

Reading Development: Exploring the Lived Experiences of Individuals
with High Functioning Autism

by
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Abstract

Reading expands learning opportunities for individuals with Autism Spectrum Disorder (ASD) by improving their communication and functional skills, and, in the long run, improving their quality of life. Research is needed to gain a better understanding of how individuals with autism experience their reading development from their own perspectives and the perspectives of their parents. Our knowledge of the experiences of individuals with ASD can be expanded by listening to and reflecting on their voices. Therefore, this study empowered four young adults with High Functioning Autism (HFA) and their parents to share stories and experiences about these young adults' reading development from early childhood through adolescence. A qualitative multiple-case design was used. Data sources included eight one-on-one semi-structured interviews, researcher's field notes, and a reflective journal. Qualitative analysis led to eight emergent cross-case themes: 1) differences and similarities in reading profiles, 2) advantage in expository text, 3) challenges in reading, 4) reading strategies, 5) behaviour support, 6) interest and motivation, 7) supportive parents, and 8) different school experiences. Based on rich, in-depth descriptions, this study sheds light on the diverse and varied experiences of four young adults with HFA in their reading development from early childhood through adolescence. The findings of this study help to fill the gap by adding voices of individuals with HFA and their parents. The findings provide researchers with recommendations on case study design and interviews with individuals with HFA, educators with suggestions for instructional practices, and parents with practical guidance.

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CHAPTER 1: INTRODUCTION

Statement of the Problem

I could read the words but sometimes it is like words don't hold together. It did happen a lot. (Participant, Case 2)

It is one thing to just read the word, but she really needed help to try to understand what meaning was of that.... There has been a lot of stories she struggles and tries to understand what that is. What's going on? If even we tell her repeatedly, it is still a struggle. (Father, Case 4)

These excerpts are from the interview transcripts of this study. They convey the challenges that many individuals with Autism Spectrum Disorder (ASD) are facing when it comes to reading.

Reading is a complex cognitive activity of recognizing and decoding words to understand and construct meaning of text (Cain, 2010). Although reading accuracy is an important component of reading fluency, reading comprehension is considered to be one of the most important academic skills and the ultimate goal of building skills in accuracy and fluency (Mastropieri & Scruggs, 1997). As for reading development of individuals with autism, a pervasive difficulty commonly found among them is difficulty with reading comprehension. Several studies have examined reading development of students with ASD (Brown, Oram-Cardy, & Johnson, 2013; Calhoon, 2001; Frith, 2003; Hundert & van Delft, 2009; Nation et al., 2006; O'Conner & Klein, 2004). While these studies show that students with ASD may effectively decode (they can automatically recognize words), findings also indicate that students with ASD often struggle with reading comprehension. Reading comprehension skills, such as summarizing salient points, making inferences, thinking critically, and identifying multiple perspectives or

points of view represented in text are the major challenges for students with ASD (Baron-Cohen, 1989; Frith, 2003; Happé & Frith, 2006; Leslie, 1987; Randi, Newman, & Grigorenko, 2010).

According to the Diagnostic and Statistical Manual of the American Psychiatric Association DSM-5, ASD¹ is defined as a neurodevelopmental disorder characterized by “persistent deficits in social communication and social interaction across multiple contexts; restricted, repetitive patterns of behavior, interests, or activities” (American Psychiatric Association [APA], 2013, p. 50). On the spectrum, there is a subgroup of individuals with high functioning autism (HFA) defined as having less severe symptomology than other forms of ASD. These individuals typically have average to above average intelligence yet tend to struggle with the social and communication deficits commonly associated with ASD. These individuals need supports to remediate their social communication skills and inflexible behaviors (APA, 2013). Accordingly, they also need supports to help them with their literacy development.

Reading and understanding text expand learning opportunities for individuals with autism by improving their communication and functional skills (Chiang & Lin, 2007; Nation & Norbury, 2005; Wahlberg & Magliano, 2004). Given the intricate relationship between reading development and the complexities of ASD, more research is needed to gain a better understanding of how individuals with autism experience their reading development (McIntyre et al., 2017). Although there are a handful of studies that examine reading development for individuals with ASD and relevant interventions (e.g., Brown, Oram-Cardy, & Johnson, 2013), there is a lack of research that explores this phenomenon from a first-person perspective. Little

¹ This term is further introduced in Appendix A, which also includes other key terms and their definitions.

is known about how individuals with HFA experience reading from their own perspectives and from the perspectives of their parents.

Listening to the voices of individuals with disabilities is considered to be of importance in helping us understand their experiences from inside out (Billington, 2006). Our knowledge of the experiences of individuals with HFA can be expanded by listening to and reflecting on their insider voices. Davidson stressed that “what it feels like” is more important than “what it looks like” to the observer (Davidson, 2010, p. 311). Participants in this study were four young adults with HFA and their parents². These four young adults have experienced achievements in their reading development. Reading has provided them with the power and opportunity to pursue postsecondary education.

Purpose of the Study

The present study was designed to empower four young adults with HFA and their parents to share their stories and experiences about these four young adults’ reading development from early childhood through adolescence. A multiple-case qualitative study design was used. The goal was to gain insight into understanding the strengths and challenges in reading, if any, of individuals with HFA, and how they manage to overcome these challenges.

Due to the lack of research designed to explore this phenomenon from a first-person perspective, this study will help to bridge the gap in this field and contribute to the literature by providing insight into how individuals with HFA perceive their reading development and how parents of individuals with HFA view their involvement in supporting their children. While the findings of the current study are not meant to be generalized, this study will provide some

² The term “parents” is used throughout the thesis to refer to three parents and one guardian who participated in this study.

insights into new directions for interventions in research, suggestions for improving educators' instructional practices, and practical guidance for parental involvement.

Research Questions

To serve the purpose of this study, the following research questions guided this study:

1. What are the strengths and challenges in reading, if any, of individuals with HFA?
2. What strategies do individuals with HFA use to overcome their reading challenges?
3. What supports do individuals with HFA receive from their parents, school, and community?

Research Positionality

Given the interpretive nature of qualitative research, it is necessary for me to first position myself by introducing my experiences related to the research topic. My interest in supporting the reading development of children with ASD began when I started reading with my son, Andrew, who has HFA. One day when Andrew was four years old he surprised me by reciting Psalm 23 in the Bible after he heard it read to him a few times. He could hardly understand the intricacies of this poem, but he was quite obsessed by its “beauty” and kept reciting it. *Why don't I just start teaching him how to read?* The thought came across abruptly. From there, we started our reading journey at home. I read with Andrew several times a day for approximately 15 minutes each time. Two months later changes began to occur. Andrew's skills at decoding alphabetic words was vastly improved. As pleasant as it sounds that an autistic child loved reading, frankly speaking, I was skeptical and hypothesized that he might not be able to actually grasp the meaning of texts. After testing him with “wh-” questions multiple times, I had to, though reluctantly, admit that my hypothesis was very likely to be correct.

Why can children with autism decode words but not comprehend text? What accounts for this challenge? What strategies can teachers and parents use to help these students? Motivated by these questions, I embarked on a research journey in the Master of Education program. Meanwhile, my wife and I continued to read with Andrew at home. We borrow a variety of children's books from our local libraries. In the beginning we chose books for Andrew based on his reading level and interests. Gradually, we started to let him pick some books on his own and add to his reading list. Now, at home, we read sporadically throughout the day on a daily basis. Andrew has a bedtime story routine, which he enjoys very much. During reading, we engage him in conversations to make sure he understands the meaning of texts. We ask him a variety of questions related to his reading and also encourage and teach him to ask questions. Besides reading story books, Andrew reads other types of text, such as expository text (e.g., a book about how to make jack-o'-lanterns), animated text on his iPad, and traffic signs.

Andrew loves reading and has formed a good habit for reading, although he still encounters various challenges academically and socially. As a parent, I would say that reading has provided Andrew with a venue to learn about and explore the world. As a researcher, I still have many questions about how to support the reading development for children and youth with ASD. This thesis represents my attempt to explore answers to these questions.

Overview of Thesis

This thesis is comprised of six chapters. The present chapter, Chapter 1, introduces the thesis and outlines the purpose and research questions of this study. Research positionality is included in the first chapter. Chapter 2 provides a review of literature applicable to the purpose and research questions of this study. Chapter 3 describes the research methodology used in this study, including the research design, participants, role of the researcher, data sources, and data

analysis. Chapter 4 presents the findings and discussion for each of the four cases. Chapter 5 presents the findings and discussion of the study using a cross-case qualitative analysis.

Additionally, study limitations, implications for future research and practice, and final thoughts are included in the final chapter.

CHAPTER 2: LITERATURE REVIEW

While this literature review provides an overview of the theories and research that address the reading profiles of students with ASD in general, there is a focus on HFA. Though some studies cited in this review did not include participants with HFA specifically but with participants with ASD, it is believed that some of the characteristics are commonly shared by individuals with ASD and those with HFA. It consists a review of the literature according to the following topics: (1) Autism Spectrum Disorder; (2) reading comprehension in students with ASD; (3) explanations for reading comprehension deficits; (4) strategies for increasing reading comprehension in students with ASD; and (5) parental support and home literacy.

Autism Spectrum Disorder

Autism Spectrum Disorder (ASD) is a developmental disorder that can cause significant social, communication, and behavioral challenges for those affected by the disorder. Prior to the DSM-5 diagnostic manual released in May 2013, distinct subtypes were delineated: Autistic Disorder, PDD-NOS, Asperger's Syndrome, Rett Syndrome, and Childhood Disintegrative Disorder. After the publication of DSM-5, these subtypes are subsumed under one umbrella of Autism Spectrum Disorders (ASD). To align with DSM-5, a few recently published studies chose to use ASD without specifically distinguishing HFA from ASD, though these studies actually included participants with HFA (e.g., Davidson & Weismer, 2018; Fleury & Hugh, 2018; Solis, El Zein, Vaughn, McCulley, & Falcomata, 2016).

The prevalence rate of ASD has been increasing over the past decade. According to the Centers for Disease Control and Prevention (CDC) in the United States, in 2006, 1 in 110 children were diagnosed; in 2008, 1 in 88 were diagnosed; and in 2012, 1 in 68 were diagnosed (CDC, 2014). In Canada, the National Autism Spectrum Disorder Surveillance System (NASS)

2018 Report was recently published in March 2018 (Public Health Agency of Canada, 2018). The report is regarded as a first reporting of national data and information on ASD in Canada. According to the report, approximately 1 in 66 children and youth 5-17 years of age were diagnosed with ASD across six provinces and one territory in Canada in the year 2015 (15.2 per 1,000).

On average, 31% of children who currently meet the criteria for an ASD diagnosis have an intellectual disability ($IQ \leq 70$), 23% are in the borderline (low average) range ($IQ = 71-85$), and 46% have an average or above average IQ ($IQ > 85$) (CDC, 2014). Children in the average or above average range are commonly referred to as being in the high functioning autism range (HFA) (CDC, 2014), and they form a unique subgroup that has been attracting growing attention from researchers and mental health professionals in recent years (Bauminger-Zviely, 2013). Compared to individuals with lower functioning ASD, this subgroup of children with HFA shows more engagement in social interactions, a better ability to form relationships, and greater understanding of the social and emotional environment (Bauminger-Zviely, 2013).

In addition, ASD can be complicated by comorbid disorders in many individuals (White, Ollendick, Scahill, Oswald & Albano, 2009). Comorbid disorders can include anxiety disorders, attention deficit hyper activity (ADHD), obsessive compulsive disorder (OCD) as well as auditory processing disorders (APD) (White et al., 2009). The unique cognitive-academic profile of individuals with HFA may place them in danger of reading failure, which is further explained in the following section.

Reading Comprehension in Students with ASD

Extracting meaning from text demands a range of cognitive processes, from recognizing letters and words to interpreting the message with respect to world knowledge (Perfetti, Landi, &

Oakhill, 2005). Good readers demonstrate effective practices that help them make meaning from text, as Duke and Pearson (2002) note that good readers: (1) are active readers; (2) look over the text before they read; (3) make predictions; (4) read selectively; (5) construct, revise, and question the meanings of a text; (6) determine the meaning of unfamiliar words and concepts; (7) draw from, compare, and integrate their prior knowledge with material in the text; (8) think about the author's purpose; (9) monitor their understanding; (10) evaluate the text's quality and value; and (11) read different kinds of text differently. Generally, comprehension is a consuming, conscious, and complex activity, and, for good readers, it is both satisfying and productive.

However, students with ASD, including those with HFA, experience great difficulty with reading comprehension, even though they have relative strengths in decoding (Calhoon, 2001; Frith, 2003; Nation et al., 2006; O'Conner & Klein, 2004). Three types of comprehension difficulties have been reported: (1) difficulty with determining a character's motives or identifying a character's emotions or perspectives due to limited understanding of story structure; (2) difficulty with making inferences due to poor working memory; and (3) difficulty with monitoring their own comprehension due to poor executive functioning (Calhoon, 2001; Frith, 2003; Nation et al., 2006; O'Conner & Klein, 2004). Furthermore, children with ASD tend to be very detail-oriented thinkers. This can hinder their ability to monitor their comprehension for text coherence or to understand the text at a global level (Randi, Newman, & Grigorenko, 2010). Although children with ASD may be encouraged to make connections from the parts to the whole, they struggle to develop inferences at the abstract level, such as predicting how a fictional character might act or what the character might be thinking (Randi et al., 2010).

The above-mentioned studies suggested a general reading profile of students with ASD. However, little research has focused on the reading heterogeneity of individuals with ASD, especially for those with HFA, to examine the distinct reading profiles of individuals with ASD (McIntyre et al., 2017). To fill the gap in this area of research, McIntyre and her colleagues (2017) assessed 81 students with HFA (aged 8-16 years) utilizing a comprehensive reading battery that included the sub skills of lower-level word recognition abilities and higher-level linguistic and reading comprehension skills. This study found four subgroups of distinct profile from its sample of students with HFA: 1) readers with comprehension disturbance (20.6% of the sample), 2) readers with global disturbance (33.2%), 3) readers with severe global disturbance (14.1%), and 4) average readers (32.1%). Readers with comprehension disturbance have been frequently reported in prior studies of reading with individuals with ASD, who demonstrated adequate decoding capability alongside comprehension deficits (e.g., Calhoun, 2001; Frith, 2003; Nation et al., 2006; O’Conner & Klein, 2004). Readers with global disturbance and readers with severe global disturbance are subgroups of those who struggle with phonology, vocabulary, and linguistic comprehension (McIntyre et al., 2017). The average readers subgroup consists of those who exhibit intact reading skills overall (McIntyre et al., 2017).

Therefore, students with ASD differ in their strengths and challenges in reading. Each individual with ASD has a unique reading profile that merits a need to examine on a case-by-case basis.

Explanations for Reading Comprehension Deficits

Several explanations for reading comprehension deficits in students with ASD have been proposed and discussed in the literature (El Zein, Solis, Vaughn, & McCulley, 2014; Finnegan & Mazin, 2016; Senokossoff, 2016). Explanations stem from Theory of Mind, central coherence,

and executive functioning. Each of these explanations provides a theoretical framework to help explain the unique reading profiles of individuals with ASD.

Theory of Mind. Theory of Mind (ToM) is a theoretical model used to account for social understanding and interaction difficulties among people with ASD (Baron-Cohen, 1995).

Theory of Mind refers to the ability to understand others' points of view or perspectives (Frith, 2012; Peterson, 2014; San José Cáceres, Keren, Booth, & Happé, 2014). Without ToM, students struggle with understanding the idea that people have thoughts other than their own, understanding situations from others' perspectives, and predicting behaviours based upon context (Gately, 2008).

Quill (2000) points out that “children with ASD tend to focus on details and interpret information in a fragmented manner; they misperceive the intentions of others and become ‘stuck’ in one mode of thinking and behaving” (p. 20). Based on this perspective, it may be difficult for children with ASD to comprehend narrative text found in stories. Theory of Mind or “the ability to infer the full range of mental states of others and the ability to reflect one’s own and other’s actions” (Baron-Cohen, 2001, p. 3) may help to explain comprehension deficits. Children with ASD have difficulty understanding other people’s thoughts, deception, metaphors, sarcasm, jokes, and irony (Baron-Cohen, 2001; Gillam, Hartzheim, Studenka, Simonsmeier, & Gillam, 2015; Grossman, Peskin, & San Juan, 2013; Scheeren, Rosnay, Koot, & Begeer, 2013; Southall & Campbell, 2015). This inability to infer and to assess the meaning of narrative texts might stem from a deficiency in understanding what a writer might be insinuating or the ambiguity of metaphors (Wahlberg & Magliano, 2004).

Central coherence. Central coherence is the capability of piecing together details into a whole concept or idea. Students with ASD may demonstrate weak central coherence (WCC), or

the inability to bring details into a central concept (Booth & Happé, 2011; Frith, 2012; Williamson, Carnahan, & Jacobs, 2012).

Students with ASD may have difficulty using context to construct meaning. This is a result of their preoccupation with details rather than combining the parts of a text into a coherent whole (Gillam et al., 2015). In other words, students with ASD may be unable to “see the big picture” (Happé & Frith, 2006). When they are reading, they tend to focus on words or insignificant details rather than on global meaning. This deficit may prevent students with autism from acquiring the constructive and integrative skills needed for successful comprehension (Nation, 1999).

Executive functioning. Individuals with ASD are commonly believed to have impairments in cognitive and self-regulatory processes known as executive functioning. Executive functioning consists of a set of cognitive abilities that allow an individual to self-regulate in relation to his or her environment to attain a goal; it refers to the process of organizing, planning, and monitoring progress when presented with a situation (Carnahan, Williamson, & Christman, 2011; Ozonoff, Pennington, & Rogers, 1991). A deficit in this area may affect problem solving skills, such as planning, impulse control, inhibition, initiation, organization, and flexibility (Terrett et al., 2013). Therefore, executive functioning deficits in students with ASD might influence their ability to organize (e.g., sequencing the events of a story), to plan (e.g., accessing prior knowledge, making connections), and to monitor their comprehension (e.g., creating mental images, engaging in discussions, summarizing).

In summary, challenges with theory of mind, central coherence, and executive functioning place children with ASD at risk for future reading failure, especially in their reading comprehension development (Mundy, Mastergeorge, & McIntre, 2012; Whalon, Hanline, &

Davis, 2016). Therefore, it is necessary that intervention strategies for children with ASD be implemented to support their reading comprehension development.

Strategies for Increasing Reading Comprehension in Students with ASD

This section examines several studies that have shown how participants with ASD have benefited from intervention strategies. The intervention strategies examined in this section include emotional thermometers, social stories, graphic organizers, cooperative learning, self-directed strategies, and behavioural intervention strategies.

Emotional thermometers. Gray (1994) suggests colour can be used to help students with ASD understand and describe a range of intensities of feelings and emotions for themselves and for characters in a story. Gately (2008) also suggests that using emotional thermometers with colour and varied vocabulary can help children with ASD see the intensity of feeling in a concrete manner, the change of characters' feelings with different events, and how feelings affect characters' choices. For students with ASD who have a weak Theory of Mind and have deficits in social and communicative cognition, this strategy may indirectly help them achieve a better understanding of others' thoughts, feelings, and emotions when reading narrative text.

Social stories. Social stories are simple descriptions of daily social situations, written from a child's perspective, to help demystify social interactions and teach specific social skills (Kuoeh & Mirenda, 2003). This strategy could have indirect long-term beneficial effects to reading comprehension development. Gray (2003) adopted social stories in the form of short narratives to help children with ASD better understand the perspectives of others in different social situations and activities, such as greeting others, praising a friend, and apologizing to others. Gately (2008) pointed out that social stories can potentially help students with ASD

understand language that may seem contradictory to a character's actions and make connections to characters that they otherwise might overlook or misinterpret.

Graphic organizers. Making connections is a challenge for students with ASD due to weak central coherence (Happé & Frith, 2006). Graphic organizers can provide a meaningful framework for readers to form relationships between what they know and the textual information (Wittrock, 1992). Learners can then see how concepts or ideas are connected. This strategy can help all individuals, and especially those with ASD, understand and retain new information presented in texts.

For instance, Mashal and Kasirer (2011) used thinking maps to enhance metaphoric competence in autism and learning disabilities from a psycholinguistic perspective. Three groups of 20 participants were compared: typically developing students (TD), students with learning disabilities (LD), and students with ASD. The ASD group included 20 children with HFA with no evidence of neurological impairment (18 boys and 2 girls; mean age 13.02 years, range 12–15 years). The children could speak their native language fluently according to their teachers' report. The ASD group was integrated into regular junior high schools located in the center of Israel. During pre-testing, participants in the TD group scored much higher than the other two groups on measures testing their ability to interpret metaphoric expressions and identify meaningless expressions. During intervention, teachers worked with the participants to discuss the meaning of common metaphoric expressions with the assistance of thinking maps. The thinking map showed how the two ideas were connected to facilitate comprehension. All three groups showed significant improvement in their understanding of conventional metaphoric phrases after the intervention, though LD children demonstrated a better transfer ability than the ASD children. This finding can be explained by the possibility that LD children have higher

levels of executive functioning (mental flexibility to shift between different word meanings) compared to children with ASD. However, this study showed that the thinking maps intervention can improve the metaphoric understanding for some children with ASD.

Bethune and Wood (2013) used a delayed multiple baseline across participants design to examine the effects of wh-question graphic organizers on reading comprehension skills in three elementary students with HFA (age range 8 to 10; average and above IQ). This study demonstrated that use of graphic organizers can help students with ASD improve their ability to answer literal “wh”-questions about a text by facilitating a higher number of correct responses to comprehension questions.

In a similar study, Carnahan and Williamson (2013) examined the effectiveness of graphic organizer strategy for three students with ASD who had the ability to verbally communicate (age 7). Specifically, the authors tested participants’ reading comprehension by using a Venn diagram to compare and contrast text structure. The Venn diagram in the study illustrated similarities and differences described in expository texts to assist participants in responding to comprehension questions about science. The results showed that the use of Venn diagrams proved effective in increasing comprehension.

These studies provide support for the use of graphic organizers as a tool for enhancing reading comprehension in individuals with ASD. However, graphic organizers alone do not automatically contribute to increases in reading comprehension. Given the variability of graphic organizers, it is important to match the graphic organizer with the specific needs of the student and requirements of the text, as well as model and guide the use of graphic organizers during reading.

