staff knew the students better than those providing the tools, and they were able to create what was needed. For Laura, it was her and her staff who were “putting things together in here [classroom] from some of the books and things that [the consultant] would bring in.”

Dara did not receive any tools from the SSP consultant at the beginning: “We did it all ourselves but don’t forget we were really fortunate to have all those EAs (educational assistants) so maybe if I didn’t have that to utilize I would have definitely have said okay I need help.” Without the support staff Dara and Laura had (e.g., educational assistants), they may not have been able to create the tools and then may have needed to ask for assistance from other team members. In this case it was not the skill set of the team
members that prevented using tools but rather the availability of school staff to provide the tools. Dara was unsure if the tools created by the school staff were research-based.

Catherine questioned the effectiveness of the tools provided for her student feeling that they did not correspond with the needs of the student or the reality of the classroom context. She referred directly to a data tracking tool provided by the ABA Advisor as an example. Catherine had a "different data tool that is quicker . . . so I mean there were options there and there looks like there was a month's tracking but did it really help? I don't think so." Catherine and her support staff had more knowledge of the student and created their own tools from the beginning. When reviewing the overall perceived negative experience that this teacher had during Connections, it is not surprising that she resisted tools provided by the ASD SSP consultant and the ABA Advisor. On the other hand, she was very open to suggested tools the parent and consulting psychologist brought forward as she felt that their knowledge of the student and classroom dynamics were more useful and accurate.

Finally, two of the teachers indicated that they were willing to try to implement a tool during Connections if they felt that it had been used repeatedly by colleagues; if the tool was tested in others’ practice, they trusted using it in their own practice. Lynn recalled using only one tool provided by the ASD SSP consultant but two others that she had seen colleagues using: "Okay there's enough people using this tool. The tool's been tested and tried. It's a good tool." Seeing other people use the tool established credibility for Lynn. All teachers felt they were able to create tools on their own based on the initial experiences in Connections. Teachers all referred to tools in a positive way, although
some felt more ownership of and skills at creating tools with their classroom team so that the tools fit the classroom context and the student. Having the right tool at the right time was important with the creation of the tools dependent on the perceived skill sets of the team member providing the tool, the perceived knowledge of the student and classroom dynamics, and the availability of support staff to assist with either developing or implementing the tools.

Events (Professional Development)

Teachers described varying experiences when asked specific questions related to professional development opportunities that were provided by any team member throughout Connections. Events were placed into categories based on type: (a) individual consultation, coaching, or modelling with the teacher by one team member; (b) small group consultation, coaching, or modelling by one team member for a school team (e.g., teacher and classroom educational assistants); (c) large group workshop (e.g., all school staff); and (d) professional development workshop provided by an organization outside of the Connections team (e.g., Autism Awareness, Geneva Centre for Autism).

All teachers felt that professional development opportunities were important to their classroom practice. Although the frequency and type of professional development varied for each teacher, there were some consistencies. First, all teachers participated in multidisciplinary team meetings every four to six weeks at the school where evidence-based strategies were discussed and short- and long-term goals were established. Second, all teachers received individual consultation from the ASD SSP consultant and the ABA Advisor assigned to the Connections team, ranging from minimal (once a month) to
frequent (weekly or more). Consultation took place either in person, by phone, or by email.

Some of the differences occurred in other types of professional development opportunities. Two schools had larger staff trainings about the principles of ABA facilitated by members of the Connections team to include others who were supporting the student (e.g., educational assistants, French teacher, special education resource teacher, youth worker). Five of the six teachers were able to attend workshops provided by either Autism Awareness or the Geneva Centre for Autism as a direct result of participation in Connections. One teacher received direct professional development from a psychologist working with the student, while two others received professional development from private Intensive Behaviour Intervention (IBI) clinical supervisors working directly with the families. Two of the six teachers had at least five personalized professional development sessions over the course of Connections provided by school board staff or the ASD SSP consultant on specific strategies being implemented (e.g., reinforcement or data collection).

Amanda felt she was learning from other professionals, and it was an “opportunity to actually watch and to work with people with a different skill set and a different experience.” She recalled a professional development session designed specifically on:

prompts because we were getting a new tracking sheet where we had to track the kind of prompt that was necessary to get one of our kids to do things and so we arranged a special little meeting with all the EAs [educational assistants] and myself [and we] went over the difference between a partial prompt, verbal prompt, physical, non-explicit verbal prompt because we were experiencing some confusion.
This professional development was a direct result of *Connections* and was conducted in order to address a specific need of the student, teacher, and classroom staff.

The most significant type of professional development cited by teachers was the opportunity to observe the student in the IBI setting. Teachers found it helpful to increasing their understanding of specific evidence-based strategies. Catherine echoed this experience and felt that seeing how the strategies were being used by the IBI therapists was more helpful than being provided with just verbal or written information. She was able to see how the strategies worked in practice and was then able to mold them to fit the classroom environment. She felt more confident using specific evidence-based strategies (e.g., prompting) after seeing them used by the IBI therapist. “I had to see it and see how exactly it was used…and then molded it to fit our kids.” Seeing versus only reading about evidence-based strategies was a strong factor in teacher perceptions of the value of the strategies. Teachers were more willing to implement strategies in practice because they had witnessed these strategies in action in either the IBI setting by the therapist or in the classroom by the ASD SSP consultant or the ABA Advisor. Seeing the tools and strategies and then being able to discuss what they had seen afterwards gave teachers an opportunity to deepen their understanding.

When asked about their perceptions of the evidence-based strategies they were being asked to implement in practice, teachers all commented that understanding the research supporting the strategies was important to them. Amanda considered research to be evident at all points of the *Connections* process. Using research was a “valuable
thing…that was not flying blind…that was looking at past practices and research and finding out what works, what’s most likely to work.” When considering events within Connections, Amanda stated that:

You have to see the research coming forward otherwise it’s just people telling you what to do. You have to feel that what you’re being asked to do has a base in experience and research…You don’t want to feel like what you’re doing is just a shot in the dark.

Amanda revealed the desire for evidence-based practices, while also recognizing the importance of experience. In combination, research and experience (of other team members or the teachers themselves) increased Amanda’s willingness to try something that might have been unfamiliar to her prior to Connections.

Maria had a strong understanding of the evidence-based strategies and did not think of them as new to her practice. The professional development she received through Connections added to her current understanding of the strategies, but the information was not new: “Nothing that Connections asked us to do was new or different – they just helped us build it. They helped us build…they helped us construct and do those things and I think all of that is built on research.” Conversely, Dara would have liked to have seen more research to help her make sense of some of the strategies she was being asked to implement. When probed about personal feelings about research and practice outside of Connections, Dara thought that research would have helped her to choose evidence-based strategies and that it was "unfortunate" that she did not see it during Connections.
There was an unchallenged belief by all teachers that all types of professional development workshops were grounded in research. All teachers commented that the ASD SSP consultant or the ABA Advisor often summarized research (e.g., verbally during team meetings or during consultations or by written summaries of strategies) for them so that there was not a need for the teachers to find or interpret research on their own. Although all teachers expressed an interest in and need for research, none of them actively sought it out during Connections but rather relied on other team members to provide it, demonstrating the persistence of the linear model of research use.

What were the teachers' perceptions of enablers and barriers to KMb efforts related to the Connections program and implementation of PPM 140?

All teachers described enablers and barriers to KMb efforts within Connections and how the enablers and barriers impacted their practice. Each barrier can become an enabler and each enabler can become a barrier depending on the experiences of each teacher within her multidisciplinary team. The experiences shared by teachers in this study elucidated the most common enablers (leadership, availability of multidisciplinary expertise, and resources) and barriers (relationships, misunderstanding of contexts and roles, and perceptions of fairness) that influenced KMb efforts and, in turn, influenced teacher practice.
Enabler: Leadership

Each teacher reported that an identified leader of Connections was needed in order to facilitate collaboration across disciplines and to identify and diffuse emerging challenges. All teachers identified the Connections lead (school board staff) as the person demonstrating leadership. A leader was needed that could “balance all the personalities all the time” (Laura). According to Amanda, there needed to be one person “who’s just really good at helping people to relax, making people feel safe, setting a positive, informal, safe tone for everybody.” For Lynn, a leader “who is going to be trustful or trusting and help us respect and learn from each other and pull us together so that we keep a focus in mind” was needed. Being able to see all points of view, where people were in their learning, recognizing relational dynamics, and being able to move people forward were expressed as being important contributors to effective leadership. These reflections about leadership skills and attributes mirrored those that teachers felt were necessary for effective collaboration within the multidisciplinary team.

When teachers were asked who they thought mobilized knowledge during Connections, they all identified one or more people. One teacher (Dara) named the parent because the parent was the most knowledgeable about her child, while another teacher (Catherine) thought that a consulting psychologist and parent together were best able to mobilize knowledge because they both had knowledge of and experience with the student. Dara and Catherine associated KMb with personal knowledge of the child, not with research knowledge. One teacher (Maria) felt that it was the ASD SSP consultant
who mobilized knowledge because she was still in contact with the consultant for support after *Connections* closed and was still benefiting from the original network.

All teachers indicated that they felt leadership from the school principal was important, and, despite the principal always being a member of each *Connections* team, none of the teachers identified their principals as a leader. Two teachers commented on the lack of leadership demonstrated by their administrators. Lynn linked her perceived lack of leadership of the principal to the absence of research being provided to all staff outside of *Connections*. “There was nothing about how to become better instructors, better teachers, better people.” She recalled working with past principals who promoted best practices and provided evidence but acknowledged that, under her current principal, “staff would talk about best practices but there was nothing coming from up top.” She was hoping that her principal's provision of research might change after participation in *Connections*, but shared that it did not. Catherine attributed her principal's lack of leadership to the distrust she had of her principal during *Connections*. Meetings frequently happened between her principal and ABA Advisor without Catherine's knowledge. Had she been part of the conversations with the principal and the ABA Advisor, they might have both had a better understanding of some of the situations faced in the classroom and collaboration would have been stronger. The “secrecy” was something that Catherine didn’t appreciate and that dynamic was “what I would absolutely change. That dynamic didn’t work, didn’t help the team, and was problematic.” The expectation of visible leadership and being aware and included in interactions both during and between team meetings was important to Catherine.
views about leadership brought to light the potential that past or current conflict (personal or professional) can play in the perception of leadership. For all teachers, the perception of leadership was a factor that contributed to their comfort level and willingness to collaborate or participate in multidisciplinary meetings.

**Enabler: The Availability of Multidisciplinary Expertise**

All teachers described the *Connections* team as multidisciplinary with different expertise available to support teachers with the understanding and implementation of evidence-based strategies. Each team member was believed to have a specific role or job within the *Connections* program. All teachers indicated that a variety of people having knowledge of the student in other settings (home, community, or therapy) was an added benefit to the teacher’s knowledge and understanding of the student. Amanda cited the benefits of the multidisciplinary interactions on several levels:

They occur [interactions] on several levels – the interactions between the professionals or the agencies, and there’s the interactions with the families, and I mean, that’s one of the things that makes *Connections* valuable is that you have a variety of levels of help involved at the same time, which for a teacher, speaking as a teacher was for me, one of the best things about *Connections*. [It] was the chance to work with other people in the community who work with the same kind of issues as I do. Being able to sit and discuss and focus on one child, one family and have that input to problem solve…To have people who work in different settings around the table to say their piece is huge.

Amanda indicated the importance of having different levels of support and sharing a common problem. She elaborated on the benefits of having a multidisciplinary team from which to draw:

The possibility of setbacks is terrifying for parents and as such they’re a little bit more scared, little bit hostile even sometimes and it’s really helpful to have people
who work in different aspects of child care around the table instead of just the teacher.

Amanda's comment reflects the pressure that may be felt by parents and teachers and that having a multidisciplinary team can serve as a support for both. Amanda related her confidence to support from the multidisciplinary team:

It's a good confidence builder too right because, while you're getting your feet wet with a lot of these things [strategies], you've got the support, the close support of this team so that you're not too worried about making a mistake because, as I said before, it's safe.

Amanda felt that her role on the multidisciplinary team was one that allowed her to ask questions and try potentially new strategies in a safe environment.

Lynn echoed this view of multidisciplinary teams:

I think you need outside experts to kind of …be the researchers so if I'm saying that [the ASD SSP consultant] might have only been book smart, but she's bringing that to the table. . . Everyone's bringing their own strengths, their own ideas, no matter how different they are.

Lynn recognized the importance of outside experts, and, although the differences may be challenging, the outside experts still contribute to the overall functioning of the multidisciplinary team and can result in different types of support for the teacher. The idea of having different expertise available to the teachers was an important enabler to KMb efforts.
Teachers were resistant to input from some of the other team members. Catherine felt that people who were not directly involved with the student or staff or who did not have years of practice with similar cases had to be “very careful about what they recommended and think they should be seeing [in the classroom].” She admitted to resisting input from team members other than the parent and psychologist and perceived only those two to have knowledge that could help her to support the student. If someone on the team wanted to have input, they had to be “really respectful of the nature of the kids and the people that are with them six, eight hours a day…and make sure they’ve walked the walk before they offer.” Skill sets and expertise were perceived by teachers as important to working collaboratively. Catherine did not see the expertise of the ASD SSP consultant or the ABA Advisor help her classroom team or her student. She felt strongly that she was not an equal team member as she was often suddenly part of a direction and being told what to do without her input.

