Enabling Outcomes for Students with Developmental Disabilities through Collaborative Consultation

Michelle Villeneuve and Nancy L. Hutchinson
Queen's University, Kingston, Ontario, Canada

Collaborative consultation has been widely adopted in school-based occupational therapy practice; however, limited research has examined how collaboration between educators and occupational therapists contributes to students' outcomes. The purpose of this study was to describe the nature of collaborative working in two cases of school-based occupational therapy service delivery. This paper reports a cross-case analysis, comparing findings about the nature of a joint effort in each case study to identify workplace practices that facilitated educator-occupational therapist collaboration. Ethnographic case study methods (Stake, 1995; Wolcott, 2008) and socio-cultural activity theory (SCAT; Engeström, 2001) were used to examine multiple perspectives concerning school-based occupational therapy collaborative consultation for two students with developmental disability in one region of Ontario, Canada. Cross-case analysis (Stake, 2006) facilitated examination of the similarities and differences in teamwork. Specific ways that educator-occupational therapist collaboration can be facilitated were identified in three areas: (a) focus for educational programming; (b) communication practices; and (c) leadership practices of educators. SCAT provided a robust framework for describing the depth, quality, and context of interactions from multiple stakeholder perspectives. As such, this research contributes to the development of theoretical and empirical perspectives on the processes of collaborative working and the relationship of these processes to outcomes. Keywords: Collaboration, Consultation, School Health Services, Occupational Therapy, Socio-cultural Activity Theory, Ethnographic Case Study, Cross-case Analysis

Over the past three decades, there has been considerable change in the education of children with disabilities in Canada. Children with disabilities attend inclusive classrooms and are educated alongside their non-disabled peers (Hutchinson & Martin, 2012). Inclusive education practices promote the provision of special education supports and access to services by professionals such as occupational therapists so that students with disabilities are served optimally in regular education settings (Hutchinson & Martin, 2012; Peters, 2007; Scruggs & Mastropieri, 1996; Smith, 1994). In Canada, occupational therapists have been providing therapy services in schools for over three decades (Graham, Kennedy, Phibbs, & Stewart, 1990; Reid, Chiu, Sinclair, Wehrmann, & Naseer, 2006). This qualitative study describes the work of occupational therapists providing services to two young children with developmental disability in school.

Occupational therapy supports students with disabilities within the academic environment by addressing educational or functional goals (Case-Smith & Rogers, 2005). By drawing on both remedial and compensatory strategies, school-based occupational Therapy contributes to outcomes that may include (a) skill development and improving the ability of students to meet expectations of the school program; (b) building capacity in others to deliver programming with students; (c) the removal of barriers (physical and attitudinal) to participation; and (d) recommending activity adaptations or technologies as strategies that enable students to succeed at school despite limitations imposed by their disability (Bundy, 1995; Case-Smith & Rogers, 2005; Graham et al., 1990).

Since the 1990s, school-based occupational therapists in Canada have increasingly adopted a consultation model of service delivery (Reid et al., 2006). Consultation emphasizes indirect service to the student and the contribution of occupational therapy knowledge and skills to support teachers with the development of individualized education programming for students with disabilities (Bundy, 1995; Giangreco, 1995). School-based occupational therapy consultation has been described as collaborative because the interactions between occupational therapists and educators are dependent upon shared expertise (Bundy, 1995; Case-Smith & Rogers, 2005). Collaborative consultation is defined as an interactive problem-solving process, enabling people with diverse expertise to generate creative solutions to mutually defined problems (Idol, Nevin, & Paolucci-Whitcomb, 2000). The adoption of collaborative consultation as a service delivery model coincided with the shift to inclusive education practices. Within this context, occupational therapists strengthened their focus on the educational relevance of their service and shifted emphasis from direct intervention with students to supporting educators in their work with students (Case-Smith & Rogers, 2005; Fairbairn & Davidson, 1993; Reid et al., 2006).

Although collaborative consultation has been widely adopted in school-based occupational therapy practice, there is limited understanding of how collaboration between educators and occupational therapists contributes to educational programming and outcomes for students with disabilities. Villeneuve (2009) conducted a research synthesis to examine (a) the relationship between school-based occupational therapy collaborative consultation and outcomes for students with disabilities, and (b) factors that influence collaboration between educators and occupational therapists. Emphasis was placed on research relevant to the Canadian context. Of the eleven studies that met the inclusion criteria, only one was found that examined the relationship between team collaborative practice and outcomes. Findings revealed that the research literature has focused almost exclusively on barriers to collaboration. Outcome studies emphasized student achievement of individualized education goals but lacked clear descriptions of how collaborative consultation contributed to the outcomes reported. To improve understanding of the specific ways in which school-based occupational therapy collaborative consultation contributes to educationally relevant outcomes for students, multiple-perspective description of the depth, quality, and context of interactions among educators and occupational therapists is required (Barnes & Turner, 2001; Friend, 2000; Kampwirth, 2006; King et al., 1999).

Purpose

The purpose of this study was to describe the nature of joint effort in two cases of school-based occupational therapy service delivery for students with a developmental disability. Socio-cultural activity theory (SCAT) was used as a conceptual framework to examine both the expectations that individual stakeholders had for the student and the depth, quality, and context of interactions between educators and occupational therapists in practice. Findings from this study were used to understand features of collaborative working that supported educational programming and outcomes for students with developmental disability.

Literature Review

A significant challenge to studying collaborative consultation is the lack of a sound theoretical framework for understanding the relationship between collaborative interactions and outcomes (Clark, 2006; Gutkin, 2002; Zwarenstein & Reeves, 2006). Theories of group learning are increasingly recognized as relevant for understanding the critical features of collaboration (Villeneuve, 2009). Socio-cultural activity theory (SCAT; Engeström, 2008) has emerged from an understanding about the distributed nature of learning within teams. SCAT provides a conceptual framework for the study of collaboration by identifying elements within human activity systems that are relevant to shared working (Engeström, 2000). It has been applied in service contexts to examine inter-professional and multi-agency working (Freeman, Miller, & Ross, 2000; Glisson & Hemmelgarn, 1998; Leadbetter, 2008; Lowe & O'Hara, 2000; Robinson & Cottrell, 2005). SCAT has also been used in examine collaborative interactions in schools (Dennis, 2004; Leadbetter, 2004; Martin, 2008).
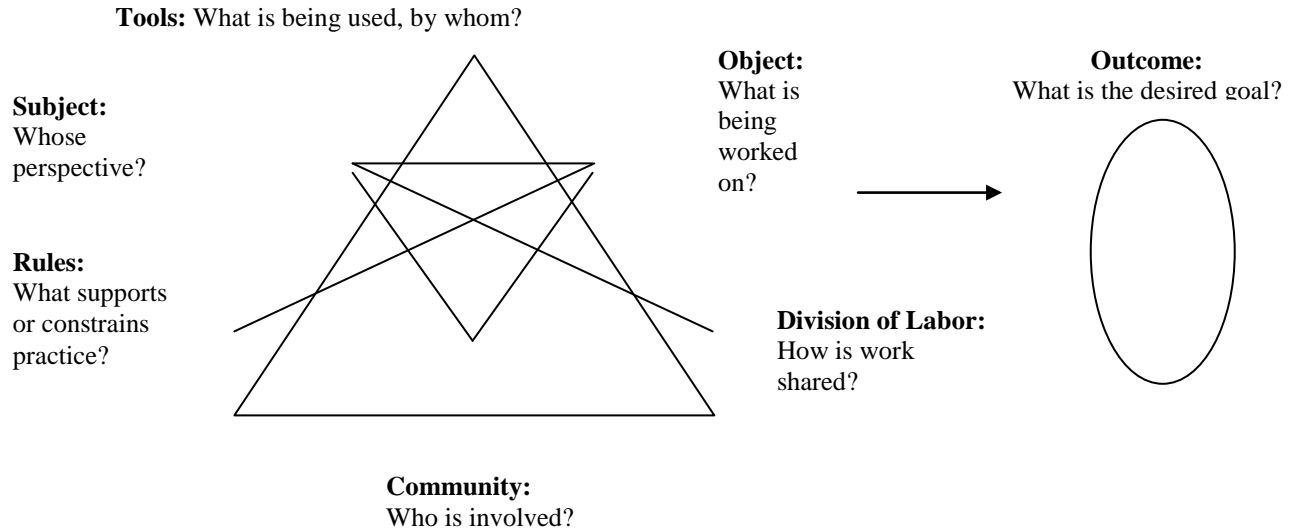
Socio-cultural Activity Theory (SCAT)

Vygotsky proposed that human activity happens in a relationship where actions of individuals (subjects) resolve a shared problem. This problem is the focus of their learning (object), for which they must use tools as mediating means to achieve an outcome (Daniels, 2001). Successful learning results from aligning the appropriate tools with the parts of the problem (Martin, 2008). This basic activity system emphasizes individual learning that results from collaborative interactions. For example, an occupational therapist (subject) may provide an education assistant (EA) with instruction in safe lifting and transferring of a student with impaired mobility. In doing so, the therapist draws on a number of mediating tools to support the EA's learning (object). These tools may include the equipment being used to transfer the child as well as instructional strategies to scaffold learning such as demonstrating the transfer, providing opportunity for the EA to practice with support and supervision, and reviewing the success of the transfer through reflective feedback.

