Beyond Automaticity:
Differentiated Instruction Strategies to Build Reading Fluency in Children with Characteristics of ADHD

By

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Abstract
While the precise definition of reading fluency remains a point of debate among researchers, there is overwhelming consensus within the educational community that fluency is a crucial aspect of the reading process, has a positive correlation to increased reading comprehension, and is an indicator of future reading success. Having an awareness of effective instructional strategies to support students in their fluency training is therefore an issue of great importance to every classroom teacher. The instructional strategy most commonly used to build reading fluency, however – repeated re-reading as a means of developing a student’s automaticity – puts students with attention problems at a distinct disadvantage. Students with characteristics of Attention-Deficit/Hyperactivity Disorder (ADHD) are often unable to focus on repeated re-reading because of challenges resulting from executive functioning impairment, and instructional strategies other than repeated re-reading must therefore be implemented in order to ensure the success of these students. Based on a survey of the current state of research on the topic, paired with interviews conducted with three educators, this study investigates effective instructional strategies to build reading fluency in children with characteristics of ADHD. Using a variety of physical, auditory and linguistic strategies, in combination with oral performance, teachers can support the learning experience of this particular population and enhance the level of engagement of all students in the classroom environment.

Key Words: ADHD, Reading Fluency, Differentiated Instruction, Reader’s Theatre, Social-Emotional Wellbeing
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Beyond Automaticity:
Differentiated Instruction to Build Reading Fluency in Children with ADHD

Chapter 1: INTRODUCTION

Introduction to the Research Study

While the content of the Ontario Elementary curriculum is designed and regulated by the Ontario Ministry of Education, the manner in which the curriculum is delivered is left at the professional discretion of each educator. This allows for a considerable, and necessary, degree of flexibility within the context of the typical classroom, as the instructional strategies used to deliver the curriculum must address the learning needs of the specific group of students within the classroom during each unique instructional cycle.

Statistically, the majority of students in an average Ontario classroom will be neurotypical, meaning they have no significant neurological roadblocks to their academic success. A small, yet increasing, percentage of the integrated student population, however, is identified as having one or more exceptionalities, meaning an atypical neurology, moderate to severe learning disorder, or behavioral condition that could impede their learning (Ontario Ministry of Education, 2001).

In the past, students with such exceptionalities would often be grouped together and placed in designated Special Education classrooms: the curriculum would then be accommodated and/or modified according to the needs of the students in question and the altered curriculum would be delivered by an educator specializing in such matters, such as a designated Special Education Teacher. For a multitude of reasons including the current political and economic systems in place within our province, however, the
existence of such designated Special Education classrooms is diminishing in Ontario, and
the availability of and training for Special Education teachers is similarly compromised.
Students with mild to moderate exceptionalities are therefore increasingly likely to be
placed within a general education classroom, taught by an educator who may or may not
have received specific training for dealing with exceptional students.

While this integrated approach to Special Education has many benefits for the
students, it also poses many challenges for both the students and the teachers, as
classroom teachers are now having to accommodate and/or modify the curriculum for the
exceptional students in their class, while maintaining the Ministry standard of curriculum
for the neurotypical students. Reconciling these two professional objectives is an
intricate and delicate task in any curriculum area, but in such a ubiquitous and crucial
subject as Language, the need to target instruction in order to improve the learning of
each student becomes doubly strenuous, as the Language curriculum – and the literacy it
establishes – is, arguably, the foundation for future learning in each other subject.

One particularly important aspect of literacy – explicitly stated as an Overall
Expectation in the Ontario Elementary Curriculum in Language (Ministry of Education,
2006) – is fluency, which can be defined as the ability to simultaneously decode and
comprehend a text (Ferrari, 2009, p.7). Due to the aforementioned contemporary
circumstances of integrated education, teachers in general education classrooms must
increasingly endeavor to instruct reading fluency to both neurotypical students and
students with exceptionalities or learning challenges (Reutzel, 2012, p. 121). This is a
particularly difficult task when teaching students with attention-related problems, as the
instructional strategies used to develop reading fluency most often require intense focus
from the students, and attention-compromised individuals are thereby put at a distinct disadvantage (Ferrari, 2009). While much has been written about the link between Attention-Deficit/Hyperactivity Disorder (ADHD) and general struggles in reading, there is a gap in research regarding specific, differentiated strategies to build reading fluency in this population.

**Purpose of the Study**

The purpose of this study is to develop a sample of instructional strategies that are known – through research-based best practice, or through personal experience of a selection of education professionals – to increase reading fluency, specifically in children with ADHD. As mentioned above, this is an issue of significant importance to the education community, as the likelihood is that every classroom teacher will have at least one ADHD student in their classroom at some point in their career, regardless of the teacher’s level of specific training (Murphy, 2012). Having a working understanding of how these attention-related disorders affect a student’s learning would increase a classroom teacher’s understanding of his or her students’ experiences, and having access to a list of instructional strategies to help build reading fluency would provide classroom teachers with the knowledge and resources they need in order to be more equitable and effective literacy teachers.