No specific questions were asked about parents during the interviews yet all teachers offered their opinion on the engagement of the parents and the perceived role they played (positive or negative) within the multidisciplinary team. Four teachers (Maria, Dara, Maria, and Catherine) found the parent to be an instrumental member of the team and able to offer timely and consistent expertise on their knowledge of the student. These teachers thus considered the parents to be as much of an "expert" as any of the professionals on the team. Establishing rapport and open communication with the parent was important to the teachers. Two teachers (Lynn and Amanda) found the parents' involvement to be challenging and linked it to a misunderstanding of the
different contexts (school and therapy). This particular challenge is explored further in the barriers section.

**Enabler: Resources**

All teachers expressed a desire to implement the evidence-based strategies listed in PPM 140 as well as many of the recommendations provided through their participation in *Connections* into practice. The two main enablers considered to be important resources were time and human resources, specifically, the support of educational assistants with knowledge of ASD.

All teachers except one cited the availability of additional time as important to effectively implementing the correct strategies. Laura needed "time to plan the program and to do all this stuff (pointed to PPM 140)...time to spend with the student." Only Dara commented that time was not something of which she needed more.

If you're individualizing a program for mister here or missy here, it's part of the job so I don't know, you get used to it. You just kind of do it during your own free time...I was just so proud to see the growth in them [students] that you just love working, doing things like that to see it work. No, not time. I just think the EA [educational assistant] support is really, really big in these situations.

Dara highlighted the importance of the second resource cited by all teachers as necessary for implementing evidence-based strategies listed in PPM 140 or in carrying out additional recommendations by the *Connections* team: the availability of support staff. Three teachers (Amanda, Catherine, and Laura) taught in a special education partial integration placement and had the support of at least four educational assistants (to be shared among all students in their class) dedicated to the classroom. Two teachers (Dara and Lynn) had the support of one educational assistant at different times of the day.
(the educational assistants were also shared with other teachers and students). Maria was the special education resource teacher and worked closely with one educational assistant who was assigned to the student and teacher being supported by Connections (note that this is the teacher who retired and was not asked to participate; hence the resource teacher was asked to participate).

Each teacher other than Lynn suggested that PPM 140 or additional recommendations from the multidisciplinary team might not have been implemented without the support of the educational assistants. Amanda commented that "for me in a room with five other full-time staff, you know, I was lucky. I am in a perfect situation because it's just a matter of picking a person to be able to collect the data." The sentiment of having educational assistants available and be knowledgeable about the student, ASD, and the planned strategies (particularly data collection and preparing additional tools under the direction of the teacher) was echoed by the other four teachers. Laura indicated that it was the "people that I have around me. It's the educational assistants that I have... I have a really good team." When asked if she thought that it would be challenging for her colleagues without EA assistance to implement evidence-based strategies from PPM 140, she said "Absolutely, even if they [teachers] wanted to. I don't know how they could do it." This statement highlights the perception that, even if a teacher wants to comply with a policy and understands how to use the strategies, it may not occur due to lack of support.

Other teachers also stressed the importance of having support and indicated that they might not have been able to effectively implement the strategies without them. Dara
stated that "if you don't have an EA in your class or someone who has the autism background then I could see it [implementing PPM 140] being a real challenge."

Catherine had the "luxury of individualizing kids' plans to a point until we're short staffers or a little more short staffers, but we do [individualize programs] and that's what's made the difference. One of the big key differences." She added, "because of the smaller student-teacher ratio we are able to implement that [PPM 140] a whole lot easier."

Catherine highlighted the link between a lower student-teacher ratio often as a result of additional staff as an important enabler to KMb efforts.

Conversely, three of the six teachers indicated that a high student-teacher ratio would negatively impact implementation of strategies. Catherine believed classroom teachers wanted to do as much as they could but “it’s really challenging if you’re looking at 30 little faces and trying to implement. That’s just a reality of the numbers game.”

Amanda also noted that it was challenging for any classroom teacher to comply with implementing the strategies in PPM 140 on his or her own:

The amount of tracking [data] for one kid, for one student in a classroom of 20-30, it would be really difficult to provide the level of observation and tracking that would be necessary to comply…When you’re one person, obviously ratio is huge…there’s no getting around it.

Given the amount of time and the belief that additional human resources were needed to comply with PPM 140, it is not surprising that these two factors can act as strong enablers to KMb efforts.
Teachers listed three main barriers to KMb efforts based on their experiences in *Connections*: (1) lack of relationships as an impediment to networks, use of products, and participation in events; (2) the misunderstanding of roles and contexts (school and therapy); and 3) the perception of inequity and the need for 'buy-in'.

**Barrier: Relationships**

Relationships were cited by all teachers as the most significant factor influencing their willingness to collaborate with the multidisciplinary team and to engage with other KMb strategies (products and events). “Relationship is key to everything that we do…I think *Connections* built relationship” (Maria). When asked how she would describe the interactions within *Connections*, Lynn said:

Right away I almost want to go to the personal, interpersonal relationships because they’re one in the same I’m thinking. I think first of all the interactions, we kind of had to just talk about what we saw as a goal, what do we see not as a goal, but many goals and I think part of the beauty of that was having so many people there…But I think part of that too for me was trusting that we were all on the same page so that I think we had to kind of sell that to each other too so that we all kind of understood that this girl who everyone can look at quite uniquely and differently is our main focus and not feel like we were stepping on each other or not valuing someone from another area.

Lynn noted that feeling valued, valuing others, and establishing trust were important factors in building relationships. In contrast, lack of interpersonal relationships was considered to be the most powerful barrier to collaboration. Amanda commented that interpersonal relationships might not work for a variety of reasons:

If it [collaboration] didn’t work because the people didn’t connect with each other, if it didn’t work because somebody was resistant or if somebody didn’t
know what they were doing…I mean unfortunately a lot of it boils down to the people doing the jobs and the parent…the parent can make a difference too.

Amanda's reflections on why collaboration might not work highlights two important factors. First, she alluded that collaboration might not work if people on the team did not have the skill set or knowledge needed, and, second, she referred to the potential role of the parent within the set of role relationships and raised important thoughts about how a parent could impact the work of the team.

**Barrier: Misunderstanding of Roles and Contexts**

Despite consistent written and verbal explanations of roles, responsibilities, and contexts (school and therapy) to all members of each *Connections* team at the beginning of each program, some teachers cited misunderstanding of roles and responsibilities as a reason for not accessing available expertise of team members and for feeling vulnerable to potential criticism during multidisciplinary meetings. For some of the teachers, it was difficult to keep track of roles and responsibilities, and they were unsure of the level of support that team members could provide to them. Lynn captured this view: “I remember at the beginning there were some women who sat there shuffling papers and I kept thinking who are you? But then they were gone.” It would have been helpful to know who was participating for one or two meetings and who would be there for the duration of the program. Lynn suggested something as simple as having name tags and the organization so that she could remember each person's role since sometimes she felt overwhelmed by the number of people at the meetings.
Teachers mostly wanted clarification of the roles and responsibilities of the IBI therapist, the ASD SSP consultant, and the ABA Advisor. Teachers also expressed a desire to have a clear description of their own role, particularly what was expected of them throughout Connections. Only one teacher (Maria) questioned the responsibilities of her teaching colleagues. She felt that her colleagues should have been contributing more to the development and implementation of products: "It became me as opposed to the classroom teacher or EA" creating the tools. It was assumed that she would develop and implement strategies rather than the classroom teacher, and the educational assistant often asked her for direction rather than the classroom teacher. Although Maria thought that Connections was mostly positive, she still questioned the role of the classroom teacher and educational assistant.

We were able to implement some if not everything that we were asked to do. You know I think we tried and I think what happened there was that teachers felt the pressure to work with us because there were so many of us willing to do this. Maria's Connections team was able to implement strategies but she attributed her colleagues' participation to feeling pressured to participate. When probed further about what she thought would be important if the model (KMb intermediary) were to be restarted in her school, she pinpointed the "follow through piece . . . figuring out in between those meetings, who's responsible if we [the team] agree to something? Who's responsible to see that it's followed through with?" Maria brought to light the question of accountability but remained unsure of who would be designated to fulfill that role. Although Maria was the only participant who questioned another teacher's role within
Connections, she looked at it from an accountability lens, accountability to the student and accountability to the team. Maria's recollection of the need for accountability illustrated the ease with which roles and responsibilities can become confusing with different disciplines and people with varying levels of expertise and experiences involved.

Five of the six teachers admitted wondering about how they might be perceived by others on the team if they asked a question in the larger group interactions, particularly when they were unfamiliar with people outside of the school team. Dara felt that everyone had their:

viewpoints because they know the child so well but then if you’re a different type of teacher and you’re not conforming to their expectations then it could be challenging and…if things happen with the student that aren’t positive they might see it as my fault.

Dara was trying to get to know the student and worked most closely with the parent and the educational assistant. She might have used the support of different team members more if she knew from the beginning how often and for what purposes she could utilize them.

To be quite honest, I didn't really know from the beginning how much and when I could utilize them. I think I was just, I don't know not intimidated but. . . you kind of don't want to say I need help. . . so you don't want it to be seen as you should know this, why aren't you doing this? So maybe that's why. (Dara)
Dara did not access the expertise available to her because at times she didn’t want to say she needed help. Teaching has typically been a private venture that participation in a multidisciplinary approach challenges by making teaching more visible and accountable. This visibility can make some teachers apprehensive about utilizing the expertise of others, a finding that was evident for Dara (Hindin et al., 2007; Wood, 2007).

The other reason cited as creating resistance to using potential expertise was the perception that parents or external agencies did not understand the classroom context. Two teachers articulated their experiences with the parent. Amanda stated that a barrier to collaboration could be the narrow perspective of some parents because “it’s their child. That’s all they know because it’s their child.” She recalled the parent on her Connections team wanting to include other classmates into her child’s instruction. Amanda noted that:  

barrier is where a parent just can’t accept the fact that there are 15 other kids in the room. Just getting parents to realize the difference between IBI and the classroom is that a lot of the things that happen in IBI have to change in the classroom. We’re not all there for just one student and that student has to learn to cope with something less than one-to-one.

While Amanda provided several examples in her interview of the ways in which she continuously collaborated and implemented evidence-based strategies, she also recognized that the parent might struggle with understanding the differences between the contexts of classroom and clinic. Laura felt the same pressures and expectations with the parent and IBI provider on her Connections team. She was often being told what to do. "We have to be very careful when we're collaborating with outside agencies [IBI providers]. I think they really need to know that we are not a private company, you
know? We are a school.” Laura felt that the expectation from the IBI provider and parent was to transfer what was being done privately in therapy to the classroom context, illustrating the potential conflict between internal (school-based) and external (outside expertise) knowledge and practice.

**Barrier: Perception of Inequity and Buy-in**

All teachers commented on whether or not they believed PPM 140 promoted fairness and equity for all students. It is one of the Ministry of Education's first policies that targets a specific profile of student. While the principles included in PPM 140 may be used with a variety of students, it is mandated for students with ASD. As noted at the beginning of this chapter, teachers found a barrier to implementation to be the perception of a policy that is unfair due to the attention and time that the policy requires be given to one group of students, potentially at the expense of other students. Dovetailing from this perception are the recollections of teachers trying to achieve buy-in to *Connections* for themselves or from colleagues in their school (e.g., principal, other teachers).

Teachers questioned whether or not PPM 140 was implemented to the disadvantage of other students. Amanda said that it was difficult “trying to provide one student with the amount of attention that you know you’re mandated to give them and not have it be at the expense of other children.” She added that she wished that a KMb intermediary like *Connections* could be established "for every kid in the room and not just for kids on the spectrum because every child couldn't help but benefit from it." Lynn felt teachers give as much as they can to each child and:
Unfortunately we often ignore the kids who are self-motivated...at times we just let them continue and continue where we know if we gave them more they’d be growing. Obviously it seems like most of us want to be helping the weakest...we always seem to be helping the children on the bottom rung.

While Lynn questioned her own feelings around fairness, she also recognized that there were teachers who might not buy-in to implementing strategies for only some students. "There's always problems. Who's on board? If your principal's not on board, if the teacher's not on board . . . there are teachers who [think] everyone's the same. I'm treating them all the same" (Lynn). This sentiment was expressed in one way or another by each teacher and raises the issue of potential internal conflict teachers may feel about supporting one particular profile of students over another.