Engeström (2001) expanded Vygotsky's basic activity system for the purpose of analyzing learning among team members. SCAT includes social and contextual factors that shape collaborative work (see Figure 1). By adding three components, that is (a) the community of others who are involved in the problem, (b) the rules, routines, and

professional conduct which support and constrain participants in solving the problem, and (c) the way in which participants share responsibilities in resolving the problem, Engeström's framework enables analysis of collaboration by examining the influence of human interaction on shared learning (Leadbetter, 2008; Martin, 2008). SCAT places greater emphasis on the wider context, ensuring that due account is taken of how work is usually divided and the rules under which work takes place (Leadbetter, 2008).

Figure 1.   SCAT used as a an analytical tool with key questions included, adapted from Leadbetter, 2008

Tools: What is being used, by whom?

Subject: Whose perspective?

Object: What is being worked on?

Outcome: What is the desired goal?

Rules: What supports or constrains practice?

Division of Labor: How is work shared?

Community: Who is involved?

Collaborative Working within an Activity System. Engeström (2008) differentiated among teamwork, cooperation, and collaboration within an activity system by considering different types of interactions. Teams are usually comprised of single-service professionals grouped for administrative purposes, or multi-professional teams working around a child, performing their individual roles and responsibilities according to recognized professional scripts or professional boundaries (Engeström, Brown, Christopher, & Gregory, 1997). For example, the occupational therapist may be working on the student's fine motor skill development, the speech-language pathologist on the student's articulation goals, and the regular education teacher on the student's reading comprehension. Boundaries are created by practitioner roles and routines, and are defined within professional cultures and historical work practices (Martin, 2008). Team members may work in parallel or liaison without addressing issues that prevent better collaborative working (Engeström et al., 1997). Engeström described this type of work as service coordination.

In contrast, cooperative working involves modes of interaction that move participants beyond the confines of their scripted roles. When team members focus on a shared problem and contribute their knowledge to find mutually acceptable ways of understanding and solving it, interactions between various practitioners can be characterized as cooperative. The critical feature of cooperative working involves practitioners each contributing their professional knowledge to re-conceptualize a shared problem. Engeström suggested that transitions to cooperative working may occur during

interactions between various practitioners without explicitly questioning or re-conceptualizing their roles and responsibilities.

Alternatively, Engeström characterized collaboration as interactions in which practitioners focus on re-conceptualizing their own professional roles and responsibilities in relation to their shared focus for joint effort. Shared focus on a problem supports boundary crossing as practitioners develop new understandings about how others work (Martin, 2008). Expansive learning occurs when team members use each other's knowledge to co-configure their roles to produce new ways of working. Boundary crossing and co-configuration of work practices therefore characterize collaborative interactions (Engeström, 2000). Consistent with research identifying barriers to collaboration, Engeström's research on teamwork across a number of workplaces suggests that expansive learning is rare in the ongoing flow of daily work actions. Indeed, the lack of time for educators and occupational therapists to meet combined with the itinerant nature of the therapists' work has been shown to limit opportunity for a joint effort (Barnes & Turner, 2001; Bayona, McDougall, Tucker, Nichols, & Mandich, 2006; Bose & Hinojosa, 2008; King et al., 1999; Nochajski, 2001; Reid et al., 2006). Research on distributed cognition suggests that sustained interaction is critical for collaborators to develop mutual understanding that enables them to re-configure knowledge in ways that provide more powerful solutions to problems (Derry, DuRussel, & O'Donnell, 1998). This has implications for school-based occupational therapy practice where educators and occupational therapists must contend with everyday challenges to sustained interaction (Barnes & Turner, 2001; Fairbairn & Davidson, 1993; Nochajski, 2001).

Engeström (2008) described knotworking as a facilitator of collaborative working in an activity system. Recognizing that fleeting linkages occur in dislocated and shifting networks among workers, knotworking describes the leadership practices of a key worker that support meaningful interactions among workers to enable generative learning and shared problem solving. Emerging evidence suggests that leadership through knotworking supports expansive learning among collaborators by facilitating information sharing among workers within an activity system (Engeström, 2008; Martin, 2008). However, understanding the how the work of a key facilitator can promote collaborative interactions requires further study.

Authors' Statement

To contextualize this research, the authors describe their backgrounds which informed their work on this study. I, Michelle Villeneuve, am a researcher and professor in the Occupational Therapy Program at Queen's University in Kingston, Ontario, Canada. My teaching role includes the preparation of graduate students for entry-level professional practice as Occupational Therapists. In my research, I use participatory and action-oriented research approaches to support the development of multi-agency service coordination and interprofessional collaboration using methodologies that promote shared learning. Nancy Hutchinson, my co-author, is a researcher and teacher educator at the Faculty of Education at Queen's University. Drawing on her considerable expertise in special education, Nancy contributes to the professional development of teacher candidates who work with students with disabilities in special education contexts and in

inclusive classrooms. Both of us have insider knowledge about the provision of education supports and therapy services for students with disabilities at school.

In her teaching career, Nancy taught students with disabilities in resource rooms in both elementary and high schools and worked as a member of collaborative teams in both contexts. As a researcher, Nancy conducts case study research to understand how teaching practices enable youth and young adults with disabilities to be fully participating members of the classroom, the community, and the workplace. In her work as a teacher educator, Nancy emphasizes the role of special educators as members of collaborative teams who can achieve meaningful outcomes for students when they work cooperatively with colleagues who have complementary expertise.

For almost a decade (from 1992–2002), I provided school-based occupational therapy services in a variety of rural, suburban, and urban settings across Ontario. Over this time I experienced, first hand, the shift in service delivery from direct intervention with students to consultation with educators. My earliest experiences as an occupational therapist in northern Ontario were enriched by the interaction among an interdisciplinary team of health care providers, including speech-language pathologists, a physiotherapist, and nurse case managers employed by the same School Health Support Service (SHSS) program to provide therapy services in schools. The SHSS program was characterized by administrative coordination between the two systems of health and education. However, the education setting was merely a location for providing therapy services to school-aged children. Although we were innovative in our coordination of services among the team of health care providers, collaborative problem solving between therapists and educators was rare.

By mid-1990 I worked as a self-employed therapist, contracting my services to a SHSS program in a large urban city center to provide school-based occupational therapy. I employed direct intervention approaches, withdrawing students from class to provide assessment and intervention in a quiet location of the school. In this context I worked without the benefit of collaboration with therapy colleagues, which I had experienced in northern Ontario. Over time, I found myself responding to opportunities for collaboration that arose within the education setting. For example, a clinical psychologist sought my opinion regarding the motor development of a child on my caseload. Our conversation about the needs of this child expanded through our gradual coordination of visits to the school and increasing our collaborative problem solving for students common to each of our caseloads. Informal conversations gave way to invitations for me to participate more formally in education planning meetings for students. Participation with individual educators led to invitations for me to share my knowledge of motor development by providing workshops with groups of educators. These experiences initiated me into the organizational practices of educators and I responded by adapting my role in school-based practice in order to support individual education planning for students and professional development for educators. These formative experiences were influential in my decision to examine school-based occupational therapy practice by considering the specific ways in which collaborative working contributes to educational programming and outcomes for students with disabilities. I undertook this research for my dissertation.

This study took place in 2009. At this time I was a PhD Candidate in the Faculty of Education at Queen's University, and Nancy was my supervisor. The study reported here was one component of my dissertation (see Villeneuve, 2011). The overall aim of

my dissertation was to facilitate shared learning among key stakeholders in order to generate principles of effective school-based occupational therapy collaborative consultation practice. An important component of my study involved ethnographic case study research to identify practices that facilitate or impede collaborative working in the region studied. Throughout my research, socio-cultural activity theory (SCAT) offered a robust framework for describing the relationship between collaborative working and desired outcomes from multiple stakeholder perspectives. This study contributes to the literature on school-based occupational therapy by offering an in-depth description of services from multiple perspectives and responds to the need for theoretical and empirical research by describing the nature of collaborative working in school-based occupational therapy practice.

Methods

Ethnographic case study methods (Stake, 1995; Wolcott, 2008) and SCAT (Figure 1; Engeström, 2001) were used to examine multiple perspectives concerning school-based occupational therapy collaborative consultation for two students with developmental disabilities in one region of Ontario. Multiple case study analysis (Stake, 2006) was used to identify features of collaborative working that facilitated educational programming and outcomes in each case. Each case study was bounded by the student and the student's legal guardian, their classroom placement, educators who were directly involved with classroom planning for the student, and educators who made decisions on behalf of the student. Each case included the occupational therapist responsible for service provision and case manager who authorized school-based occupational therapy service through the regional SHSS program in the school board's district. Ethical approval was obtained from the Queen's University Research Ethics Board followed by approval from the participating school board, local Community Care Access Centre (CCAC), and therapy provider agencies.

Recruitment

Focal cases, recruited from the participating school board, were selected using purposive and convenience sampling so that the two cases represented a wide spectrum of specific characteristics of students with developmental disability who are typically referred for school-based occupational therapy. Cases were limited to primary students from Junior Kindergarten to Grade Four, a time period when referrals are most commonly made. With informed consent first provided by the student's legal guardian, the first author contacted the school principal and educators to inform them of the study and to seek their permission to conduct research at their school. In both cases, the primary teacher contact shared information about the research with other involved educators and the education assistant. Recruitment proceeded by contacting the local CCAC and provider agencies to invite participation of the case manager and occupational therapist. The process of inviting participation and obtaining informed consent proceeded in this manner for both case studies.