Beyond its specific focus on fluency within the population of ADHD students, this study will contribute to the current field of educational research on reading fluency in general. Fluency has become a topic of increasing interest in the educational community, as it has been identified by the National Reading Panel as being one of five key skills in reading (National Institute of Child Health and Human Development, 2000). Although its
importance has been recognized in theoretical research, fluency is notoriously time-consuming and labor-intensive to instruct and to assess in practice (Samuels, 2012), which might explain the lack of information regarding effective instructional strategies for reading fluency being currently made available to teachers. This study will attempt to address some of these issues, discussing the importance of fluency for every student, how a student’s challenges in the classroom can impact their learning, and providing insight into classroom practice that effectively encourages student success in the pivotal area of reading fluency while differentiating instruction for students with attention-related challenges.

**Research Questions**

Over the course of this study, I hoped to ascertain which instructional strategies are the most effective in increasing student achievement with fluency in reading, and to provide specific ways in which overall instruction could be differentiated to accommodate students with attention-related challenges in a general education classroom setting. Based on semi-structured interviews with education professionals and on a review of current literature, this study will provide current and future classroom teachers with a more concrete understanding of the intricacies of – and best practices for – integrating students with ADHD into a general education setting and building their reading fluency.

My overarching research question is thus, ‘What instructional strategies might be most effective in increasing reading fluency at the Primary/Junior level, specifically in students with ADHD?’

This study is, admittedly, an ambitious approach to a highly specific topic. A
proper undertaking of this research must be consequently multidimensional, encompassing several main themes: firstly, how Primary/Junior-aged students are neurologically, behaviorally, socio-emotionally, and academically affected by having ADHD; secondly, how reading fluency is (explicitly) taught and assessed in general education classrooms; thirdly, how having ADHD affects a student’s ability to read fluently; and, fourthly, what specific strategies can be used to differentiate fluency instruction for attention-compromised students. Specific research sub-questions therefore include:

- How might having ADHD affect the neurology, behavior, socio-emotional experience and academic success of Primary/Junior-aged students?

- How might the literacy experience of a student with ADHD differ from that of a neurotypical student?

- What are some effective means of explicitly teaching and assessing fluency in general education classrooms?

- How might strategies of fluency instruction be differentiated for students with attention-related learning challenges?

- How can these strategies be effectively implemented in the average classroom by a teacher with only basic training in Special Education?
Background of the Researcher

I undertook this study examining the relationship between success in reading fluency and students with attention-related exceptionalities for many reasons, both personal and professional. On a personal level, literacy has always been of natural interest to me: as a child, I began reading and writing from an extremely early age, and have continued to pursue careers and paths of study that allow me to indulge this interest in the written word. For many years, in fact, reading came so easily to me that I could not understand why my peers struggled, and I have since spent many hours invested in personal research, trying to gain some insight into the troubles faced by many.

An observation resulting from family experience was my first inkling that students with attention-related learning disorders might have a different learning experience than neurotypical children: I have relatives on both sides of my family who have been diagnosed with ADHD, but even before any of these family members were diagnosed, it was clear that their lived experience was different from that of many others. There was a sense of impatience, a need to keep moving and jump ahead to the next activity, next joke, next task – often without completing the one they had started. This, I thought, must make it even harder to learn to do something as complex and ubiquitous as reading.

My observations during various teaching experiences suggested to me that there was, in particular, a correlation between reading dysfluency and children with ADHD. During my practicum in a combined Grade 3/4 classroom, I was able to facilitate guided reading sessions with several groups of students at various ability levels – including two students diagnosed with ADHD – and witness the challenges of reading fluency first-hand. The reading of many of the Grade 3 students was decidedly dysfluent: pauses, word
repetitions, substitutions, mispronunciations, and improper word stress were frequent. Some of these students would even have a negative physical reaction to oral reading – slouching when being asked to read, eyes watering when they made mistakes.

Many of the Grade 4 students were, understandably, much stronger readers as a whole, and those who struggled seemed to have less of an emotional reaction, possibly due to their extra year of practice with reading. The ones who still reacted emotionally to their lack of fluency, however, were those with learning differences and exceptionalities. It was then that I noticed that my two students with ADHD were among those who struggled the most with oral reading, even at the higher grade level. I therefore began to suspect that achieving reading fluency in particular might be especially challenging for students with ADHD, since they are neurologically unable to devote the sheer amount of focus and attention to the text that reading it fluently would require.

I recently began tutoring a Grade 3 student with ADHD who has considerable struggles in fluency, which lent further credence to the correlation between ADHD and dysfluency. Hearing this student and his family discuss how difficult school is for him in a general education classroom is upsetting to say the least: he knows he is not performing well academically, and this has made him discouraged, frustrated, and unmotivated to work on building his reading.