Getting colleagues to buy-in was a struggle for most teachers. Maria stated, "I just don't know how you get everybody to buy into it, right?" She noted that the teacher with whom she was working during Connections was more resistant to implementing some of the strategies, such as giving Fuzzy Peaches (candy) to a student for reinforcement, because it was unfair to other students:

People have seen it all. They've seen it, they've tried checklists, it didn't work. Fuzzy Peaches – you know is not fair because it's not fair to everyone else that's in the room so they [teachers] won't do something for one kid that's different from everyone else because that's not fair to those other kids who get to see this one kid . . . so it's those sorts of . . . it's changing mindsets.

Maria highlighted the issue of a strategy (such as using Fuzzy Peaches for reinforcement) being seen as unfair by teachers and possibly other students and indicated that changing mindset was a difficult endeavour.
Catherine made a similar observation about the use of reinforcement:

If I try to implement that with one, it will be very hard for the other ones not to want that as well . . . Now having said that, if we have to, so be it, and we're already doing it without making it obvious so the other ones don't see it.

This sense of inequity may prevent teachers from using evidence-based strategies.

Two teachers (Maria and Laura) felt that their colleagues on the team (e.g., another teacher within the school) needed to be open-minded. Maria wanted her colleagues to “see themselves as learners as opposed to people who know it all… you have to be willing to accept that there might be people who specialize in certain areas and can provide us with more.” Two teachers (Dara and Lynn) needed to buy into the KMb efforts themselves. Dara felt like she was more of an observer of the process at the beginning and that she was listening to get a feel for what was going to happen. Once she was more comfortable with the Connections program, she reached out to the team for some assistance.

All teachers perceived the policy to promote inequity and found it sometimes challenging to achieve buy-in from colleagues. Teachers felt guilty for treating one group of students differently than another. While some teachers needed to convince themselves to buy into KMb efforts, others had to find ways to get their colleagues to buy in, creating some tension among colleagues and between some multidisciplinary team members.
Summary of Findings

The qualitative findings from this study were presented in three sections corresponding to the research questions and conceptual framework: (1) what were the teachers' perceptions of research-embedded education policy (PPM 140); specifically, how familiar were the teachers with PPM 140 and what factors influenced their decision whether or not to implement this policy into their classroom practice?; (2) What were the teachers' perceptions of the KMb strategies (networks, products, and events) that were used in the Connections program?; and 3) What were the teachers' perceptions of enablers and barriers to KMb efforts related to the Connections program and implementation of PPM 140?

Teachers demonstrated minimal to extensive knowledge of PPM 140, despite consistent dissemination methods at the beginning and during Connections. They cited several factors influencing implementation of PPM 140 into practice: the role of parents, the availability of time and human resources to implement the policy, and the perception that this particular policy was being implemented with a targeted group of students at the possible expense of other students.

Teachers perceived their experiences of KMb strategies (networks, tools, and events) in a variety of ways. Teachers expressed a wide range of experiences resulting in changes to practice for each of them, either during or after participation in Connections. Collaboration was noted as an important factor that determined whether or not teachers would be willing to implement products or actively participate in the multidisciplinary team (e.g., use the expertise of the team members). Products were seen as a valuable
asset to participation in Connections with teachers all believing the tools that were most valuable were those that were tailored to the student and easy to use and amend by classroom staff. Professional development opportunities were important to all teachers with modelling of tools and evidence-based strategies cited as the most valuable type of events and the most likely to motivate teachers to implement the strategies in practice.

Teachers were able to identify three main enablers (leadership, the availability of multidisciplinary expertise, and the availability of resources) and three main barriers (relationships, misunderstanding of roles and contexts, and perceptions of inequity) to KMb efforts. The development of relationships was the most powerful enabler, and the lack of relationships was the most powerful barrier to all other activities that occurred within Connections. The narratives illustrated the significance of being able to work effectively in a multidisciplinary team.
CHAPTER 5: DISCUSSION

This chapter is organized in relation to my research questions and discussed within the context of the KMb literature. First, I discuss the teachers' perceptions of research-embedded education policy (PPM 140), namely familiarity with PPM 140 and the factors that influenced the teachers' decisions of whether or not to implement the policy into classroom practice. Second, I discuss the teachers' perceptions of the KMb strategies (networks, products, and events) that were used in Connections. Finally, I discuss teachers' perceptions of the enablers and barriers to KMb efforts related to Connections. The final section considers the limitations of this study and suggested implications for policymakers, boards of education, and KMb intermediaries.

Teachers' Perceptions of PPM 140; Teacher Familiarity with PPM 140

As evidenced in Chapter 1, PPM 140 had a history of activities that were launched to support its implementation in Ontario school boards as of May, 2007. All Ontario teachers are expected to implement this policy into practice for students with ASD. The policy is not limited to those students and teachers involved in Connections. Regardless of participation in an intermediary that allowed for intensive interaction with PPM 140, some teachers were still unaware of its purpose or requirements. Even when dedicated resources were provided to the teachers through Connections, policy and practice were still disconnected. Policy and practice are often disconnected particularly when the policy does not have direct implications for practice (Coburn & Stein, 2010);
however, PPM 140 is different from many education policies in that the research is embedded into the policy with direct implications for practice. PPM 140 includes the principles of ABA, a method highly supported by empirical evidence, and provides a number of concrete evidence-based strategies (namely, individualized programs, data collection, generalization, and positive reinforcement) that can be used directly in practice. PPM 140 also includes a research synthesis of the rationale for using ABA methods with students with ASD. This disconnect may speak to the difficulty of identifying the source of the research (embedded in policy) by teachers and the direct connection to their practice. Teachers in my study may not have realized that the research was already embedded into the policy and that by complying with the policy they were implementing research into practice.

Findings in this study revealed that three of the six teachers were able to recall the requirements or contents of the policy, despite the policy being disseminated a full three years prior to the start of the Connections program. All six teachers were involved in Connections, were teaching students with autism at the time of my study, and were provided with the policy at the outset of the Connections program as a formal agenda discussion item. Two teachers were able to identify the role of the policy within the work of Connections and recognized that the policy was research-embedded, one teacher was aware of the policy, but did not connect it to the work of Connections or her practice, and three teachers could not recall any details about PPM 140 (including purpose, content, or role in Connections).
Dissemination refers to the process of making "stakeholders aware of and informed about the policy" (p. 77). The inconsistency in policy awareness confirms the literature regarding the challenges of policy dissemination. Levin (2010) indicates that the use of research only has impact when it is used in policy and practice, and often practitioners are unaware of policies. Knowledge of this policy could have assisted teachers in better understanding the connection of their classroom practice to larger systemic KMb efforts. Making policy and practice connections clear to teachers might impact the understanding of the policy and increase the rate of intentional compliance with the policy. Inconsistency in teachers' awareness of PPM 140 raises questions about the initial dissemination of the policy to all teachers and the number of potential teachers within the school board who are still not aware of the policy or its requirements.

Since three of the six teachers were not familiar with the policy before or after Connections, it is presumed that dissemination strategies failed at the organizational level (board or school) and again within the work of the intermediary. Even if dissemination failed at the organizational level, this failure should have been rectified when teachers became involved in Connections. It was not. Although the inconsistency in policy awareness by teachers was evident, there were still several examples that demonstrated all teachers were in fact following the policy (whether they knew it or not) by implementing some or all of the strategies.

Factors Influencing Implementation of PPM 140

There were four factors most cited by teachers as influencing implementation of PPM 140: perceived parent knowledge of PPM 140, the availability of support staff to
implement the requirements of policy, time to prepare and implement evidence-based strategies, and inequity to students not served by PPM 140. The importance of the role of parents in the educational process has been explored in the literature (for examples, see Corter & Pelletier, 2004; People for Education, 2009). My study confirmed that parents had a role to play within *Connections*. The role of the parent was perceived by teachers in two ways: parents either created feelings of pressure for teachers to be accountable to meeting the requirements of PPM 140, or parents were regarded as knowledgeable experts about their children, capable of offering input about evidence-based strategies. I did not probe into the past or current relationships between the parents and the teachers. Understanding the relationship between the teachers and parents might have provided additional understanding into how teachers perceived the role of the parent. For example, the teachers who felt accountability pressures might have had contentious relationships with parents prior to *Connections*, thus impacting their perceptions of parents (and parent input) during *Connections*. Conversely, teachers may have had positive relationships with parents prior to *Connections* including feelings of trust and rapport and welcomed parents as equal team members. The involvement of parents in policy implementation was viewed by two teachers as one of pressure to ensure policy implementation, but these same two teachers were already aware of and intentionally implementing the policy prior to *Connections*. The teachers acknowledged parents in their cases had knowledge of PPM 140 and that made the teachers even more cognizant of the policy during *Connections*. 

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All teachers felt that PPM 140 is not an equitable policy as it mandates more attention to one group of students (students with ASD) at the expense of other students in their classes. In light of this view, PPM 140 might be considered coercive in that teachers felt obligated to provide additional attention to students with ASD when other students might need the attention more (Nutley et al., 2007). PPM 140 is a unique policy that targets one profile of students with a disability. Teachers were not asked about their attitudes towards teaching children with ASD versus teaching typically developing students or students with other disabilities, yet all teachers felt that PPM 140 creates inequity among all students. Implicit attitudes towards working with students with disabilities (Kelly & Barnes-Holmes, 2013) might be important to understand as a factor in policy implementation among teachers, but was not within the scope of my study.

My study confirmed that, when research is embedded in policy, the typically cited barriers to teachers accessing research can be reduced (Nutley et al., 2007). During Connections, teachers did not have to synthesize the research across several studies regarding the principles of ABA as it was already completed by the MOE and embedded directly into the policy. Teachers did not have to seek out additional research about individual evidence-based strategies included in PPM 140, as that was typically done by the ASD SSP consultant. Teachers did not attempt to access research on their own during Connections; rather, they assumed the ASD SSP consultants would provide the research in different tools (e.g., fact sheet, student-specific tool) or through different events (e.g., consultation).
Honig (2004) found that the function of an intermediary is context-specific with enabling and constraining conditions that vary even when operating under the same conditions. All cases in my study followed the same Connections process and operated within the same policy context. Honig found that intermediaries faced resource gap challenges with fiscal constraints playing a role in the survival of the intermediary. The intermediaries within my study did not face fiscal constraints. Teachers cited human resource constraints (e.g., the availability of educational assistants) as a barrier to intentional implementation of the strategies listed in PPM 140; however, human resources constraints did not determine the survival of Connections. As Connections is a mandated, time-specific process, the availability of human resources had no impact on whether or not Connections continued.

**Teachers' Perceptions of KMb Strategies (Networks, Products, and Events)**

The themes that emerged from my findings confirmed the significance of the social context to the work of intermediaries and the impact on teacher use of research knowledge and policy in practice. The majority of teachers encounter research findings in a "digested form of some kind through the efforts of various kinds of intermediaries or third parties" (Levin, 2010, p. 307). Connections acted as an intermediary, and findings from teachers' narratives highlighted the social process of engaging with research and the importance of relationships as a linkage between policy and practice (Honig, 2004; Levin, 2010). Interactions and relationships were key factors in determining the impact...
of KMb strategies (network, products, and events) and how the strategies were viewed and applied in practical settings (classrooms).

The interactions that occurred, specifically through collaborative dialogue and professional development activities, had the potential to allow teachers to gain a "deeper understanding and sense of ownership of the findings, and in doing so, enables evidence to be integrated more relevantly and sensitively in professional settings" (Sharples, 2013, p. 18). When relationships were established in Connections, teachers were more willing to engage in interactions, acknowledged a better understanding of the evidence-based strategies, and were better able to integrate the strategies into their classroom practice.

**Networks (Collaboration)**

Collaboration emerged as an important finding in my study. The definition of collaboration is “to work jointly with others or together especially in an intellectual endeavour; to cooperate with an agency or instrumentality with which one is not immediately connected; to labour together” (Merriam Webster Online Dictionary). Researchers continue to strive to understand the way in which individuals exchange knowledge within networks noting that collaborative work can be challenging (Grossman et al., 2001; Hargreaves & Evans, 1997; Haythornthwaite, 2006). Challenges associated with researcher-practitioner partnerships emerging from the KMb literature include establishing relational trust (Bryk & Schneider, 2002; Kramer & Wells, 2005; Wenger, 1998; Wohlstetter et al., 2005), developing shared understandings or shared mental models about the work and each other (Cochran-Smith & Lytle, 1999; Fournier, 2012; Gorman, 2004; Haythornthwaite, 2006), communication structures (Coburn & Stein,
2010; Wohlstetter et al., 2005), and leadership (Cochran-Smith & Lytle, 1999; Kaats & Opheji, 2014; Kramer & Wells, 2005; Wohlstetter et al., 2005). Teachers felt that some or all of the challenges listed above were present at some point during Connections and impacted collaboration either positively or negatively. Each challenge is addressed in the section on enablers and barriers to KMb. Understanding the importance of these variables is critical to establishing collaboration and should be considered by those seeking to facilitate conditions for effective KMb.