Participants

The two focal participants, Connor and Alisha, attended different schools. Connor was a 6-year old boy with autism. He attended his local community school in the afternoon in a Grade One class placement with withdrawal for movement or sensory breaks. Connor received intensive behavioral intervention (IBI) from IBI therapists at home in the mornings. In Connor's case, the special education team initiated a referral for occupational therapy services following Connor's transition from daycare to Grade One. The occupational therapist initiated her assessment and consultation visits with Connor in the second half of Grade One.

Alisha was a 6 year-old girl with multiple physical and intellectual exceptionalities resulting from a chromosomal abnormality. She was placed in a Senior Kindergarten class at her local community school, which was a full-day, daily program. Alisha attended the special education classroom for one half-hour period daily. Alisha was referred by a clinic-based occupational therapist prior to her transition into Junior Kindergarten. Alisha had been receiving monthly occupational therapy visits since the beginning of Junior Kindergarten.

Table 1 identifies the roles of participants in each case study. Both students had the support of an educational assistant. In both cases, a special education teacher (SET) was responsible for the students' individual education program (IEP). At each school, a vice-principal (VP) was responsible for overseeing special education programming for students with identified special education needs. The VP's role included making requests for educational assistance, facilitating referrals for therapy services, and ensuring that recommended services were in place. In both cases occupational therapists were authorized by the case manager to provide monthly visits at school up to a maximum of 10 visits per school year. In both cases, the student's mother participated in the research.

Table 1.   Case Study Participants

Participants	Connor	Alisha
Parent (mother) (M)	*	*
Educational Assistant (EA)	*	*
Special Education Teacher (SET)	*	*
Regular Education Teacher (RET)	*	*
Vice Principal (VP)	*	*
Occupational Therapist (OT)	*	*
Case Manager (CM)	*	*

The two cases are representative of school-based occupational therapy collaborative consultation for students who, because of the nature of their developmental disabilities and learning needs, receive alternative curriculum programming and support from an educational assistant. Alternative education programming is available in Ontario to support the development of alternative expectations for students who are not expected to achieve the expectations represented in the Ontario curriculum (Hutchinson & Martin, 2012; Ontario Ministry of Education, 2004). For these students, alternative education programming identifies learning objectives and teaching methods to support achievement

of the knowledge and skills outlined on an individual education plan. Examples of alternative expectations can include speech remediation, social skills, mobility training, and personal care programs (Ontario Ministry of Education, 2004).

Research Questions

The following questions were used to guide data collection. Each question addressed the relevant constructs from SCAT (Figure 1) which appear in brackets after each question. The questions included: (a) What are the desired goals or educational expectations for the student (outcome); (b) What is the focus of education and occupational therapy programming for the student (object); (c) Who sets the focus for occupational therapy involvement (subject); (d) How is service provided (tools); (e) Who is involved and how is responsibility shared (community/division of labor); and (f) What supports or constrains the educator-occupational therapist collaboration (rules)?

Data Collection

Data consisted of ethnographic observations, documents, and interviews collected over an 8-month period between November 2008 and June 2009. Used in combination, these methods of data collection contributed to answering the six research questions that follow from SCAT and enabled a multiple-perspective description of school-based occupational therapy services for each focal participant. The reader is encouraged to consult Engeström (2008) for a detailed description how SCAT is used to support multiple-perspective description of teamwork practices from ethnographic data.

Observation was used to gather contextual information about the student participating in school programming, including occupational therapy, and captured the nature of interactions among participants. Observations for both cases took place during regular classroom and special education programming, library time, gym programming, and included indoor and outdoor activities at recess and drop off or pick up by parents. Field notes were used to capture observation data through thick description. SCAT provided a conceptual framework to guide observations. For example, when observing each focal participant in activity, observation data were gathered to describe (a) what was being worked on (object); (b) what tools or approaches were being used (tools); (c) who else was involved (community); and (d) how work was shared (division of labor). Observations were supplemented with field notes, photos, videos, and audio recordings of activities involving the focal participant at school to support accuracy in data collection. For example, observation of school-based occupational therapy sessions were used to describe how the therapist worked with the education assistant and Alisha in the library on the development of Alisha's hand grasp by using toys and craft supplies brought to the school by the occupational therapist.

Formal interviews ranged from 35 minutes to one hour and were conducted at a time and place that was most convenient for participants. Interview questions were guided by prior observations and document review using an appreciative approach to inquiry. Appreciative inquiry uses interviewing techniques that emphasize the sharing of stories to enable a participant's reflection on their experience of a program (Preskill & Catsambas, 2006). Participants were asked to reflect on their expectations of the focal

case study participant and their experiences with school-based occupational therapy service. Appreciative inquiry is consistent with contemporary approaches to data collection in ethnographic studies where participants are treated as active interpreters who construct their realities through discussion, stories, and narratives (Hesse-Biber & Leavy, 2008). Informal interviews were conducted with participants by engaging with them during field visits at school. Informal interviews provided the opportunity to clarify observations with participants while they were taking place. For example, an informal interview with the educational assistant about the activities she chose for Alisha at desk work time in the Senior Kindergarten class allowed her to explain that she had been using donated board books and "garage sale toys" while waiting for "equipment recommended by the occupational therapist to arrive." In Connor's case, an informal interview with the Grade One teacher allowed her to explain how classroom activities were modified for Connor. For example, during classroom observations, the Grade One teacher shared that she relied on the educational assistant to adapt math activities for Connor, using materials and tools provided by the special education teacher.

Document review provided data on goals for the student (outcomes), learning strategies (tools), and description of occupational therapy involvement (object). Document review also provided data on the type of information shared between participants in each case study (community/division of labor). For example, mid-block and year-end reports were used to share information about occupational therapy services with the case manager and therapy notes were used to share information about occupational therapy with parents and teachers. Table 2 identifies the type of data collected and indicates the number of interviews and observations for each focal participant.

Table 2. Ethnographic Case Study Data

Data Collection Methods			
Documents Reviewed		**Connor**	**Alisha**
School	Individual Education Plan	*	*
	Program/Class Schedule	*	*
Occupational Therapy Provider	SHSS Program Therapy Plan	*	*
	Formal Assessment Report	*	*
	School Consultation Therapy Notes (for each visit)	*	*
	Progress notes (for each visit)	*	*
	Mid-block Report	*	*
	Year-end Report	*	*
CCAC	Service Request	*	*
	Functional Intake Assessment School	*	*
	Service Provider Referral & Service Authorization	*	*
Interviews (number)			
Formal	Special Education Teacher	(1)	(1)
	Regular Education Teacher	(1)	(1)
	Vice Principal/Student Support	(1)	(1)

	Teacher		
	Education Assistant	(1)	(1)
	Parent (mother)	(1)	(1)
	Occupational Therapist	(2)	(2)
	Case Manager	(1)	(1)
Informal	Special Education Teacher	(1)	(2)
	Regular Education Teacher	(1)	(2)
	Education Assistant	(9)	(9)
	Parent (mother)	(2)	(1)
	Occupational Therapist	(6)	(6)
Observations			
Field Visits (total)		(9)	(9)
Total Hours		(36)	(36)

Audit Trail, Member-Checking and Credibility

A log was kept as an audit trail of the research process, documenting the date of each observation, interview, document review, and field note. All interviews were transcribed verbatim with the exception of interviews with the two case managers who did not consent to audio recordings of the interviews. In these two instances, detailed notes were taken during the interview. Interview summaries were provided to each case manager who reviewed them for accuracy. All data were reviewed regularly and reflections on emergent findings related to the research questions were recorded in memos. These memos were intermittently reviewed to support data analysis and descriptions of case study findings.

Consistent with ethnographic case study research, extended immersion enabled data saturation. Combining observation, document review, and interviews facilitated trustworthiness through triangulation of data sources and participant perspectives (Denzin & Lincoln, 2005; Stake, 2006). Drawing on observation data during interviews enabled participants to reflect on events observed and to share their understanding of the situations. During interviews, participants were also encouraged to reflect on documentation of education and occupational therapy services by considering how they used documentation to support programming for the focal participant. Trustworthiness was enhanced through peer debriefing (Denzin & Lincoln, 2005) with the second author, who supported reflection and provided feedback on the accuracy of data collection and analysis methods.

Data Analysis

Data were analyzed separately for each case. Data reduction and organization was facilitated by describing the education program for each focal participant. This was followed by a description of the process from initiation of referral for occupational therapy through to providing intervention at school. Observation data supported contextualized descriptions of the following: (a) classroom and school activities, including occupational therapy service for the focal participant; (b) approaches and tools used to implement the activity or service; (c) who was involved in the activity; and (d)

how work was shared. For example, in Alisha's case, data were organized into a schedule of classroom and educational programming from Alisha's arrival at school to her departure on the Access bus at the end of the day. Similarly, a description of occupational therapy services outlined the focus for occupational therapy involvement with Alisha (e.g., making equipment recommendations; transfer training for the education assistant; monitoring Alisha's skill development; making activity suggestions; and documenting services). Tools associated with each area of occupational therapy involvement were also described. For example, when monitoring Alisha's skill development, the occupational therapist worked directly with Alisha and the education assistant in the library using materials and tools brought by the occupational therapist to promote Alisha's grasp development. During these sessions the occupational therapist made verbal recommendations for classroom activities to encourage the development of Alisha's grasp and demonstrated how to work with Alisha.