Cooperative learning. Cooperative learning is a strategy that reflects common activities in general education classrooms. In cooperative learning, students work together toward a common learning objective. Cooperative learning has been shown to have a positive effect on academic achievement, interpersonal relationships, and self-esteem (Slavin, 1981).

Whalon and Hanline (2008) conducted a study to investigate the effects of reciprocal questioning strategy instruction delivered in cooperative pairs on the question generation and response of three children with HFA (IQ range 92 to 112; age range 7 to 8). These three children with HFA and nine general education peers (same age range) participated in the study. The researchers provided participants with a checklist to monitor their own progress through the activity while focusing on reading comprehension. Participants engaged in reciprocal questioning about key elements of a story, including setting, character, event, problem, and solution. Cooperative learning was found to be an effective intervention for increasing correct responses to comprehension questions and social interactions.

Similarly, Kamps and colleagues (1994) used a reversal design in two classrooms to examine the effects of Cooperative Learning Groups (CLGs) for three students with HFA (two second graders at the age of 8 and one third grader at the age of 9) and 14 of their typical developing peers in integrated, general education classrooms. In this study, cooperative learning was used primarily to practice reading skills in fluency, vocabulary, and responding to comprehension questions. Results demonstrated increases in reading gains, academic engagement, and peer interaction during the supplemental CLG conditions. Results also provided documentation of the peer-mediated strategy as a viable instructional arrangement for the integration of students with autism in general education settings.

Self-directed strategies. In contrast to cooperative learning, those who study self-directed strategies believe that individuals with ASD can independently use strategies to facilitate their reading comprehension. In a study by Asberg and Dahlgren-Sandberg (2010), 12 high-functioning Swedish students with ASD (aged 10–15 years) participated in a naturalistic classroom-based intervention to support comprehension of connected narrative discourse. During the intervention, students received instruction using Question-Answer Relationships (QARs) (Raphael, 1982), which provided a framework for helping students understand the relationship between the type of question asked and where the answer can be found in the text. In QARs, if the answer is “In the Book,” the answers to literal questions will be found “Right There” (i.e., written somewhere in the text). Questions that can be answered “In My Head” may be questions that the reader can answer “On My Own,” using his or her personal experiences. “Author and Me” questions require the reader to connect his or her background knowledge about text structure with the intentions of the author. The post-test results of this study showed improvement after implementing this intervention for students with ASD.

In another study related to self-directed strategies, O’Connor and Klein (2004) sought to determine the effects of procedural facilitation on the reading comprehension of individuals with ASD. They recruited 20 high functioning students with ASD (mean age 15.11), who were good decoders but poor comprehenders. A within-subjects design was implemented. The participants were requested to read five stories aloud under four conditions: answering pre-reading questions, completing cloze sentences, resolving anaphora by identifying the referents, and reading only (control). More than half of the students with ASD improved their post-reading comprehension once they resolved the anaphora by identifying relevant antecedents.

These two studies demonstrate that students with HFA can independently use strategies that will facilitate their reading comprehension. However, these two studies were conducted over a relatively short period and the sample in each study was small. It is difficult to determine from these results whether participants were able to maintain their skills over a longer period of time. It is also difficult to know if these strategies would also be effective in a larger classroom setting.

Behavioural intervention strategies. The issue of providing effective reading comprehension instruction can be further complicated by the unique and challenging behaviours often present for students with ASD during classroom instruction (Goodman & Williams, 2007). Students with ASD often display self-stimulatory behaviours, impaired communication and language skills, and resistance to participation in instructional activities (APA, 2013). In addition, students with ASD often demonstrate difficulty with processing auditory information (Lincoln, Courchesne, Harms, & Allen, 1995) with a tendency to focus only on selective parts of the message (Burk & Cerniglia, 1990). Without the use of behavioral interventions during academic instruction, these types of issues can often impede levels of on-task behaviour and negatively influence instruction (Goodman & Williams, 2007).

Applied Behaviour Analysis (ABA) techniques have been demonstrated to be effective in the treatment of challenging behaviours for students with ASD (Horner, Carr, Strain, Todd, & Reed, 2002). ABA techniques have also been used with students with ASD during academic instruction to enhance the effectiveness of academic interventions through positive reinforcement (Heflin & Alberto, 2001). Solis and colleagues (2016) conducted two separate but related single-case studies using alternating treatments designs to examine how the use of ABA techniques might improve the efficacy of reading comprehension interventions for children with HFA (IQ

range 95 to 104). In Study 1, they compared question development plus ABA treatment with a question development only treatment (two participants, aged 12-13 years, in grade 5). In Study 2, they compared anaphoric cueing plus ABA treatment with an anaphoric cueing only treatment (two participants, aged 10 years, in grade 3). The addition of ABA techniques to question development and anaphoric cueing improved the performance of these students with HFA on reading comprehension tests and increased the percentage of intervals of on-task behaviour.

These intervention strategies have been shown to be effective. Given the fact that each individual student with ASD has unique challenges and strengths, however, Solis and colleagues (2016) suggest that teachers should be cautious and thoughtful when selecting and implementing strategies in practice. These strategies also have implications for parents of children with ASD, as parents play an important role in supporting their child's reading at home.

Parent Support and Home Literacy

In their book on how to engage children in shared reading, Ezell and Justice (2005) point out that all children, especially those who are at risk for reading failure, including children with ASD, require high-quality, frequent opportunities to interact with written and oral language so that they will have a better chance of fostering their achievements in language and literacy. Parent support and home literacy have been found to be particularly important to children's literacy development (Fleury & Hugh, 2018). Parents who provide reading materials and take on an educator role to engage their children in shared reading opportunities, for example, are more likely to facilitate their children's literacy development (Justice & Ezell, 2000; Petrill, Deater-Deckard, Schatschneider & Davis, 2005; Robert, Jurgens & Burchinal, 2005).

A common practice valued by early childhood professionals and parents is reading aloud with children (Fleury, 2015). The frequency of book reading at early ages has been related to

children's oral language ability and reading comprehension skills in later years (Wells, 1985). Shared reading, the act of reading a book together between parent and child, incorporates a joint activity and fosters a model of parents as teachers through scaffolding and interactive dialogues (Mucchetti, 2013; Tipton, Blacher, & Eisenhower, 2017).

Many studies examining outcomes of shared reading experiences have focused on typically developing (TD) children, while only a few studies have targeted children with ASD and their parents. *What Works Clearinghouse*, among others, has identified dialogic reading (DR), a type of shared reading intervention, as a promising intervention for children with language disorders (WWC, 2010). DR encourages children to take an interactive role with the story through intentional scaffolding. The acronyms CROWD (completion, recall, open-ended, wh-questions, and distancing) and PEER (prompt, evaluate, expand, and repeat) are effective prompts and instructional procedures (Flynn, 2011; Whalon et al., 2015). In a review of studies on early reading interventions, Swanson and colleagues (2011) found that DR provided more causal evidence than other shared reading interventions as it had moderate to large effects on measures such as vocabulary and comprehension. More recently, Whalon, Hanline and Davis (2016) conducted a systematic case study utilizing a repeated acquisition design to examine the impact of a parent-implemented RECALL (Reading to Engage Children with Autism in Language and Learning) on the correct, unprompted responses of a child with ASD. RECALL, an adapted version of DR, combines the prompts and instructional sequence found in DR with systematic instructional procedures to support children with ASD. The instructional procedures include visual supports, prompts to promote joint attention, and least-to-most prompting hierarchy (Whalon, Hanline & Delano, 2013). The participants were a mother and her son with HFD (age 4; average IQ). All testing and intervention sessions occurred in the participants'

home during the summer between the child's preschool and first year of kindergarten. The results of this systematic case study showed that RECALL improved the child's correct responses to fact, inference, and open-ended questions (Whalon, Hanline & Davis, 2016). However, due to the lack of replications across participants, the findings of this study should be interpreted with caution as it is impossible to assume whether a similar effect would occur with other parents and their children with ASD.

While shared reading can provide a positive experience between parents and their children, it can also be frustrating and difficult for many parents of children with ASD because "their children may lack the motivation and/or the skills that are necessary to participate in shared reading activities" (Fleury, 2015, p. 4). Children with ASD may lack necessary language skills to engage in interaction during shared reading. For example, they may have difficulties commenting on or describing events. In addition, due to challenging behaviours and difficulties in social communication and joint attention, many children with ASD may find shared reading very challenging as it requires sustained social interaction around a topic. Given these challenges, Fleury (2015) provided parents with the following strategies: (1) create an appropriate reading environment by using visual boundaries and alternative seating arrangements and minimizing any auditory or visual distractions or stimuli; (2) make book reading part of the daily routine and establishing consistency and predictability; (3) improving compliance during book reading by allowing children to make choices and considering the child's interests; (4) teaching appropriate book reading behaviour by establishing ground rules and reinforcing appropriate behavior (social feedback and tangible or edible reinforcement); and (5) using dialogic reading to improve active participation.

Summary

This literature review provides an overview of ASD and HFA followed by a discussion of reading profiles of individuals with ASD, in particular those with HFA. Three cognition theories (Theory of Mind, central coherence, and executive functioning) were used as theoretical frameworks to help us understand the unique reading profiles of individuals with ASD. In addition, reading intervention strategies and parental involvement were explored to help gain more insight on what research has been done in these areas. Taken together, this literature review has laid a theoretical foundation that is tied to the purpose of the study and its research questions.

CHAPTER 3: METHOD

This chapter provides a description of the qualitative methodology of the study and delineates the specific procedures and method used to collect and analyze data. Six sections are included in this chapter: (a) research design, (b) participant recruitment, (c) data sources, (d) data analysis, (e) role of the researcher, and (f) establishing trustworthiness.

Research Design

This study was designed to empower four young adults with HFA and their parents to share their stories and experiences. Given the purpose of this study, qualitative methods provided an exploratory and discovery-oriented approach to the experiences of these individuals in reading development. A qualitative case study can be either intrinsic or instrumental depending on the intent of the study (Creswell, 2013). Intrinsic case studies are undertaken to illustrate a unique case that has interest in and of itself (Stake, 2005). On the other hand, instrumental case studies are undertaken to understand a specific issue, problem, or concern (Stake, 2005). Therefore, the intent of this multiple case study research is instrumental, as it aims “to provide insight into an issue or to redraw a generalization” (Stake, 2005, p. 445) regarding the issues of reading development experiences of individuals with HFA.

Case study design, more broadly, focuses on the richness of the context and phenomenon and involves the investigation of an issue or a phenomenon through one or more cases within a bounded system (Creswell, 2013). The cases in this study are bounded by time and space. The data collection process took about one month, and participants were asked to reflect on their past experiences from early childhood through adolescence (Time). The participants of the study were from a mid-sized city in eastern Ontario, Canada (Space). Because this is a multiple-case study as opposed to a single case study, more than one case was selected to provide diverse

perspectives on the central phenomenon (Stake, 1995). There were four cases in this study. Each case involved one young adult with HFA and one of his/her parents.

Various forms of data were collected to provide an in-depth description of participants' experiences. These included an interview with each young adult participant, an interview with one of the parents, field notes collected during and following the interviews, and a reflective journal. Following the data analytic procedures of a multiple case study, I first conducted a within-case analysis. A cross-case analysis followed the within-case analysis and provided broader themes that were overarching across cases as well as themes that were unique and specific to each case (Stake, 1995; Yin, 2003). Specifically, each young adult and his/her parent were studied as an independent case, followed by identifying similarities and differences across four cases.

Stake (1995) points out the strength of case study research design is to particularize rather than generalize the experiences of each case. The aim of this research design was not to generalize the findings. Instead, the intention was to paint rich, descriptive information about four young adults with HFA and their experiences in reading development within each one's family and sociocultural contexts.

Participant Recruitment

Prior to conducting this research, ethics clearance from the Queen's University General Research Ethics Board (see Appendix E) was received. Initially, the goal was to recruit participants through several organizations, businesses, and private schools serving individuals with ASD and their families in a mid-sized city in eastern Ontario, Canada. Emails were sent to administrators of these organizations, who then distributed information about the study to potential participants (see Appendix B). However, participant recruitment was completed within

a week through the first organization that I contacted, which is a locally based organization offering music intervention programs to children and youths with ASD. Therefore, other organizations were not further contacted.

Participants were recruited and selected through purposeful sampling based on the following criteria: (1) young adults diagnosed with HFA, (2) between the age of 18 and 28, (3) socially and verbally capable of participating in an interview, (4) currently enrolled in college or university courses or have recently been enrolled in college or university courses, (5) one or both parents/guardians of each selected young adult who agreed to participate in the study.

Each potential young adult participant was contacted via email once I received recommendations from my contacting organization. In the email, he/she was asked if he/she would also like to invite his/her parents/guardians to this study. If he/she did not wish to invite his/her parents/guardians, or if his/her parents/guardians did not wish to participate in this study, it would make him/her disqualified for this study, as the goal was to gain rich data by interviewing both the young adult and one or two of his/her parents/guardians, so their perspectives could be captured respectively. The first four young adults contacted for this study all agreed to include their parents/guardians in this study. As such, their parents were contacted by phone for an initial conversation (Appendix G). The purpose of this initial conversation was to learn more about their child and ensure that their child met the recruitment criteria. If their child did meet the criteria, a semi-structured interview was scheduled. A twenty-dollar cash incentive was provided to each young adult participant as compensation. A thank-you card was given to each parent participant. In total, four young adults and one of their parents/guardians met the criteria and were recruited for this study. Each family is one case on its own. Therefore,

there are four cases for this study. See Table 3.1 below for participant demographic characteristics.

Table 3.1

Participant Demographic Characteristics

Family#	Participant names*	Relationship	Gender	Age	Description
1	Jack	Son	Male	20	Enrolled in a college program; currently taking a break from college to pursue a volunteer job overseas; living independently.
	Julie	Mother	Female	N/A	Single parent; currently enrolled in a graduate program in a university.
2	Eddie	Son	Male	20	Currently enrolled in a college program and employed part-time; living with parent.
	Mary	Mother	Female	N/A	Single parent; currently employed full time.
3	Peter	Son	Male	21	Graduated from a college program in 2017; currently employed full time; living with guardian.
	Britney	Guardian	Female	N/A	Guardian; currently employed as a school teacher.
4	Amy	Daughter	Female	23	Graduated from a college program in 2016; currently unemployed but pursuing volunteer jobs in the community; living with parents.
	Gary	Father	Male	N/A	Married; currently employed full time.

* Participant names are pseudonyms.

Data Sources

Triangulation assumes that the use of different sources of information will both confirm and improve the clarity or precision of a research finding (Lewis & Ritchie, 2003, p. 275).

Therefore, this study has included different sources of data: (1) semi-structured interview, (2) field notes, and (3) reflective journal.

Semi-structured interview. Interviews are “one of the most important sources of case study evidence” (Yin, 2014, p. 110). They play an important role in data collection of a case study by helping researchers build “an in-depth picture of the case” (Creswell, 2013, p. 162). An interview guide with interview questions (Appendix F) was designed by the author in consultation with educational researchers and professionals in the fields of autism and reading development to ensure appropriate questions. The development of this tool followed extensive review of applicable literature in this study. Three categories of topics are included in the interview: (1) general questions about reading; (b) strengths, challenges, and strategies; and (c) supports. Open-ended interview questions were designed to allow participants to voice their experiences and provide rich responses related to the purpose of this study (Plano Clark & Creswell, 2015).

An interview was scheduled with selected participants. Interviews were held at an off-campus location that ensured security, comfort, and confidentiality for the participants. Each young adult was given the option to be interviewed together with his/her parent or separately. Each parent was also given the opportunity to be interviewed without the presence of their child. There were two interviews in each case, one with the young adult and one with the parent. Upon arrival, each participant was required to give informed written consent for the interview. They were asked to review the Letter of Information and Consent Form (Appendix B) and given an opportunity to ask questions before signing the consent form. Each interview took approximately 30-45 minutes.

Amy and Gary preferred to be interviewed separately but in the presence of each other. All other families chose to be interviewed separately without the presence of the other individual. Only Jack, in case 1, was interviewed via voice chat on Facebook messenger, as he

was out of Canada during the time of interview. All other participants were interviewed face-to-face. To better facilitate data analysis, each interview was audio recorded using a digital recording device and transcribed verbatim within 48 hours following each interview by the researcher to ensure the accuracy of transcription, which contributed to initial data analysis and trustworthiness of the results.

Field notes. Field notes were taken during and immediately following the interviews to record observations, initial thoughts and feelings, and reflections when “the situation was still fresh” (Patton, 2002, p. 302). These field notes contribute to the reliability of the study as an additional source of data. They can also enhance the descriptions of the interviews through documentation of thoughts and feelings experienced during the data collection period (Patton, 2002).

Reflective journal. As the sole researcher of this study, I kept a reflective journal to document my thoughts, feelings, fears, desires, needs, and questions before and throughout data collection and analysis. This process allowed me to be aware of myself as a research instrument during the research process (Ortlipp, 2008). The reflection process helps to “bring the unconscious into consciousness and thus open for inspection” (Ortlipp, 2008, p. 703). In addition, keeping and using reflective journals helps make “the research process visible to the researcher who can then make it visible for those who read the research and thus avoid producing, reproducing, and circulating the discourse of research as a neat and linear process” (Ortlipp, 2008, p. 704). Finally, a reflective journal provides rich sources of information and becomes an additional source of data. This contributes to triangulation of the data sources and the development of an audit trail to substantiate trustworthiness and increase the rigor and transparency of the qualitative research (Bowen, 2009; Lincoln & Guba, 1985).

Data Analysis

The first step in data analysis was to develop a manageable classification system (Patton, 2002). During the with-in case data analysis, individual participant narratives and data themes were analyzed to develop an in-depth understanding of experiences of individuals with HFA in reading development. For the cross-case analysis, the goal was to develop overarching themes across multiple perspectives.

Creswell (2013) points out that data collection, analysis, and report writing are not distinctly independent. Instead, they are interrelated and happen simultaneously in a research process. Consistent with the flow and procedures of qualitative research, the data analysis for this study was inductive and emergent. Data were analyzed as they were collected. The analytic technique adopted in this study was explanation building (Yin, 2009). Data were analyzed to develop an explanation about the cases (Yin, 2009). This technique contributed to answering the “how” in this study. Specifically, the data were analyzed to answer how four young adults with HFA experienced their reading development from early childhood through adolescence.

For this study, eight interviews were conducted in total. Each interview was transcribed verbatim within 48 hours by the researcher. Each interview resulted in approximately 30 pages of transcript (double-spaced). Once the interviews were transcribed, all identifying information was replaced with pseudonyms. Interview transcripts and audio recordings were stored on the principal researcher’s password-protected desktop. In addition, field notes were reviewed and clarified to ensure accuracy, and the reflective journal was reviewed and continued during data analysis.

In a multiple case study design, the data analysis begins with studying each case for its description and themes (Stake, 1995). Each case was analysed individually and the themes that

emerged were identified as being case-specific. Following the completion of case-by-case analysis, a cross-case analysis was conducted to identify and describe overarching thematic patterns as well as similarities and differences (Stake, 1995). I followed the guidelines of thematic analysis proposed by Braun and Clarke (2006): (1) become familiar with the data, (2) generate initial codes, (3) read each of the transcripts to be fully immersed in the data (4) review each of the themes, (5) define and name themes, and finally, (6) write the report. I first organized all of the eight transcripts by family, so that there were two transcripts to read within each of the four families: one interview with each young adult and one with each of their respective parent. This study focused primarily on the experiences of the four young adults; therefore, the analysis began with the interview transcript with the young adult, followed by the one with his/her parent. This same order applied to each case.

The process of coding began with reading each transcript three times on the computer before printing it out. This initial reading helped to increase the accuracy of transcription and identify emerging individual characteristics and issues for each case. Afterwards, I printed out all eight transcripts in Microsoft Word and created three-inch margins on the right-hand side of the page so that I could write down my thoughts and questions. I underlined key phrases in the interviews when I reviewed the transcripts on paper. Notes were also taken in the margins to remind myself about key points that I thought were emergent from the data. In several instances, I wrote down the exact words and phrases that participants used. This process is called “in vivo coding” and captures the essence of a paragraph or a particular section in the interview (Plano Clark & Creswell, 2015). For example, in one of the interviews, one young adult described his challenge in reading comprehension by saying “impossible to summarize”. This phrase was copied exactly as it was because it precisely captured his biggest challenge in reading.

By reviewing the transcripts, coding transcripts multiple times, and writing a reflective journal, I was able to refine my impressions and initial codes over time. For example, two of my initial codes were “checking the definition of new word” and “using Google to search the meaning of word.” These two codes were later changed and merged to one code: “poor vocabulary knowledge.” This new code better captured the aspect of participants’ difficulty with vocabulary in reading. Additionally, I initially had a few similar codes named: “reading with parent”, “bedtime story”, “reading to the child”, “interaction while reading”, “asking questions during reading”, “discussing pictures before reading”, and “discussing the story after reading”. During a review of the codes, I decided to merge these initial codes into one broader term: “shared reading”. As these examples illustrate, the initial codes evolved; some codes became sub-codes while others became broader umbrella terms. The actual codes and the organization of my codes also differed from one interview transcript to another.

Following the method of data analysis by Stake (1995), I engaged in both categorical interpretation and direct interpretation. Stake (1995) proposes two strategic ways of data analysis, namely, “direct interpretation of the individual instance” and “categorical aggregation of instances” (p. 74). Consistent with Stake’s method, I engaged in both direct interpretation and categorical interpretation. I identified themes based on their salience in one instance and for their repetition across cases. I used the same procedure for the analysis of each case. I was then able to engage in cross-case comparisons during the cross-case analysis. After reviewing the codes and themes that emerged in each of the four cases, I then made comparisons across the four cases to identify broader themes that were overarching, as well as themes that were unique and specific to each case. The description and case-specific themes for each case are presented

in Chapter 4. This is followed by Chapter 5, which presents the themes that emerged across all four of the cases.