My findings revealed that the network strategy played an important role in KMb intermediary efforts. The perceived strength or weakness of collaboration determined whether or not teachers were willing to implement research-embedded strategies into practice. Without collaboration, the other KMb strategies investigated in my study (products and events) were resisted by all teachers. My study builds on the work of Haythornthwaite (2006) by examining the kinds of exchanges that form the basis of collaboration in multidisciplinary groups. Haythornthwaite found that the exchange of factual knowledge, learning the process of doing something, generating new ideas, and accessing a network of contacts were just some of the types of exchanges that occurred. The development of relationships among partners revealed that there was more "sharing of similar than different kinds of knowledge suggesting that knowledge may flow across disciplinary boundaries along lines of practice" (p. 1079). My study confirmed the benefits of multiple perspectives and expertise to increase the types of knowledge exchanges that are possible within a collaborative partnership.
Looking through Haythornthwaite's (2006) lens, my study highlighted the importance of exchanging factual knowledge (principles of ABA) from the ASD SSP consultant to the teachers, learning the process of doing something (e.g., implementing tools and evidence-based strategies, working collaboratively), generating new ideas (e.g., collaborative and iterative development of tools for students), and accessing a network of contacts (the availability of multidisciplinary expertise to support the teacher and the potential for other team members to learn from the teacher). Knowledge about others is particularly important to sustaining group processes such as knowledge exchange (Cochran-Smith & Lytle, 1999; Haythornthwaite, 2006). During Connections, similar information was shared across all cases (e.g., principles of ABA), but teacher knowledge about others on the team and available expertise varied and impacted collaboration. Despite all teachers being provided with written and oral descriptions of roles of other team members at the beginning of Connections, there was still a misunderstanding by two teachers (Dara and Lynn) of some of the roles. Dara did not understand who some of the people attending the initial Connections meetings were, while Lynn did not understand the role of the ASD SSP consultant. Had Dara and Lynn understood the roles they might have utilized the expertise of the team members (external agency and ASD SSP consultant).

The success of collaboration can also depend on the establishment of structures for on-going communication and sharing of information (Coburn & Stein, 2010; Cooper, 2014; Wohlstetter et al., 2005). Communication structures support and enable the coordination of activities between partners or organizations. For this coordination to
occur, all members must have information provided in a timely manner and have open communication to share information needed to collaborate (Wohlstetter, Smith, & Malloy, 2005). Ideally the information should occur in a multidirectional flow; without this structure, it can be challenging for intermediaries to implement change (Coburn & Stein, 2010; Wohlstetter, Smith, & Malloy, 2005).

Wohlstetter et al. (2005) stress the importance of establishing a transparent communication structure to improve information flow. Open and honest dialogue among stakeholders through formal (e.g., meetings) and informal (e.g., conversations) mechanisms can activate and sustain information flow. The authors discuss factors that facilitate alliance development (leadership, accountability, and communication mechanisms) but recognize that more research is needed on mature alliances to determine what conditions enable or impede their sustainability. Connections used a variety of formal and informal communication structures that varied from case to case depending on the interactions within the team. Determining communication structures is important to an intermediary’s efforts to develop and maintain collaboration.

The literature on KMb suggests that networks can be powerful pathways to changing practice (Cooper, 2014). My study confirmed that the ongoing social contact during collaborative interactions had the potential to impact behaviour of teachers. While networks might be difficult to build and maintain, Connections was established for a set period of time. Only one teacher (Maria) continued a voluntary research-practitioner relationship at the conclusion of Connections, confirming the challenges to sustaining relationships and networks beyond a specific initiative. Collaboration was determined to
be the key KMb strategy for each teacher in my study with implications for creating conditions that facilitate KMb efforts through intermediaries. Weak or strong collaboration within the Connections team determined whether or not teachers engaged with other KMb strategies (tools and events), thus impacting research use and implementation in practice.

**Products (Tools)**

Products were regarded by all teachers as valuable to participation in Connections. Teachers were more willing to consider and implement tools when collaboration was deemed to be positive. This willingness reiterates the importance of establishing relationships so that research can also be mobilized through tools. My study confirms the significance of embedding knowledge from research and practice into tools and coupling it with support (e.g., dialogue, modelling) for a higher degree of implementation by teachers (Ikemoto & Honig, 2010). Again, the openness to the support was dependent on the perceived relationships. Two teachers (Dara and Lynn) in the study also looked outside of Connections partners to tools colleagues were using. Consistent with the literature, Dara and Lynn found the experiences and views of colleagues more trustworthy than empirical studies (Cordingley, 2008; Levin, 2010; Mitton et al., 2007; Nutley et al., 2007).

In Cooper’s (2014) study, products (tools) were shown to be the most widely used KMb strategy. My study confirmed the importance of tools as a KMb strategy, but there were differences in how the tools were perceived between Cooper’s study and mine. Cooper referred to tools being passively disseminated on organizational websites. The
tools in my study were viewed by teachers as evidence-based, yet still open to iteration through trial and dialogue making them active rather than passive mechanisms. Teachers were open to using tools created for their students if they had an understanding of how the tool could be used, why the tool would be used, and most importantly if teachers could see it being modelled first. Modelling helped to consolidate teacher learning so that teachers felt more capable of using the tool after seeing it in action rather than just reading about the tool and trying it on their own in practice. The availability of modelling is an important variable to consider when using the products strategy (Ikemoto & Honig, 2010).

Incorporating research and practice contexts in tools was evident when tools were created collaboratively by the ASD SSP consultant and teacher. Research was embedded into tools, while simultaneously considering factors from local practice contexts, allowing teachers and ASD SSP consultants to have a clearer understanding of what the research (and the tools) might mean for practice. The integrity of the research (ABA principles) was protected while respecting the local knowledge of the teacher. Teacher knowledge was incorporated and welcomed, which improved the understanding, efficacy, and implementation of the tool for teachers. Local knowledge (of students and classroom context) was critical to the use of tools within practice, which is consistent with the literature on research use (Baxter, 2010; Datnow & Park, 2010; Ikemoto & Honig, 2010). Two of the teachers developed the tools with their support staff (educational assistants), citing knowledge of the student and classroom context as the primary reason for creating the tools without the support of the ASD SSP consultant. The tools created by the school
staff may or may not have been based in research (as this study did not do a comprehensive document analysis of all the tools created by the teams), but teachers felt knowledge of the student should supersede the research knowledge of the ASD SSP consultant.

Events (Professional Development)

Each Connections intermediary offered multiple opportunities for different types of professional development (one-to-one consultation, modelling of evidence-based strategies, coaching, small group workshops, and large group workshops). Each event had the potential for intentional dissemination of research, reflection, and dialogue about research, whether research was embedded in tools or other materials provided by the ASD SSP consultant (Borko, 2004; Cooper, 2014; Grossman et al., 2001).

Professional development in the education sector has often been offered in episodic and piecemeal ways (Grossman et al., 2001). Using the typical structure of scattered in-service days, professional development is usually restricted to a linear push model and confined to an immediate issue (e.g., assessment and evaluation, mental health). Teachers usually leave their schools to attend in-services with other teachers with whom they have little or no relationship. This type of learning requires that individual teachers learn outside of their workplace and then return to their workplace to attempt to implement what they have learned into practice (Grossman et al., 2001).

Connections provided a professional development structure counter to the typical structure outlined by Grossman et al. (2001). The professional development opportunities during Connections were tailored to the needs and requests of the teacher,
and teachers were supported in their implementation of what they learned through targeted events. Teachers found that observing students in IBI was the most valuable type of event as the observation allowed teachers to see research in action. Observation coupled with discussion with the ASD SSP consultant (or IBI therapist) about how to translate what had been seen in IBI into the classroom context was instrumental in changing classroom practice. The ASD SSP consultant would often model the strategy again in the classroom, then move to coaching so that four different types of events occurred for one evidence-based strategy (observation, dialogue, modelling, coaching).

While teachers preferred the comfort of the one-to-one type of professional development (with the ASD SSP consultant, the parent, or the psychologist), they acknowledged the role that the team meetings and other types (e.g., small group or large group in-services) played to build on the work of the one-to-one consultations. Teachers were open to learning at the individual level, resulting in changes in knowledge, skills, and practice (Campbell & Levin, 2012). Future studies may find merit in investigating and learning from the types of events that teachers perceive as most influential to changing practice. Regardless of the type of professional development, the importance of social interaction helped mediate research messages and influenced these teachers’ implementation of strategies into practice. There was greater impact on teacher practice when social interaction took place within events and was perceived as positive. By mobilizing knowledge through social interaction, research through events became more available, understandable, and usable for teachers (Kramer & Wells, 2005).
Teachers' Perceptions of Enablers and Barriers to KMb Efforts

Teachers identified enablers (leadership, availability of multidisciplinary expertise, and resources) and barriers (relationships, misunderstanding of contexts and roles, and perceptions of fairness) to KMb efforts. Resources (time and human) and perceptions of fairness were discussed in the earlier section regarding teacher perceptions of research-embedded PPM 140.

**Enabler: Leadership**

All teachers considered leadership to be significant to the effectiveness of knowledge mobilization efforts during Connections. The characteristics of leaders; the roles they played in managing, setting direction, and engaging teachers in collaboration; and their potential for providing research driven professional development opportunities, were described by all teachers within my study. All teachers expressed the need for leadership of the process of Connections to set a safe and respectful tone and identify and diffuse challenges within the group. Teachers identified attributes and skills of a leader that mirrored those in Lomas' (2007) study: trusting, credible, clear communicator, facilitator, mediator, and negotiator.

Leadership helps to manage and set the direction by assuming three main roles: (1) architects, (2) information brokers, and (3) boundary spanners (Smith & Wohlstetter, 2001). Architects ensure that structures are in place to facilitate participation. Information brokers ensure that relevant information is distributed throughout the partnership, removing the requirement to sift through information. Boundary spanners act as liaisons with the external environment, acting as both a speaker and a buffer for the
partnership. My study confirmed the desire by teachers to have a leader (or leaders) to engage teachers in KMb efforts in different ways throughout the Connections process. As outlined by Smith and Wohlstetter (2001), the Connections lead was seen as the person who acted as the architect, ensuring that structures such as meetings were in place to facilitate participation, and the boundary spanner, mediating with the external environment and acting as both a speaker and a buffer for the partnership. The information broker ensured that relevant information was distributed throughout the partnership, removing the requirement for teachers to sift through information. The information broker was identified by four teachers as the ASD SSP consultant, by one teacher as the parent, and by one teacher as the parent and psychologist together.

Zaccaro, Ely, and Shuffler (2008) identified three sets of activities in which leaders engage to promote effective collaboration: (1) develop, promote, and maintain a learning environment; (2) assist members to develop and use learning tools; and (3) act as a learning partner through coaching, mentoring, and modelling. The three sets of activities suggested by Zaccaro et al. were evident in my study. The Connections lead was expected to carry out the first activity, while the ASD SSP consultant was expected to carry out the second and third activities by all teachers. This assignment of responsibilities demonstrates the ways in which the perception of leadership was diffused through the work of the intermediary.

Cordingley (2008) suggests that leaders can play a key role in organizing professional development, as they have the ability to introduce research findings that are personalized and related to local contexts and teacher needs. Cordingley draws attention
to the intentional effort needed to support practitioner learning, emphasizing the key role that leaders and teachers can play in the process. Four teachers in my study believed that the ASD SSP consultant was the person most often able to deliver personalized professional development via in-person consultation, modelling, coaching, or small group events. One teacher felt the parent was able to provide knowledge about the student and considered that knowledge professional development (even though it was personal knowledge of the student, not research knowledge). One teacher felt the parent and psychologist together were able to provide knowledge about the student and professional expertise, which she considered to be important professional development during Connections. The Connections school board lead was thought to be the person who actually made the professional development possible through providing resources (e.g., funds for release time so teachers could participate in professional development) and networking abilities (e.g., connect teachers with supports and expertise outside of the school). Despite examples of teachers wanting the principal to demonstrate leadership (e.g., communication, provision of additional school-based professional development outside of Connections), principals were not expected by any teachers in my study to lead the Connections process. Principals were regarded as a participant on the team, but not as leaders.

**Enabler: Availability of Multidisciplinary Expertise**

Understanding one another's knowledge and expertise was an important factor to developing collaboration among team members. Teachers' misunderstanding of how and when they could access available expertise of team members (specifically, the ASD SSP
consultants) impacted their experience with *Connections*. Haythornthwaite (2006) suggests that team members must have knowledge about each other including their expertise and working styles. Team members gain "transformative memory" about "who knows what" (p. 1080). This personal knowledge allows all team members to use their skills while relying on the skills of others. My study showed that this shared understanding was absent at times, making it more difficult for the teacher to engage in the process of accessing available expertise. Dara and Lynn clearly articulated that they were unaware of who did what and may have accessed the expertise, and hence, the research, of more partners had they known the partners' roles.