Coding of interview transcripts and documents, using the framework provided by SCAT (Figure 1), supported multiple perspective understanding and thick description of each case within an activity system framework. Data were organized during coding to describe each participant's perspective concerning (a) desired goals for the student and expectations for occupational therapy involvement; (b) their roles and responsibilities in relation to the focal participant and service provision; (c) how they determined which approaches or tools to use in their work with the student; (d) how work was shared; and (e) factors that support or constrain practice. To understand the nature of joint effort, findings were diagramed and described using Engeström's (2008) methodology for analyzing teamwork practices within an activity system framework. Consistent with appreciative inquiry, dilemmas or incongruence among components in the activity system were examined for each case study along with factors that enabled a joint effort. This supported a rich description of the nature of the joint effort in each case study, grounded in a deep contextual understanding of each case from multiple viewpoints. As a significant part of the analysis, each case was written into a narrative (i.e., story line) to explain interrelations between each component in the activity system and account for multiple perspective understanding of educational programming and occupational therapy services in each case.

A critical feature of multiple case analysis involves examining what is similar and different in each case in order to better understand the phenomenon being studied (Stake, 2006). In this study, multiple case analysis facilitated the examination of the similarities and differences in teamwork while attending to contextual factors that shaped how work was shared. This paper reports on the cross-case analysis by comparing findings about the nature of joint effort in each case study. Findings are discussed in terms of three workplace practices that facilitated educator-occupational therapist collaboration. Table 3 summarizes the nature of joint effort in each case study across each of the cross-case themes.

Findings

Cross-case analysis revealed three themes concerning workplace practices that supported collaboration, including (a) focus for educational programming; (b) communication practices; and (c) leadership practices of educators (Table 3). For each

theme, findings are considered for each case and then compared and contrasted between cases in order to illustrate practices that supported collaboration in relation to each theme. This is followed by a discussion of the implications for collaborative consultation.

Table 3. Cross-case themes

| Themes	Connor	Alisha
Focus for educational programming	Shared focus on educational goals drive programming for Connor Education goals drive focus for occupational therapy collaborative consultation	Professional roles drive programming for Alisha Occupational therapist sets focus for consultation with educators
Communication Practices	Interactive communication in groups Making time up front Using documentation to sustain focus for occupational therapy involvement Showing how and explaining why	Informal trouble shooting in dyads Getting information second hand Showing how and explaining why
Leadership Practices of Educators	Leadership of special educator Accountability practices of special education team	The educational assistant is the point person

Theme #1: Focus for Educational Programming

The first theme considers the relationship between goals and expectations for the student in the education context and the roles and responsibilities of participants in relation to those expectations.

Shared focus on educational goals drive programming for Connor. In Connor's case, findings showed that the educators and educational assistant (EA) held a shared focus on Connor's development of "foundation skills for learning" as a key outcome for Connor in Grade One. Foundation skills were identified as "attending to others, following routines and directions from adults, starting and completing tasks, social communication, and turn taking" (SET). A common script that emphasized, "Connor's successful inclusion at school," directed educators in their work with Connor. This shared focus on inclusion was consistent with his mother's expectation for Connor in Grade One, as she stated, "To me the most important thing was interaction with peers because he wants to be with other kids."

Figure 2 identifies the primary responsibilities of Connor's educators and illustrates how each participant utilized specific tools that were appropriately matched to their unique role in Connor's alternative education program. For example, the primary role of Connor's Grade One teacher was to create a program for the class. When planning her classroom schedule, she took into account Connor's need for movement-based activities and scheduled physical activity, dramatic movement, and dance activities in the afternoons when Connor was present at school (RET). She utilized these activities along with the daily classroom activities to monitor Connor's ability to initiate and follow classroom routines (e.g., lining up for recess and gym, handing in his agenda, getting ready for snack time). The Grade One teacher shared information about Connor's performance with the special education teacher, who held primary responsibility for reporting on his progress at school.

Figure 2. Educational goals drive programming for Connor
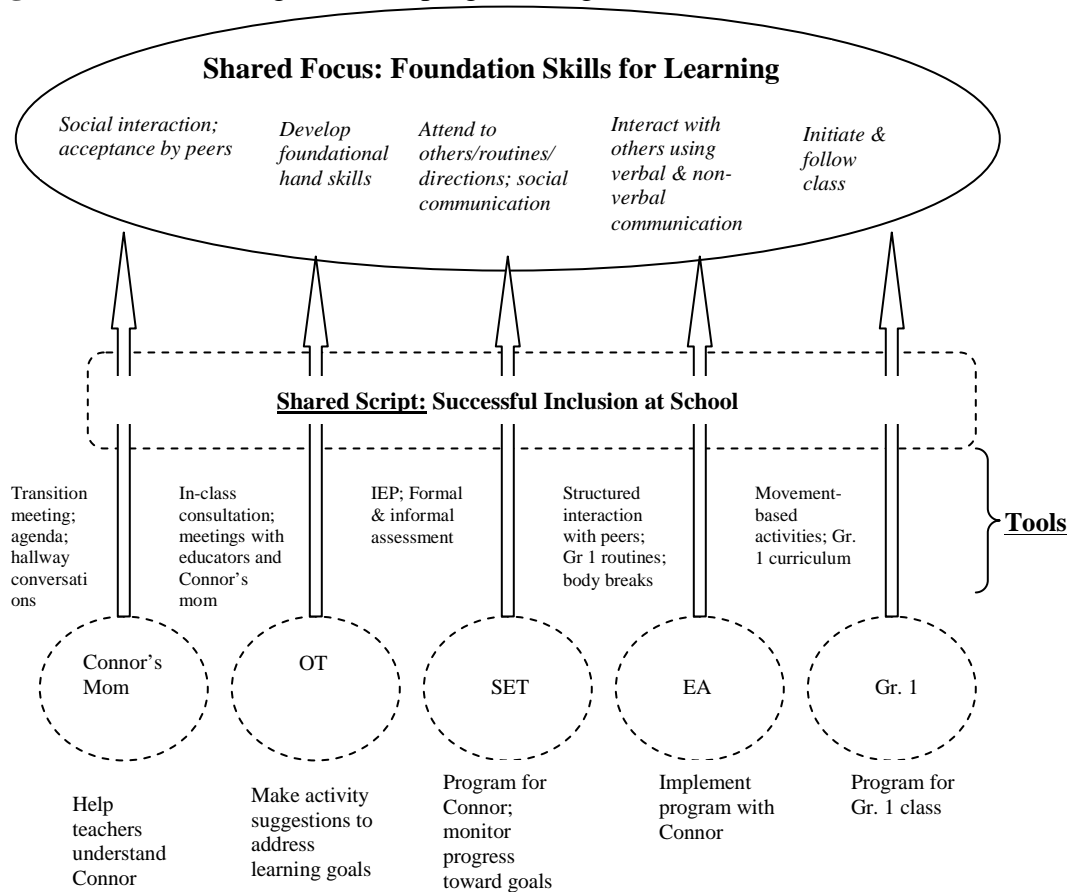
The special education teacher, who was responsible for programming Connor's alternative curriculum goals, created an IEP that specifically addressed "social communication skills" to encourage Connor's interaction with his peers (SET). The special educator recognized the important role of Connor's peers over the long term and worked closely with the EA to include structured interaction with peers as a key component of Connor's education program (e.g., "circle of friends"). Together they expected that their efforts toward building peer interaction would contribute to the

development of a "good strong advocacy group" that could support Connor throughout his school years. Involving peers was therefore seen as an important part of developing Connor's "foundation for success at school" (field note)

When working directly with Connor, the EA consistently utilized sign language, visual and verbal prompting, and peer modeling to promote Connor's interaction with adults (e.g., Grade One teacher, gym teacher/coach) and peers. Repeated field observations revealed that the EA was constantly "on the hunt for things that made Connor tick." The EA reported that with a better understanding of Connor's "genuine interests" she could "capitalize on those interests," and involve his peers in activities to support peer interaction (field notes). For example, when she discovered Connor's interest in puzzles, the EA immediately involved two of Connor's classmates in putting together simple puzzles at recess. The EA used the activity to support Connor's focused attention to the task, eye contact with peers, and turn-taking consistent with his IEP goals (field note).