Role of the Researcher

Patton (2002) views the researcher as “the instrument” in qualitative inquiry (p.45). As the researcher of the current study, my role was an instrument, through which data were collected and interpreted. Creswell (2013) stresses the importance of acknowledging the philosophical assumptions that underlie a researcher’s method and design, such as how the researcher perceives reality (ontology), the values that the researcher brings to the study (axiology), and the relationship between the researcher and what is being studied (epistemology). In the current study, as for my ontological assumption, I embraced the existence of multiple realities by striving to understand the subjective meanings of my participants’ stories and experiences and to rely on their own words. In chapter 1 of this study, I wrote about researcher positionality, sharing my personal experiences of supporting the reading development of my son who has HFA. My personal experiences, beliefs, and values should not be overlooked. As a researcher, I realize the value-laden nature of the study and I admit that my own experiences contribute to my interpretation of the data (Creswell, 2013). In addition, I acknowledge the personal biases that I may bring to this study. Therefore, I strived to ensure the trustworthiness of this study. The following section discusses the techniques I used to establish trustworthiness.

Establishing Trustworthiness

The notion of trustworthiness refers to the believability of a knowledge claim (Polkinghorne, 2007). Lincoln and Guba (1985) stress the importance of establishing trustworthiness for naturalistic studies. They provide techniques to improve the trustworthiness of qualitative research findings. Based on Lincoln and Guba’s techniques for establishing

trustworthiness in qualitative research, the following techniques were used to establish trustworthiness for this study: (1) frequency tallies, (2) member checking, (3) triangulation, and (4) audit trail.

Frequency tallies. A frequency chart was kept for the purpose of counting the frequency of the categories across participants. Categories across participants were tallied during the open coding stage to confirm the consistency of the final categories across participants. Higher frequencies can contribute to greater reliability; however, themes that are less frequent across the database can have the same relevance in qualitative research depending on the research questions.

Member checking. Lincoln and Guba (1985) state that member checking provides participants with an opportunity to identify incorrect interpretations and to assess the overall adequacy. It is considered as “the most crucial technique for establishing credibility” (Lincoln & Guba, 1985, p. 314). For this study, participants were contacted to provide feedback on preliminary themes that emerged from their specific case (see Appendix H). This process helped to improve the trustworthiness of the findings by verifying the validity of the themes. Two participants, Jack and Julie, responded to the member checking request and expressed their agreement with the findings.

Triangulation. Lincoln and Guba (1985) mention that the use of different sources is an important mode of triangulation. This study collected and analyzed three different sources of data; namely, semi-structured interviews, field notes, and researcher’s reflective journal. Categories were identified through the analysis of data from these sources. This process helped to improve the credibility of the findings by analyzing different sources of data.

Audit trail. The audit trail technique examines both the process of the inquiry and the product of a study – “the data, findings, interpretations, and recommendations” (Lincoln & Guba, 1985, p. 318). Audit trails can show interested researchers the process I took to collect and analyze data if they wish to take on a similar process. A sample of raw data and a sample of analysis process are provided in Appendix I.

CHAPTER 4: FINDINGS AND DISCUSSION OF CASE-BY-CASE ANALYSIS

The purpose of this study was to investigate the lived experiences of individuals with HFA in reading development from early childhood through adolescence from the perspectives of four young adults and their parents. Chapter 4 presents four individual, in-depth case studies for Jack, Eddie, Peter, and Amy respectively (pseudonyms). The purpose of presenting each case individually is to present a rich narrative of each participant's lived experience. Findings resulted from three data sources; namely, participant interviews, researcher's field notes, and a reflective journal. Within each case, the participant is introduced through a brief description of his/her background, early development, learning circumstances, and reading development trajectory.

Following these rich descriptions, themes that are specific to each case are presented under three categories. These categories are related to three research questions. The first category is "strengths and challenges in reading," which is in relation to the first research question – "What are the strengths and challenges in reading, if any, of individuals with HFA?" The second category is "strategies," which answers the second research question – "What strategies do individuals with HFA use to overcome their reading challenges?" The last category is "supports," which addresses the third research question – "What supports do individuals with HFA receive from their parents, school, and community?"

For the case-by-case analysis, quotes from the interviews are included to support each theme and the researcher's interpretations. These quotes help the participants' voices to be heard.

Case 1: Jack

Jack is a 20-year-old male student in college in Ontario, Canada. Most people would not be able to tell he has ASD, as he is articulate, energetic, and quite social. I interviewed him via video chat on Facebook Messenger while he was completing a temporary volunteer job abroad. Jack was born in a middle-class family in Ontario, Canada. His first language is English. He does not speak a second language. He was diagnosed with ASD when he was four years old.

Jack's mother, Julie, clearly recalled that there was a delay in speech development in Jack's early years. Julie mentioned that Jack "used to bite instead of communicating." It was not until "Grade 2 or even later in Grade 5" that Jack gradually started to talk and communicate. Even by then, "he would sometimes just kind of like grouching" instead of properly talking with others. Julie also mentioned that one of the reasons for Jack's early language delay was partially due to his chronic ear infections during his early years. "The chronic obstruction" might have made it "really difficult to listen to others."

Not only did Jack's "severe language disability in early years" affect his speech development, but it also affected his listening comprehension when communicating with others. It was difficult for Jack to fully understand what others were saying, and he sometimes tended to miss part of the conversation and "never got the full sentence". For example, "if you say, 'go to the store and get some milk,' he would just go to the store but forget the milk."

During the interview, Jack also shared his frustration with not understanding others. In his elementary classroom, he recalled that he "sometimes didn't understand them [teachers and classmates]" and he "would go like 'you don't make sense, and I don't understand you'." He was taught to ask others to repeat what they had said or say it in a different way. He "tried to understand them somewhere," but, when he got confused, he "had to make a signal or something."

Along with his delay in early language development, Jack was also diagnosed with ADHD, which brought additional challenges to his reading, such as attention problems. For example, as Julie recalled, it was “quite challenging for Jack to sit and listen or follow directions”, as he would “constantly move around and not pay attention to people around him.” Julie found it difficult to engage Jack in reading. She tried to read books with Jack when he was three and four years old, but “it turned out to be an extremely difficult thing to keep him still and read a book like other kids.”

Learning how to read was a long, arduous journey for Jack from early years till today. He has continuously struggled with both decoding and comprehension. During his early years, Jack “did not understand the sounds, like A says /a/, B says /b/, and C says /k/.” He struggled in the classroom and often felt embarrassed when asked to read in front of his peers because he “was not able to sound out the words.” Julie expressed her disappointment that “they [teachers] did not really understand Asperger’s or ADHD” and “they [teachers] will just give up on you [Jack].” Unfortunately, the supports and resources for his special needs were fading away in the school system as he grew older. As a result, Julie continued to seek help from outside the school system.

During his high school years, Jack’s decoding ability gradually caught up with his typically developing peers and reached a level where he could read most common words, though he still struggled with reading unfamiliar, irregular words. When it comes to reading comprehension, he found it difficult to understand narrative stories; however, he came to realize that he would “understand non-fiction books much better, such as history books about facts”; he was able to remember “all the facts from biography books; for example, Steve Job’s biography.” Jack was happy to find out he could read and understand some types of books. He tried to avoid

reading novels or fiction texts. Instead, Jack read many non-fiction books, such as “books about how to code” and “books about how to start a business.”

Julie has been the biggest supporter and advocate for Jack since his diagnosis. Though she did not manage to read much with Jack at home, she learned how to navigate the school system, expressing her son’s needs and asking for supports and resources. She also used community resources, including story reading activities at the local library and after-school reading programs, to support Jack’s literacy development.

Today, Jack reads everyday “on social media and various websites to gain knowledge and information.” Reading helps Jack continue to learn about the world and grow as an individual.

Emergent Themes for Jack in Case 1

Following the above description of Jack, themes that are specific to Jack’s case are summarized in Table 4.1 under three categories, namely strengths and challenges, strategies, and supports. Each theme is further described in detail in this section.

Table 4.1

Emergent Themes for Jack in Case 1

Category	Theme
Strengths and challenges	<ul style="list-style-type: none"> • Good comprehension of non-fiction texts • Constant struggle with decoding • Not knowing the “full-blown” definitions • “Impossible to summarize”
Strategies	<ul style="list-style-type: none"> • Assistive technology • Improving vocabulary knowledge • Real life experience • Interest and motivation • Behavioural support
Supports	<ul style="list-style-type: none"> • No routine with reading at home • “A dead-end process” in school system • Community resources

Strengths and Challenges

Good comprehension of non-fiction texts. This theme explores Jack's strengths in reading and how different types of text affect his comprehension. There is no doubt that Jack can read. Reading has helped him learn about the world and offered him the opportunity to study in a college program. However, Jack's reading comprehension level varies when it comes to different types of text. Jack's comprehension with non-fiction texts is better than his comprehension with fiction texts.

Julie was quite delighted when she mentioned that, although Jack had a hard time comprehending narrative texts, such as "fiction or stories," "his comprehension with non-fiction was surprisingly great." She further talked about Jack's reading comprehension with history books and biography:

He knew every fact of history by his heart. History and facts. Every date and every name. Off his heart... everything... he talked with everybody about it... he enjoyed it. He had a deep understanding of it, very deep. History and politics, very deep understanding.... But if somebody picks up a book, say about Steve Jobs, he would care about that. He would know every fact about it. Because it is like an OCD thing, he would only hone on certain things.... And Stephen Hawkings. He was his favorite. He would know all the facts about those famous people.

According to Julie, Jack has quite a talent memorizing facts from history and biography books that he has read. In addition, Jack excelled in science and maths, as these subjects did not require reading narrative texts. Julie commented that "Jack was like a genius in science and maths since Grade 8 or 9, and he was good at maths, chemistry, history, and physics, and

anything to do with numbers. He just got A+s.” Julie commented that Jack’s reading and understanding in these subjects was quite good.

During the interview, Jack stressed that he “did not like to read novels.” Rather, he “liked to read for information, like how to code, that kind of book. Or, how to do business.” As the following quote demonstrates, Jack expressed his love for history and science:

I like to read for information. Things like the past, the history and things like that. Like real things... I like real information. Something you can tell someone, and they will like ‘wow’.... I would like to read science. I would like to tell them about Quantum Physics.

Despite his challenges with and dislike of narrative texts, Jack’s strength in reading non-fiction texts is apparent. However, it is not clear if Jack can actually achieve a deep understanding of the non-fiction texts, such as integrating information and making comparisons, rather than mere memorization of the facts.

Constant struggle with decoding. In my interviews with Jack and Julie, constant struggle with decoding emerged as a salient theme. Julie recalled that Jack was having a difficult time decoding and figuring out the pronunciation of the word as soon as he started to learn how to read. As the following quote demonstrates, she described it as a challenging experience which hindered Jack’s reading development:

He did not understand the sounds. Like A says /a/, B says /b/, and C says /k/. He didn’t understand that part, and he was always missing that part. Because he never understood K means /k/, no matter how many times he did it, he never understood the sounds.... He was not able to spell because he did not get to understand how to sound out the words. It was very difficult for him to just pick up a book and read it.

Evidently, Jack did not develop his decoding at a normal rate, which is opposite to what most research has claimed; namely, that most children with ASD can learn to decode without difficulty (Brown, Oram-Cardy & Johnson, 2013; Calhoun, 2001; Frith, 2003; Hundert & van Delft, 2009; Nation et al., 2006; O’Conner & Klein, 2004). Given this contrast, caution should be taken when it comes to understanding the challenges faced by each child on the spectrum, as each one of them, including Jack, has a unique reading profile.

Jack also shared his struggle with decoding and expressed his frustration with this skill. He recalled that he often felt embarrassed when he was asked “to read in the front of the class” in his elementary classroom because he was unable to sound out the words. He shared one anecdote:

For the longest time, I didn’t think Plato’s name was Plato. I thought it was “Pelio” My friend said “Plato”. I was like what? You are crazy. And then, I Googled it.... For the longest time, I didn’t really Google his name from the start. It was like I lied to myself about his name and I started to believe the lie.... I got the wrong pronunciation stuck on my mind. I thought his name was “Pelio”.

This anecdote sheds light on the challenge that Jack encountered with decoding. It has been a constant challenge for Jack since his early years. Fortunately, Jack was able to develop his decoding skills as he grew older, although at a slower rate compared to his typically developing peers.

As he entered high school, Jack’s decoding ability gradually progressed. He started to feel more comfortable with his decoding skills during his high school years. Jack admitted, however, that by high school, and even today, he still has “some trouble pronouncing some unfamiliar words ... sometimes I will just come across the word but most of the time I didn’t

even bother to try to pronounce it properly. I am just like ‘This is bla... bla... shee... bla’ and just move to the next word.”

It appears as though Jack has developed a strategy to deal with difficult words by avoiding decoding them so that he can keep on reading and focus on comprehending the text. However, it is likely that Jack may not understand the definitions of these “unfamiliar words” that he cannot pronounce. His challenge in vocabulary knowledge is further explored in the following theme.

Not knowing the “full-blown” definitions. This theme explores how poor vocabulary knowledge has impacted Jack’s reading comprehension. During the interview, Jack shared his frustration with poor vocabulary knowledge, which he believed has been an obstacle to his reading comprehension. Understanding the different definitions of words and the nuances associated with them can be quite challenging for Jack. Jack stated that he “sometimes did not know the actual, full-blown meaning of the word” when he read. It was difficult for him to “fully understand the whole sentence” when “there were many new words, or words I [Jack] only know about one of their many definitions”.

Jack’s challenge with vocabulary knowledge has negatively impacted his reading comprehension. This finding is consistent with the conclusion drawn from previous studies that vocabulary knowledge is a predictor of reading comprehension (Cain & Oakhill, 2014; Ouellette, 2006; Spencer, Quinn, & Wagner, 2017).

“Impossible to summarize”. This theme reflects one of the major challenges in reading faced by Jack, which is to integrate information and summarize.

Julie noticed that Jack’s reading comprehension was behind grade level after he entered middle school and high school, although his decoding ability was slowly improving. Julie

recalled that “when Jack was in Grade 8 or 9, his reading comprehension was like in Grade 2.” One of the challenges was “for him to articulate what he has read or to summarize things up in a story.” Jack also admitted that “it was almost impossible for me [Jack] to summarize what I [Jack] have just read in a story.” He expressed his frustration by saying, “that’s like something impossible for me to understand, and I will just give up.”

As we can see from the above quotes, Jack and his mother emphasized his challenge with summarizing when it came to reading a story. This challenge seems to be in relation to Jack’s limited ability to integrate information. Though they did not specifically talk about Jack’s challenge with summarizing non-fiction texts, it can be suggested that this challenge would, to a certain degree, impact Jack’s ability to achieve a deep understanding of non-fiction texts.

To summarize, the above themes explore the strengths and challenges of Jack’s reading development. Though Jack has his own challenges in reading, such as decoding and summarizing, he has managed to overcome these obstacles and hone his strategies in reading to help him get to where he is today. Next, themes related to Jack’s coping strategies are explored.

Strategies

In Jack’s case, the following themes emerged as strategies to support his reading development: (1) Assistive technology, (2) Improving vocabulary knowledge, (3) Real life experience, (4) Interest and motivation, and (5) Behaviour support.

Assistive technology. During the interviews with Jack and his mother, assistive technology emerged to be a salient theme. Julie considered technology as “the number one thing” for supporting Jack’s reading development. She applauded Jack as being “really savvy with technology”. Technology has helped to build “Jack’s confidence in reading.” Julie mentioned two “useful” text-to-speech software programs that Jack used to help him with his

decoding difficulty: Kurzweil and Dragon Naturally Speaking. She described how these programs were useful:

They [Kurzweil and Dragon Naturally Speaking] teach you how to read. They can read for you. You press it and it will say the sentence and Jack can repeat the sentence. You click and there is the pronunciation, like the whole sentence, the whole passage, and stuff on the internet. Highlight and read.... Like he could not pronounce Turkey, so there would be like Turkey, and he could press on it and there were so many words to choose from. It was so much easier for him. MacBook has helped him [Jack] a lot with his reading, because it speaks to him [Jack].

Text-to-speech technology works for Jack, as it helps Jack with decoding words. However, when asked about what assistive technology Jack had used to support his reading comprehension, Julie did not recall any specific technology. It seems assistive technology in supporting decoding is more advanced and it is better known by parents and students compared to technology specifically targeting reading comprehension. Nevertheless, text-to-speech technology can, to a certain degree, support reading comprehension, because the cognitive load saved from decoding can be used during reading comprehension (Marefat, Rezaee, & Naserieh, 2016). Julie expressed her agreement with this speculation by saying, “it kind of did [help] with reading comprehension because Jack would not need to worry about sounding out the word but instead he can focus on understanding the meaning.”

Technology seems to motivate Jack to read more than he would do with traditional reading. Jack appeared to be excited when he talked about how he used technology to help him with his reading. Besides the above-mentioned text-to-speech technology, he also “used internet to search information” on his MacBook and iPhone on a daily basis. When he came across an

unfamiliar word while reading, he would “Google the word to know the real definition” and he used “Google Docs to write them down” so that he could “keep a record of these words.” Taken together, technology appears to have been a supportive tool for Jack in his learning and reading development.

Improving vocabulary knowledge. Vocabulary knowledge plays an important role in reading comprehension (Beck & McKeown, 2007; Biemiller & Boote, 2006). Improving vocabulary knowledge can facilitate reading development (Cain & Oakhill, 2014; Ouellette, 2006; Spencer, Quinn, & Wagner, 2017). Jack struggled with understanding the full definition of words and he noticed how this contributed to his reading comprehension problem. Understanding that his vocabulary knowledge was limited, Jack tried his best to come up with strategies to get to “know the actual, full-blown meaning of the word.” Besides Googling the word and keeping a record on Google Docs, Jack “bought a real big dictionary one year” when he was in high school. His plan was to “read the dictionary and know all the words in the dictionary.” He explained that he “studied the dictionary as if it was a book” and he “was trying to become the master of all the words.” Since the dictionary “was the world’s largest book,” Jack “had to do math and calculate how many pages I [Jack] can do to memorize everything everyday.” When he “studied each word alphabetically” in this dictionary, he also “read the example sentences” related to each definition of the word.

Jack’s plan to study a dictionary shows his determination to overcome his vocabulary problem. Though his intention was good, studying a dictionary and trying to memorize everything in it turned out to be a daunting task. Jack decided not to continue with this effort after a short period of time. Today, he mainly uses Google to learn the definitions of new words and keep a record of them on a Google doc.

Real life experience. A good reader can access background knowledge and connect it with the text to make sense of meaning (Duke & Pearson, 2002). It is quite common among children with ASD that they lack a solid base of background information, partially due to their restricted interests and activities. Therefore, creating real life experience for children with ASD can help them build background knowledge, which, in turn, can benefit their reading comprehension.

During the interview, Julie talked about the importance of creating “real life experience” to help Jack with his reading comprehension and how to use this strategy to help Jack visualize when he read a story, so that he could better understand the meaning of the text. She stated:

You know you cannot just read, you got to see, do, and feel. You got to use a more universal approach for a child’s learning and reading. They are not just sitting there and reading a book. It may not mean anything for kids on the spectrum because they are not comprehending it

She recommended that parents “do it first, then talk about it, and read a book after.” She elaborated on this strategy by giving the following example:

I guess, if we are talking about a dairy farm, okay, they [children on the spectrum] may not understand milk comes from a cow. They may not be able to visualize it. So, take them to dairy farms and have them hooked up with the milkers and help them see how the milk comes, and how the truck comes and picks up the milk, and how that process works, instead of just reading the book. Because you may read the book, but you cannot visualize it, you know, what is really happening. You can’t picture yourself on the farm and seeing the cows.

Julie also mentioned her daughter's school program and how real life experiences were created to help children understand the book they were reading.

You know every field trip they [Julie's daughter and her peers] go, they go see the suspension bridge and walk it. They go to the Parliament buildings to learn about the governments. So, like none of this is in the book, where Jack could not really understand any of it.

Julie emphasized the importance of creating real life experiences. She believes building background knowledge by creating real life experience can help children with ASD develop their reading comprehension. This strategy can be used to help children with ASD construct meaning from reading when background knowledge is activated. This might be part of the reason why Jack participated in a volunteering job overseas, as he wanted to have different experiences in life to help him better understand the world.

Interest and motivation. During the interviews with Jack and his mother, "interest and motivation" were discussed to a large extent and emerged as a salient theme. Interest is essential to one's learning, including reading. Without interest, it would be difficult for anyone, including individuals with ASD, to be motivated to read. Julie emphasized the importance of interest and motivation when it came to supporting Jack's reading. She discussed how choosing books based on Jack's interest (such as a biography of Steve Jobs) would make a big difference.

When asked if he likes reading, Jack's response was "No. Well, I like it but it takes me a long time to read one book". He said that he needs to be intrigued and motivated so that he can read. He mentioned that he does not like reading "fiction books". But he enjoys reading non-fiction books, as he is interested in reading "improvement books" to gain "knowledge and information".

I read books for knowledge. I do knowledgeable things. I read books that actually taught me something. I didn't like reading science fiction books or story books or anything. I don't really care about other people's lives, rather than improving mine. I'd like to read improvement books. Like "how to" dummies books.... I read how to build a website.... Or, how to start a business, stuff like that.... Or, things like the past, the history and things like that. Like real things.... I would like to read science. I would like to tell them [Jack's friends] about Quantum Physics.

Downing (2005) states that demonstrating an ability to gain information from written material and create messages for others can help promote a positive self-image. This is true in Jack's case. Jack mentioned that he is motivated to read books that his friends have not read so that he can impress them by talk about "something they know nothing about". He would "read and learn something far out there" and "things like real information," so his friends would say, "Wow, how can you know that?"

In Jack's case, interest and motivation are important factors that have contributed to his reading development. He enjoys reading something of interest to him. Additionally, Jack is motivated to read and learn new things to impress others.

Behavioural support. For children with ASD, especially those with comorbid ADHD, attention and behaviour issues can impede reading development. Goodman and Williams (2007) point out the importance of behavioural support during academic instruction for students with ASD. Therefore, behavioural support should be in place to keep these children on task when they read.

Julie recalled how reading was a difficult activity for Jack because he had "many behaviour problems," especially in his early years. It was more than just about reading, because

Jack “did not understand due to his language delay,” so “he would act out”. It was “really difficult for him to sit and read.” Julie discussed how “a psychologist was involved to deal with his behaviour” by using “positive reinforcement” to help Jack concentrate on learning tasks, including reading. The behaviour support “seemed to work for him well.” Before this, “it was very difficult.”