Including local or practice knowledge with research knowledge (mobilized through the intermediary) was important to all teachers. Teachers were more willing to engage with research knowledge when they felt that their practical knowledge was recognized and incorporated in some way (e.g., through collaboratively created tools, understanding the classroom context). My study confirmed the findings of Borko (2004), Hiebert, Gallimore, and Stigler (2002), and Ward et al. (2009), in that including the tacit knowledge of practice (teachers) and research-based knowledge of experts (ASD SSP consultant or others) was an enabler to accessing multidisciplinary expertise. Many of the teachers' narratives revealed differences in the perceptions and value of research knowledge (provided by the ASD SSP consultant) versus practice knowledge including tacit knowledge, which impacted teacher use of research during *Connections* (Hiebert et al., 2002). My study confirmed that clearly articulating the availability of expertise, including roles and skills, and affording flexibility to using research knowledge and tacit
knowledge together, are important responsibilities to be added to the work of a KMb intermediary.

**Barrier: Relationships**

Coburn and Stein (2010), Nutley et al. (2007), and Kramer and Wells (2005) suggest interpersonal relationships are a significant variable in shaping professional practice. Kramer and Wells (2005) highlight that "personal interaction is by far the most effective – and usually an absolutely essential – channel for assuring the use of research outcomes" (p. 429). The significance of personal interactions was confirmed in my study as all teachers stated that relationships were the most important factor to developing strong collaboration and ultimately determined how much or how little they were willing to consider and use other KMb strategies.

The lack of relationships was cited by all teachers as the most powerful barrier to KMb. Two of the six teachers (Amanda and Laura) felt that parents and IBI clinical supervisors made them feel anxious during all interactions throughout the duration of Connections. This factor, more than anything, made teacher experiences overwhelming and perceived to be negative; thus these teachers were guarded in all their interactions with the parents and private therapists. While Amanda and Laura found the relationship with the parent or therapist (IBI provider) challenging, they maintained a positive relationship with other team members (ASD SSP consultant, school board staff); thus collaboration and evidence-based strategy implementation were able to move forward.

My study confirmed the work of Bryk and Schneider (2002) regarding the role of relational trust at the intrapersonal level where individuals must discern the intentions of
others. Teacher narratives confirmed the importance that respect, competence, personal regard for others, and integrity play in establishing relational trust. Some teachers identified at least two of Bryk and Schneider's criteria (respect and personal regard for others) as being violated by one or more team members (such as the scenario in which the ABA Advisor and principal were perceived as having secret meetings about Catherine).

When relational trust was established with external partners, all teachers were more open to KMb strategies. When relational trust was absent or inconsistent with external partners (or in one case with a principal and school board staff), openness to KMb strategies was limited. There had to be another team member who provided a sense of relational trust in order to keep the teacher engaged in the Connections process. This requirement was evident in Catherine's experience as she felt excluded from discussions with the principal and the ABA Advisor. There was a destructive breach of relational trust that decreased her willingness to engage in any KMb efforts.

Bryk and Schneider (2002) posit that relational trust is a social resource with policy and practice implications. Relational trust operates as a social resource for improvement in four ways: (1) organizational change includes inherent risks for all members, but relational trust can moderate vulnerability and uncertainty; (2) participants are able to unite around a specific plan of action and engage in problem solving; (3) clear understanding and execution of role obligations demonstrate meaningful collective action; and (4) relational trust “sustains an ethical imperative” among members to support the “best interest of the child” (pp. 33-34). My study confirmed the importance of recognizing relational trust as a social resource when engaging in KMb.
Looking at the intermediary through the lens of Bryk and Schneider (2002) Connections addressed each of the four activities. First, organizational change in this case was the implementation of PPM 140 (with or without involvement in Connections) and the issue and implementation of Connections itself. Teachers all alluded to the importance of developing trust within the Connections process, which in turn impacted whether or not they were more willing to implement PPM 140. Second, each Connections team shared the goal of transitioning a student from full-time IBI to a full-time classroom context and continuously examined the unique challenges (or successes) for each student. How each team member went about identifying the problem or the goals was context-dependent. Different contexts highlight the need for shared understandings. Third, different multidisciplinary roles were included on each team (varying in number but always with a consistent core group) with a variety of different expertise. Teacher narratives indicated a need to clearly define the roles and responsibilities so that expertise could be fully utilized. Fourth, although there were different levels of relational trust developed among teachers and other team members, all teachers agreed that everyone involved in Connections was supposed to be there to support the student's transition from IBI to full-time school.

Other studies have recognized the importance of relational trust in different contexts (Kaats & Opheji, 2014; Kramer & Wells, 2005; Wohlstetter et al., 2005). When people work together, they balance between trust and vigilance in their relationships with others; thus particular attention to relationships is needed, including conscious and unconscious processes and seeing what is said “on stage and what is taking place
backstage” (Kaats & Opheji, 2014, p. 48). This on stage versus backstage activity was a key factor in one teacher's (Catherine's) experience. She became very vigilant with some team members who made her feel excluded and vulnerable.

Relationships were shown to play a decisive role in collaboration and to KMb efforts. The experiences of each teacher in this study highlight the need for targeted attention to and awareness of interpersonal relationships during all interactions and among all team members. Given that teachers described relationships as having a significant impact on collaboration and willingness to implement evidence-based strategies, exploring relationships is an area worthy of future consideration.

**Barrier: Misunderstanding of Contexts and Roles**

The dynamic and complex nature of working with partners required that all partners have a variety of shared understandings including: the purpose and requirements of *Connections*, common terms of reference (e.g., ABA, IBI), evidence-based strategies outlined in PPM 140, and the roles and contexts (classroom and therapy). When shared understandings and mental models were lacking or unclear, teachers often misunderstood the overall purpose of *Connections*, and thus their own role within the process, reducing the potential for change in practice. Ensuring that everyone on the team was working with the same language or terminology was identified as important to shared understandings.

According to Honig's (2004) definition of a KMb intermediary, its primary function is to "mediate or manage change in both parties" (p. 67). While a misunderstanding of roles, responsibilities, and mandates (MOE and MCYS) did occur
across cases, *Connections* was able to serve as an intermediary with the potential to mediate change between education and children and youth services. Consideration of the mandates of partners (Ministry of Education, Ministry of Children and Youth Services, Pathways for Children and Youth) and others as appropriate was challenging for teachers as they were more concerned with requirements of their school board and their day-to-day teaching responsibilities. Understanding how each partner and his or her own mandates intersected within the intermediary was not clear to any of the teachers. It is important for future intermediaries in the education sector to establish shared understandings, particularly as the Ministry of Education develops further cross-Ministry collaborations.

Shared understandings facilitated the use of multidisciplinary expertise in four of the six cases in this study. By establishing common understandings of the purpose and meaning of the work, particularly when team members were from diverse contexts (e.g., home/school or therapy/school), the opportunity to consider interests and priorities for all stakeholders increased. Two teachers (Laura and Catherine) felt they did not develop shared understandings from the beginning due to the perceived tension between themselves and another team member (external or internal partners), thus illustrating again the significance of relationships and shared understandings. Teachers agreed that everyone was part of the team to support the child (shared goal) but they did not have shared understandings about how to go about meeting the goal or about the differences across contexts (home/school/therapy). Teachers felt that parents often did not always understand that some things that were possible in an IBI setting were not always possible
in a classroom setting. This misunderstanding of context created tension, demonstrating the importance of making context another important area to articulate at the outset of KMb work.

Cooper (2014) identified six brokering strategies that were evident in my findings and contributed to shared understandings of each intermediary. The strategies (in addition to networks, products, and events, that are extensively examined throughout my study) that contributed to shared understandings were capacity building (through the provision of toolkits to teachers such as the *Effective Educational Practices for Students with ASD: A Resource Guide, 2007a*), non-research-related efforts (promotional materials such as brochures and a board-created guidebook), and media (release of information from the MOE). Together these strategies contributed, or at least had the potential to contribute, to building the shared understandings within the intermediary. As principals, ASD SSP consultants, parents, and external partners (e.g. IBI therapists) were not interviewed, it is unknown how they perceived these brokering strategies to contribute to shared understandings or overall collaboration.

**Limitations**

Due to the low sample size (n=6), the findings of my study cannot be generalized. Interviews with the ASD SSP consultants were not conducted as permission was not granted by Pathways for Children and Youth prior to the commencement of my study. Parents and principals were not interviewed as the study focused specifically on KMb efforts through the intermediary, *Connections*, and teacher practice. The perceptions of
the ASD SSP consultants, IBI providers, parents, and principals and their roles of supporting, engaging with, or implementing policy or KMb strategies with teachers would be a worthy area of future consideration to gain a more extensive perspective of the interactions that occurred in the intermediary. The ASD SSP consultants in particular would have been a valuable voice to this study as they interacted directly with each of the teachers in the study. Their perceptions may have been very different from the teachers and may have resulted in different data and emerging themes.

Teachers were not asked about their perceptions of policy dissemination. Given that the policy was in place a full three years prior to the initiation of Connections, I believed that each teacher would be aware of the policy, but I did not assume implementation had occurred. While some teachers were not aware of the policy, I did not probe them with further questions about the reasons for the lack of awareness (e.g., they forgot the name or contents, they have not referred to the policy since its first introduction, they did not attend professional development regarding the policy). Not probing further into lack of policy awareness may have been a missed opportunity into organizational dissemination challenges in a real practice setting.

Teachers were asked how they felt about research in general and how they felt research was mobilized through KMb strategies (products, events, and networks) within the context of Connections. I did not probe into reasons for how and why they selected to use certain types of research, which may have offered some further insight into teacher learning. Investigating teacher research uptake was not within the scope of this study, but
it may have provided an additional glimpse into how and why teachers use research within a real practice setting.

Although products (tools created within Connections) and events (professional development) were provided to all teachers during Connections, they varied in type and content. The products and tools were not evaluated to determine whether or not they were based in research, but rather teacher perceptions of the KMb strategies were sought. In future research, products and tools could be evaluated.

A final limitation to this study was that KMb efforts were being explored as part of my study, but KMb was never outlined during Connections. Teachers would not have been familiar with KMb, KMb strategies, or a KMb intermediary during Connections, unless they had their own personal understanding of it. At the time of the interviews, the field of KMb may have been new to the participants. I provided the definition of KMb that I was using, as well as the KMb strategies I was exploring (networks, products, and events) for my study prior to the interviews. I was available to clarify all concepts if needed (no one asked additional questions about KMb or strategies). While possible unfamiliarity with KMb may be considered a limitation, it is also an opportunity to reveal what teachers' perceptions of the KMb efforts were after participating in Connections, and the potential value of making those efforts more intentional in future intermediaries.

**Implications**

This study sought to investigate KMb efforts within an intermediary, Connections. The findings confirmed much of the current literature on KMb in
education. There is limited research in real practice settings, and this study offers an opportunity to see how teachers perceived KMb efforts over a 6-12 month period. The case studies provide implications for policymakers, educators, and intermediaries.

My study highlights the significance of the social context to implementing policy into practice. Dissemination methods at the organizational and individual level are important to consider, but policymakers need to be acutely aware of the factors that influence whether or not a teacher will in fact implement the policy (mandated or not). Dissemination methods may be 'perfect' but, without considering the social context, dissemination practices may not matter. A KMb intermediary might be able to support the dissemination and implementation of a variety of policies, particularly those intended for teachers in the classroom. Given the inconsistency in awareness of the policy, despite efforts made in Connections, it will be important for policymakers to understand what type of dissemination and implementation strategies best suit organizational and individual levels. Ensuring that teachers understand that research is embedded into policy may make KMb efforts easier, as teachers are made explicitly aware of the connection among research, policy, and practice. Understanding where the breakdown in dissemination occurred and at which level was not considered within the scope of this study, but it has implications for KMb efforts and for real practice settings. Given the requirements of this particular policy, teachers who are not complying (either because they are unaware of the existence of the policy, they are unaware of what the principles mean, or they do not grasp how to implement the evidence-based strategies in practice) can still be held accountable by a supervisor or by parents. Understanding the most
effective types of events (e.g., professional development, workshops) to disseminate the policy to teachers is worth considering to ensure a greater probability of implementation. It is especially important for policymakers to recognize that, in order for teachers to feel confident implementing evidence-based strategies in their classrooms, they need the opportunity to watch another professional modelling the behaviour.

Relationships ultimately determined whether or not teachers were receptive to KMb strategies. Teachers in this study experienced each of the KMb strategies (networks, products, and events) differently depending on their perception of collaborative relationships. A more thorough investigation of each KMb strategy and the enablers and barriers to KMb efforts will be important for teachers to understand so that conditions for their active participation are facilitated. By addressing the concerns of the teachers at the outset of any collaborative partnership, there is a higher probability that targeted KMb efforts will be successful. Teachers need to understand the role and purpose of an intermediary prior to the onset of collaborative work so that they can take full advantage of the role; hence, increasing the chance of change to practice.