The Vice Principal (VP) was responsible for tracking the implementation of IEP goals, services, and support provided to Connor in the school setting (e.g., coordinating educational assistants for Connor and another student, making a referral for occupational therapy services). She utilized regular formal meetings with the special education team and informal communication with the EA to monitor Connor's progress. The VP pointed out the importance of Connor's participation not only in the Grade One program, but also in whole school activities such as regular assemblies and school concerts (VP). Postponing an initial occupational therapy assessment visit because it conflicted with the holiday concert rehearsal illustrates the emphasis that Connor's educators placed on his full participation as a member of the school community.
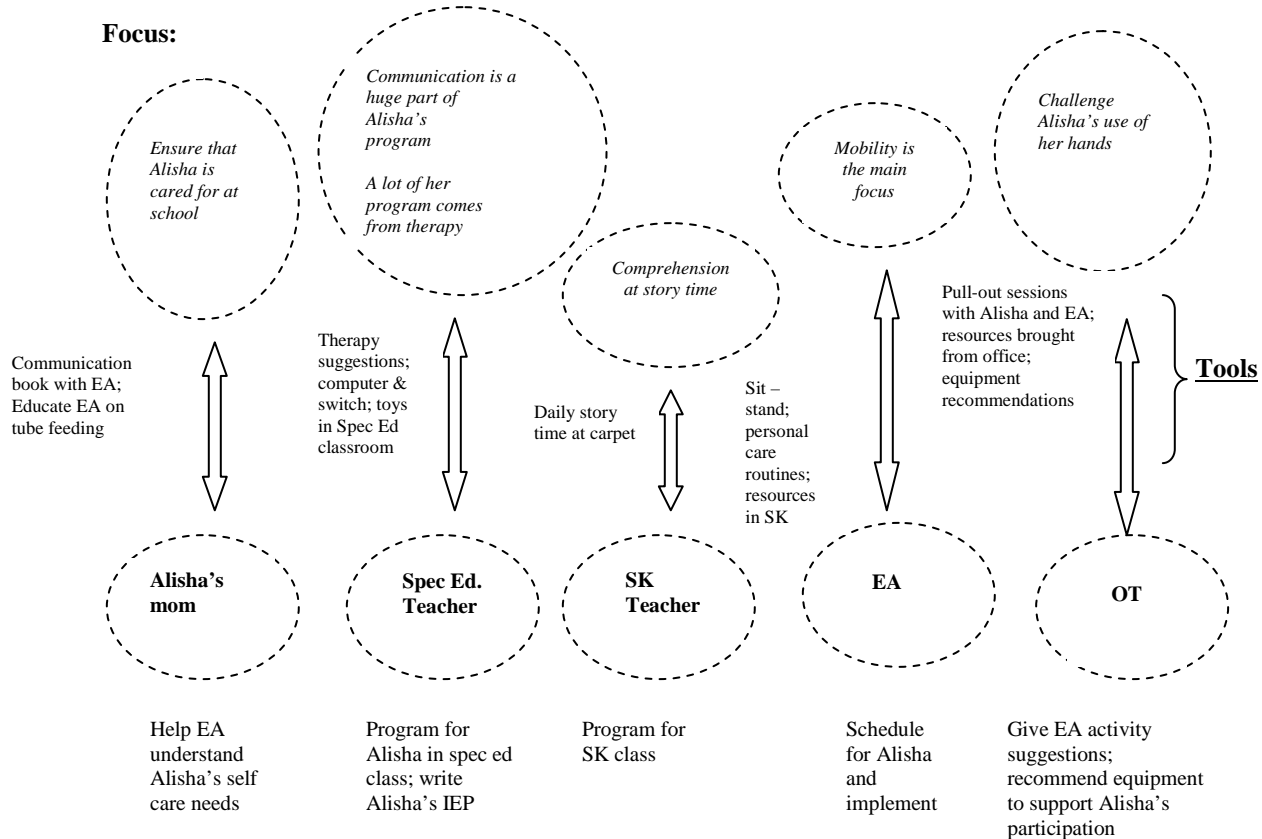
Connor's education goals drive the focus for occupational therapy consultation. By the end of term one, Connor's educators felt better prepared to develop "pre-academic learning expectations" for Connor's performance in the Grade One program (field note). Consistent with the focus on Connor's development of foundation skills for learning, the special education teacher relied on the occupational therapist's contribution to support her with programming specific pre-writing activities that the EA could implement with Connor in the Grade One program to support his "development of foundational hand skills, tool use (e.g., pencils, tongs), and beginning prewriting" (SET; Occupational therapist (OT) documentation) (Figure 2).

Professional roles drive programming for Alisha. In contrast to Connor's case, findings revealed that each of Alisha's educators, including the EA, placed emphasis on different expectations that were not group-oriented. Rather than developing goals and expectations based on Alisha's role as a senior kindergarten student, educators were directed by their individual roles and responsibilities. This influenced how Alisha's education program was implemented in practice, how her progress was measured or gauged by each of her educators, and how recommendations made by the occupational therapist were used. Figure 3 represents the goals of each participant involved in Alisha's case. The dotted lines connected by two-way arrows illustrate the relationship between the specific goals and the roles and responsibilities of each participant as they utilized the tools and approaches specific to their work with Alisha.

Occupational therapist sets focus for consultation with Alisha's educators. In contrast to the role that Connor's special education teacher played in setting the focus for

occupational therapy consultation, which was grounded in Connor's education goals, educators in Alisha's case expected the occupational therapist to contribute to Alisha's individual education program in a broad way by making "equipment recommendations" and providing them with "occupational therapy goals" for Alisha's alternative education program (VP; SET; RET; EA). It was left to the occupational therapist "to set the focus" each visit, whether it was "following-up on Alisha's use of the switch" to access the computer in the special education classroom or "checking how Alisha managed grasping different materials" (OT).

Figure 3.   Professional roles drive programming for Alisha

Focus:

Ensure that Alisha is cared for at school

Communication is a huge part of Alisha's program

A lot of her program comes from therapy

Comprehension at story time

Mobility is the main focus

Challenge Alisha's use of her hands

Communication book with EA; Educate EA on tube feeding

Therapy suggestions; computer & switch; toys in Spec Ed classroom

Daily story time at carpet

Sit – stand; personal care routines; resources in SK

Pull-out sessions with Alisha and EA; resources brought from office; equipment recommendations

Tools

Alisha's mom   **Spec Ed. Teacher**   **SK Teacher**   **EA**   **OT**

Help EA understand Alisha's self care needs

Program for Alisha in spec ed class; write Alisha's IEP

Program for SK class

Schedule for Alisha and implement

Give EA activity suggestions; recommend equipment to support Alisha's participation

On her monthly visits, the occupational therapist used a "pull-out model of service delivery," working directly with Alisha in the library while the EA observed. The occupational therapist reported that these 1:1 sessions were primarily intended to "model for the EA how to work with Alisha" (OT). During these sessions, the occupational therapist used her own materials to model a variety of fine motor activities for Alisha's EA. The occupational therapist used her knowledge of motor development "to challenge Alisha to do different things with her hands" (OT).

Determining where to focus recommendations evolved over the school year as the occupational therapist became more familiar with Alisha's abilities. As a result of her monthly discussions with the EA, the occupational therapist gained insight into the EA's challenges implementing fine motor suggestions with Alisha in the classroom context (e.g., "Alisha puts everything in her mouth;" "Alisha is not interested in coloring" [EA]).

By the end of Alisha's Senior Kindergarten year, the occupational therapist acknowledged that some of the pre-writing materials she recommended earlier in the year (e.g., pylon shaped crayons) were "not well matched" to Alisha's "sensory motor stage" of development (OT). It was at this time that the occupational therapist explicitly re-defined her focus and articulated her goal: "For Alisha to use her hands together and engage in exploratory fine motor activity for a longer period of time" (OT).

Theme #2: Communication Practices

The second theme considers the nature of communication practices among participants. Information communication practices in Alisha's case are contrasted with more formal channels of communication in Connor's case. A key support factor in Connor's case was that participants made time upfront to support information sharing and ensure that everyone was "on the same page." Both cases illustrated that when occupational therapists took time to show how to implement strategies and explain how they contribute to student outcomes, educators were able to integrate the therapy strategies within the context of educational programming.

Informal Trouble-shooting in Dyads. Although educators recognized the need for direct communication and formal planning in groups, communication practices among participants in Alisha's case were characterized by informal trouble-shooting in dyads and indirect communication. During informal hallway conversations, the occupational therapist engaged in what she described as "on the spot problem solving" in an effort to respond to issues raised by the EA (e.g., "[Alisha] just doesn't seem interested in anything that's visual motor, what ideas or strategies do you have?"). Impromptu interactions between the special education teacher and occupational therapist focused on follow-ups concerning equipment recommendations (e.g., Had it arrived yet? What equipment do educators feel is still needed?). For example, one "follow-up visit" prompted the special education teacher to share his concern about judging when "Alisha is accurately hitting the switch to make choices on the computer" (field note). The occupational therapist used her knowledge of Alisha's postural control to suggest an alternate placement of the switch so "she must intentionally reach for it to indicate a choice" (field note).

The Senior Kindergarten teacher and EA both identified the importance of having "a formal time to talk about occupational therapy" and to identify whether "[Alisha] has achieved any of the goals." The Senior Kindergarten teacher recognized the need for "direct" information sharing in order to be "on the same page" and accountable for Alisha's goals (RET). The EA elaborated to suggest that, "ideally, all of Alisha's health and education providers would meet together to develop an integrated plan" (EA). In the absence of formal meetings, the occupational therapist found that she was "constantly trying to figure out the best way to provide services, what do they need from me? Where do I fit into this?" (OT).

Getting information second hand. Alisha's teachers got information about the occupational therapist's work with Alisha through indirect means including "reading the therapy note left at the school" (SET). Alisha's educators relied on the EA as an intermediary to address their questions with the occupational therapist (e.g., "What is the safe progression from lying to sitting?") (RET). Both the special educator and Senior

Kindergarten teacher expressed great interest in having opportunities "to see how the occupational therapist works with Alisha" in order to "contextualize the therapy goals for Alisha" reporting, "Often I don't know what it means because I wasn't there. The EA can show me, but that's second hand" (SET). The lack of direct communication with the occupational therapist influenced the degree to which educators could support the EA with implementing fine motor programming (SET; field note; RET; EA).

Showing how and explaining why. During her sessions with Alisha, the EA observed as the occupational therapist demonstrated how to work with Alisha (multiple field observations). Without feedback on how she might implement similar activities in the context of the senior kindergarten program, the EA was left feeling "overwhelmed" with the concern that she "wasn't doing anything right" (EA). During one occupational therapy session, the EA did have the opportunity to practice working with Alisha while receiving supportive feedback from the occupational therapist. On this occasion, the occupational therapist took Alisha to the "sensory room" in the special education classroom because "the library was busy." Rather than working directly with Alisha, the occupational therapist instructed the EA on "how to encourage Alisha's reach and grasp" while the EA worked directly with Alisha (OT). For example, the occupational therapist suggested that the EA hold balls in different positions to encourage Alisha to look for and grasp the ball while maintaining her balance. When observing how difficult it was for Alisha to let go of the ball, the EA shared her concern about Alisha's performance at deskwork in the senior kindergarten classroom stating, "I find sometimes she gets the reach process, but then she forgets to let go." The occupational therapist responded to this by offering a strategy to support Alisha's successful release of objects: "If she has a ledge like that (pointing to the edge of the toy), that can help give her the stability." The EA held the toy up to touch Alisha's wrist and observed her successful release of the ball (field note).