During the interview, when asked what he would tell his teachers regarding how to support his reading, Jack wished that his teachers had helped him focus on reading instead of seeming to be distracted. In Jack’s case, behaviour support is clearly an efficient strategy to help him focus on reading, as the result has shown from his treatment with a psychologist.

To summarize, the above themes illustrate some of the major coping strategies that Jack and his mother have used to support his reading. Assistive technology and improving vocabulary knowledge were the strategies that Jack mainly discussed during his interview while his mother added other strategies, such as creating real life experiences. Interest and motivation emerged as a salient theme from the interviews with Jack and his mother. Behavioural support was also a case-specific theme that emerged from Jack’s case.

Supports

No routine with reading at home. A home literacy environment that promotes regular reading activities is important to children’s literacy development, especially for those with language delay (Ezell & Justice, 2005). In Jack’s case, his mother prepared many books for him at home but had no routine for reading.

Julie briefly mentioned that she read with Jack in his early years, but she quickly switched the topic to library story activities. When asked further about their home literacy environment and reading routine, she shared her experience:

We had lots of books and everything. No routine ever. But, we picked up books and read.

I would not say it was on a daily basis. But, we still picked up books and read. I wouldn't pick up a book and read. I read because I have to read.

She added that she had reading difficulty and found it hard to read. Sometimes she needed to read ten times till she understood the text.

Jack mentioned that his mother did not make him read at home. Instead, he was sent to various afterschool programs, which he never actually enjoyed. When Jack was 15 years old, he spent one year with his aunt, a school teacher. Jack gave this experience credit in terms of improving his reading. He said that "moving to my [his] aunt's house have helped my [his] reading get better." His aunt set up a routine and made Jack "read for 30 minutes every day". They also "read together". Jack was happy that his aunt had "kept me [him] at a certain place; otherwise, I [he] did not feel like I [he] could keep reading." A year later when Jack turned 16, he moved back to live with his mother again. He did not read with his mother. There was no routine for reading at home.

Though Julie tried her best to create a literacy environment at home by purchasing books and reading with Jack occasionally, the lack of routine and consistency has been a challenge.

"A dead-end process". During the interviews with Jack and Julie, neither of them considered Jack's experiences with his reading in school as being positive. Julie summarized her experiences with the school system as "a dead-end process."

Jack mentioned that he did not like reading activities in his general education classroom, such as "group reading" or "reading in the front of the class". He commented that "some of his teachers were helpful"; however, he did not recall any efficient strategies his teachers, including

his special education teachers, used to support his reading. Jack described his school experience as follows:

She [one of his special education teachers] just assigned books to kids who did not work the best at language and you [students] just read it. It's like you just needed to learn how to read on your own. They [teachers] don't really understand anything. I got ADHD and everything and it was really hard to do that kind of stuff [reading in classroom]. Teachers kind of gave up on me [Jack] at one point sometimes.

Jack wished his teachers had "made him pay attention" and worked with him "one-on-one." He was aware of the fact that he could be distracted in his classroom. He wished his teachers had forced him to read. Jack shared his experience in the general education classroom:

I didn't read that often in actual class [general education classroom] besides special education class. Because they [students and teachers in general education classroom] would be reading, and I would be in another place. I often times would just look at the book or doodle or something. They would ask me, "Can you read," but I was like "I don't know where we are".

Jack did not have special education support when he entered high school, because "I [Jack] thought people would call you [Jack] retarded, so I did not do that."

Julie has been an advocate for Jack throughout his school years. She was disappointed with the public school system and considered it as "a dead-end process". She wished she had put Jack in a school where there was a more universal approach in the classroom and parents would have more control over their child's education. She commented that "it was a terrible experience for Jack with his special education teachers" because "there were so many kids" and "they did not really understand Asperger's or ADHD." Julie mentioned that, though technology was

provided to Jack in his special education class, teachers would not follow through or teach him what the technology could do for him and how it could benefit him. Julie was disappointed with her experience with the Individualized Education Program (IEP) in the school.

We never had any good school supports. I have advocated my whole life for him. It has been very tiring and horrible. School supports don't work. Because what happens is whenever you start school, ever since his kindergarten, they would implement something, and by the time they do your IEP, they decide what should be. So, it looks really good on paper. Whenever you have an IEP, it will just say you are modified. But nobody ever has said what I have done differently for this kid. They don't write that. So, I think Jack was kind of falling into the cracks. You know he has had lots of struggles, and I had lots of going to talk to the teachers and to advocate for his needs. That was difficult and challenging.

In summary, Jack's experience with his reading in school turned out to be a disappointing one. Although Jack had an IEP, special education teachers, and technology, these resources were not allocated or designed in a way that would suit Jack's needs.

Community resources. Even though Julie found it difficult to read to or with Jack at home, she knew how to find and utilize various resources in her local community to support Jack's reading. She positively discussed a reading program called "Paws" in the local library. This program "used a dog and they [children] read with the dog." This program seemed to work for Jack, as he was intrigued by the dog and was able to engage in reading with the dog. However, Jack was not as engaged in another reading program offered by a local psychiatrist. Julie said, "Jack ran away from this program because it was too structured, not like a universal approach."

In order to help Jack with his decoding, Julie enrolled Jack in an after-school reading program called Kumon. However, Kumon did not support Jack with his reading skills. Julie said, “He [Jack] never understood K means /k/. No matter how many times he did, he never understood the sounds [in his early years].” Jack expressed his dislike with the Kumon reading program. He “went there for two or three years” during elementary school. But he found this program “had not taught me [him] anything.” Jack said, “It was just like going over, like a repetitive thing. It was like going to school again but after school. It was like learning things you have already learned.”

As a parent, Julie put a tremendous amount of effort into finding different programs to support Jack’s reading. Some of these programs were helpful while others were not as helpful. Given that Julie considered the school system “a dead-end process,” she was appreciative of these resources available in her community.

To summarize, Jack’s experiences with his reading at home and in his school were not described as being positive. Nevertheless, Jack’s mother has always been an advocate and supporter for Jack and his reading. She provided Jack with as many supports and resources as possible. Her involvement played an important part in Jack’s reading development.

Case Summary

Despite his delay in early language and speech development, Jack has grown up to be a very talkative young man. Learning to decode was a long and difficult journey for Jack. While he still struggles with “sounding out” some unfamiliar or difficult words, his decoding ability for most common words in English has enabled him to “read for knowledge and information.” Jack is a good reader when it comes to expository text, such as history, biography, and other non-fiction material. It has always been a challenge for him to comprehend fiction and narratives.

Jack understood how to use his strengths in reading to support him in various subjects in high school. As a result of strategies that have worked for Jack, he has successfully entered a college program specializing in botany, which he plans to pursue as his future career. Reading has opened a new door for Jack to learn about this world and make sense of who he is as an individual.

Jack's mom, Julie, has undoubtedly been the biggest supporter for Jack during his school years. Though struggling with reading herself and having struggled to set up a reading routine for her son at home, Julie learned to navigate the school system and local community and utilized different resources to support her son. Upon reflection, Julie was disappointed that Jack's teachers did not seem to truly understand Autism and how to support Jack. The advice she gave to young parents of children with ASD was to teach and read with their children as much as possible at home.

Case 2: Eddie

Eddie is a 20-year-old male student in college in Ontario, Canada. He was born and raised in a middle-class family in a mid-sized city in eastern Ontario. He has lived with his mother, Mary, since he was born. Eddie graduated from a local high school and is currently enrolled in a college program. His first language is English. He does not speak a second language, although he has picked up some French words from his bilingual grandmother.

Eddie's mother, Mary, recalled that he had "a little bit [of] speech delay" in his early years compared to his peers. In fact, Mary "noticed delays in all areas for him [Eddie]" besides language delay, including his gross motor skills and his reading skills. Eddie and Mary "participated in a program called the Early Years when he was 18 months old" in a local hospital to "help him with his speech".

Eddie was diagnosed with ASD when he was 4 years old. Eddie does not have ADHD or other comorbidities. Furthermore, no behaviour problems were mentioned during the interviews. Eddie was somewhat timid when we first met. However, as the conversation progressed, he became more comfortable and appeared to be social and interactive during the interview. Eddie spoke slowly and projected a sense of calmness.

From the very beginning, Eddie was read to by his mother. Mary tried her best to create a rich literacy environment at home by having “a collection of children’s books” and “reading before bedtime and throughout the day.” Eddie’s decoding ability was behind his peers during his early years and in elementary school; however, he was able to catch up in later grades. After Eddie entered Grade 4, reading comprehension became more challenging for him, as “he was expected to understand and talk about the meaning of the things he was reading in his classroom.” At one point in middle school, Eddie wanted to “quit reading as it was getting more difficult.” But his mother “kept pushing and encouraging him.” Mary also modified his reading material to help him get through this difficult time. Eddie learned to pause and check if he actually understood what he was reading. He learned to “reread” and “ask questions” to help him understand the text. He also found it useful to “watch a movie and then read a story book” based on the movie so that he could better understand the narrative.

During the interview, Mary pointed out several times that Eddie is “a good reader.” He reads newspapers and magazines delivered to his home. He reads online – a variety of websites and social media outlets. He reads to learn about different things. Besides reading, Eddie also enjoys writing short stories.

Emergent Themes for Eddie in Case 2

Table 4.2 includes themes that emerged in Eddie’s case under three categories, namely strengths and challenges, strategies, and supports. Each theme is further described in detail in this section.

Table 4.2

Emergent Themes for Eddie in Case 2

Category	Theme
Strengths and challenges	<ul style="list-style-type: none"> • A love for reading • Catching up with decoding • “Words don’t hold together”
Strategies	<ul style="list-style-type: none"> • Improving vocabulary knowledge • Using mental images • Rereading • Shared reading • Peer assisted reading • Interest and motivation
Supports	<ul style="list-style-type: none"> • Literacy rich environment at home • Supportive teachers • Community resources

Strengths and Challenges in Reading

A love for reading. In my interviews with Eddie and his mother, a love for reading emerged as a salient theme, which reflects one of Eddie’s strengths in reading. Eddie enjoys reading and finds great satisfaction in reading. His love for reading has provided him with a useful way to learn about the world through texts.

Mary pointed out the biggest strength in Eddie’s reading is that “he loves reading” and “he reads every day.” Eddie reads newspapers and magazines every day. He has his favorite section in the newspaper. He likes to “read story books from movies,” which he found easier to understand. Eddie excelled in his English class in high school. Mary commented, “He gets really good marks in English... his favorite subject is English... he reads for information and for

enjoyment.” Besides reading books, Eddie is also interested in reading street signs. When he travels downtown, Eddie reads different signs and information on the buildings to learn about the city.

Because of his love for reading, Eddie finds it easy to concentrate on reading without being distracted for a period of time. As Eddie stated, he was able to “sit and read for 30 minutes and continue to read after taking a five-minute break”.

Not only does Eddie love reading, but he also enjoys talking with others about what he has read. He always shares with his mother and other family members something interesting from his reading. It is evident that Eddie’s genuine love for reading, an intrinsic motivation, is one of his strengths in reading, which leads him to read on a daily basis.

Catching up with decoding. Eddie’s decoding skills were delayed when he started to learn how to read. It took him a few years to finally catch up with decoding. Mary speculated the reason for his difficulty with decoding was partially due to his speech delay in his early years. Mary recalled that “Eddie’s pronunciation was off... he tried very hard to pronounce the word, but it was very hard for him because of his speech delay.” After “a lot of practice in his school and at home and also speech therapy,” Eddie started to “catch up with his decoding in middle school.” He became “good at decoding in his high school,” where he found “his favorite subject was English.” However, Mary also added that Eddie’s decoding “is still not at grade level” compared to his peers of the same age.

Taken together, learning to decode was not an easy task for Eddie but he was able to achieve a reasonable level of decoding skills in later grades that enabled him to read and find joy in reading.

“Words don’t hold together.” Being able to decode the words is one thing but making sense of the meaning is another. One of Eddie’s challenges with reading lies in his comprehension, which is a common challenge for individuals with ASD. In his own words, Eddie described that he “could read the words sometimes but it is like words don’t hold together ... it did happen a lot.”

Mary discussed her concern about Eddie’s reading comprehension. She mentioned, “A lot of it [reading difficulty] was about reading comprehension... it was not about pronouncing the words... it was like he had trouble absorbing what he was reading... he just needed more time to retain the information he was reading.” Mary commented that Eddie has a problem extracting meaning, integrating information, and summarizing the main idea.

As Eddie grew older and moved to higher grade levels in his school where reading comprehension became more important in classroom instruction, “it [reading comprehension] did get worse actually, and, as things got harder, he couldn’t keep up as much.” Therefore, school teachers modified Eddie’s curriculum according to his IEP to accommodate his needs in reading comprehension.

Eddie still struggles with his comprehension, which seems to remain a constant challenge for him despite his improvement in this area. Mary pointed out Eddie’s comprehension challenge “is still kind of on-going till today.”

To summarize, though delayed in his early grades, Eddie’s decoding skills have developed to a level that allows him to read. Eddie has a strong interest in reading and has formed a good habit of reading on a regular basis. However, his constant challenge has been in the area of reading comprehension. Eddie’s reading profile is similar to those characterized as good decoder but poor comprehender in previous studies (Calhoun, 2001; Frith, 2003; Nation et

al., 2006; O’Conner & Klein, 2004). These studies reported that students with ASD have relative strengths in decoding but experience difficulty with reading comprehension.

Strategies

In Eddie’s case, the following themes emerged as strategies to support his reading development: (1) Improving vocabulary knowledge, (2) Using mental images, (3) Rereading, (4) Shared reading, (5) Peer assisted reading, and (6) Interest and motivation.

Improving vocabulary knowledge. Limited vocabulary knowledge can be a hurdle to achieving a high level of reading comprehension. Eddie realized the importance of vocabulary to his reading. Therefore, learning new words and improving vocabulary knowledge has been a strategy used by Eddie to support his reading development.

Eddie has put effort into learning new words. One of his strategies for tackling new words while reading is to “use Google on his phone to search the definitions.” In this way, his vocabulary keeps growing as he reads every day. He added that he also asks his teachers and his mother to help explain the meaning of the words as another way of learning new words. Eddie pointed out that “learning the meanings of different words” has helped him to understand what he reads.

Besides using Google and asking teachers and his parent, Eddie did not mention other strategies that have been used to tackle new words, such as guessing the meaning of the word in the discourse context. It seems that Eddie lacked this type of strategy. This may be due to his relatively weak ability integrating information, which is a common characteristic among individuals with ASD (Randi, Newman, & Grigorenko, 2010).

Using mental images. Visual support can be an effective strategy for individuals with ASD when it comes to supporting their reading comprehension. Eddie discussed how he uses mental images to help him understand his reading materials.

Eddie's favorite story books are those "made from movies." He likes to "watch the movie first" so that he can "use images from the movie" to help him understand the book. "When I read the book, I can imagine the movie, too." Sometimes he noticed "there were differences between the movie and the book." Eddie fell in love with his English class, mostly because his English teacher knew how to use the same strategy to support him. Eddie said that his English teacher always spoiled him and let him watch many shows in English and then read about the shows.

Eddie's mother has also used the same strategy. Mary shared how she used "a lot of pictures or images" to help Eddie understand the story he was reading. They "watched Sesame Street and other education shows" before they "read books about them."

This practice from the beginning of his reading journey has helped Eddie learn how to use mental images to "make a movie in his head" while reading a story book. Both Eddie and Mary commented positively on this strategy. Eddie further pointed out that it has "made it [reading] fun because you can imagine however the way you want it when you are reading."

Rereading. Another strategy that Eddie has used to help with his reading comprehension is rereading. When Eddie realizes he is not comprehending or when he "gets lost," he would "just go back to read it again and read it slowly." For example, when Eddie "might just read two pages" and realized that he was "not understanding," he would then "pause and go back to the beginning". Mary applauded Eddie for "being such a good reader," as "he knows how to go back and reread when he gets lost or distracted."

The “rereading” strategy reveals the fact that Eddie is able to monitor his reading process, which is in relation to his executive functioning. This strategy allows Eddie to engage in a metacognitive process, during which he can check his comprehension while reading and use “rereading” as a remedial method when he fails to comprehend.

Shared reading. In my interview with Mary, shared reading emerged as a salient theme in Eddie’s case. Shared reading is defined as the act of reading a book together between an adult and a child, which incorporates joint attention, scaffolding, and interactive dialogues (Mucchetti, 2013; Tipton, Blacher, & Eisenhower, 2017). Mary values the importance of this strategy and she has been using it since Eddie was young.

From an early age, Mary purposefully tried to engage Eddie in “a lot of conversations” before, during, and after reading, “because he wanted to interact and talk about what’s going on and ask questions.” She shared a highlighted memory of using this strategy:

I remember one of his favorite books was *Franklin and Thunderstorm*. So, there was a storm outside, and he got his book and he read it when there was a storm going on. He liked to relate his books to real life. So we read a book and we talked about it. I always made it important that we talked about the book and just kind of had him involved in that.

Mary liked to “talk about the pictures or images” with Eddie before they read the words on each page. In this way, she could “help him feel more related to the story and link the story to real life.” When Eddie brought home “story books from school,” “some of these books had questions included in them” to “help the reader check if they understand the story,” so Mary would make sure they “discussed each question after reading” to “help him with his reading comprehension.”

In sum, Mary views shared reading as an effective strategy. Eddie has also enjoyed reading with his mother from his early years.

Peer assisted reading. Strategies involving typically developing peers to support children with ASD in reading development have been proven to be effective (Kamps, et al., 1995; Whalon & Hanline, 2008). Eddie was provided the opportunity to read with his peers in his school. Mary commented positively on this strategy.

Mary recalled that Eddie had “reading buddies” when he was in elementary school. These reading buddies were older children from higher grades in his school. They would “come sometimes to read with Eddie in the classroom and talk about the books they read together.” When Eddie entered middle school, he also had his “reading buddies.” Mary found this reading buddy program was “very helpful to encourage Eddie and engage him in reading.”

However, besides mentioning reading together with a buddy, Mary did not mention any specific strategies or procedures that were adopted in Eddie’s peer assisted reading.

Interest and motivation. During the interviews with Eddie and Mary, they both considered “interest and motivation” as important factors in supporting Eddie’s reading development. Eddie discussed how he reads books made from his favorite movies. He has “a collection of movies” at home and he has watched them repeatedly. After watching these movies, he went to search story books written based on these movies and read them. His favourite genre of movies is “adventures.” He shared one of these books he had read.

It is a movie but also a book. It is called *Skull Island*. It is about an island. They go to an island. The island has a storm on the island. A thunder storm on the island. They go on the island and they discover the creatures, bigger than what we see. Like a monkey, a 100-foot tall monkey. These creatures are dangerous.

Besides adventure stories, he “reads newspapers and magazines delivered to his home” on a daily basis. When reading his newspapers, he would “select certain pages to read” based on his interest. He follows the news on current issues, such as a new bridge project in town. He also likes to “read the road signs in downtown which tell they are going to build some buildings in that lane.” In addition, he discussed how he often searches information on the internet to learn different things. For example, he “reads on social media like Facebook to learn about what’s going on with family and friends.”

Mary has put a lot of effort into motivating Eddie to read. She said, “Just keep pushing and keep encouraging.” Occasionally, she would ask Eddie to “read the instruction on a spaghetti box” for her so that they can learn how to cook a meal with a new recipe. Mary “has trouble seeing without reading glasses,” so she would ask Eddie to read for her, and “Eddie was very happy to help.” To better motivate Eddie, Mary makes sure “Eddie could only get out to play as a reward when he finishes his reading”.

In Eddie’s case, “interest and motivation” play an important role in supporting his reading development. His mother knows how to motivate Eddie and keep him engaged in reading based on his interest.

To summarize, the above themes emerged to reveal some major strategies that Eddie and his mother have used to support his reading development. Eddie is aware of the importance of vocabulary knowledge to his reading comprehension; therefore, he has worked hard on learning new words. He has learned to visualize the story by using mental images so that he can understand the story better. His mother emphasized the importance of shared reading at home. She also discussed how to motivate Eddie to read based on his interests.

Supports

Literacy rich environment at home. As discussed above, the home literacy environment plays a critical role in children's literacy development. Adults' reading attitude and habits can affect the quality of home literacy environments. In Eddie's case, his mother "loves reading" and she "reads all the time." Eddie's grandmother also loves reading. One of Eddie's cousins "is a writer" and she has inspired Eddie to "keep reading" and "write short stories". Apparently, Eddie has been surrounded by several good readers in his family.

As for early reading, Mary firmly believes that "early reading is very important, for any kid;" therefore, she "was big on reading with him [Eddie] right from the get-go." She started to read to Eddie when he was a baby. She had games with the alphabet and numbers. So Eddie learned to read all of the alphabet before Kindergarten.

Establishing a reading routine is essential to a rich literacy environment at home. Besides "bedtime story," which was "definitely a reading time," Mary and Eddie "read sporadically throughout the day too." "We read books and talked about them because he wanted to interact and talk." Eddie also recalled that "it was a fun experience" to read with his mother at home. He would "ask questions if there was a word I [Eddie] did not know."

In their home, Mary bought "a lot of books for herself and for the kids [Eddie and his sister]" and they "went to the library too to get books out." Eddie said he "still kept a collection of books downstairs." Eddie also "brought books home from school," which he "had to read out" to his mother. Mary "asked questions" to help Eddie understand more by using "the questions included in these story books from school." Mary also used "take-turns" to engage Eddie in reading. She "used to do that a lot with him." Mary "read that paragraph" and Eddie "read this paragraph." They "talked about what they read" after reading.

It is obvious that Eddie's home literacy environment is positive. Eddie has been influenced by readers in his family. Mary is proud and happy that Eddie has become "a good reader" and that he "reads everyday to learn different things." Eddie is the only one among four young adults in this study who expressed an interest in writing. His home literacy environment may have contributed to his love for both reading and writing.

Supportive teachers. During the interviews, Eddie and his mother both viewed his school experience as positive. They expressed their appreciation to Eddie's teachers who were described as being "helpful and supportive."