Boards of education may use this study to examine the potential enablers and barriers to KMb efforts. Given that the MOE is increasingly working jointly with other Ministries on different issues (e.g., mental health), understanding the factors that impact multidisciplinary collaboration will be key to ensuring the success of future initiatives. Teachers are frontline workers who will continue to be expected to implement the evidence-based policies and strategies. Their input and experiences should be valued and
used when considering how to form a multidisciplinary team and what strategies and conditions are most effective to KMb.

Further consideration may also be given to voluntary versus mandated teacher participation on a multidisciplinary team. This distinction may be a powerful predictor of how or if teachers will collaborate and if they will be receptive to KMb strategies. School boards also need to consider the role of the principal in building effective collaboration within multidisciplinary teams. Targeted professional development should provide principals with the opportunity to better understand their own role within KMb efforts and their potential impact on collaboration. While they are not necessarily the 'leaders' (as defined by teachers in my study) for every group, principals do hold a position of power and can play a positive role in providing and discussing research with staff in an interactive rather than passive manner.

It is important for intermediaries to understand the social context within which they are working. Intermediaries, whether individuals or organizations, must have a clear understanding of the groups they are attempting to link and the different factors that impact KMb efforts. Attributes and skills (as described by Lomas, 2007, and teacher descriptions of a leader) should be considered. The significance of establishing relationships should be a main priority as relationships determined whether or not KMb efforts were effective. The intermediary should also take care to ensure that shared understandings and communication structures are clearly established: if misunderstandings occur, KMb can be considerably hindered. Mandates and possible restrictions of groups should be made clear at the beginning as misunderstandings can
impact other factors. Understanding one another's contexts can increase the likelihood of combining both local and external knowledge, creating more dynamic and iterative interactions.

**Conclusion**

This study adds to the KMb literature in three ways. First, it adds to the limited research on KMb intermediary efforts to implement an evidence-based education policy in real practice settings by teachers. Second, this study adds to the literature on how knowledge is mobilized in practice settings through the use of three specific KMb strategies (networks, products, and events). Third, this study establishes a more comprehensive understanding of enablers and barriers of research-policy-practice interactions within school districts. As noted in previous research, social context plays a critical role in KMb efforts (Coburn & Stein, 2010; Cooper, 2014; Levin, 2004; Lomas, 2007; Nutley et al., 2007; Ward et al., 2012). This study confirmed the significant impact relationships can have on all KMb efforts. By recognizing and responding to the enablers and barriers identified by teachers, KMb efforts might be more successful in improving linkages between research and practice. By reflecting on the experiences of the teachers, this study can provide a concrete example of ways in which KMb efforts should be intentionally planned at system, organizational, and individual levels.
REFERENCES


Ontario Ministry of Education (2010). *Caring and safe schools in Ontario: Supporting students with special education needs through progressive discipline, Kindergarten to Grade 12.* Toronto, ON: Queen’s Printer for Ontario.


Cambridge, UK: Cambridge University Press.


Five conditions fall under the umbrella of autism spectrum disorders (ASD). They are autistic disorder, Asperger’s syndrome, pervasive developmental disorder – not otherwise specified (PDD-NOS), childhood disintegrative disorder (CDD), and Rett’s disorder (affects only females). For the purpose of this study, only autistic disorder was considered as it is the diagnosis required to participate in Connections.

The last 30 years have witnessed progress in autism research resulting in a mass of information and the investigation of more effective interventions (Koegel & Koegel, 1995; US Department of Education, 2000). Autism has been found in families of all racial, ethnic, and social backgrounds. It is diagnosed based on the following criteria outlined in the Diagnostic Statistical Manual IV (DSM IV): qualitative impairment in social interactions, qualitative impairment in communication, and restricted repetitive and stereotyped patterns of behaviour, interests, and activities. In addition, there must be delays or abnormal functioning in at least one of the following areas with onset prior to the age of 3: social interaction, language as used in social communication, or symbolic or imaginative play (American Psychiatric Association, 2000).

The heterogeneity of the disorder makes a unilateral approach to teaching difficult: When considering the triad of impairments, educators are likely to see a range of deficits, skills, and behaviours for each individual (Table 4).
<table>
<thead>
<tr>
<th>Area of Impairment</th>
<th>The student:</th>
</tr>
</thead>
</table>
| **Social Skills** | has difficulty understanding social cues from peers or adults or social situations  
has difficulty interacting with peers (e.g., may have much younger interests, may not understand how to initiate, maintain, or end a conversation)  
lacks imaginative play or only wants to engage in her or his own personal interests  
withdraws from social situations or intrudes inappropriately  
may not understand personal boundaries (e.g., personal space, awareness of others)  
often does not understand context within social situations |
| **Communication** | has difficulty communicating thoughts, needs, and wants verbally or non-verbally  
finds non-verbal communication confusing (e.g., gestures, reading body language, making eye contact)  
may use speech that is repetitive or echolalic or may be unusual in intonation and pattern  
may require alternative or augmentative forms of communication (e.g., sign language, picture symbols, text-to-speech devices) |
| **Behaviour** | has intense interests in specific objects or themes (e.g., skunks, washing machines, World War 1) or appears uninterested in anything  
requires consistent and predictable routines and organizational structures (e.g., must stand in the same place in line, organizes books on a shelf)  
may engage in unusual movements (e.g., rocking, pacing, hand flapping, clapping)  
may be rigid in following a schedule (e.g., becomes upset with changes to a schedule, routine, or people)  
may have hyper or hypo-sensitivities to external stimulus (e.g., sensitive to noise or touch, or seeks out noise or touch) |
APPENDIX B: POLICY/PROGRAM MEMORANDUM NO 140

Date of Issue: May 17, 2007
Effective: Until revoked or modified

Subject: INCORPORATING METHODS OF APPLIED BEHAVIOUR ANALYSIS (ABA) INTO PROGRAMS FOR STUDENTS WITH AUTISM SPECTRUM DISORDERS (ASD)

**Purpose:**
The purpose of this memorandum is to provide direction to school boards to support their use of Applied Behaviour Analysis (ABA) as an effective instructional approach in the education of many students with autism spectrum disorders (ASD). This memorandum establishes a policy framework to support incorporation of ABA methods into school boards practices. The use of ABA instructional approaches may also be effective for students with other special education needs.

This memorandum has been informed by recommendations of the Report of the Minister's Autism Spectrum Disorders Reference Group. This group was established in 2006 at the joint invitation of the Minister of Education and the Minister of Children and Youth Services to provide both ministers with advice on effective, evidence-based educational practices to meet the wide range of needs of students with ASD.

This memorandum is intended to strengthen collaborative working relationships between parents, schools, and the community. This collaboration is essential for supporting positive learning for students with ASD. An example of such collaboration is the development of an Individual Education Plan (IEP) for a student.

The direction provided in this memorandum builds on suggestions for successful practice provided in the Ministry of Education’s documents entitled *Special Education: A Guide for Educators, 2001* and *Individual Education Plans: Standards for Development, Program Planning, and Implementation, 2000*, and is consistent with the Ontario curriculum as a basis for programs for students with ASD.

**Background**
This direction is also consistent with suggestions for successful practice provided in the following documents published by the Ministry of Education:

- *Special Education Transformation: The Report of the Co-Chairs With the Recommendations of the Working Table on Special Education, 2006*
- *Education for All: The Report of the Expert Panel on Literacy and Numeracy Instruction for Students With Special Education Needs, Kindergarten to Grade 6, 2005*
- *Planning Entry to School: A Resource Guide, 2005*
- *The Ontario Curriculum Unit Planner: Special Education Companion, 2002*

School board staff should consult the above documents for more detailed information.
The Ministry of Children and Youth Services (MCYS) document entitled *Autism Intervention Program: Program Guidelines, 2006* provides additional information. In particular, the sections on Transition Planning and Sharing Information may provide useful information. The MCYS document entitled *A Shared Responsibility: Ontario's Policy Framework for Child and Youth Mental Health, 2006* provides additional information. Copies of these documents are available online (see page 7) or through the local MCYS office.

This memorandum is also informed by the recommendations in the *Report of the Interim Parent Involvement Advisory Board*, which was released in July 2006.

**Applied Behaviour Analysis**

Applied Behaviour Analysis (ABA) uses methods based on scientific principles of learning and behaviour to build useful repertoires of behaviour and reduce problematic ones. In this approach, the behaviour(s) to be changed are clearly defined and recorded. The antecedents of the undesirable behaviour(s) are analysed, as are the reinforcers that might be maintaining the undesirable behaviour(s) or that might be used to help develop adaptive behaviours.

Interventions based on behavioural principles are designed to develop appropriate behaviours. Progress is assessed and the program is altered if necessary (adapted from Perry and Condillac 2003). ABA can be used with students of every age. It can be applied in a variety of situations, and it can be used for very limited and specific purposes, such as the development or reduction of single behaviours. ABA can also be used for broader purposes, such as the development or reduction of sets of behaviour (for example, to improve relaxation skills, to teach more effective social skills, or to enhance community living skills). ABA can be used for students with ASD, and it can be used for students who have varying degrees of intensity of ASD along a learning continuum.

ABA methods can support students with ASD in a number of ways. For example, ABA methods can help a student to:

- develop positive behaviours (e.g., improve the ability to stay on task, improve social interaction);
- learn new skills (e.g., comprehensive skills, including language skills, social skills, motor skills, academic skills);
- transfer a positive behaviour or response from one situation to another (e.g., from completing assignments in a special education class to maintaining the same performance in a regular class).

ABA methods can also be used to limit the conditions under which problematic behaviours occur – for example, to modify the learning environment so that students are less likely to injure themselves.

Educators must measure an individual student's progress in the above areas by collecting and analysing data on an ongoing basis. Educators must use the data collected to determine the effectiveness of the program and to alter the program as necessary to maintain or increase a student's success. Progress should be
measured in accordance with the assessment methods used in the student’s program.

**Monitoring And Reporting of Implementation**

School boards are encouraged to make use of a growing body of knowledge about educational practices that are effective for students with ASD. Relevant research on ASD will be posted on the ministry's website to provide information on instructional practices for students with ASD.

School boards should develop a plan to implement the policy in this memorandum, and should consult with their Special Education Advisory Committee (SEAC) regarding the implementation. School boards should also consult their SEAC regarding the monitoring of the implementation of this memorandum, at least on an annual basis. The ministry will integrate monitoring of implementation of this memorandum into existing reporting mechanisms. The Minister's Advisory Council on Special Education, as well as members of the Ministers’ Autism Spectrum Disorders Reference Group who wish to be involved, will be consulted twice a year regarding the implementation of ABA methods by school boards.

1. **School boards must offer students with ASD special education programs and services, including, where appropriate, special education programs using ABA methods.**

   Under Regulation 181/98, principals are required to ensure that an IEP is developed for each exceptional student within thirty school days of the start of the student's placement. School boards also have the discretion to develop an IEP for students who have not been formally identified as exceptional. Students with ASD have a wide range of educational needs. Principals are required to ensure that ABA methods are incorporated into the IEPs of students with ASD, where appropriate.

   Principals must ensure that relevant school board personnel and community personnel who have previously worked and/or are currently working with a student with an ASD are invited to provide input and participate in the IEP process. These personnel are able to bring other perspectives and recommendations regarding special education programs and services for students with ASD. In particular, the assessment information gathered from these personnel can benefit the IEP team in planning accurate and comprehensive interventions for the student and promote a common approach to enhance student success.

2. **ABA Methods in Programs for Students With ASD**

   Given the range of needs for students with ASD, the principal must ensure that staff developing a student's IEP consider special education program and service options that will best take into account the student's individual strengths and areas of need in the demonstration of learning. The program selected must be based on relevant assessment information that identifies the student's skills and needs, instructional level, and learning style/modalities, and must incorporate relevant ABA methods, where appropriate. Use of functional behavioural assessment may also help to identify a student's strengths, needs, and learning environment.

   When an alternative program is determined to be appropriate for a particular student with an ASD, it should, wherever possible, incorporate methods of ABA and be
provided in conjunction with a program that includes accommodations as well as modified learning expectations as necessary. Alternative program areas for a student with an ASD could include, for example, behavioural, self-management, social, and communication skills.

When a student with an ASD requires accommodations and/or modified expectations, assessment and evaluation of student learning will be consistent with the strategies outlined in the student's IEP.

The principal must ensure that instructional modifications/strategies are uniquely suited to each student's learning strengths and needs. The ministry plans to publish a resource guide entitled *Effective Education Practices for Students With Autism Spectrum Disorders* that will provide more detailed information on strategies.9

**Principles of ABA Programming**

The following principles underlie ABA programming that is provided to students with ASD, where appropriate:

*The program must be individualized.* Each student's specific profile and pattern of strengths and needs must be analysed to determine concrete learning objectives and teaching methods. No single curriculum or teaching strategy is appropriate for all students with ASD. Some students may require more intensive programming.