In contrast to her usual pull-out sessions with Alisha, the occupational therapist used only one activity during this session. The activity involved materials available to the EA at school, where the EA who had repeated opportunity to practice with Alisha. The occupational therapist also gave significant feedback to the EA after every trial and answered a specific question the EA had about Alisha's release of objects. Since the session occurred in the special education classroom, Alisha's special education teacher was able to observe part of the session and received direct instruction from the occupational therapist on how to implement reaching and grasping strategies (field note). On a follow-up visit, it was this activity that was reportedly being used with Alisha on a regular basis (field note).

Interactive communication in groups. In contrast, communication practices among participants in Connor's case were characterized by interactive communication in groups (field notes). Connor's educators and occupational therapist took time to share information so that program recommendations generated through group discussion would target Connor's development of foundation skills for learning. Participants in Connor's case used documentation as an opportunity to record and track program recommendations (field note). Innovative use of documentation served to sustain communication among Connor's educators and occupational therapist despite the time between visits.

Making time upfront. Making time upfront to ensure that everyone was "on the same page" was characteristic of how the special education teacher worked with

everybody involved in Connor's school program including Connor's mother, the occupational therapist, and the EA (field notes). She took the bulk of the initial assessment visit to discuss Connor's strengths and needs in great detail with the occupational therapist (field note). "The more detailed and in-depth meeting is really helpful for being clear on what our goals are together" (SET). Similarly, the special education teacher used the case conference as an opportunity to engage the occupational therapist and Connor's mother in joint goal setting about Connor's development of foundation skills for learning. She used the occupational therapist's "general recommendations" to identify specific pre-academic learning activities for Connor to work on at school. As the occupational therapist shared her assessment findings, the special education teacher "jumped in" to elaborate on some of the therapist's observations by sharing illustrative stories of Connor's performance in the school context. The special education teacher and occupational therapist built on each other's descriptions of Connor's performance to generate activity suggestions and strategies that would encourage Connor to use his hands. They also involved Connor's mother in assessing the utility of their suggestions based on her experience of what had been successful at home and daycare. Emphasis was placed on activities that the EA could work on with Connor in the context of his Grade One program (field note).

Using documentation to sustain shared focus. At the case conference, the special education teacher noted each recommended activity in the margins of the occupational therapist's assessment report. At the end of the case conference, she used these notes in her role as "summarizer" to review the expectations and activity suggestions that had been decided on (case conference). Three weeks after the case conference, the special education teacher referred to the notes she had made on the occupational therapy assessment report during her consultation with the occupational therapist to ensure that they hadn't missed anything from their plan (field note). Her notes prompted her to gather tools from the special education classroom that could be used by the EA to implement specific activities with Connor in the Grade One class. She also used the therapist's report to record materials brought by the occupational therapist for trial with Connor (e.g., fidget toys, wrist weights) and to remind her to follow-up with the EA on Connor's success with these resources (field note).

Similarly, the occupational therapist used her therapy update notes to share information with Connor's mother and educators about Connor's development of pre-writing skills. Therapy notes reviewed the focus of the occupational therapy consultation visit and, despite their brief nature, encouraged future interaction concerning the success of each recommendation. The therapy update notes provided a focus for educator-occupational therapist consultation from one visit to the next, allowing them to monitor the success of specific strategies and track Connor's progress in the development of pre-writing skills.

Showing how and explaining why. During her monthly visits, the occupational therapist spent half the time with the special education teacher, programming activities for Connor's development of pre-writing skills and the remainder of the visit monitoring program implementation by Connor's EA in the Grade One classroom. In both instances, the occupational therapist used her "lens" of fine motor and visual motor development to make specific recommendations. For example, when observing the EA working with Connor on a letter matching activity in class, the occupational therapist pointed out to the

EA, "Did you notice that he switched hands rather than crossing over with his left hand to place the letter?" (field note). The occupational therapist explained how to encourage Connor's use of his left hand by having Connor "reach for objects at midline and then reach across his body to place the object" (field note). For the remaining activities, the EA practiced this strategy, positioning objects in the center for Connor to initiate reach, retrieve and then place them with his left hand. As the EA progressed through a number of visual-motor activities with Connor, the occupational therapist pointed out how Connor was grasping tools and explained how this would translate to the development of "a more mature grasp on writing tools" (field note). The occupational therapist often used questions (e.g., "Did you notice…?") when giving feedback to the EA, which served to encourage dialog about each specific skill that was being targeted by the occupational therapist.

When working with the special education teacher, the occupational therapist showed how to implement specific visual motor strategies and explained why they would support Connor's development of pre-writing skills. For example, the occupational therapist explained the relationship between the developmental sequence of visual motor integration and Connor's ability to copy the letters in his name (field note). Together they sequenced visual motor integration activities that the EA could try with Connor (field note). The special education teacher came prepared for discussions with the occupational therapist by collecting resources from the special education classroom and working with the occupational therapist to identify activities that would "progress Connor from his current level of skill development" to the next expected stage (SET; field note). Immediately following her consultation with the occupational therapist, the special education teacher organized the newly developed resources into a "kit" for Connor's EA and delivered them to the Grade One classroom. She instructed the EA in how to use the materials with Connor during desk work in the Grade One program and explained that they would "report back to the occupational therapist on her next visit" (field note).

In reflecting on her work with Connor's educators, the occupational therapist stated, "If I explain why I have suggested a certain activity, if I help them to understand how something works, they just run with it" (OT). Through their consultation with the occupational therapist, the special education teacher and EA expanded their repertoire of tools that could be used to support Connor's development of foundation skills for learning.

Theme #3: Leadership, Responsibility, and Accountability Practices

The final theme illustrates the importance of leadership and responsibility practices of educators to ensure the integration of therapy strategies in the student's educational program.

Leadership of Connor's special education teacher. The special education teacher played a pivotal leadership role in Connor's case by facilitating communication among the various service providers, integrating recommendations into Connor's IEP, and gathering resources necessary to implement learning strategies. Accountability practices in Connor's case included regular formal meetings with the special education team to monitor the impact of programming on Connor's development of foundation learning skills (VP).

Connor's EA was not involved in any planning meetings of the special education team. Nor was she included in the case conference. When formal meetings took place, the EA was expected to be working with Connor. However, the special education teacher took responsibility for communicating with the EA about Connor's IEP, including goals and strategies that were developed through consultation with the occupational therapist. The special education teacher saw it as her responsibility to "supply all the supports in terms of record keeping" and to ensure that the EA "has the appropriate resources" for working with Connor (field note).

The special education teacher regularly analyzed Connor's performance based on specific expectations for his learning skills. She consistently injected activity ideas to support the EA in working with Connor, and she involved the EA in decisions about adapting materials and activity ideas based on her working knowledge of Connor's capabilities. Frequent contact with the EA enabled the special educator to regularly monitor Connor's performance and adapt support for the EA. In this way, the special educator demonstrated her leadership and responsibility for successful implementation of the learning strategies outlined in Connor's IEP.

Accountability Practices

The special education team was comprised of the VP and the school's two special education teachers. Regular special education team meetings, chaired by the VP, provided formal opportunities to "review the IEPs for all students with identified special education needs" (VP); "We do an update on their profile. If we have questions or concerns, we discuss what the next steps will be" (VP). The special education teacher was responsible for "reporting back to the special education team on Connor's progress" (field note; SET). Formal meetings served an accountability function, allowing the VP to "track what needs to be done or what progress has been made" (VP). Consistent with the philosophy of making time up front, planning meetings of the special education team took place "every month the beginning of the school year" when the focus was on establishing realistic goals and expectations. After that meetings were reduced to "every other month" for monitoring progress (VP).

The EA is the point person for Alisha. Participants in Alisha's case acknowledged that responsibility was placed on the EA to "have an understanding of Alisha" and to make decisions about Alisha's program (VP), "The programming really ends up going through the EA and that would be everything from toileting to outside at recess time to what they do at carpet time" (SET). The EA confirmed, "I take the suggestions of the occupational therapist, physiotherapist, special education teacher, and speech-language pathologist and try to make a schedule that fits [Alisha's] goals determined by those professionals. In the end though, it's fully my decision what I do with her and when we do it" (EA). Participants in Alisha's case did not participate in any formal planning meetings. Informal meetings were rare, with participants relying on the EA to integrate information into programming for Alisha.

Discussion and Implications

Characteristic features of collaboration that were described by participants as the "ideal" in Alisha's case were demonstrated in the practice routines of participants in Connor's case. The following discussion emphasizes key concepts about group learning from SCAT to illustrate how themes emerging from this cross-case analysis supported shared focus for joint effort and sustained interaction among collaborators. These concepts include co-configuration, boundary crossing, expansive learning, and knotworking (Engeström, 2008). Implications of findings for collaborative consultation practice are discussed.