Eddie enjoyed school and he used to "bring books home from school to read out to us." His elementary school and middle school paired him with reading buddies to read with him to help him improve his reading. He had an IEP and "went to the special education class sometimes" but mostly he stayed in his general education classroom. Mary commented on his elementary school experience:

His curriculum was modified because he always had an IEP. So he certainly did what he could. He always worked hard and tried. He just needed more time to retain the information he was reading. There was a class he would go to, for kids with special needs. And they gave him extra help there. I think that's where they gave you books to bring home to read. He had to read it out to us. He would go to that special classroom throughout the day for extra help and stuff. I mean they were good but just had limited resources

In high school, Eddie's decoding improved while his reading comprehension was still behind his peers. Despite his challenge with reading comprehension, Eddie's favorite subject was English, mostly due to the fact that his English teacher was "very supportive." This teacher

let Eddie watch many shows based on Eddie's interest and encouraged Eddie to read books related to these shows. Whenever Eddie had questions or needed help, "he knew which teacher to go to for help." Overall, Mary and Eddie were "happy about the support" they received from the school and gave credit to those supportive teachers in his school.

Community resources. Besides receiving supports from school, Mary tried her best to explore resources from their community to support Eddie's language and reading development. She put him in "the Early Years program" when "he was 18 months" to help him with his speech development and other areas, such as his fine motor skills. Eddie also joined a summer reading camp called "Read A Lot," organized by reading researchers from a local university. Their local library and book stores were also a significant aspect of their life, as they often borrowed books and purchased books to read at home.

To summarize, Eddie has received many supports at home, at his school, and in his community. A rich literacy environment at home has provided Eddie with multiple opportunities to engage in reading and conversations on a daily basis. His school experience turned out to be a positive one, as he received an IEP and his teachers and peers were helpful. Reading programs and resources in his community were also helpful to Eddie's reading development.

Case Summary

Eddie has come a long way to become "a good reader." He "loves reading" and he "reads every day." Despite his early speech delay and his struggle with decoding, Eddie quickly caught up with decoding and became a proficient decoder. His favorite subject in school was English. Eddie grew up in a rich literacy environment at home. His mother, grandmother, and cousin all love reading and read every day themselves. Eddie was read to at a very young age. His mother always made sure he was engaged in conversations during story time. Eddie was fortunate to

have supportive teachers in his school who knew how to support and encourage him. Eddie's love of reading has rendered him the opportunity to study at college, where he continues to read, learn, and grow.

Case 3: Peter

Peter is a 21-year-old male and a recent graduate from a college in Ontario, Canada. Peter is currently employed full time. Peter was born in Ontario, Canada, and adopted by a couple when he was 5 years old. Soon after he was adopted, he was diagnosed with ASD. Peter also has ADHD. Peter's first language is English. He does not speak a second language. Peter grew up with his adoptive parents who were school teachers. Peter moved to live with his current guardian, Britney, who is a school teacher when he turned 18 and entered his college program. Peter's adoptive parents are Britney's aunt and uncle. Therefore, Britney has witnessed Peter's development since he was adopted.

During the interview, Britney recalled that "it was hard with his [Peter's] early years" when he first came to live with his adoptive parents.

When Peter first came to my aunt and uncle, he was very delayed. In a sense, he was very lazy and did not have a lot of learning. He was left alone to play by himself. He was not challenged a lot. He was not talking a lot either. So he led a very solitary life.... He was very slow to pick up on things. He was very delayed in his language.... There was a bit of defiance in him, just there was still some learned behaviour from before and there was no expectation on him to do anything.

Despite his delay in language and other areas, Peter "was able to develop fairly quickly after he was adopted... once he was engaged in some activities that challenged him, he became very engaged." Peter gradually picked up more language when "people were talking to him."

Raised in an educators' family, Peter was surrounded by books in the house, and he read books with his parents on a daily basis. He "learned how to decode quickly." However, Peter "struggled with reading comprehension" as he moved to "higher grades in elementary school." Even though he has been struggling with reading comprehension over the past years, Peter "has made some good progress along the way." He successfully entered a college program and graduated last year.

Today, Peter "reads every day to learn different things." He reads newspapers and magazines. He also reads on the internet and social media. He lives with his guardian, but he has a full-time job to support himself.

Emergent Themes for Peter in Case 3

Table 4.3 summaries themes that emerged in Peter's case under three categories, namely strengths and challenges, strategies, and supports. Each theme is explored in detail in this section.

Table 4.3

Emergent Themes for Peter in Case 3

Category	Theme
Strengths and challenges	<ul style="list-style-type: none"> • Quick grasp of decoding • Good comprehension of non-fiction texts • "Struggling with processing and organizing" • Difficulty in summarizing and understanding the main message
Strategies	<ul style="list-style-type: none"> • Using mental images • Rereading • Shared reading • Adapted reading • Peer assisted reading • Limiting distractions • Interest and motivation

Supports	<ul style="list-style-type: none"> • Literacy rich environment at home • Strong school supports • Kumon reading program
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Strengths and Challenges in Reading

Quick grasp of decoding. Learning to decode was an effortless, natural process for Peter, despite his early language delay. His decoding developmental trajectory aligns with the findings of previous studies, which show that students with ASD can learn how to effectively decode at a normal rate (Brown, Oram-Cardy & Johnson, 2013; Calhoon, 2001; Frith, 2003; Hundert & van Delft, 2009; Nation et al., 2006; O’Conner & Klein, 2004).

Peter recalled that “it [decoding] was a little bit hard” at the beginning when he “learned how to pronounce the words.” But, as he “got better at it, it was easier.” Britney commented positively on Peter’s quick grasp of decoding. “He pretty much learned how to decode quickly... he developed fairly quickly... he was progressing at the normal rate.”

In a word, Peter was able to develop his decoding skills at the same rate as most of his typically developing peers. Being able to decode allowed him to engage in reading at home and school beginning in his early years.

Good comprehension of non-fiction texts. During the interviews with Peter and Britney, they both pointed out that one of Peter’s strengths in reading is his good comprehension of non-fiction texts. Britney commented that Peter “is more up to read non-fiction than fiction,” and he “is good at learning about facts.” She further described this by using the following example:

Peter is good at reading for information, the facts of something, something already happened... he is a big hockey fan.... he reads every fact about hockey... he will tell you

anything about hockey... facts about hockey history. Peter has developed a pretty good vocabulary through reading over the past years.

It is clear that Peter is able to learn and memorize all the facts from his reading, but it is unknown whether he is able to achieve a high level of comprehension, such as integrating information and making comparisons. The following theme speaks directly to this concern.

“Struggling with processing and organizing.” Despite his normal rate of decoding development, Peter’s reading comprehension was lagging behind compared to his typically developing peers. Peter’s reading profile – a good decoder but a poor comprehender – is consistent with previous studies (e.g., Nation et al., 2006).

Britney pointed out that “Peter’s biggest struggle with reading is his comprehension.” She stated that Peter’s “problem with comprehension” is largely due to the fact that “he struggles with processing and organization.” Britney shared the following details:

He struggles with organizing his thoughts and being able to sequence things in time. So he struggles with that. That sort of processing speed. He can read the words. But it is just being unable to comprehend what the full sentence means.

Because of his challenge in processing and organizing information, not only does he find it difficult to achieve a high level of comprehension, but he also finds it challenging to write.

Britney further explained:

It is hard for him to write down his thoughts on paper. He could more so talk to you about what he has read than to actually write down. His thoughts would get lost by the time he was writing them out. So he really struggles with that.

Peter’s challenge with processing and organizing information may be related to his poor executive functioning, which has been found to be quite common among individuals with ASD

(Perfetti, Landi, & Oakhill, 2005). Weakness in this area can be a hurdle to achieving a high level in reading comprehension.

Difficulty in summarizing and understanding the main message. Research shows that children with ASD tend to be detail-oriented thinkers and demonstrate weak central coherence (WCC); therefore, they often find it difficult to understand the text at a global level or bring details to a central concept (Booth & Happé, 2011; Frith, 2012; Randi, Newman, & Grigorenko, 2010; Williamson, Carnahan, & Jacobs, 2012). Peter has the same type of challenge with reading – difficulty summarizing information.

Peter mentioned that “it would take a while to summarize” after he read something. Britney added, “Reading was getting harder as Peter got older and moved to higher grades. The comprehension was getting harder and the stories were becoming more intricate and the expectation from the teacher was getting higher.” Britney further described Peter’s challenge with summarizing:

For him [Peter] to read a paragraph and summarize it, he could summarize it into a couple of words in a sentence. But to go beyond that, it would be difficult for him.... He would focus on just one thing in a paragraph but would not necessarily link that to anything else in the paragraph. So, if you were to say, “Read this paragraph and tell me what the main message is,” he would probably pick out something there that has interested him, that you knew he took away from the story, but it is not necessarily the main message.

Peter has a preference for watching movies over reading books. “He does not get the same pleasure from reading as he does from watching a movie.” But his comprehension of movies is also limited. “He would be distracted by one person, or one role, not necessarily get the main message.” “If there is a deeper message, no, he would not get the deeper message.”

To summarize, although Peter developed his decoding in early grades, he fell behind with his comprehension. His major challenges with reading comprehension include: (1) processing and organizing information, and (2) summarizing and understanding the main message. Even though Britney mentioned that Peter's comprehension of non-fiction texts is good, it needs to be further examined to determine whether he can achieve a higher level of reading comprehension beyond memorizing "all the facts."

Strategies

In Peter's case, the following themes emerged as his strategies to support his reading development: (1) Using mental images, (2) Rereading, (3) Shared reading, (4) Adapted reading, (5) Peer support, (6) Limiting distractions, and (7) Interest and motivation.

Using mental images. Peter is a visual learner. He has found it easier to understand if the text is provided with visual support, such as graphic novels and comics. Peter "loves watching movies" and "he has a huge movie collection." He enjoys reading books based on movies. He often watches a movie first before he reads the book. Peter talked about one of these movie books he has been reading:

I am actually reading a book called *Back to the Future*. It was written based on three movies. I have seen all three movies. Then I saw the book and I bought it. It helps me understand the book better after watching the movies.

Reading books made from movies has given Peter a way to use his imagination to create mental images that can facilitate understanding of text. Interestingly, Peter is able to transfer this ability to reading other books not written based on movies. Peter said, "When I read a novel, I make a movie in my mind to imagine what's going on. I just try to imagine in my mind."

Peter's ability to use imagination to create mental images for stories may be in relation to the fact he has read many children's books with illustrations. When Peter was young, his adoptive parents read to him using "books with few words but with very vibrant pictures." It is apparent that visual support has turned out to be an effective strategy for Peter.

Rereading. When asked what he would do if he did not understand what he was reading, Peter repeatedly mentioned that he would just "reread". "Rereading" is the strategy that Peter "likes to use quite often." He shared, "When I feel like I get lost, I will go back to look at what I have already read."

Apparently, Peter is able to monitor his reading and check if he understands the information. It seems that Peter's executive functioning allows him to monitor his reading process, although, as discussed above, he is unable to perform at a high level of information processing and integrating. In fact, Peter has been trained how to monitor his reading. Britney mentioned that she taught Peter to "learn how to pause and check if he understands what he is reading; if not, he should reread and try to understand before he moves on to the next page."

Shared reading. Shared reading emerged as a salient theme when discussing coping strategies with Peter and Britney. Peter's adoptive parents understood the importance of shared reading between parents and a child. Britney discussed this in detail:

Ever since Peter moved to live with my aunt and uncle, he was engaged in reading and conversation. We were challenging him to ask questions about the story and pictures. We got him to look at the pictures and tell us what colour he saw. Or, what is so and so doing? Who is so and so's friend?

As mentioned above, one of Peter's challenges in reading comprehension is to summarize. His parents purposefully tried to help him practice this skill. Britney said, "My aunt

was very adamant that he read for a certain amount of time every day. They would engage him in certain sorts of novels. He had to read. Then he had to tell us what happened, like retell the story.” To this day, Britney still helps Peter learn how to summarize and retell. “At home, I always ask him what he has read and encourage him to share with us.”

Adapted reading. Downing (2005) suggests reading materials should be adapted in order to improve the understanding of the information for students with disabilities. Given his challenge with information processing, Peter found it difficult to read a lengthy text. Britney found that “it was quite intimidating for Peter to comprehend a long story or book.” Therefore, he would “chunk it a bit more to give him in sections.” She further explained why she used this strategy:

That’s kind of intimidating. A whole book. Because I found if you want him to grasp the meaning of something, if you want him to understand the full passage, and then you really need to break it down to understand everything about it. Because if you read a full passage, he would only focus on one thing. One thing he takes out of the story. So, I think if they [teachers] chunked it, it would have been much better.

Peer assisted reading. As discussed in a previous case, research has shown positive results in peer assisted reading intervention for children with ASD (Kamps, et al., 1995; Whalon & Hanline, 2008). Peter was paired with a peer from a higher grade in his school. This peer read with Peter and helped him with his school work.

Peter mentioned that he had a tutor in high school. The tutor “was like another student in grade 11 or 12 who helped me [Peter] do my homework and do my reading and all that if I was not sure about something.” In terms of the activities the tutor implemented with him, Peter said,

“Cue cards. Write the word and then the definition of the word on the back of the card. We played the cue cards to help me understand the meaning of the word.”

Though a peer was involved to support Peter in his school, it is not clear if or how this peer was trained and prepared to do the job. Nevertheless, Peter enjoyed his experience with this peer and considered his peer support as “helpful.”

Limiting distractions. ASD can be complicated by comorbid disorders in many individuals (White, Ollendick, Scahill, Oswald & Albano, 2009). In Peter’s case, he has ADHD as well as Autism and sensory issues. His attention span is quite short and he can be easily distracted. These issues affect his reading to some extent. Britney talked about how Peter can be distracted by noise and movement in his classroom.

Therefore, as Britney suggested, limiting distractions is “one of the ways to help him read better.” When Peter needs to read, “he has to read at the kitchen table, as he cannot do it in his room because there are way too many distractions.” Peter often finds it challenging to concentrate and stay on task. He has tried his best to limit distractions to help himself focus on reading. This prevention strategy has been proven to be useful for Peter.

Interest and motivation. This theme emerged as a salient one during the interviews with Peter and Britney. Although, as discussed above, Peter can be easily distracted, Peter “is very engaged and motivated” when it comes to “reading something that he is interested in.” Apparently, interest plays a critical role in motivating Peter to engage in reading.

He “is not quite into reading stories” compared to reading non-fiction texts, but “he reads stories about animals, like dragons.” He also “enjoys reading story books from movies.” In addition, “Comics and graphic novels with pictures” interest him a lot. He found these kinds of books “very interesting and easy to follow.”

Peter prefers to read something about “facts and history.” “He spent a lot of time in the library in his high school reading newspapers and magazines about different news, especially about hockey.” He “reads everything about hockey” and he “tells you everything about it.” Peter “is also interested in biographies about some famous people.” He mentioned that he “recently read a biography book about Alan Doyle and his music.”

Individuals with ASD tend to have restricted interests (APA, 2013); however, their interests can be used to motivate them to read. In this way, this seeming disadvantage can become a potential advantage.

To summarize, the above-mentioned strategies were reported as useful during the interviews with Peter and Britney. Peter discussed how he uses mental images to help him understand a story. He also talked about how to reread for understanding when he failed to comprehend. Britney emphasized the importance of adapting the reading workload for Peter by chunking his reading materials. She also discussed how to limit distractions and how to motivate Peter to read based on interest.

Supports

Literacy rich environment at home. As discussed in previous cases, home literacy environments are important to children’s literacy development. This is also true with Peter’s case.

Peter’s language was delayed and he had no experience with reading in his early years. However, since Peter’s adoption at the age of 5, he has been well supported by his adoptive parents who were school teachers. Peter grew up in a literacy rich environment at home. Reading was a daily routine for him, including his bedtime story. Britney described his bedtime activity as following.

He enjoyed bedtime stories, which wasn't part of his life before. So he really did enjoy bedtime stories. He would read and do his bedtime prayers at night. All that took about half an hour. It was always [an] adult reading to him. We read books with few words but with very vibrant pictures. My aunt was a teacher and was very adamant that he read for a certain amount of time every day. I think initially he had to read like two pages and it increased. And then he had to tell us what happened.

Peter's adoptive parents worked with him at home on a regular basis. They "got a lot of books for him at home," and "read together throughout the day and engaged him in conversations."

Today, Britney continues to support Peter with his reading. She uses "cue cards to work with him and play a fun game named "Jeopardy" to help him learn the definitions of unfamiliar words." Peter recalled reading with adults was "a fun experience" and he has "learned a lot from reading with them" at home.

In Peter's case, a rich home literacy environment and supports from adults at home contributed to Peter's reading development. Without supports from home, Peter's reading achievements would have been limited.

Strong school supports. Peter enjoyed his school years and considers his school experience a positive one. Britney mentioned that Peter "improved his reading a lot when he was in middle school and high school." His adoptive mother was a teacher in his high school. So she made sure that he received supports and help. Peter "spent a lot of time in the library reading newspapers and magazines delivered to his school." In addition, he received assistive technology supports in his school. Britney said that Peter "had assistive technology for scribing because his typing was slower than most of us."

Peter also received supports from his teachers and peers. He “had an EA [Educational Assistant] and peer tutor through middle school and high school, who were there to support him.” He “spent a lot of time with adults than with peers in school,” as he found social situations with peers “very awkward and challenging.” He “developed a very good relationship with his history teacher,” who “would have lunch with Peter almost every day.”

In general, Peter found his school experience to “be a good one,” as he “got lots of supports from different people.” These supports all contributed to Peter’s academic development in school, including his reading.

Kumon reading program. When asked about resources that were accessed from their community, Peter and Britney both talked about “Kumon reading program” and viewed this program as a big contributor to Peter’s reading development, especially his reading comprehension.

Peter “started his reading program at Kumon from Grade 4 when reading comprehension became more challenging.” Britney explained how Kumon helped Peter with his reading:

Kumon forced him to look at a sentence or look at a passage and say what it means in his own words. And then he had to tell us what it means in his own words. Peter did the Kumon program all the way through high school and stopped after he entered college.

Kumon was very good for him.

Peter was enrolled in the Kumon reading program for nine years. This program has taught Peter some important skills in reading comprehension, including paraphrasing, retelling, and summarizing.

To summarize, Peter received a great many of supports, which prepared him to become a good reader. He was raised by parents who understood the importance of parental involvement

in a child's reading development. They also knew how to find reading programs that could meet Peter's needs.

Case Summary

Peter was delayed in his speech development in his early years. He also had behaviour problems. He was diagnosed with ASD and ADHD. Peter's adoptive parents created a literacy rich environment at home and set up a reading routine for him. He read everyday before bed and throughout the day. He was taught to engage in conversations about his reading. Learning to decode was an easy process for Peter in his early school years. But summarizing continues to be a challenge for him as he struggles with processing and organizing information when he reads fiction. However, his understanding of facts, e.g., facts about hockey, is superb. His strengths in decoding and reading non-fiction texts have made him "a good reader." Without reading, he would not be able to graduate from college and get a job. He "has come a long way to be where he is today."

Case 4: Amy

Amy is a 23-year-old female and a recent graduate with distinction from a local college in Ontario, Canada. She currently pursues volunteer jobs in her community. Amy was born and raised in a mid-sized city in eastern Ontario. Her first language is English. She does not speak a second language. She was diagnosed with ASD when she was 3 years old. She attended local schools from Kindergarten through high school. After high school, she studied in a "Transition Program" which focused on language skills and college preparation before she entered her college program.

In her early years, Amy "was delayed in a lot of areas," including a "speech delay." Her father, Gary, shared the following regarding Amy's early language.

She was making sounds, but she could not do anything until she was 6 or 7, before she could actually say things we could understand. I don't think she meant what she was saying. She was able to form some words, but it was just hard for her to put things together. It took a long time.

Amy "saw a lot of specialists throughout the year." Her father considered her speech therapist as "one of the biggest influences outside the home." Gary described Amy's experience with the speech therapist in detail.

He [speech therapist] would say a certain word, and he would ask her [Amy] to repeat it and try to get her mouth issue and correct it. He would do that quite a bit. He would form sentences and try to have her repeat that. He would work on actually... I guess... it's almost like a muscle development with her mouth in order to help her pronounce things. There were a lot of things like that.... [They] played games.... There was a lot of game playing. So they got to interact quite a bit.

At home, Amy was raised in a rich literacy environment. She "was read to constantly" by her "parents and grandmother since she was little." "There were a lot of books in the house." Gary mentioned that his mother, Amy's grandmother, "was a big influence." "She [grandmother] spent a lot of time with Amy. She would carry her in her carriage or on her lap rocking her. She would read to her and sing to her constantly." Gary believes "all of that [Speech therapy and family supports] helped with her language development" during her early years.

It took Amy "quite a few years" to learn how to decode. "Learning to read or decode was always difficult," Gary recalled. "It was in high school when she was really getting good with her language skills in decoding." Though learning to decode was difficult, "learning to

comprehend turned out to be more challenging.” Gary mentioned, “There has been a lot of stories she struggles and tries to understand what that is. What’s going on? If even we tell her repeatedly, it is still a struggle.”

Despite all of the challenges, Amy managed to learn and grow academically with the supports from others. She successfully entered college and graduated with distinction. Reading “allows her to be more independent.” Now, “she reads everyday” and reading “helps her learn different information and connect with others.” She reads and writes “on Facebook to communicate with family and friends.” She is “the queen of texting” on her mobile phone and “she loves to text.” Amy is an active member in her community. She participates in several volunteer jobs. One of her jobs is “to help two kids in the primary classroom with their reading three times a week.”

Clearly, Amy has made many achievements in which she and her parents can take pride. Reading opens a new platform for her to explore this world. Though it has not been an easy process to learn how to read, Amy has managed to overcome the difficulties and continues to grow as an independent, productive individual in her community.

Emergent Themes for Amy in Case 4

Table 4.4 shows themes emerged in Amy’s case under three categories, namely strengths and challenges, strategies, and supports. Each theme is explored in detail in this section.

Table 4.4

Emergent Themes for Peter in Case 4

Category	Theme
Strengths and challenges	<ul style="list-style-type: none"> • A love for reading • Good comprehension of non-fiction texts • Slow development in decoding • Poor vocabulary knowledge

	<ul style="list-style-type: none"> • Difficulty in understanding fiction texts
Strategies	<ul style="list-style-type: none"> • Rereading • Real life experience • Shared reading • Adapted reading • Interest and motivation
Supports	<ul style="list-style-type: none"> • Literacy rich environment at home • Supportive teachers • Community resources

Strengths and Challenges in Reading

A love for reading. One of the strengths of Amy’s reading is her genuine love for reading. Although she struggled with reading and did not enjoy it during her early grades, Amy “started to like reading when she was 12.” Ever since then, she has gradually developed her interest in reading and formed a good reading habit. Her father commented, “she reads every day and she reads so many things.” Amy also mentioned that she reads “chapter books” for fun and she “finishes reading one chapter before bedtime every night.”