Although students' programs must be individualized, the various supports may be provided to students either individually or in group situations.

*Positive reinforcement must be utilized.* Positive reinforcement techniques are often helpful to motivate students with ASD.

*Data must be collected and analysed.* Reliable data must be collected and analysed on an ongoing basis to measure student progress in the acquisition of new behaviours and skills, and to identify skills or behaviours that need to be taught.

*Transfer, or generalization, of skills should be emphasized.* Each student should be taught to transfer skills acquired in one context to different contexts or settings. For example, a student should be encouraged to apply a newly acquired positive behaviour in a wide variety of environments, and to learn to use a wide variety of related or similar behaviours in a variety of contexts. The ultimate goal is to enable the student to develop increasing independence.

**2. School board staff must plan for the transition between various activities and settings involving students with ASD.**

Transition planning is an important process for all students, but especially for students with ASD. Principals are required to ensure that a plan for transition is in place for students with ASD. Transitions may include: entry to school; transition between activities and settings or classrooms; transitions between grades; moving from school to school or from an outside agency to a school; transition from elementary to secondary school; transition from secondary school to postsecondary destinations and/or the workplace. Transition into school is of particular importance for students with ASD. Relevant ABA methods must be used to support transition, where appropriate. Students enter school from a range of settings, including the home and
child-care or pre-school programs. It is essential that school board staff work with parents and community agencies to plan for a successful transition. Where a student is currently working with a community service professional, that professional should be involved with the transition process.
APPENDIX C: EVIDENCE-BASED STRATEGIES INCLUDED IN PPM 140
(SUPPLEMENTAL INFORMATION)

Individualized Program

An individualized student program begins with comprehensive planning and information gathering. It considers the student’s profile in relation to the possible triad of deficits (social, communication, and behaviour). Unusual developmental profiles are common for students with ASD. Careful documentation of a student’s unique strengths and weaknesses is necessary and can have a major impact on the design of effective classroom ABA programs. Program planning should be individualized and focused on developing skills for practical use across environments (e.g., home, school, and community). Individualized planning requires careful planning, understanding of autism and ABA methods, and teamwork so that the program provided is appropriate for the individual student (Ministry of Education, 2007c).

The student’s profile typically includes learning strengths, needs, interests, and learning modality. The student’s behaviour profile is also considered including known triggers for maladaptive behaviours (e.g., loud noises), coping strategies (e.g., break system), learning supports (e.g., visual lesson presentation), and repetitive or idiosyncratic behaviours (e.g., focused attention on one interest). Staff also need to have an understanding of the student’s mode of communication (verbal, picture symbols, sign language, text-to-voice augmentative communication, or a combination of methods). Other considerations may include the physical environment of the classroom (e.g.,
physical boundaries such as desks or shelves), safety risks (e.g., does the door always need to be closed so that the student does not leave the classroom), school and community human resources needed to support programming (e.g., special education resource teacher, youth worker, occupational therapist, speech and language pathologist), health concerns (e.g., dietary), and co-morbid conditions (e.g., anxiety or developmental disability), which may increase the severity of the impairment (Busby et al., 2012; Grey et. al, 2005; Helps, Newsom-Davis, & Callias, 1999; Ruble, Usher, & McGrew, 2011; Segall, & Campbell, 2012).

Reinforcement

Reinforcement teaches a student to acquire something (e.g., attention, food, activity, person, sensory input). It is the most widely used principle of ABA and is the basis for the majority of interventions (Catania, 2011; Hanley & Tiger, 2011; Mace et. al., 2011; Scott & Bennett, 2012). Reinforcement occurs when a behaviour is followed by a stimulus that increases the future probability that the behaviour will occur again. Reinforcement names a relation between behaviour and the environment. These relations include at least three components: 1) responses must have consequences; (2) the probability of a behaviour occurring again must increase (become more probable of occurring than without the consequence); and 3) the increase in the behaviour must occur because the student has the consequence and not for another reason.

There must be an empirical basis for the selection of the reinforcers. The reinforcer should be related to the response in order to promote both skill acquisition and generalization of the skill. Students with autism respond to a range of reinforcers. Some
students respond to verbal praise or attention, while others need something more concrete to help solidify the behaviour-consequence connection. For example, a student may be motivated to increase the occurrence of a behaviour if the reinforcer is a preferred activity (e.g., computer time) or object (e.g., a ball). Sensory stimuli may also serve as a reinforcer for some students, such as flashing lights, smelling scents, or specific sounds. The effectiveness of reinforcers can change over time, people, and environments. What is reinforcing in one environment may not be reinforcing in another. For example, a student may respond well to edible rewards at home but not at school. (Catania, 2011; Heflin & Alberto, 2001).

The delivery of reinforcement needs to be carefully considered when working with students with autism so that the correct behaviour is reinforced. For example, if a student is reinforced for one correct response after it has been followed by a series of incorrect responses, the reinforcer may strengthen the incorrect responses.

**Data Collection**

Data collection is an important element of ABA as it helps educators understand and change behaviour and teach new skills. The focus in an educational program using ABA is on measuring and tracking behaviours over time, determining the function of the behaviours, and altering the behaviours through targeted interventions. Progress is based on ongoing data collection and assessment.

A common form of data collection is the functional behaviour assessment (FBA). An FBA identifies the operant function of a target behaviour. Within the FBA is a three-term contingency tool or ‘ABC’ that specifies the relationship among antecedents,
behaviours, and consequences (Cooper, J., Heron, T., & Heward, W., 2007). Antecedents refer to all discernible factors in place prior to the occurrence of the behaviour. Antecedents do not cause a behaviour; rather, they increase or decrease the likelihood of the behaviour occurring. Behaviour is the observable and measurable action produced by the student. Consequences constitute whatever follows the behaviour and can increase or decrease the probability of the behaviour occurring again in the future. Together this ABC sequence provides a way of describing and analyzing behaviour and in turn provides a source of data from which an intervention plan can be developed (Scott & Bennett, 2012).

**Generalization**

A primary goal of intervention is to maintain and generalize learned skills. Generalization occurs when skills acquired in one setting or with one person are demonstrated in other settings or with other people. It is an automatic and effective use of a newly learned skill for an appropriate context. Generalization can be taught by teaching multiple responses to the same stimulus (e.g., teaching multiple ways to deliver a greeting) or by teaching the student to engage in the correct response across a number of different, relevant stimuli (e.g., labelling “dog” in the presence of different examples of dogs). Including generalization plans in a student’s program helps to ensure that learned skills are not demonstrated in training situations only but are transferred to real contexts. (Ellis, Lenz, & Sabornie, 1987; Kodak & Grow, 2011).
Transition Planning

Transition planning is a second requirement of PPM 140. It is an important process for all students but especially for students with ASD as they typically find different types of transitions challenging. Transitions may include: entry to school; transition between activities and settings or classrooms; transitions between grades; moving from school to school or from an outside agency to a school; transition from elementary to secondary school; transition from secondary school to postsecondary destinations and/or the workplace. Transition into school must also be considered with recognition that students enter school from a range of settings (e.g., home or daycare) and working with community partners and parents is important for a successful transition.

Case studies have indicated that individuals with autism experience challenges with organizing their environments and processing auditory information (Dettmer, Simpson, Myles, & Ganz, 2000). Visual supports (e.g., a picture or text schedule) are valuable tools for helping students with autism to maintain attention, to understand spoken language, and to sequence and organize their environment. These supports help to compensate for deficits in communication. Transitioning between activities and environments (e.g., from the classroom to the yard for recess) can be confusing for students with autism. When expectations are predictable and communicated in a format that students understand, behaviour problems and confusion can decrease (Hodgdon, 1995).
APPENDIX D: IBI and ABA

Intensive Behaviour Intervention (IBI)

Intensive Behavioural Intervention (IBI) is a clinically supervised, intensive, comprehensive, and individualized treatment program developed for children and youth (ages 0 to 18 years) with severe autism. The goal of IBI is to increase the child’s rate of learning and prepare him or her for participation in educational programs and other community activities. IBI is not provided by teachers, educational assistants, or school board staff. The delivery of IBI is overseen by a psychologist and program supervisor and is implemented by trained instructor therapists within a clinical setting. IBI is based on the scientific principles of the broader field of Applied Behaviour Analysis.

Applied Behaviour Analysis (ABA)

ABA is an approach used in educational, home, or community settings to improve learning, teach skills, and maximize a child’s ability to develop meaningful relationships. IBI is an intensive intervention provided to children within a clinical setting and is not the means through which educators implement ABA strategies. The Ontario Ministry of Education, IBI providers and boards of education have made a clear distinction between IBI as a therapeutic service delivered within a clinical setting and ABA as a general behavioural approach that can be used in many environments including the classroom (Table 5).
### Table 5

**Differences between ABA and IBI (Adapted from Pathways for Children and Youth)**

<table>
<thead>
<tr>
<th>What is it?</th>
<th>ABA</th>
<th>IBI</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Broad field of study</td>
<td>• Broad field of study</td>
<td>• 1:1 intervention based on the principles of ABA</td>
</tr>
<tr>
<td>• A study of changes in behaviour</td>
<td>• A study of changes in behaviour</td>
<td>• Delivered intensively (20-40 hours per week under clinical supervision)</td>
</tr>
<tr>
<td>• Delivered in various formats</td>
<td>• Delivered in various formats</td>
<td>• Targets a range of developmental areas</td>
</tr>
<tr>
<td>• Utilizes methods to increase and decrease target behaviours</td>
<td>• Utilizes methods to increase and decrease target behaviours</td>
<td>• Focus on learning readiness skills</td>
</tr>
<tr>
<td>• Behaviour defined in observable and measurable terms in order to assess change over time</td>
<td>• Behaviour defined in observable and measurable terms in order to assess change over time</td>
<td>• Intended to change a child’s trajectory and advance development</td>
</tr>
<tr>
<td>• Uses teaching strategies that are familiar and common in classrooms (e.g., shaping, chaining, prompting, reinforcement)</td>
<td>• Uses teaching strategies that are familiar and common in classrooms (e.g., shaping, chaining, prompting, reinforcement)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who provides it?</th>
<th>With coaching it can be provided by:</th>
<th>Trained instructor therapists</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Parents</td>
<td>• Parents</td>
<td>• Parents with supervision from trained professionals</td>
</tr>
<tr>
<td>• Educators</td>
<td>• Educators</td>
<td>• Requires supervision from behaviour analyst with specialty in IBI</td>
</tr>
<tr>
<td>• Community service providers</td>
<td>• Community service providers</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who receives it?</th>
<th>Effective across populations</th>
<th>Children with autism at the severe end of the spectrum</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Students in special or regular education</td>
<td>• Students in special or regular education</td>
<td>• Beneficial for all</td>
</tr>
<tr>
<td>• Beneficial for all</td>
<td>• Beneficial for all</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Where is it provided?</th>
<th>Teaching techniques using principles of ABA can be used anywhere – home, classroom, and community</th>
<th>Specialized centre or at home or community setting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ABA is the study of behaviour, not about behaviour. ABA has its roots in behavioural theory (Kanner, 1943; Lovaas, 1987; Skinner, 1953). ABA is a discipline in which the general principles of learning and behaviour are implemented to solve problems of social relevance. It focuses on direct observation in order to determine a function for each behaviour and requires manipulation of environmental events as independent variables to change, replace, or extinguish non-functional behaviours. ABA
has been empirically validated over many years and suggests that all behaviours serve a function that can be studied using rigorous scientific methods (Dunlap, Iovannone, & Kincaid, 2008; Ferraioli & Harris, 2010; Harrower & Dunlap, 2001; Iovannone et al., 2003; Martens, Daly, Begeny, & VanDerHeyden, 2001; Mesibov & Shea, 2011; National Research Council, 2001).

An effective ABA program is determined by the intersection of a child’s development level, the unique characteristics of the child’s autism, the intensity of program implementation, and instructor competencies (Cooper, Heron, & Heward, 2006; Heflin & Alaimo, 2007; Simpson, 2005). Effective implementation of ABA methods requires thorough understanding of the principles and full, active participation on behalf of educators (Alberto & Troutman, 2006; Simpson, 2005). An ABA approach requires informed and constant evaluation of student progress, the development of a functional curriculum, and control of environmental stimuli and structure (Simpson & Smith Myles, 2007). Ongoing data-based decision making is critical to the effective implementation of ABA.
APPENDIX E: RESEARCH ETHICS BOARD CLEARANCE

October 01, 2013
Mrs. Deni Melim, Master’s Student
Faculty of Education
Duncan McArthur Hall Queen's University 511 Union St. W.
Kingston, ON K7M 5R7

GREB Ref #: GEDUC-700-13; Romeo # 6010838 Title: "GEDUC-700-13 Examining Research-Policy-Practice Interactions using a Knowledge Mobilization(KMb) Intermediary: The Case of the Connections Program in Southeastern Ontario"

Dear Mrs. Melim:
The General Research Ethics Board (GREB), by means of a delegated board review, has cleared your proposal entitled "GEDUC-700-13 Examining Research-Policy-Practice Interactions using a Knowledge Mobilization (KMb) Intermediary: The Case of the Connections Program in Southeastern Ontario" for ethical compliance with the Tri-Council Guidelines (TCPS) and Queen's ethics policies. In accordance with the Tri-Council Guidelines (article D.1.6) and Senate Terms of Reference (article G), your project has been cleared for one year. At the end of each year, the GREB will ask if your project has been completed and if not, what changes have occurred or will occur in the next year.