Findings from Alisha's case are consistent with Engeström's notion of service coordination where team members work in parallel to provide service for the child. Since participants did not develop shared goals for Alisha's participation and achievement in her senior kindergarten program, interactions were limited to exchanges that served to support coordination of individual responsibilities. Transitions from service coordination to cooperative working occurred during informal interactions between the occupational therapist and each of Alisha's educators. Consistent with Engeström's characterization of cooperation, participants in Alisha's case shared knowledge to re-conceptualize specific dilemmas during "on-the-spot trouble-shooting" without explicitly defining how to work with one another. Transitions to cooperative working were also observed between the occupational therapist and EA following a succession of monthly consultation visits. Sustained interaction over the duration of the school year appeared to support the occupational therapist and EA in cooperative working, resulting in the eventual improvement of fine motor skills. Together these incidents provide evidence that when educators and occupational therapists come together to resolve shared dilemmas, they engage in cooperative working aimed at supporting student achievement. These findings are contrasted with Connor's case where participants took time up front to establish goals through interactive communication that influenced decisions about how to best deliver occupational therapy services from the outset.

Frequent, ongoing contact among participants (e.g., informal hallway conversations) facilitated cooperative working among team members in Connor's case. Transitions from cooperation to collaboration were evident during formal planning meetings. It was during these meetings that participants drew on each other's knowledge for the purpose of developing novel learning activities and adapting learning materials to support Connor's learning goals. From the perspective of SCAT, formal planning meetings enabled Connor's educators and occupational therapist to engage in negotiated partnerships in order to customize programming for Connor through distributed expertise (Engeström, 2008). The case conference also provided an opportunity to include Connor's mother as an active contributor in this process. In Connor's case, all participants valued "making time up front" to establish shared goals. "In-depth" meetings to plan for Connor's alternative education program were common in the practices of the special education team and these routines extended to their work with the occupational therapist. Cross-case findings are consistent with previous research indicating that while informal discussions help professionals to evaluate and refine approaches, formal information sharing is necessary for creating and planning new solutions (Barnes & Turner, 2001; Snell & Janney, 2000).

Findings from Connor's case are consistent with Engeström's (2008) notion of "expansive learning" which occurs when team members are more disposed to use each other's knowledge to develop unique solutions to shared problems. Formal communication practices supported what Engeström described as boundary crossing, which occurs when team members develop new understandings about how others work and use this knowledge to determine how to engage with each other. Participation in formal planning at Connor's case conference resulted in the occupational therapist determining how to best deliver services to support Connor's pre-academic learning (i.e., "getting the resources to the right people"). The occupational therapist recognized the contributions of Connor's mother and special educator and adjusted her typical approach to service delivery (i.e., "direct work with Connor") to facilitate the integration of occupational therapy recommendations into Connor's educational program by "showing how and explaining why." Similarly, the special education teacher developed ways of working with the occupational therapist that enabled her to integrate therapy recommendations to adapt materials (available in the school context) for use in Connor's alternative education program. These finding are consistent with Engeström's premise that expansive learning can result in "co-configuring" or re-conceptualizing professionally scripted roles and responsibilities to produce new ways of working together (Engeström, 2008). Sharing specialized knowledge through participation in classroom programming and demonstrating techniques is supported by research examining teacher expectations of occupational therapy services. Previous research findings suggest that occupational therapists can facilitate the achievement of educationally relevant outcomes by engaging with educators in the classroom (Case-Smith & Cable, 1996; Fairbairn & Davidson, 1993). Findings from this study build on the current literature by illustrating how boundary crossing supports the educators and occupational therapists to co-configure learning strategies that will support students in their achievement of educational goals. Findings have implications for the development collaborative consultation as a model of service delivery by establishing formal opportunities for information sharing among educators, occupational therapists, and families.

Expansive learning was facilitated in Connor's case through the dynamic use of documentation to sustain a shared focus for occupational therapy involvement from one consultation visit to the next. Findings are consistent with the notion that artifacts can support the distribution of ideas generated by team members (Mok, 2008). In Connor's case, the notes made by the special educator directly onto her copy of the occupational therapy assessment report facilitated formal planning and commitment to implementation of recommendations generated at the case conference. Similarly, the occupational therapist used documentation to extend opportunities for interactive communication. In contrast, participants in Alisha's case used documentation to simply account for what took place during occupational therapy visits, acknowledging, "It doesn't become the most meaningful document that anybody's going to look at" (OT). Findings from this study suggest that documentation can be used as a tool to support and sustain interactive communication between educators and occupational therapists despite limited time and opportunity for face-to-face interactions.

Previous research has called upon occupational therapists to foster collaborative partnerships with educators by clarifying their roles and responsibilities in education

settings (Bose & Hinojosa, 2008; Wehrmann, Chiu, Reid, & Sinclair, 2006). However, findings from this study suggest that educators themselves can play a pivotal role in supporting a shared focus for collaborative interactions with occupational therapists by taking the time to share information about educational expectations for the student. Findings from Connor's case suggest that taking time upfront to establish meaningful educational goals that support participation and achievement of students with developmental disabilities can lead to the timely and productive integration of occupational therapy knowledge into the student's program and classroom routines. Findings from both cases suggest that when occupational therapists demonstrate how to implement their recommendations and explain the relationship to student goals, educators are better prepared to implement recommendations with students in the context of their education program and classroom routines. These findings are consistent with Leadbetter (2004) concerning the contribution of artifacts as mediators of collaboration between educational psychologists and teachers. Occupational therapists can further support educators with their implementation efforts by using materials and resources available in the school setting.

Both cases illustrate that educator-occupational therapist interaction was influenced by the available time and opportunity to meet. In Connor's case, the special education teacher took leadership and responsibility for Connor's alternative education program by acting as a "knotworker" to support communication and implementation across all participants. In this role, the special education teacher liaised with the special education team, the EA, and the occupational therapist to ensure that all the pieces came together into an integrated program for Connor. To do this effectively, the special education teacher involved herself in a process of understanding the perspectives and contributions of each individual and acted as the key link between the administration and implementation of Connor's school program. In Connor's case, the special education teacher was adept at boundary crossing, drawing on her sophisticated understanding of each individual's contribution to Connor's educational program. This allowed the special educator to adapt her level of support depending on her understanding of both the strengths and needs in each part of the system. Leadership and responsibility of Connor's educators was critical to the successful implementation of occupational therapy recommendations at school. Recognizing educators as key facilitators of inclusion for students with developmental disabilities may address the concerns raised by Bose and Hinojosa (2008) that school-based occupational therapists tend to assume the role of expert in school settings. It also raises questions about the role of CCAC case managers in the organization and delivery of school-based occupational therapy services. Aside from authorizing occupational therapy visits at school, the case manager was not involved with school-based occupational therapy services. Further research is needed to understand the roles and expectations of case managers in the delivery of occupational therapy services at school.

Accountability practices inherent in the rules and routines of Connor's special education team provided the structure within which the special education teacher could forge necessary linkages among team members to ensure alignment of services and supports with expected outcomes. It was from within this network of accountability that responsibility among participants was shared. Leadership and accountability practices were not apparent in Alisha's case which served to reinforce service coordination as the

default approach to service delivery. Without a shared focus for Alisha's program, the occupational therapist was left to set the focus for occupational therapy involvement and "figure out" the "best way to provide services." Findings reveal the importance of educational leadership in the utilization of support services for the development of individualized education programming for students with developmental disabilities. Results are consistent with SCAT, which suggests that collaborative teamwork is enhanced when there is alignment between the focus on joint effort and the workload distribution (Engeström, 2008). This has implications for the organization and funding of school-based occupational therapy visits to ensure that educators and occupational therapists have time up front to engage in information sharing and program planning.

SCAT provided a robust framework for describing the nature of joint effort from multiple stakeholder perspectives. As such, this research contributes to the development of theoretical perspectives on the processes of collaborative working and the relationship of these processes to outcomes. Previous research has been limited to reporting the teacher's perspective concerning the contribution of school-based occupational therapy on student achievement. This study adds to the literature on school-based occupational therapy collaborative consultation by offering a multiple perspective understanding about the nature of collaborative working between educators and occupational therapists. Findings contribute empirical support of Engeström's (2008) theory of expansive learning and illustrate his notion of "leadership of knotworking" through the activities of a key facilitator who facilitates boundary crossing to support shared working within an activity system.

Limitations and Consideration for Future Research

The nature of case study research means that findings cannot be generalized to other contexts of school-based occupational therapy service provision. The two cases are not representative of all students referred for school-based occupational therapy. Cases were limited to primary students with a developmental disability. The two cases presented here were categorically bounded by the nature of their educational program. Both of these students had a developmental disability and they each received alternative education programming, special education services, and support from an educational assistant to address their special education needs. Future research should consider school-based occupational therapy collaborative consultation practice for other students who are typically referred for services. For example, it would be valuable to understand the nature of collaborative working to support students with mild motor disabilities enrolled in regular education classes, who are expected to progress according to the Ontario curriculum guidelines, and who do not have an educational assistant. This population makes up a large proportion of students who are referred for school-based occupational therapy (Reid et al., 2006).

Case study findings did not address occupational therapy services for students within the context of intermediate and senior school programs. Additionally, these cases did not address collaborative practice for students transitioning from primary to secondary school. Future research should investigate contextual factors that influence collaborative working to provide service with older students who have disabilities. Future research should also address collaborative working during periods where students with

disabilities transition from preschool into school and between primary, intermediate, senior, and secondary programs.