Reading has become a natural part of Amy’s life. She has found joy in reading. Her love for reading is undoubtedly a precious asset to her reading development.

Good comprehension of non-fiction texts. Another strength is Amy’s ability to comprehend non-fiction texts relatively better than fiction texts. Though struggling to understand “fiction stories,” Amy “is actually good at reading information about news or facts or instructions – non-fiction stuff.” She reads on the internet “for endless hours” searching information on a variety of topics, including “weather,” “animals,” “houses,” and “cancer.” Gary praised Amy for her help in finding a new home for her parents to purchase after “reviewing more than 100 houses on line.” In addition, Amy enjoys reading instructions for various games and taught her parents how to play.

It is evident that Amy prefers to read non-fiction texts to learn about facts and gain information. This provides her with critical skills in gaining information and knowledge.

Slow development in decoding. As described in the above cases, previous studies show that most children with ASD can learn to decode at a normal rate (Brown, Oram-Cardy & Johnson, 2013; Calhoon, 2001; Frith, 2003; Hundert & van Delft, 2009; Nation et al., 2006; O’Conner & Klein, 2004). However, Amy is a different case. It took her years to learn how to decode. Her father recalled, “It has been difficult for her [Amy] to learn how to pronounce the words.” He added that Amy’s decoding delay was “partially due to her delay in early language development.” Fortunately, Amy has received “a lot of supports at home and from her speech therapist.” It was a long, challenging journey for her to build decoding skills. Gary explained how they practiced “sounding out the words” at home:

We were trying to work through different words. So we would break it [word] down and see how it sounds in the beginning, in the middle and the ending part. If she gets it wrong, we would stop her and try to get her to pronounce it again and to get through it. So her spelling is coming along.

Gary also mentioned that Amy’s speech therapist “taught her a lot about pronunciation and also about volume.” Amy’s intonation and volume were not correct when she read some words or sentences during her years in elementary school. Gary remembered that Amy sometimes did not know how to project her voice volume correctly and she was required to practice many times till “she can say it correctly.”

After years of practice and great effort, Amy became “really good at decoding” during her later years in high school. Amy said, “I am fine with pronouncing the words, but I am still struggling a little with some difficult words that I have never seen before.” Today, Amy is very

confident with her decoding skills. She even teaches two young children how to read at one of her volunteer jobs.

Poor vocabulary knowledge. Vocabulary knowledge has been reported as one of the predictors of reading comprehension by previous studies (Cain & Oakhill, 2014; Ouellette, 2006; Spencer, Quinn, & Wagner, 2017). As she got older and moved to higher grades in school, Amy found that “it [reading comprehension] has become a little bit more challenging every year.” She explained that this challenge was related to her limited vocabulary knowledge. Amy said she always struggles to understand “the full definition of certain words or terminologies.” Gary shared an example:

As far as understanding, she can read something but not necessarily understand what she was reading. For example, Amy’s soccer coach has cancer. Amy tries to read a lot of things about cancer. There was an article which says someone had chemotherapy and his cancer is melting away. So, she does not quite understand that [melting away]. She will repeat the words but not really understand what is going on.

Gary added that “her understanding of certain things is very literal.” She can grasp the most commonly used definition of a word; however, she struggles to understand a different meaning of the same word in a different context. As Gary pointed out, “It is difficult for her to understand analogy or metaphor.” It is apparent that her limited vocabulary knowledge has been a hurdle to her reading comprehension.

Difficulty in understanding fiction texts. Although her understanding with non-fiction texts is good, Amy has great difficulty in understanding fiction stories. Gary pointed out “it is one thing to just read the word in a story, but she really needed help to try to understand what meaning was of that.” Gary further explained her challenge with fiction, “There has been a lot of

stories she struggles and tries to understand what that is. What's going on? If even we tell her repeatedly, it is still a struggle." Amy shared that it is often challenging for her "to retell the story."

Many factors may have contributed to Amy's difficulty in understanding narrative texts. One of the factors may be her challenge with understanding a character's motives or identifying a character's emotions or perspectives in a story (Perfetti, Landi, & Oakhill, 2005). Wahlberg and Magliano (2004) also reported that individuals with ASD's deficiency in understanding what a writer intends to insinuate can lead to poor comprehension in narrative texts.

To summarize, although Amy faced challenges with her decoding and reading comprehension, she managed to overcome these challenges and has become an avid reader. The following section reviews some of the major coping strategies that Amy and her parents have used to support her reading development.

Strategies

In Amy's case, the following themes emerged as strategies to support her reading development: (1) Rereading, (2) Real life experience, (3) Shared reading, (4) Adapted reading, and (5) Interest and motivation.

Rereading. Rereading is the primary strategy that Amy tends to use when she fails to comprehend. When asked what she would do when she did not understand what she was reading, Amy repeatedly mentioned that she would "reread" what she did not understand. "I will read it multiple times until I understand it." It seems that Amy "was able to realize she was not comprehending or got lost sometimes" during reading. In such a situation, she "would pause and go back to reread" to help her understand the meaning of the text.

Rereading is a common strategy used by many good readers, especially in the event when readers realize the failure of their reading comprehension (Duke & Pearson, 2002). Amy's use of this strategy shows that she was able to monitor her reading process to a certain degree. However, during the interview, Amy was not able to think of any other coping strategies she would use besides "reread." When asked what she would do if she still did not understand after rereading for a few times, she answered that she would ask her parents for explanation.

Real life experience. A good reader can activate background knowledge and connect it with the text (Duke & Pearson, 2002). Amy's parents understand the importance of this connection. They have always tried to help Amy find connections between her reading and real life experiences. For example, when reading something about swimming, one of her favorite hobbies, Amy was taught to think about her own experience swimming and relate it to what she was reading. In addition, Gary gave another example to illustrate the importance of connecting reading with real life experiences:

She was reading something specifically about a poodle. And then she went down to Janice [Amy's aunt], who had these dogs. Amy would talk to her aunt about these dogs, relating the information about these dogs to the stuff she has read. Vice versa. Otherwise, she would not know anything about the dogs.

Amy's parents have engaged her in various activities for the purpose of creating real life experiences for her. These experiences can be used as background knowledge during reading.

Shared reading. During the interviews with Amy and her father, shared reading emerged as a salient theme. Amy's parents viewed shared reading as an effective strategy to engage Amy in reading and learning. Amy "was always read to" from early years by her parents and grandmother. Gary described reading with Amy as "very interactive." They always had

conversations back and forth or asked many questions during reading activities at home. Gary shared the following example of how he and his wife interacted with Amy during reading:

We would say, “Why would Peter do things like that?” So, trying to create a conversation.

We would ask her to point to the pictures, so we talked about the pictures in the book. We were talking about specific characters. We would say, “Where is that?” “Where is so and so?” “Where is Jack or whatever?” And then she would do that for us.

Gary has been aware of Amy’s challenge in retelling, so he has purposefully helped her practice her retelling by “asking her to summarize and share what she has read.” For example, Amy was asked to share the stories she read in school with her parents and grandma when she got home. When reading books together, Amy’s parents did a “turn taking” activity, in which Amy read a sentence or paragraph and her parents read another one. Gary added that “we would take turns and read a little bit and pause to ask questions.”

However, engaging children with ASD in shared reading is not an easy task. They often need to be taught how to ask questions. Amy’s parents trained her on question-asking skills. Gary commented that “she has become so good at asking questions and she asks a million questions each day.” When asked what types of questions Amy would ask, Gary answered that she would ask for the definitions of certain words and she would also ask questions about “what was going on and who was doing what and why he did that?”

Clearly, shared reading has been considered an effective strategy in Amy’s case. This strategy has been used since her early years. It is viewed as a contributor to her reading and language development.

Adapted reading. It is important to provide children with ASD with appropriate reading materials based on their needs. Amy’s reading was behind her grade level during her school

years. Therefore her parents always tried to “adjust her reading materials to her reading level, not her grade level.” Gary further explained, “She was behind 4 or 5 years. So, we selected stories at her level. Something she could understand.” But, her parents also “tried to challenge her a little bit” by giving her something a bit beyond her reading level. If they “found she was wandering off and not paying attention,” they would “back up a little bit and keep her interested.”

In addition, Gary stressed the importance of “not making reading too overwhelming.” When reading with Amy, her parents “would not do too much at one time.” Gary mentioned that Amy’s teachers at school would also chunk her reading into small pieces.

So, instead of saying, “Read 37 pages and summarize it,” they [teachers] would break it down, and they would give her a print-out and say, “Here are two paragraphs and I want you to summarize it.” I think they would give her a smaller amount to read instead of just a novel.

Adapted reading has helped to engage Amy in reading by placing her in her comfort zone. Amy’s father highly recommends this strategy to other parents.

Interest and motivation. During the interviews with Amy and Gary, they both discussed the importance of interest and motivation. Therefore, “interest and motivation” emerged as a salient theme in Amy’s case.

Gary believed that “interest plays a big role in her [Amy’s] reading.” He further explained, “If it was something else she has no interest, she would get lost and she would not want to participate.” Amy listed a variety of her interests, including: weather, game instructions, animals, houses, foreign currency exchange rate, and cancer. She reads for “endless hours”

online searching information on these topics. Gary gave the following examples to illustrate how Amy is motivated to read because of her interests.

Amy looked at more than 100 houses online and helped us find a new house. She searched information about bedroom fans and bought herself a 42-inch bedroom fan. She read on the internet to learn about lung cancer when she got to know her soccer coach had got cancer. She read the instructions of various games and taught us how to play these games. She reads a lot every day. She reads bus schedules, class schedules, and the labels of her medications.

Amy shared her joy in reading. She thinks that “reading is fun.” She added that she reads “a chapter of a book for about 20 minutes before bedtime every day.” Gary was quite pleased with Amy’s genuine interest in reading and her ability to read for information and for enjoyment.

To summarize, the strategies discussed above were claimed to be effective by Amy and her father. Amy primarily mentioned “reread” as her main strategy. Gary discussed how he and his wife used other strategies to help Amy with her reading, including creating real life experience, engaging Amy in shared reading, modifying reading materials, and motivating Amy to read based on her interests.

Supports

Literacy rich environment at home. As discussed in a previous case, the home literacy environment is essential to children’s literacy development, including children with ASD. Amy’s parents and grandmother put a great deal of effort into creating a rich literacy environment at home for her. They have been “the biggest supporters since she was very little” because they knew she required support to make progress. Gary credited Amy’s grandmother for her effort in supporting Amy’s reading, and he shared the following:

One of her biggest influences in her reading was her grandmother. It was my mother. She [Amy's grandmother] always promoted reading. She bought books all the time. She just filled her [Amy's] bedroom and house with books. She always read with her and always tries to get her to do it as well. We encouraged her and supported her all through school on reading. But my mom just seemed to stand out and wanted to encourage reading so much.

Not only was Amy being read to by her parents and grandmother on a daily basis, but they also tried “to interact with her” during reading by “asking her many questions and engaging her in conversations.” Gary emphasized that they “make sure there are lots of conversations about her reading.”

The importance of reading is highly valued by Amy's parents. Gary mentioned, “We gave her every opportunity we could to read. Every opportunity. We supported her as much as we could.” When asked what advice he would give to young parents with a child on the spectrum, Gary shared the following:

Read as much as you can to your child. It is so important. Give them as much exposure as you can. Try to access whatever supports out there. Sometimes I have found in our busy lives, we rush through things. I wish that did not happen to me. I guess sometimes you feel like it is your job and you have to do this. But take away all the business and really enjoy what you are doing. And dedicate that, whether it is 10 minutes or 20 minutes or half an hour. Read with your child.

To summarize, Amy was raised and supported in a rich literacy environment. She was engaged in reading and book-related conversations on a regular basis. This environment has been essential to her reading development. This finding from Amy's case is consistent with

previous studies, which reported that literacy rich environments facilitate a child's literacy development (Justtice & Ezell, 2000; Petrill, Deater-Deckard, Schatschneider & Davis, 2005; Robert, Jurgens & Burchinal, 2005).

Supportive teachers. Gary commented positively on the support that Amy has received from her teachers in local schools. Gary mentioned that Amy was placed “in a small classroom setting with kids with special needs and when Amy sat down to do her reading, if she had any questions, she would get the support there.” Gary added that teachers “would break down” the reading materials to meet Amy's needs and reading level. School teachers asked Amy “to bring home binders and binders full of paper” so that she could share with her parents what she had read at school. Amy talked about how two teachers supported her reading in her primary school:

Ms. Parks was the music teacher. She would teach us how to make the music and sing along. She played the piano. She always sent home stuff for us to read and share with parents. Ms. Williams taught me spelling. She taught me how to spell the words and how to pronounce them. I got a lot of help from school.

Before entering her college program, Amy “went to the transition program,” where “they [school teachers] focused on language skills and college preparation.” Gary commented that Amy “was well supported and prepared by wonderful teachers” in this program. Gary added that “without the foundation that has been laid in her school, she would never be successful in college.”

Community resources. Gary has tried to “access whatever supports [are] out there” in the community to support Amy. She received “speech therapy to learn about pronunciation and volume” to help her with speech delay. In addition, her occupational therapist included reading in her therapy. Amy also participated in an after-school program, which promoted social

interaction and reading. In addition, Amy participated in a drama program in a local art school, where “she learned to read scripts and performed on a play.” Presently, Amy is a contributing member in her community. She volunteers three times a week working with “two kids in the primary classroom” and “helping them with their reading.” Amy has been supported by her community and she has also been recognized and included in her community as a productive member.

To summarize, Amy has been well supported by her family, school, and community. These supports and resources have contributed to Amy’s achievement in reading and overall success at college.

Case Summary

Learning to read has been a challenging but rewarding journey for Amy. Despite her delay in early language and her struggle with decoding, Amy managed to learn how to read. Though still having difficulty understanding narrative stories, Amy is quite good at comprehending non-fiction texts. She has been supported by her family at home and by her teachers at school. Amy loves reading, and she reads everyday. Reading has opened a door for her to enter college and graduate with distinction. Today, she has become a productive member in her community through the power of reading.

Chapter Summary

This chapter provides the description of the themes that emerged from four young adults with HFA’s experiences of reading development. Specifically, this chapter provides an in-depth understanding of the lived experiences of Jack, Eddie, Peter, and Amy. The purpose of the case-by-case analysis was to allow their individual voices and their parents’ voices to be heard. Across all four cases the young adult participants shared their joys in their reading development,

and they gave examples of the challenges they have faced and how they have managed to overcome their challenges from early childhood through adolescence. In short, interviews with these four young adults with HFA and their parents yielded complex and contextualized depictions of the journey of reading development.

CHAPTER 5: FINDINGS AND DISCUSSION OF CROSS-CASE QUALITATIVE ANALYSIS

The purpose of this research is to empower four young adults with HFA and their parents to share their stories and experiences about each young adult's reading development from early childhood through adolescence. To address the purpose of this study and its research questions, Chapter 4 introduced each case in detail with an introduction of each young adult followed by themes that emerged from each young adult with HFA's experiences of reading development. As a result of a thematic analysis of the eight interviews conducted with four young adults and their respective parents, Chapter 5 is dedicated to a cross-case analysis and presents cross-case findings by embedding them in the extant research literature. Creswell (2013) viewed this chapter as the "assertions" of a case study, which has been defined as "the last step in the analysis, where the researcher makes sense of the data and provides an interpretation of the data couched in terms of personal views or in terms of theories or constructs in the literature" (p. 294). Therefore, in this chapter I address the research questions through cross-case themes by connecting data with literature and discussing how participants have felt empowered through sharing their stories and experiences. In addition, I discuss the limitations of this study and the implications for future research and practice. I conclude with final thoughts.

Cross-case analysis. Mathison (2005) defined cross-case analysis as an analysis that examines themes, similarities, and differences across cases. Khan and VanWynsberghe (2008) viewed cross-case analysis as a mechanism for mining existing case studies so that knowledge from multiple cases can be put into service for broader purposes when researchers compare and contrast cases. The findings from this study highlight the complexity of the lived experiences of reading development for four young adults from early childhood through adolescence.

Similarities and differences have emerged across all four cases. The cross-case analysis yielded eight themes in total: 1) differences and similarities in reading profiles, 2) advantage in expository text, 3) challenges in reading, 4) reading strategies, 5) behaviour support, 6) interest and motivation, 7) supportive parents, and 8) different school experiences. These themes were identified based on their repetition and salience across cases. These themes focus on the similarities of the four young adults' experiences of their reading development; however, at the same time, the interpretations and the meanings derived from each person's lived experiences varied in each case. The nuances of their experiences were reflected in each case. These themes help to answer the research questions posed at the beginning of the study. Specifically, theme 1, 2, and 3 correspond with research question 1, "What are the strengths and challenges in reading, if any, of individuals with HFA?" Theme 4, 5, and 6 address research question 2, "What strategies do individuals with HFA use to overcome their reading challenges?" Theme 7 and 8 answer research question 3, "What supports do individuals with HFA receive from their parents, school, and community?" Given the interrelated nature of the themes, some of the following sections may seem repetitive, thereby highlighting the salience of contextual factors in lived experiences of these four young adults. Table 5.1 provides a summary of the within-case and cross-case themes.

Table 5.1

Case-by-Case and Cross-Case Table of Findings

	Themes		
Research Questions	RQ1: Strengths and Challenges	RQ2: Strategies	RQ3: Supports
Cross-Case Themes	<ul style="list-style-type: none"> • Differences and similarities in reading profiles • Advantage in expository text 	<ul style="list-style-type: none"> • Reading strategies • Behavioural support • Interest and motivation 	<ul style="list-style-type: none"> • Supportive Parents • Different school experiences

	<ul style="list-style-type: none"> • Challenges in reading 		
Case 1 - Jack	<ul style="list-style-type: none"> • Good comprehension of non-fiction texts • Constant struggle with decoding • Not knowing the “full-blown” definitions • “Impossible to summarize” 	<ul style="list-style-type: none"> • Assistive technology • Improving vocabulary knowledge • Real life experience • Interest and motivation • Behavioural support 	<ul style="list-style-type: none"> • No routine with reading at home • “A dead-end process” in school system • Community resources
Case 2 - Eddie	<ul style="list-style-type: none"> • A love for reading • Catching up with decoding • “Words don’t hold together” 	<ul style="list-style-type: none"> • Improving vocabulary knowledge • Using mental images • Rereading • Shared reading • Peer assisted reading • Interest and motivation 	<ul style="list-style-type: none"> • Literacy rich environment at home • Supportive teachers • Community resources
Case 3 - Peter	<ul style="list-style-type: none"> • Quick grasp of decoding • Good comprehension of non-fiction texts • “Struggling with processing and organizing” • Difficulty in summarizing and understanding the main message 	<ul style="list-style-type: none"> • Using mental images • Rereading • Shared reading • Adapted reading • Peer assisted reading • Limiting distractions • Interest and motivation. 	<ul style="list-style-type: none"> • Literacy rich environment at home • Strong school supports • Kumon reading program
Case 4 - Amy	<ul style="list-style-type: none"> • A love for reading • Good comprehension of non-fiction texts 	<ul style="list-style-type: none"> • Rereading • Real life experience • Shared reading • Adapted reading 	<ul style="list-style-type: none"> • Literacy rich environment at home • Supportive teachers

	<ul style="list-style-type: none"> • Slow development in decoding • Poor vocabulary knowledge • Difficulty in understanding fiction texts 	<ul style="list-style-type: none"> • Interest and motivation 	<ul style="list-style-type: none"> • Community resources
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Theme 1: Differences and Similarities in Reading Profiles

In the current study, theme 1 “differences and similarities in reading profiles” refers to the unique reading profile of each young adult and the similarities across cases. One of my reflective journal entries contributed to the finding of this theme as I was reflecting on the findings of each case and linking them to literature. I wrote:

After looking at the stories and experiences of each young adult with HFA in my study, I, as a researcher, feel that it is important to pull myself out of each individual case and to sort out their differences and similarities through a cross-case analytical lens. I need to compare and contrast their language development trajectories and identify possible patterns so that I will be able to find out the differences and similarities of their reading profiles and development trajectory.

Extant data suggest that students with ASD experience great difficulty with reading comprehension while having relative strengths in decoding (Calhoon, 2001; Frith, 2003; Nation et al., 2006; O’Conner & Klein, 2004). In a recent study examining the distinct reading profiles of individuals with ASD, McIntyre and her colleagues (2017) identified four subgroups of distinct reading profile from their sample of students with HFA: 1) readers with comprehension disturbance, 2) readers with global disturbance, 3) readers with severe global disturbance, and 4) average readers. The findings of the current study with four young adults with HFA concur with

the study by McIntyre and her colleagues. These four young adults can be identified as belonging to one of the subgroups. Eddie and Peter can fall into the first subgroup - the readers with comprehension disturbance, as they have developed their decoding skills at a similar rate as their typically developing peers in early grades but struggle with reading comprehension. Jack and Amy can be categorized into the second subgroup – readers with global disturbance. They developed their decoding skills at a much slower rate compared to their typically developing peers and ASD peers. Additionally, they continue to have difficulty with decoding new words, which contributes to difficulties with reading comprehension. No participants in this current study have been found to have a stand-alone dyslexic profile characterized by poor decoding but good comprehension. This is consistent with the finding of McIntyre and her colleagues' study (McIntyre, et al. 2017).

One of the commonalities among the four participants is their early speech and language delay. This commonality echoes the findings of a study by Pickles and colleagues (2014), in which they found language delay and impairment to be common in children with ASD. In the current study, all participants' early language development was reported to be delayed to various degrees though not impaired. Eddie and Peter were able to catch up with their speech development relatively faster compared to Jack and Amy, who became fluent in speech at a later age. It is possible that the severity of their early language delay was related to their later reading development and placed them into different reading profile subgroups.

To summarize, all participants experienced early speech delay and difficulty in early decoding development to various degrees. However, their later development trajectories differed. Jack and Amy developed their decoding slowly during school years and continue to struggle with decoding when it comes to some unfamiliar or difficult words. Eddie and Peter

picked up with decoding quickly and, today, demonstrate good decoding skills. In addition, they all have their own challenges with reading comprehension. These challenges are further discussed in Theme 3.