You are reminded of your obligation to advise the GREB, with a copy to your unit REB, of any adverse event(s) that occur during this one year period (access this form at https://eservices.queensu.ca/romeo_researcher/ and click Events - GREB Adverse Event Report). An adverse event includes, but is not limited to, a complaint, a change or unexpected event that alters the level of risk for the researcher or participants or situation that requires a substantial change in approach to a participant(s).

You are also advised that all adverse events must be reported to the GREB within 48 hours. You are also reminded that all changes that might affect human participants must be cleared by the GREB. For example you must report changes to the level of risk, applicant characteristics, and implementation of new procedures. To make an amendment, access the application at https://eservices.queensu.ca/romeo_researcher/ and click Events - GREB Amendment to Approved Study Form. These changes will automatically be sent to the Ethics Coordinator, Gail Irving, at the Office of Research Services or irvingg@queensu.ca for further review and clearance by the GREB or GREB Chair.

On behalf of the General Research Ethics Board, I wish you continued success in your research.
Yours sincerely,
Joan Stevenson, Ph.D.
Chair, General Research Ethics Board
c: Dr. Amanda Cooper, Faculty Supervisor Dr. Don Klinger, Chair, Unit REB
Erin Wicklam, c/o Graduate Studies and Bureau of Research
APPENDIX F: LETTER OF INFORMATION AND CONSENT FORM FOR PARTICIPANTS

Examining Research-Policy-Practice Interactions using a Knowledge Mobilization (KMb) Intermediary: The case of the Connections Program in Ontario.

This research is being conducted by Deni Melim under the supervision of Dr. Amanda Cooper, in the Faculty of Education at Queen’s University in Kingston, Ontario. This study has been granted clearance according to the recommended principles of Canadian ethics guidelines and Queen’s policies.

What is this study about?

The purpose of this study is to understand the opportunities and challenges of research-policy-practice interactions using a knowledge mobilization (KMb) intermediary, Connections for Students (Connections). KMb is about improving links between research, policy, and practice. I will be looking specifically at the interactions that occur in Connections that may highlight how research (evidence-based ABA strategies), policy (PPM 140) and practice (teacher implementation of research and policy) are linked. The study will help researchers and practitioners to develop a deeper understanding of the specific KMb strategies that are utilized specifically within the Connections context. The findings of this study may influence how policy makers, school boards, and community partners facilitate the creation of conditions that are conducive to effective research-policy-practice interactions. It will also build on the current knowledge about KMb and intermediaries in education.

Is my participation voluntary? Your consent should be given of your own free will, be informed and ongoing. You should not feel obliged to answer any question that you find objectionable or that makes you feel uncomfortable. You may also withdraw at any time without consequences to you. If you do withdraw you may request that all or part of your data be removed from the study. There are no known risks or harm to you as a participant.

What is expected of me as a participant? The study will include a one hour semi-structured interview including approximately twenty questions that explore your experiences and perceptions of interactions within Connections. Interviews will occur between October and November 2013 at a time and location of your choosing. The interview will be audio-recorded.

What will happen to my responses? This researcher will maintain confidentiality to the extent possible. Your responses will be kept confidential and your identity protected at all times. Only my supervisory committee and I will have access to this information. You will be provided with a copy of the transcript in order to offer clarification as needed.
Should you be interested, you are entitled to a copy of the findings. Information you share in your interview will not be provided to your supervisor and all data will be protected (digital data will be password protected; audio-files and paper data will be stored in a locked cabinet). Teacher participants will not be identifiable as school names will not be provided. While consultants from Pathways for Children and Youth may be identifiable as a group (i.e. southeast Ontario region), data collected and presented will not identify you individually, thus readers will not be able to determine which participant contributed what information. The data may be published in professional journals or presented at scientific conferences, but any such presentations will be of general findings and will never breach individual confidentiality. If data is used for secondary analysis it will not contain any identifying information. In accordance with the Faculty of Education, Queen’s University policy, data will be retained for a minimum of five years. At that time paper data will be shredded and digital files deleted.

What if I have concerns? Any questions about study participation may be directed to Deni Melim at 3dht@queensu.ca or my supervisor Dr. Amanda Cooper at 613-533-6000 ext. 77286 or at amanda.cooper@queensu.ca. Any ethical concerns about the study may be directed to the Chair of the General Research Ethics Board at chair.GREB@queensu.ca or 613-533-6081. Thank you for your interest in participating in this research. Your input is greatly appreciated.

I ______________________agree to participate in the study.

Examining Research-Policy-Practice Interactions using a Knowledge Mobilization (KMb) Intermediary: The case of the Connections Program in Ontario. The following points have been explained to me:

1. The purpose of this research is to examine the opportunities and challenges of research-policy-practice interactions using a knowledge mobilization (KMb) intermediary, Connections.

2. My participation involves a one-hour semi-structured interview that will be recorded and transcribed. The transcript will be provided to me to review.

3. The researcher does not foresee any risks to me for participating in this study, nor does she expect that I will experience any discomfort or stress.

4. My participation is voluntary and I am free to withdraw from the study at any time. If I withdraw I may request removal of all or part of my data.

5. All of the interview data collected will remain strictly confidential. Only the researcher and her supervisory committee will see my responses. This consent form will be detached from the transcript and stored separately. Interview responses will not be associated with my name; instead, my name will be converted to a code number when the researcher stores the data.

6. Any questions about study participation may be directed to Deni Melim at 3dht@queensu.ca or to her supervisor Dr. Amanda Cooper at 613- 533-6000 ext. 77286 or at Amanda.cooper@queensu.ca

7. Results of the study will be made available to all participants if requested.
8. I have read and retained a copy of the Letter of Information and Consent Form and had questions answered.

Please sign one copy of this Consent Form and return to Deni Melim. Retain the second copy for your records.

__________________________________________________________________
Name of Participant (Please print)  Signature of Participant
Date

__________________________________________________________________
Please provide postal or email address if you would like a copy of the results of the study.

__________________________________________________________________
Signature of Investigator (Deni Melim)  Date
APPENDIX G: TERMS OF REFERENCE (PROVIDED TO PARTICIPANTS PRIOR TO INTERVIEW)

Purpose of Study:
The purpose of the qualitative case study is to understand the opportunities and challenges of research-policy-practice interactions using a knowledge mobilization (KMb) intermediary, Connections for Students (Connections). The study will help researchers and practitioners to develop a deeper understanding of the specific KMb strategies that are utilized within the Connections context. In this case study, I will be looking specifically at the interactions that occur in Connections that may link research (evidence-based Applied Behaviour Analysis strategies) to policy (Policy/Program Memorandum No 140) and practice (teacher implementation of research and policy). The findings of this study may influence how policymakers, school boards, and community partners facilitate the creation of conditions that are conducive to effective research-policy-practice interactions.

Knowledge Mobilization Definition:
Knowledge mobilization (KMb) is about improving connections between research, policy, and practice. KMb embodies the idea that the use of knowledge is a social and multidirectional process. Mobilization implies effort and direction rather than random interactions. KMb is defined as:

Intentional efforts to increase the use of research evidence (data collected through systematic and established formal processes of inquiry from widely accepted bodies of empirical work, rather than from single studies) in policy and practice at multiple levels of the education sector- between individual, organizational, and system levels…[KMb] occurs through iterative, social processes involving interaction among two or more different groups or context (researchers, policymakers, practitioners, third party agencies, community members) in order to improve the broader education system (Cooper, 2012, p. 1).


Terms
Tools/Products: artifacts that embody research knowledge in ways that are directly usable in practice such as resources, documents, protocols, or materials developed within Connections.
Events: professional development, workshops, training, coaching, modeling, consultation
Network: learning community (Connections multidisciplinary team), collaboration, teacher-researcher collaboration
APPENDIX H: INTERVIEW QUESTIONS

1. How would you describe the interactions that occur within Connections?
2. What role do you feel collaboration plays in Connections?
3. In what ways does strong/weak collaboration impact the interactions throughout Connections?
4. What role do you think interpersonal relationships within Connections play in developing, maintaining, or changing your practice?
5. Would you describe someone within each Connections case that served as a KMb broker (e.g. someone who moved knowledge to action by focusing on dissemination, uptake of research and monitoring)?
6. What conditions do you feel are necessary for developing collaboration among team members?
7. In what ways do you see research being introduced and used in Connections?
8. How would you describe the products (e.g. specific materials created for you)?
   Probe: who created the tools, shared them, and demonstrated their use?
9. Can you describe events (e.g. professional development) that were provided to you as a direct result of participation in Connections? (Probe - if so did you request the event or was it offered and by whom, who delivered the PD?).
10. If professional development was provided, was research incorporated into the professional development? Can you give an example?
11. How is knowledge of PPM 140 mobilised in Connections?
12. What are your perceptions of the enablers and/or barriers for teachers to comply with PPM 140?
13. Do you think these enablers and/or barriers change if the teacher is involved with Connections? If so, how?
14. Given your involvement in Connections, do you think that you are better able to select, implement, and evaluate the strategies listed in PPM 140?
15. What is your view of Connections as a KMb intermediary (a point of intersection among research (ABA), Policy (PPM 140) and classroom practice?)
16. Have you experienced a change in perception or attitude about using research throughout the Connections process and if so can you describe an example?
17. Do you feel the same model could be used to effectively mobilise knowledge in another context (e.g. another disability? If so what do you feel would be the most important factor for facilitating the most effective conditions?
18. What do you see as the barriers to KMb work?
19. Do you have any other comments you’d like to share?
APPENDIX I: SAMPLE INDIVIDUALIZED TRACKING TOOL CREATED BY CONNECTIONS TEAM MEMBERS (ASD SSP AND ABA ADVISOR)

The following pages are tracking logs to document some of (student's) routines and goals in the classroom. It is important that the date is listed and that all staff completing the log is familiar with the prompting levels. A description and examples of the prompts are listed below.

Guidelines and examples for prompt levels:

I= Independent. Student demonstrated the skill without any adult assistance.
E.g.: Student enters the classroom and says hello within 5 to 10 seconds of entering the classroom

NV- Non-explicit verbal prompt is a verbal hint that she needs to do something (e.g. “There is Mrs. **” model for her “Good Morning Mrs. **”

EV- Explicit verbal prompt. A clear direction to do something. E.g. “Say good morning to Mrs. **.”

G- Gestured or Modeled prompt that helps Student initiate a response.
E.g.- Gestural prompt: pointing to the door of the Attendance office.
E.g.- Modeled prompt: raising your hand to model that work is complete.
(The last two prompts cannot be applied to verbal behavior. However, if putting her belongings in the appropriate place is the target, these levels of prompts may be needed if Student did not respond to the lower levels of prompts.)

PP- Partial Physical Prompt. Guided assistance is given to get her started but she finished on her own when the prompt was removed.
E.g. gently touch her on the back and point to where she needs to go.

FP- Full hand over hand assistance was required for Student to complete the task.
E.g. physically guiding her to destination.
<table>
<thead>
<tr>
<th>Time and Location</th>
<th>Targeted Skill</th>
<th>Prompts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Student will independently raise her hand to alert her teacher that her work is complete.</td>
<td>I NV EV G PP FP</td>
</tr>
<tr>
<td></td>
<td>Student will navigate the hallways of the school independently to get from one location to another.</td>
<td>(gym) I NV EV G PP FP (attendance office) I NV EV G PP</td>
</tr>
<tr>
<td></td>
<td>Student will demonstrate an understanding of awareness of others during different interactions within the school and community (leaving space between herself and others; refraining from bumping into anyone).</td>
<td>I NV EV G PP FP</td>
</tr>
<tr>
<td></td>
<td>Student will attend to the conversations of others when in a small group of peers and be able to answer at least one question posed to her.</td>
<td>I NV EV G PP FP</td>
</tr>
<tr>
<td></td>
<td>Student will relate a personal event from home to the classroom.</td>
<td>I NV EV G PP FP</td>
</tr>
<tr>
<td></td>
<td>Student will initiate greeting and departure statements upon entering and leaving the classroom.</td>
<td>(greeting) I NV EV G PP FP (departure) I NV EV G PP</td>
</tr>
<tr>
<td></td>
<td>Student will independently initiate requests using simple, complete sentences.</td>
<td>I NV EV G PP FP</td>
</tr>
</tbody>
</table>

Legend- I- independent  NV- Non-explicit verbal  EV- Explicit verbal  G- gestural  PP- partial physical  FP- full physical