Conclusion

Socio-cultural activity theory was used as a framework to study educator-occupational therapist collaboration across two multiple-perspective case studies of school-based service delivery. Common characteristics in two cases facilitated cross-case analysis to identify features of collaborative working that supported educational programming and outcomes for students with a developmental disability. Findings contribute understanding about how occupational therapists and educators can adapt their working practices to support collaborative interactions grounded in the expectations that educators have for student performance. Findings illustrate that having a shared focus for a joint effort combined with formal opportunities for interactive communication can support a collaborative effort by enabling transitions from service coordination to cooperative working and expansive learning. Findings also illustrate how leadership and accountability practices of educators support planned integration of occupational therapy recommendations into meaningful programming for students.

References

Barnes, K. J., & Turner, K. D. (2001). Team collaborative practices between teachers and occupational therapists. *American Journal of Occupational Therapy, 55*(1), 83-89.

Bayona, C. L., McDougall, J., Tucker, Nichols, M., & Mandich, A. (2006). School-based occupational therapy for children with fine motor difficulties: Evaluating functional outcomes and fidelity of services. *Physical and Occupational Therapy in Pediatrics, 26*(3), 89-110.

Bose, P., & Hinojosa, J. (2008). Reported experiences from occupational therapists interacting with teachers in inclusive early childhood classrooms. *American Journal of Occupational Therapy, 62*(3), 289-297.

Bundy, A. C. (1995). Assessment and intervention in school-based practice: Answering questions and minimizing discrepancies. *Physical and Occupational Therapy in Pediatrics, 15*(2), 69-88.

Case-Smith, J., & Cable, J. (1996). Perceptions of occupational therapists regarding service delivery models in school-based practice. *Occupational Therapy Journal of Research, 16*(1), 23-44.

Case-Smith, J., & Rogers, J. (2005). School-based occupational therapy. In J. Case-Smith (Ed.), *Occupational therapy for children* (5th ed., pp. 795-824). St. Louis, MO: Elsevier Mosby.

Clark, P. G. (2006). What would a theory of interprofessional education look like? Some suggestions for developing a theoretical framework for teamwork training 1. *Journal of Interprofessional Care, 20*(6), 577-589.

Daniels, H. (2001). *Vygotsky and pedagogy*. London, UK: RoutledgeFalmer.

Dennis, R. (2004). So far so good? A qualitative case study exploring the implementation of consultation in schools. *Educational Psychology in Practice, 20*(1), 17-29.

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2005). *The Sage handbook of qualitative research* (3rd ed.). Thousand Oaks, CA: Sage.

Derry, S. J., DuRussel, L. A., & O'Donnell, A. M. (1998). Individual and distributed cognitions in interdisciplinary teamworks. *Educational Psychology Review, 10*(1), 25-56.

Engeström, Y., Brown, K., Christopher, L. C., & Gregory, J. (1997). Co-ordination, co-operation and communication in the courts: Expansive transitions in legal work. In M. Cole, Y. Engeström, & O. Vasquez (Eds.), *Mind, culture and activity* (pp. 369-385). Cambridge, UK: Cambridge University Press.

Engeström, Y. (2000). Activity theory as a framework for analyzing and redesigning work. *Ergonomics, 43*(7), 960-974.

Engeström, Y. (2001). Expansive learning at work: Toward an activity theoretical reconceptualization. *Journal of Education & Work, 14*(1), 133-156.Engeström, Y. (2008). *From teams to knots: Activity-theoretical studies of collaboration and learning at work*. Cambridge, UK: Cambridge University Press.

Fairbairn, M. L. G., & Davidson, I. F. W. (1993). Teachers' perceptions of the role and effectiveness of occupational therapists in schools. *Canadian Journal of Occupational Therapy, 60*(4), 185-191.

Freeman, M., Miller, C., & Ross, N. (2000). The impact of individual philosophies of teamwork on multi-professional practice and the implications for education. *Journal of Interprofessional Care, 14*(3), 237-247.

Friend, M. (2000). Perspective: Myths and misunderstandings about professional collaboration. *Remedial and Special Education, 21*(3), 130-132, 160.

Giangreco, M. F. (1995). Related services decision-making: A foundational component of effective education for students with disabilities. *Physical and Occupational Therapy in Pediatrics, 15*(2), 47-67.

Glisson, C., & Hemmelgarn, A. (1998). The effects of organizational climate and interorganizational coordination on the quality and outcomes of children's service systems. *Child Abuse & Neglect, 22*(5), 401-421.

Graham, D. R., Kennedy, D., Phibbs, C., & Stewart, D. (1990). Position paper on occupational therapy in schools. *Canadian Journal of Occupational Therapy, 57*(4), 1-6.

Gutkin, T. B. (2002). Training school-based consultants: Some thoughts on grains of sand and building anthills. *Journal of Educational & Psychological Consultation, 13*(1-2), 133-146.

Hesse-Biber, S. N., & Leavy, P. (Eds.). (2008). *Handbook of emergent methods.* New York, NY: Guilford.

Hutchinson, N. L., & Martin, A. K. (2012). *Inclusive classrooms in Ontario schools*. Toronto, CA: Pearson Canada.

Idol, L., Nevin, A., & Paolucci-Whitcomb, P. (2000). *Collaborative consultation* (3rd ed.). Austin, TX: Pro-Ed.

Kampwirth, T. J. (2006). *Collaborative consultation in the schools: Effective practices for students with learning and behavior problems* (3rd ed.). Upper Saddle River, NJ: Pearson.

King, G. A., McDougall, J., Tucker, M. A., Gritzan, J., Malloy-Miller, T., Alambets, P., ...Gregory, K. (1999). An evaluation of functional, school-based therapy services for children with special needs. *Physical and Occupational Therapy in Pediatrics, 19*(2), 5-29.

Leadbetter, J. (2004). The role of mediating artefacts in the work of educational psychologists during consultative conversations in schools. *Educational Review, 56*(2), 133-145.

Leadbetter, J. (2008). Learning in and for interagency working: Making links between practice development and structured reflection. *Learning in Health & Social Care, 7*(4), 198-208.

Lowe, F., & O'Hara, S. (2000). Multi-disciplinary team working in practice: Managing the transition. *Journal of Interprofessional Care, 14*(3), 269-279.

Martin, D. (2008). A new paradigm to inform inter-professional learning for integrating speech and language provision into secondary schools: A socio-cultural activity theory approach. *Child Language Teaching & Therapy, 24*(2), 173-192.

Mok, J. (2008). Distributed cognition in learning. *International Journal of Learning, 15*(4), 151-159.

Nochajski, S. M. (2001). Collaboration between team members in inclusive educational settings. *Occupational Therapy in Health Care, 15*(3/4), 101-112.

Ontario Ministry of Education. (2004). *The individual education plan (IEP), a resource guide.* Retrieved from http://www.edu.gov.on.ca/eng/general/elemsec/speced/guide/resource/iepresguid.html

Peters, S. J. (2007). Education for all? *Journal of Disability Policy Studies, 1*8(2), 98-108.

Preskill, H. S., & Catsambas, T. T. (2006). *Reframing evaluation through appreciative inquiry.* Thousand Oaks, CA: Sage.

Reid, D., Chiu, T., Sinclair, G., Wehrmann, S., & Naseer, Z. (2006). Outcomes of an occupational therapy school-based consultation service for students with fine motor difficulties. *Canadian Journal of Occupational Therapy, 7*3(4), 215-224.

Robinson, M., & Cottrell, D. (2005). Health professionals in multi-disciplinary and multi-agency teams: Changing professional practice. *Journal of Interprofessional Care, 1*9(6), 547-560.

Scruggs, T. E., & Mastropieri, M. A. (1996). Teacher perceptions of mainstreaming / inclusion, 1958-1995: A research synthesis. *Exceptional Children, 6*3(1), 59-74.

Smith, W. J. (1994). *Educational opportunity for students with disabilities in Canada: Beyond the schoolhouse door.* Ontario, CA: Carswell.

Snell, M. E., & Janney, R. (2000). *Collaborative teamin*g. Baltimore, MD: Paul H. Brookes.

Stake, R. E. (1995). *Art of case study research.* Thousand Oaks, CA: Sage.

Stake, R. E. (2006). *Multiple case study analysis.* New York, NY: The Guilford Press.

Villeneuve, M. (2009). A critical examination of school-based occupational therapy collaborative consultation. *Canadian Journal of Occupational Therapy, 7*6, 206-218.

Villeneuve, M. (2011). *Learning together: Applying socio-cultural activity theory to collaborative consultation in school-based occupational therapy* (Unpublished doctoral dissertation). Queen's University, Kingston, Onatario, Canada.

Wehrmann, S., Chiu, T., Reid, D., & Sinclair, G. (2006). Evaluation of occupational therapy school-based consultation service for students with fine motor difficulties. *Canadian Journal of Occupational Therapy, 7*3(4), 225-235.

Wolcott, H. F. (2008). *Ethnography: A way of seeing* (2nd ed.). Lanham, MD: AltaMira.

Zwarenstein, M., & Reeves, S. (2006). Knowledge translation and interprofessional collaboration: Where the rubber of evidence-based care hits the road of teamwork. *Journal of Continuing Education in the Health Professions, 2*6(1), 46-54.

Author Note

M. Villeneuve, School of Rehabilitation Therapy, Faculty of Health Sciences, Queen's University; N.L. Hutchinson, Faculty of Education, Queen's University.

Article Citation

Villeneuve, M., & Hutchinson, N. L. (2012). Enabling outcomes for students with developmental disabilities through collaborative consultation. *The Qualitative Report*, *17*(Art. 97), 1-29. Retrieved from http://www.nova.edu/ssss/QR/QR17/villeneuve.pdf