Theme 2: Advantage in Expository Text

Theme 2, “advantage in expository text,” reveals participants’ preferences of and strengths in reading expository texts. When I took field notes during my interviews, I classified two types of text genre, namely, fiction and non-fiction. During the writing of my reflective journal. However, as I reflected on these types of genres in my reflective journal, I decided to use “narrative text” to refer to fiction and use “expository text” to refer to non-fiction. As a result, the two terms used in this study align with the terms used in the literature.

Gately (2008) states that reading expository texts is relatively less challenging for students with ASD, as narrative texts would require readers to integrate language, social understanding, and emotional intent of messages. This can also be explained by Theory of Mind, a theoretical model used to account for social understanding and interaction difficulties among people with ASD (Baron-Cohen, 1995). When it comes to reading narrative stories, individuals with ASD struggle with understanding the nuances of emotions, intensions, and perspectives in stories. On the other hand, expository texts seem to be easier for individuals with ASD to understand, as expository texts do not require as much social understanding, instead they provide facts, information, and knowledge about specific topics.

The findings of this study concur with Gately’s statement. All participants in the current study talked about their preference of reading expository text, such as history, science, instructions, and how-to books. Jack stressed that he likes to read “real things” and “real information.” He has read a lot of “self-improvement” books, such as how to code, and how to

start a business. Peter is also “good at reading for information.” He reads everything about hockey and remembers every fact he has read. Amy also spends hours online reading information about weather, news, animals, and houses. She is very good at reading instructions for various games. Like the other three participants, Eddie enjoys reading expository texts. He reads newspapers and magazines delivered to his home, and he also reads online about different topics, such as food and recipe. However, Eddie is the only one who claims that he also enjoys narrative texts.

Across all cases, participants enjoy reading expository texts for the purpose of gaining knowledge and information and/or simply because of their interests in certain topics. However, when first asked how often they read, they did not consider reading expository text as “real reading,” as they thought reading narrative text was “real reading”.

Although participants in this study mentioned that they prefer to read expository text and claimed they were good at it, their actual level of reading comprehension in expository texts could be further examined. In fact, Carnahan and William (2016) point out understanding expository texts can be challenging for individuals with ASD due to the nature of the content and text structure. They also argued that the cognitive profile of individuals with ASD may limit the extent to which they access or integrate background information or prior knowledge. Therefore, it is possible that participants in this study may also have challenges in understanding expository text, though they have found expository text relatively easier to understand than narrative text.

Theme 3: Challenges in Reading

Across cases, the following topics summarize the challenges that most participants have in common. These challenges are: 1) poor vocabulary knowledge, 2) difficulty with

understanding narrative text, 3) difficulty in summarizing and retelling stories, and 4) difficulty in processing and organizing.

Poor vocabulary knowledge. Difficulty with vocabulary was noted in my field notes and appeared as an initial code in each case. My reflective journal helped me further link poor vocabulary knowledge to literature. As a result, poor vocabulary knowledge emerged as a sub-theme under “Challenges in Reading”. Poor vocabulary refers to one of the hurdles to reading comprehension for participants in this study. Previous research shows that vocabulary knowledge is one of the most robust predictors of reading comprehension (Cain & Oakhill, 2014; Ouellette, 2006; Spencer, Quinn, & Wagner, 2017). Cain and Oakhill (2014) point out that vocabulary breadth and depth of knowledge can impact reading comprehension. Perfetti (2007) discusses the importance of the depth of vocabulary knowledge and referred to it as lexical quality defined as distinctness and completeness of the phonological, orthographic, and semantic information stored in a given word. Perfetti (2007) argues that lexical quality is important not only for understanding the individual words in a text, but also for integrating information and comprehending at a discourse level. Though these studies did not specifically include participants with ASD, they help to explain how poor vocabulary knowledge can hinder reading comprehension in individuals with ASD.

Participants of this study reported that they have developed a good vocabulary in terms of breadth, but the depth of their vocabulary knowledge appears to be limited. Jack and Amy both talked about their challenge of understanding the “full-blown definitions” of words, which hinders their reading comprehension. They may understand the literal meaning of certain words, but struggle with the inferential meaning. For example, Amy understood “ice is melting,” but she did not understand why “cancer is melting away.” Eddie mentioned the importance of

learning the definitions of words. Peter did not talk about his challenge in vocabulary knowledge. According to their parents, Eddie and Peter developed “a pretty good vocabulary” through reading over the past years; however, the depth of their vocabulary knowledge appears to be limited.

Difficulty with understanding narrative text. As discussed above, all participants prefer to read expository texts. When it comes to reading narrative texts, three out of four participants shared their challenges in understanding narrative stories. Jack seems to dislike narrative texts the most, as he often refuses to read story books because they are “not real things.” For Amy, it is always difficult for her to follow a story and understand what is going on. Peter also struggles with understanding narrative stories. He only prefers to read story books written based on movies. However, Eddie enjoys reading story books. His favorite subject in high school was English. He has read many novels and plays in class. Despite his love for reading stories, Eddie still struggles with building a deep understanding of the story, as his mother mentioned.

Difficulty in summarizing and retelling stories. All participants have a common challenge, which is their difficulty with summarizing and retelling stories after reading. This difficulty can be explained by weak central coherence (WCC), or the inability to bring details into a central concept (Booth & Happé, 2011; Frith, 2012; Williamson, Carnahan, & Jacobs, 2012). When students with ASD read, they tend to focus on words or insignificant details rather than on global meaning (Randi, Newman, & Grigorenko, 2010), and they lack the constructive and integrative skills needed for successful comprehension (Nation, 1999).

Jack said it was “impossible” for him to “summarize things up in a story” and he would just give up. Eddie often feels like “words don’t hold together,” though he likes reading stories.

For Peter, it would take awhile for him to summarize. When summarizing, Peter was only able to use a few limited words without really getting the main message. Mary also struggles with summarizing and retelling stories, even though “she has been told repeatedly.”

Difficulty in processing and organizing. Participants in this study reported their challenge in processing and organizing. This challenge is possibly related to their poor executive functioning, as previous studies showed that executive functioning deficits in students with ASD might influence their ability to sequence the events of a story, to access prior knowledge and make connections, and to monitor their comprehension (Carnahan, Williamson, & Christman, 2011; Ozonoff, Pennington, & Rogers, 1991; Terrett et al., 2013).

In Peter’s case, his guardian specifically talked about his challenge with processing and organizing information during reading, which relates to his difficulty in reading comprehension. He struggles with organizing his thoughts and sequencing things in different categories. Other participants did not talk about their challenge in this area. However, it is possible that they all have the same challenge, as they all have difficulty in summarizing information.

Theme 4: Reading Strategies

Participants have shared a variety of strategies they have used to help them with reading. My field notes and reflective journal entries documented these strategies. Table 5.2 lists all the strategies mentioned by participants during interviews and indicates which strategies each participant has tried. Among these strategies, reread and shared reading are the most commonly used strategies across all cases.

Table 5.2

Reading Strategies Used by Participants

Reading Strategies	Case 1 Jack	Case 2 Eddie	Case 3 Peter	Case 4 Amy
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Rereading	X	X	X	X
Shared reading	X	X	X	X
Improving vocabulary knowledge	X	X	X	
Visualization		X	X	
Prior knowledge	X			X
Adapted reading			X	X
Peer assisted reading		X	X	
Assistive technology	X	X	X	X

Note: X indicates the strategy listed in the left column has been used.

Rereading. When asked what strategy they have used when they did not understand what they were reading, these four young adults all responded they would use “rereading” as their primary strategy. This strategy reveals the fact these young adults were able to monitor their reading to a certain degree. When they realize that they are not comprehending, they go back to reread and try to figure out the meaning. This metacognitive strategy brings them back to reread previous texts. Rereading has an extensive research base proving that it can increase students’ reading fluency achievement (Therrien, 2004). However, this strategy has not always translated into increases in reading comprehension (Bryant et al., 2000). Therrien (2004) found repeated reading only has a moderate effect on reading comprehension. Though these studies were not targeted at individuals with ASD, we can tentatively speculate that rereading alone may not effectively help participants in this study with their comprehension. Therefore, other strategies may also be included to facilitate their comprehension.

Shared reading. Shared reading was discussed by all parents when they were asked to talk about what reading strategies they have used. Across four cases, all participants were engaged in reading with parents and/or other family members since they were young. Besides

reading to and with their child, parents engaged their child in conversations, asking questions, and discussing the stories.

Shared reading has been proven to be an effective intervention, especially for young children with ASD, as this strategy incorporates a joint activity and fosters a model of parents as teachers through scaffolding and interactive dialogues (Fleury, 2015; Mucchetti, 2013; Tipton, Blacher, & Eisenhower, 2017). This strategy seemed to work especially well for Eddie. His mother used shared reading constantly since his early years. Eddie turned out to be the only one, among four participants, who enjoys reading narrative stories and whose favourite subject in high school was English. For Eddie, Peter, and Amy, their parents set up routines for reading before bedtime and throughout the day at home since they were young. Their parents did not just read to them, but also engaged them in conversations and taught them how to ask questions. In Jack's case, his mom did not have a routine for reading, but she read with him sporadically during the day and engaged him in conversations since he was young. Jack's aunt, a school teacher, set up a strict reading routine for Jack during the year when he lived with her. She would set up a time for Jack to read each day and talk about his reading.

Improving vocabulary knowledge. As discussed in Theme 3, vocabulary breadth and depth of knowledge is a predictor of reading comprehension (Cain & Oakhill, 2014; Ouellette, 2006; Spencer, Quinn, & Wagner, 2017). In the current study, improving vocabulary was discussed as a strategy for reading development. Jack and Eddie mentioned that they worked on improving their vocabulary knowledge, as they felt lack of a deep understanding of the word's definition hindered their reading comprehension. Jack bought a dictionary and studied it page by page trying to memorize the words and their definitions. All participants mentioned that they used Google to find the definitions of the words they did not understand.

Visualization. Gately (2008) also suggested picture walks and visual maps as tools to help reader with ASD to visualize what they read. All parents talked about the importance of using images to help their child understand the stories. Eddie and Peter enjoyed reading stories written based on movies. The images from the movie helped them visualize and create mental images that help them understand the story in the book. The visual support turns out to be an effective strategy for participants to reach a higher level of reading comprehension.

Prior knowledge. Westby (2004) pointed out that lack of general knowledge in children with ASD would cause difficulty in accessing relevant knowledge and integrating it with reading. Therefore, Gately (2008) recommended priming background knowledge as an important strategy for improving higher order comprehension skills in children with ASD. Parents shared another strategy using prior knowledge. They talked about the importance of creating real life experience and connecting it to the reading. Jack's and Amy's parents talked about the importance of connecting real life experience to reading. Jack's mom discussed how to create real life experience and help activate prior knowledge before reading. For example, she shared that she would take her children to a dairy farm to watch how milk comes from a cow before reading a book about a dairy farm. She said this experience would help children connect what they saw and experienced to what they read. Amy's parent mentioned that Amy would relate her experience with her aunt's poodle to her reading about poodle.

Adapted reading. Downing (2005) suggests reading materials should be adapted in order to improve understanding of the information for students with disabilities. Carnahan, Williamson, and Christman (2011) stress the importance of adapting text to students' independent and instructional levels. Besides varying the length of a reading passage, they also

suggest teachers adapt books in various ways, including PowerPoint Books, and books with picture supports at the sentence and paragraph levels.

Three parents talked about how they adapted reading materials based on their children's reading level and how they would chunk the reading materials into small pieces. Eddie's mom adjusted his reading level and only asked him to read a small chunk each time during the most challenging time in middle school when Eddie wanted to give up on his reading. Peter's guardian suggested parents give children a small portion of the reading material each time so that they would not feel intimidated by the amount of reading. Amy's parents also adapted her reading based on her actual reading level instead of her grade level.

Peer assisted reading. Peer assisted reading is a type of cooperative learning intervention, which has been proved to be an effective strategy for improving reading comprehension in students with ASD in several studies (Kamps et al, 1994; Kamps et al, 1995; Whalon & Hanline, 2008). In this study, the peer assisted reading strategy was used by Eddie and Peter. They recalled that they read with a peer in school; however, they did not mention any detailed information regarding specific strategies and activities for their peer assisted reading.

Assistive technology. Assistive technology, in various forms, was used by all participants. Jack used "Kurzweil and Dragon Naturally Speaking" to help him with his decoding. He also used the "text to speech" on his MacBook when he read on his laptop. Jack and the other three participants also mentioned they used Google to search the definitions of words. However, except for using assistive technology for decoding and checking the word definitions, participants did not mention any type of assistive technology that they used to help them with their reading comprehension.

To summarize, although participants have shared a variety of strategies from their past experiences, there are some evidence-based strategies mentioned in the literature review that were not used by participants in this study, such as emotional thermometers, social stories, graphic organizers, and self-directed strategies. Many evidence-based strategies were not known to participants in this study. This may reveal that there is a gap between research and practice.

Theme 5: Behavioural Support

Using behavioural support has been reported by several researchers who believe the use of behavioral interventions during academic instruction can improve levels of on-task behaviour of students with ASD (Goodman & Williams, 2007; Heflin & Alberto, 2001; Hume, 2010; Solis et al., 2016). In Jack's and Peter's cases, behavioural support emerged as a common theme. Behavioural support was used to help Jack and Peter to better concentrate on their reading. Besides ASD, both Jack and Peter have a diagnosis of ADHD, which may have contributed to their attention and concentration problems. Peter "has to read at the kitchen table" so that he can stay away from distractions in his room; otherwise, he would not be able to read, and he would have some behaviour problems. During the first few years after Peter was adopted, he was "defiant" and had "some learned behaviour." Therefore, his adoptive parents would use some behavioural support strategies to help him learn good behaviours and build his concentration ability. Jack had "many behaviour problems," especially in his early years. His mom talked about how difficult it was for Jack to "sit and read." She worked with a psychologist and used "positive reinforcement" to help Jack concentrate on learning tasks. However, in Eddie and Amy's cases, their parents did not mention this strategy. These two participants seemed to have a milder personality compared to Jack and Peter. It seems like ADHD may have played a role in the concentration and behavioral problems in Jack and Peter's cases.

Theme 6: Interest and Motivation

In their study on using restricted interests as motivators, Mancil and Pearl (2008) pointed out that linking interest to the topic can increase engagement and promote comprehension. In this study, interest and motivation emerged as a main theme across cases. All participants in this study demonstrated an intense or special interest in certain topics. For example, Jack was fascinated with facts and history; Peter loved everything about hockey; Eddie was interested in the bridge project in his town; and Amy followed news and reports about weather and cancer. When intrigued and motivated, all participants could become engaged in reading very well. Their parents all mentioned that choosing books based on their interest could help motivate them to become engaged in reading. For example, Jack likes to read “how-to” books; Peter is passionate about hockey; Eddie is interested in the bridge project in his town; and Amy is fascinated with weather and cancer.

In addition, participants mentioned they were motivated to read by other reasons. For example, Jack wants to read something others do not know about so that he can share with them and impress them. Eddie reads to his mother to help her learn cooking instructions on food boxes, because she has poor vision without reading glasses. Peter reads everything about hockey not only because he has a strong interest in it, but also because he wants to share with others and show others that he is an expert in hockey. Amy reads on line for hours because she wants to help her parents find a good house. Taken together, interest and motivation play an important role in engaging four participants in reading. Their parents understand the importance of this strategy and they have used this strategy to motivate their child to read.

Theme 7: Supportive Parents

Literacy learning begins at home as children naturally interact with their families, as reading together involves positive physical and emotional closeness between a child and an adult and it develops an interest in the activity of reading (Downing, 2005). Kliever and Biklen (2001) also point out that the intimacy during reading between a child and an adult helps establish the trust needed for language development. Ezell and Justice (2005) stress the importance of parent involvement. They state that all children, especially those who are at risk for reading failure, such as children with ASD, require high-quality, frequent opportunities to interact with written and oral language at home so that they will have a better chance of fostering their early and later achievements in their language and literacy.

All parents in this study have been the biggest advocates and supporters for their child. When sharing their experiences of reading together at home, they were able to recall many vivid memories with details from the past years. All parents valued reading as an important skill for their child. They all put great effort into their child's reading. They purchased many books and borrowed books from local libraries. Parents were very involved in reading to and reading with their child at home and they worked with great effort to create a rich literacy environment at home. They read throughout the day and before bedtime. Eddie's mother firmly believes in the importance of early reading and she "was big on reading with him [Eddie] right from the get go." Peter's adoptive parents "got a lot of books for him at home," and "read together throughout the day and engaged him in conversations." Amy's parents gave her "every opportunity" to read and supported her reading as much as possible. Jack's mother bought a lot of books for him and would read with Jack sometimes at home.

Besides shared reading at home, all parents worked tirelessly on navigating the school system and their local community to search for resources and supports for their child's reading

development. Due to the early language delay of all participants, their parents all registered them in speech therapy programs. They have also participated in reading programs in local library and/or summer camps. Parents worked closely with school teachers hoping to get the best school experience for their child. Without these supportive parents, these four young adults would not have been able to reach the reading level where they are today nor would they have been able to enter post-secondary education.

Theme 8: Different School Experiences

Three of the four young adults shared their positive school experiences while Jack and his mother expressed their disappointment with the school system. In Eddie, Peter, and Amy's cases, they all had very supportive teachers who understood their student's needs and knew how to adapt teaching methods and reading materials to meet the needs. In general, they were satisfied with the supports their child received during school years. However, in Jack's case, Jack and his mother commented that his teachers did not understand ASD or ADHD. They said teachers would just give Jack some books to read without offering enough supports or any good strategies. Jack's school offered him some technology but never taught him how to use it. Jack's mother considered the school system as "a dead-end process" after all these years of advocating and asking for help. She suggests that parents should choose a school that knows how to teach children with ASD and she also suggests that parents should hire a private tutor to teach their child on a one-on-one basis.

When asked what specific strategies their teachers used to support their reading, participants and their parents did not recall any specific strategies, except mentioning that teachers would give them books in class to read and sometimes let them take books home and read with parents. This study did not include teachers; therefore, data on their perspectives were

not collected. However, previous studies revealed that teachers were not well prepared to teach students with ASD in general education classrooms. McCray and McHatton (2011) reported that both elementary and secondary general education teachers have expressed concerns about their lack of confidence teaching in an inclusive classroom and their feelings of low self-efficacy in working with special education students. General education teachers have specifically noted concerns about their lack of knowledge and training related to ASD (Finke, McNaughton, & Drager, 2009). Some even hold misconceptions related to ASD (Segall & Campbell, 2012). In addition to continued concerns about their lack of preparation, some teachers do not always feel they receive adequate support within their schools (Ross-Hill, 2009).

The findings of a recent study by Majoko (2016) indicate that general education teachers need professional preparation and development, and that collaboration between mainstream teachers and other stakeholders would facilitate the inclusion of students with ASD in inclusive classrooms. Therefore, it is possible that part of the reason why participants did not recall any effective strategies that their teachers used was partially due to the fact that their teachers did not actually know much about instructional strategies that could be used to support students with ASD. This speculation was echoed by Jack's mother who commented that Jack's teachers did not understand much about ASD or how to support children with ASD.

Empowerment

Peterson (2014) states that, by listening to individuals facing difficult circumstances and acknowledging the value of their voices, researchers can empower them to discover their abilities and actively engage in solving the problems faced with them. The purpose of this research is to empower four young adults with HFA and their parents to share their stories and experiences

about each young adult's reading development from early childhood through adolescence. The findings of this study provide evidence that participants were empowered by sharing their voices.

When asked whether they liked reading at the beginning of their respective interview, the four young adults did not respond positively. For example, Jack's initial quick response was "No" because he thought it took him "a long time to read one book." However, through further discussion, Jack realized that this "one book" that he did not like to read was referred to as a novel, the narrative genre of text that he constantly struggles with and dislikes. He admitted that he indeed enjoys reading expository texts and that reading has helped him to gain knowledge and different skills. Towards the end of the interview, each young adult felt encouraged and empowered when realizing what s/he has achieved through reading, despite various challenges they had to overcome. For example, Peter felt a sense of accomplishment when he talked about his successful completion of college study and mentioned that reading continues to serve him as a useful tool at his current job.

The parents also expressed their positive feedback on their participation in the study. One of the common responses was that they appreciated the opportunity to share the stories and experiences of their child's reading development. They considered it a positive experience for their child to share their voice through reflections on their past experiences. For example, Amy's father, Gary, explicitly told her during the latter part of the interview that he felt proud of who she had turned out to be today and what she had accomplished through reading. Mary proudly commented on her son's reading achievement and considered Peter "a great reader."

Taken together, participants in this study were empowered by sharing their voices. They commented positively on the importance of reading. In addition, all parents in this study highly

recommended that parents of a young child with ASD read with their child starting from early years.

Overview of Study Findings

The findings of this study provide a rich, contextualized understanding of what it is like to develop reading skills and cope with challenges for four young adults with HFA in a mid-sized city in eastern Ontario, Canada. The complexity of lived experiences of reading development for four young adults from early childhood through adolescence has been captured in the findings. Similarities and differences emerged in how Jack, Eddie, Peter, and Amy experienced their reading development. Data from each case has yielded various, specific themes. After comparing four cases and completing cross-case analysis, eight overarching themes emerged from across all cases. Overall, the findings of this study conform with findings of many of the previous studies mentioned above. More importantly, findings of this study provide vivid descriptions of the lived experiences of these four young adults in their reading development by listening to their voices and their parents'; therefore, the findings contribute to existing research in this area.

Study Limitations

There are four primary limitations of this study. Firstly, participant recruitment resulted in a homogeneous sample. Four young adults were Caucasian in ethnicity, and they were born and raised in a middle-class family with similar SES backgrounds. Therefore, it is important to note that the replication of this study in another part of Canada and/or with individuals with HFA of different ethnic and cultural backgrounds could yield findings different from the ones in this research.

Secondly, certain topics the participants raised were not probed in sufficient depth. The initial purpose of this study was to look at reading development experiences of individuals with HFA. However, due to the interviewer's lack of experience in probing more deeply, some topics or nuances of individual experiences might not have been fully captured during the interviews.

The third limitation is related to data analysis and interpretation. Given the interpretive nature of qualitative inquiry and my own personal life experiences, subjectivity, and the theoretical lenses used in this study, it is possible that another researcher conducting a similar study would arrive at different conclusions.

Lastly, this study did not directly measure the reading abilities of these four young adults. Though they described their strengths and challenges in reading, their actual reading level and specific strengths and difficulties were not measured by standardized reading measures. Therefore, it is possible that participants' description of reading abilities may not reflect their actual reading profiles.

To summarize, although I have used various strategies to improve the trustworthiness of this study, due to the above-mentioned limitations, the findings should be interpreted with caution.

Implications for Future Research and Practice

There are several implications for future research and practice to be gleaned from this study. Based on the rich descriptive information from this qualitative inquiry, researchers and practitioners can gain a more in-depth understanding of the experiences of individuals with HFA in their reading development regarding their unique reading profiles and development trajectories. This study sheds light on the complexities of participants' experiences to underscore

the intersections between contextual, developmental, and individual issues related to their experiences.

Building on the findings, researchers should continue to conduct exploratory studies examining the different reading development experiences of individuals who are from different ethnic, cultural, and SES backgrounds with various degrees of severity on the spectrum of Autism. Expansion of exploratory studies can help to gain in-depth understanding of the reading development in individuals with ASD so that relevant intervention strategies can be designed and conducted to find effective solutions.

Shared reading is an effective intervention for young children with ASD (Fleury, 2015). Early literacy intervention research should further explore how shared reading can be better adapted and used in both classroom and home settings to meet the needs of children with ASD. In addition, longitudinal research in this area is also needed to follow children with ASD from early years through elementary school so that we can better understand the extent to which emergent literacy skills relate to later reading achievement in students with ASD. In practice, teachers and parents of children with ASD should be provided with necessary training and resources on how to implement shared reading either in educational settings or at home.

Future research should also examine how individuals with ASD approach different genres of text and specific strengths and challenges in each genre. Intervention research should examine the efficacy of various reading strategies targeted at reading challenges with different types of text.

Each of the four participants in this study has a unique reading profile and a different reading development trajectory due to their symptomatology of ASD and other environmental factors. Future research can further investigate the specific aspects of ASD symptomatology and

other comorbid disorders (e.g., ADHD) that are associated with reading and language development in order to develop effective interventions.

Research in teacher education and professional development should consider how to support classroom teachers so that they can be better prepared to support students with ASD in their classrooms. For example, teachers can be trained to learn how to identify various reading difficulties either with decoding or with comprehension or both that their students with ASD may experience. More importantly, teachers should be taught how to use a variety of evidence-based strategies to help their students with ASD cope with specific reading challenges.

Research should consider more cautiously the theoretical explanations (Theory of Mind, Weak Central Coherence, and Executive Functioning) as a rationale for the development of future interventions designed to improve reading comprehension for students with ASD. Given the unique reading profile of each individual with ASD, different aspects of their reading process may be impaired to various degrees. Therefore, it is important to develop appropriate and well-targeted interventions for students with ASD.

Research can further investigate the efficacy of using different behaviour supports (e.g., ABA) as components of reading comprehension interventions for students with ASD. Teachers and parents should also be trained to incorporate these evidence-based behaviour strategies in their reading activities with students with ASD.

Finally, research in assistive technology can contribute to the design and refinement of new technologies (e.g., various applications on iPad) that specifically target reading comprehension challenges for students with ASD. The effectiveness of these technologies should also be carefully examined before they are introduced to and implemented in educational settings and/or at home.

Final Thoughts

In her book on teaching literacy to students with disabilities, Downing (2005) stated that reading provides “an autonomous means of obtaining information and gaining enjoyment” (p. 15). She viewed literacy as power to control one’s life and impact the world. The four cases in this study show that reading has created a new platform for these four individuals with HFA to learn about the world, other people, and themselves. Reading has brought them many opportunities for success and achievement in their life. They all have successfully graduated from high school and entered postsecondary education. Two of them have successfully completed college program. One of them has a full-time job. One is still in college but working as a volunteer abroad. Without reading, as their parents pointed out, all these achievements would not have been possible. These four young individuals are fortunate, as their parents have been their biggest advocates and supporters. Most of them have also been well supported by their teachers in school. However, many other individuals with ASD may not have received the same kind of support and encouragement. As the saying goes, “It takes a village to raise a child.” This is even more true when it comes to raising a child with ASD. We, educational researchers, school teachers, educators, and parents, should work together collectively to provide supports and resources to foster reading development in children and youth with ASD so that they will be able to unleash their potential.

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Appendix A

Definitions and Terms

This appendix includes a glossary of key terms and their definitions. Concepts that are commonly used in the research on autism and reading are listed and defined to help readers who are less familiar with this area of research.

The six key terms used in this study are: *Autism Spectrum Disorder*, *High Functioning Autism*, *Decoding*, *Reading Comprehension*, *Theory of Mind*, *Weak Central Coherence*, and *Executive Functioning*.

Autism Spectrum Disorder (ASD) is a developmental disorder characterized by persistent deficits of social communication, such as reduced social-emotional reciprocity and poorly integrated nonverbal language, and restricted, repetitive patterns of interests. Prior to the recent *Diagnostic and Statistical Manual of Mental Disorder - 5th Edition* (DSM-5, 2013), subtypes of ASD were distinguished as: Autistic Disorder, Asperger's Syndrome, PDD-NOS (Pervasive Developmental Disorder – Not Otherwise Specified), Rett Syndrome, and Childhood Disintegrative Disorder. Since the publication of DSM-5, these subtypes are subsumed under one umbrella of Autism Spectrum Disorders (American Psychological Association [APA], 2013).

High Functioning Autism (HFA) is a subgroup of individuals who have less severe symptomology than other forms of ASD. These individuals typically have average to above average intelligence yet tend to struggle with the social and communication deficits commonly associated with ASD (Bauminger-Zviely, 2013). According to DSM- 5, HFA is categorized under the umbrella term of ASD (APA, 2013).

Decoding refers to “transforming graphemes into a blend of phonemes, or transforming spelling patterns into a blend of syllabic units” (Ehri, 2017, p. 128).

Reading Comprehension refers to gaining meaning from text through a process of extraction and construction (RAND & Snow, 2002). It is a complex task that requires the integration and coordination of a number of high level cognitive processes needed for reader engagement (Cain, Oakhill, & Bryant, 2004).

Theory of Mind refers to the ability to understand the mental states of others (Baron-Cohen, 1995). It has two components: 1) the ability to understand and recognize that people have different feelings and thoughts, and 2) the ability to understand that individual thoughts and feelings influence actions (Frith, 2012).

Weak Central Coherence is characterized by attention to details rather than the whole. It refers to the inability to bring details into a central concept (Booth & Happé, 2011; Frith, 2012; Williamson, Carnahan, & Jacobs, 2012).

Executive Functioning consists of a set of cognitive abilities that allow an individual to self-regulate in relation to his or her environment to attain a goal; it refers to the process of organizing, planning, and monitoring progress when presented with a situation (Carnahan, Williamson, & Christman, 2011; Ozonoff, Pennington, & Rogers, 1991).

Appendix B

Recruitment Email Script for Organizations

Dear XXXX (Contact person of the organization),

I am a graduate student in the Master of Education program at Queen's University. I am conducting a study for my master's thesis. This research study has received ethics clearance from Queen's University. The aim of this research is to investigate the lived experiences of individuals with high functioning autism (HFA) in reading development from early childhood through adolescence. Therefore, I am writing to ask your organization to forward the attached recruitment flyer to potential participants.

I hope to recruit participants based on the following criteria: (1) young adults diagnosed with HFA, (2) between the age of 18 to 28, (3) socially and verbally capable of participating in interview, (4) currently enrolled in college or university courses or have recently been enrolled in college or university courses, (5) one or both parents/guardians of each selected young adult.

All participants (young adults and parents/guardians) will be asked to participate in a 30-45-minute interview. The main goals of this study are to investigate the lived experiences of individuals with high functioning autism (HFA) in reading development from early childhood through adolescence from the perspectives of these individuals and their parents/guardians. Findings from this study will provide insights into possible interventions for use in research and practice, and practical guidance for parents/guardians' involvement.

If you have any ethics concerns, please contact the General Research Ethics Board (GREB) at 1-844-535-2988 (Toll free in North America) or chair.GREB@queensu.ca.

If you have any questions about the research, please contact me, Dawei Yang, at dawei.yang@queensu.ca or my supervisor, Dr. Pamela Beach, at pamela.beach@queensu.ca or 613-533-6000 ext. 78026

Thank you very much for your support.

Appendix C

Combined Letter of Information and Consent Form for Young Adults

Letter of Information and Consent Form for Interview

Reading Development: Exploring the Lived Experiences of Individuals with High Functioning Autism

Dawei Yang, Faculty of Education, Queen's University

Dr. Pamela Beach, Faculty of Education, Queen's University

I am Dawei Yang, a graduate student in the Faculty of Education, working under the supervision of Dr. Pamela Beach. I am asking students and parents/guardians to take part in a research study seeking to learn more about students' and parents/guardians' experiences in reading development from early childhood through adolescence for individuals with high functioning autism. If you agree to take part, I will interview you for 30-45 minutes at a public location of your choice. The interview will be audio-recorded and later transcribed. By getting involved in this research, your parent(s)/guardian(s) will be asked to participate in interviews with the intention of discussing you.

There are no known risks for taking part in this study. While there are no direct benefits to you as a participant, study results will help to provide insights into possible interventions for use in research and practice, and practical guidance for parents/guardians' involvement

There is no obligation for you to say yes to take part in this study. You don't have to answer any questions you don't want to. You can stop participating at any time without penalty. After you complete your interview, you will have up to 2 weeks to withdraw before data analysis begins by contacting me at dawei.yang@queensu.ca or 343-989-0072.

I will keep your data securely for at least five years. Your confidentiality will be protected to the extent possible by replacing your name with a pseudonym for all data and in all publications. The code list linking real names with pseudonyms will be stored separately and securely from the data.

I hope to publish the results of this study in my master's thesis and academic journals and present them at conferences. I will include quotes from some of the interviews when presenting my findings. However, I will never include any real names with quotes, and I will do my best to make sure quotes do not include information that could indirectly identify participants. During the interview, please let me know if you say anything you do not want me to quote.

You will be provided with \$20 cash as a compensation for participating in this study.

If you have any ethics concerns, please contact the General Research Ethics Board (GREB) at 1-844-535-2988 (Toll free in North America) or chair.GREB@queensu.ca.

If you have any questions about the research, please contact me, Dawei Yang, at dawei.yang@queensu.ca or 343-989-0072, or my supervisor, Dr. Pamela Beach, at pamela.beach@queensu.ca or 613-533-6000 ext. 78026

This Letter of Information provides you with the details to help you make an informed choice. All your questions should be answered to your satisfaction before you decide whether or not to participate in this research study.

Keep one copy of the Letter of Information for your records and return one copy to the researcher, Dawei Yang.

By signing below, I am verifying that: I have read the Letter of Information and all of my questions have been answered.

Name of Participant: _____

Signature: _____

Date: _____

Appendix D

Combined Letter of Information and Consent Form for Parents/Guardians

Letter of Information and Consent Form for Interview

Reading Development: Exploring the Lived Experiences of Individuals with High Functioning Autism

Dawei Yang, Faculty of Education, Queen's University

Dr. Pamela Beach, Faculty of Education, Queen's University

I am Dawei Yang, a graduate student in the Faculty of Education, working under the supervision of Dr. Pamela Beach. I am asking students and parents/guardians to take part in a research study seeking to learn more about students' and parents/guardians' experiences in reading development from early childhood through adolescence for individuals with high functioning autism. If you agree to take part, I will interview you for 30-45 minutes at a public location of your choice. The interview will be audio-recorded and later transcribed.

There are no known risks for taking part in this study. While there are no direct benefits to you as a participant, study results will help to provide insights into possible interventions for use in research and practice, and practical guidance for parents/guardians' involvement

There is no obligation for you to say yes to take part in this study. You don't have to answer any questions you don't want to. You can stop participating at any time without penalty. After you complete your interview, you will have up to 2 weeks to withdraw before data analysis begins by contacting me at dawei.yang@queensu.ca or 343-989-0072.

I will keep your data securely for at least five years. Your confidentiality will be protected to the extent possible by replacing your name with a pseudonym for all data and in all publications. The code list linking real names with pseudonyms will be stored separately and securely from the data.

I hope to publish the results of this study in my master's thesis and academic journals and present them at conferences. I will include quotes from some of the interviews when presenting my findings. However, I will never include any real names with quotes, and I will do my best to make sure quotes do not include information that could indirectly identify participants. During the interview, please let me know if you say anything you do not want me to quote.

No compensation is offered for participating in this study.

If you have any ethics concerns please contact the General Research Ethics Board (GREB) at 1-844-535-2988 (Toll free in North America) or chair.GREB@queensu.ca.

If you have any questions about the research, please contact me, Dawei Yang, at dawei.yang@queensu.ca or 343-989-0072, or my supervisor, Dr. Pamela Beach, at pamela.beach@queensu.ca or 613-533-6000 ext. 78026

This Letter of Information provides you with the details to help you make an informed choice. All your questions should be answered to your satisfaction before you decide whether or not to participate in this research study.

Keep one copy of the Letter of Information for your records and return one copy to the researcher, Dawei Yang.

By signing below, I am verifying that: I have read the Letter of Information and all of my questions have been answered.

Name of Participant: _____

Signature: _____

Date: _____

Appendix E

Ethics Clearance Letter



January 25, 2018

Mr. Dawei Yang
 Master's Student
 Faculty of Education
 Queen's University
 Duncan McArthur Hall
 511 Union Street West
 Kingston, ON, K7M 5R7

GREB Ref #: GEDUC-886-18; TRAQ # 6022768
 Title: "GEDUC-886-18 Reading Development: Exploring the Lived Experiences of Individuals with High Functioning Autism"

Dear Mr. Yang:

The General Research Ethics Board (GREB), by means of a delegated board review, has cleared your proposal entitled "GEDUC-886-18 Reading Development: Exploring the Lived Experiences of Individuals with High Functioning Autism" for ethical compliance with the Tri-Council Guidelines (TCPS 2 (2014)) and Queen's ethics policies. In accordance with the Tri-Council Guidelines (Article 6.14) and Standard Operating Procedures (405.001), your project has been cleared for one year. You are reminded of your obligation to submit an annual renewal form prior to the annual renewal due date (access this form at <http://www.queensu.ca/traq/signon.html>; click on "Events"; under "Create New Event" click on "General Research Ethics Board Annual Renewal/Closure Form for Cleared Studies"). Please note that when your research project is completed, you need to submit an Annual Renewal/Closure Form in Romeo/traq indicating that the project is 'completed' so that the file can be closed. This should be submitted at the time of completion; there is no need to wait until the annual renewal due date.

You are reminded of your obligation to advise the GREB of any adverse event(s) that occur during this one year period (access this form at <http://www.queensu.ca/traq/signon.html>; click on "Events"; under "Create New Event" click on "General Research Ethics Board Adverse Event Form"). 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 submit an amendment form, access the application by at <http://www.queensu.ca/traq/signon.html>; click on "Events"; under "Create New Event" click on "General Research Ethics Board Request for the Amendment of Approved Studies". Once submitted, these changes will automatically be sent to the Ethics Coordinator, Ms. Gail Irving, at the Office of Research Services 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.

Sincerely,

Joan Stevenson, Ph.D.
 Interim Chair
 General Research Ethics Board

c: Dr. Pamela Beach, Supervisor
 Dr. Richard Reeve, Chair, Unit REB
 Mrs. Erin Rennie, Dept. Admin.

Appendix F

Interview Questions

Interview Questions for Young Adults

General questions about reading

1. To begin with, please briefly introduce yourself.
2. Could you tell me a story or an experience about a memorable moment about reading that you had from your past?
3. Do you like to read? (alternatives: Do you always like to read? Did you like to read? When did you start to like to read?)
4. What motivates you to read? (What makes you want to read? What makes you not want to read? What makes reading interesting? What makes reading boring?)
5. What do you read? (What types of material do you like to read? For example, magazines, information books, newspapers, novels? When you read online, what information are you interested in?)
6. What format of readings do you choose, digital or paper version? (Do you prefer to read on your computer and other electronic devices or traditional paper books? Why?)

Reading development – challenges and strengths

7. Could you share something that you remember about your reading experiences specifically in elementary school? How about middle school? How about high school? Have you noticed any changes with your reading (in terms of challenges and strengths) through these three stages?
8. What challenges, if any, did your experience with your reading? What strategies did you use to overcome these challenges?

Supports from teachers and parents/guardians

9. Did you have a favorite teacher in the past who had helped you with your reading? If so, what did the teacher do to help you with your reading?
10. Did you receive any other supports in school to help with your reading?
11. Do you remember reading with your parents when you were little? What did they do to help with your reading?
12. Is there anything else you would like to share about reading?

Interview Questions for Patents/Guardians

General questions about reading

1. To begin with, please briefly introduce yourself.
2. Could you tell me a story or an experience about a memorable moment about your child's reading that you had from your past? (Probes: What were some of the highlights?)
3. Do you like to read?

4. What do you read?
5. How old was your child when he/she started to speak fluently?
6. Do you think your child enjoys reading?
7. What do you think motivates your child to read? (What makes him/her want to read? What makes him/her not want to read? What makes reading interesting for him/her? What makes reading boring for him/her?)
8. What format of readings does your child choose, digital or paper version? (Does your child prefer to read on your computer and other electronic devices or traditional paper books? Why?)
9. What types of material does your child like to read? For example, magazines, information books, newspapers, novels?

Reading development – challenges and strengths

10. Could you talk about some of the strengths you have observed in your child's reading?
11. How about challenges, if any, that you have noticed?
12. Could you share something that you remember about your child's reading experiences specifically in elementary school? How about middle school? How about high school? Have you noticed any changes with his/her reading through these three stages?

Supports from teachers and schools

13. Did your child have a favorite teacher in the past who had helped him/her with his/her reading? If so, what did the teacher do to help?
14. Did your child receive any other supports in school to help with his/her reading?
15. What community resources did you use to support your child's reading?

Parental involvement

16. Did you read with your child when he/she was little? If so, how often did you read with him/her?
17. What activities did you engage your child in while reading with him/her? For example, did you pause and ask questions to check his/her understanding? Or some other activities or things you did?
18. What advice would you give to other parents who are supporting their child in reading?
19. Is there anything else you would like to share about reading?

Appendix G

Phone Call Script for Initial Contact with Parents/Guardians

- Hello, my name is Dawei Yang, a graduate student in the Faculty of Education at Queen's University.
- I am calling you because you have expressed your interest in participating in my current study, which explores the experiences of reading development from early childhood through adolescence for individuals with high functioning autism.
- The purposes of the phone call are: (1) to confirm your agreement of participation in this study; (2) learn more about your child and ensure that he/she meets the recruitment criteria for this study.
- How old is your child now?
- Was he/she diagnosed of High Functioning Autism Spectrum Disorder? If so, at what age was he/she diagnosed?
- Is your child currently enrolled in a college or university program? Or, was he/she enrolled in a college or university program before?

Appendix H

Member Checking Email Script

Hi (the name of the participant),

Thank you so much for your talk with me during the interview about your (your child's) reading experience.

I have attached on this email some information to summarize your (your child's) reading experiences. Please download the attached file and read it, and feel free to email me with any comments or feedback or any thoughts you may want to share with me.

If you have anything else to share with me about your (your child's) reading experience, please feel free to email me and share with me. I would love to hear more about it.

Thank you!

Appendix I

A Two-Page Sample of Raw Data and Coded Transcript

Transcript	Codes
<p>D: It was fun talking with [the name of a young adult participant].</p> <p>M: Yes, he likes to talk. He is very social.</p> <p>D: Yeah. So, I want to first talk about his early years. Tell me how you did stories or bed time stories ...?</p> <p>M: We ... I was big on reading with him right from the get go.</p> <p>Even when he was a bay, we would read to him. He watched Sesame Street. So, I was big on educational shows. We had games with the alphabet and numbers. So, he knew all the alphabet before Kindergarten. We read lots of stories. He did have a little bit speech delay, so he went to the Early Years, Kingston Early Years. He did a ... well, his dad and I did a course, did a thing to help him. And then ...</p> <p>D: That's a training for parents?</p> <p>M: Yeah. And then he was involved in ... it was so long ago, he was a baby, 18 months. It was at Hotel Dieu (Hospital Kingston), the Early Years. Something like that. We have it on video and he was a little baby. They helped him with his speech. And also for school, we read a lot. He would bring, and he still brings books from school sometimes to read for school. He enjoys that. In the summers, he went to this "Read A Lot" Camp. I think Queen's students did that. So, he did that.</p> <p>E: (Trying to correct his mom) No, it's not at Queen's.</p>	<p>Parent-Child reading</p> <p>Home literacy environment</p> <p>Early language delay</p> <p>Early intervention</p> <p>Early intervention</p> <p>Reading at school</p> <p>Reading program</p> <p>Community resources</p>

<p>M: Queen's students ran it. No, it was not at Queen's. That's right. It was at a different school.</p> <p>E: No Queen's.</p> <p>M: Well, I think it has something to do with Queen's. So, we always like to read. He loved his books when he was little.</p> <p>D: Could you share a typical day when he was little. Let's say when he was four years old. What was his typical reading experience at home? Can you share that?</p> <p>M: We also went to the library a lot. Well, I remember ... I don't know typical days. I just remember moments.</p> <p>D: Yeah, moments is fine.</p> <p>M: I remember one of his favorite books is <i>Franklin and Thunderstorm</i>. So, there was a storm outside, and he got his book and he read it when there was a storm going on. He liked to relate his books to real life. So, we read a book and we talked about it.</p> <p>D: Did you teach him to do that? Or, he sort of ... ?</p> <p>M: He just kind of did it. That's how we ... I always made it important that we talked about the book and just kind of had him involved in that. Er... I don't know. (pausing and thinking).</p> <p>Bedtime was definitely a reading time. When he was little and at home with me, we read sporadically throughout the day too. I got him trying to read and stuff.</p>	<p>Attitude towards reading</p> <p>Community resources</p> <p>Home literacy environment</p> <p>Real life experience</p> <p>Discussion during reading</p> <p>Reading routine at home</p>
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