This experience, in conjunction with that of my observations during previous teaching experiences, and my own family situation, has made me deeply aware of just how upsetting and frustrating it must be for a child to be disadvantaged because they learn differently, especially in something as ubiquitous as reading. Children – and adults – with ADHD face a unique set of challenges, challenges that need to be understood and
accommodated for if the person is expected to feel positively about their learning experience. It is for this reason that, for my Master of Teaching Research Project, I chose to investigate instructional strategies for increasing reading fluency in children with ADHD symptoms.

Overview

This study provides a brief review of literature relevant to the topics of reading fluency and Attention-Deficit/Hyperactivity Disorder, includes excerpts from interviews with three practicing educators, and argues for a practice of literacy instruction that accommodates for students with attention-related challenges using instructional strategies other than generating automaticity through repeated reading.

Chapter 1 includes the introduction to and purpose of the study, the research questions that guided the study, and a brief description of my own personal background as a researcher and my connection to the research topic. Chapter 2 contains a review of the literature that informed this study, notably regarding the place of reading fluency in relation to text comprehension, how the learning experiences of students with ADHD are affected by their executive functioning impairment, and the negative correlation these symptoms have with reading fluency. Chapter 3 of this research project provides the methodology and procedure that were used in this study, including information about the sample participants and data collection instruments.

Chapter 4 presents the research findings, organized into four themes: how the classroom experiences of children with ADHD might differ from those of neurotypical children, accommodations to assist in integrating students with ADHD into general
education classrooms, traditional fluency programming, and, finally, differentiated instruction strategies to build reading fluency in children with ADHD. Chapter 5 includes a discussion of these findings and their connection to literature, as well as the limitations of the study, recommendations for future study, and conclusions and implications for practice. References and appendices are provided at the end of the project.
Chapter 2: LITERATURE REVIEW

This study combines two areas of pedagogical study: the importance and instruction of reading fluency, and the learning experiences of students with attention-related exceptionalities. For various reasons, both areas of study have been subject to a marked increase of research in the past decade, and the present research project will therefore rely predominantly on information published during this time period, so as to ensure the inclusion of the most current, relevant literature on the topic(s). Several themes have emerged from the researcher’s literature review, as detailed below.

Reading Fluency

What is “Reading Fluency”?

Reading fluency is undeniably an important part of an individual’s overall literacy proficiency, and while much has been published on the topic, contemporary researchers each have slightly varying definitions of what exactly it means to be a “fluent” reader.

The Report of the National Reading Panel, for example, purports that a fluent reader will be able to “read orally with speed, accuracy, and proper expression” (Institute for Child Health and Human Development, 2000, p. 9). Not all definitions of reading fluency, however, agree on fluency being an exclusively oral act: Chard, Pikulski and McDonagh (2012) argue that a student’s silent reading capacities must be also taken into account in order to accurately measure their level of fluency, due to the fact that most readers spend significantly more time reading silently than reading aloud, and therefore their capacity for oral reading may not be reflective of their true fluency.

Schwanenflugel and Benjamin (2012) also posit that reading fluency has both an
oral and a silent dimension. They specifically define fluency as follows:

Fluency combines accuracy, automaticity, and oral reading prosody, which, taken together, facilitate the reader’s construction of meaning. It is demonstrated during oral reading through ease of word recognition, appropriate pacing, phrasing, and intonation. It is a factor in both oral and silent reading than can limit or support comprehension (Kuhn, Shwanenflugel & Meisinger, as cited in Shwanenflugel & Benjamin, 2012, p. 35).

For the purposes of this study, fluency will be defined as a student’s ability to simultaneously decode and comprehend a text, while reading with appropriate pacing and (in the case of oral reading) expression.

Most researchers agree that fluency is intricately linked to reading comprehension. Walker, Mokhtari and Sargent (2012) identify three main schools of thought regarding the connections between fluent reading and text comprehension. Firstly, the developmental view of reading fluency, which suggests that, with age and increased brain development, “children become more fluent as their text understanding increases and become better comprehenders as fluency increases” (Walker, Mokhtari & Sargent, 2012, p. 74); reading fluency acting as a bridge by which students can connect word recognition and semantics.

This developmental view is juxtaposed with the linguistic view, which suggests that children become fluent by developing over time an inherent understanding of the syntactic structures of language and becoming adept at parsing them into semantic units, which is in itself an exercise in text comprehension (Walker, Mokhtari & Sargent, 2012).
Proponents of this view of the fluency-comprehension link maintain that fluency is primarily developed through language knowledge, which then creates comprehension.

The third school of thought about the linkages between reading fluency and comprehension, the automatic information-processing view, argues instead that a student’s reading must become fluent before they can comprehend a given text, as prior to achieving fluency, a student’s brain must be uniquely focused on decoding and accuracy, leaving no attention for semantic understanding (Walker, Mokhtari & Sargent, 2012). While these three schools of thought are by no means exhaustive, they do provide an understanding as to the extraordinarily complex relationship between fluency and comprehension, arguably the main goal of reading.

**Reading Fluency Within the Context Of A Literacy Program**

As previously indicated, it is well documented that reading fluency and text comprehension have a strong, intricate relationship. Skilled reading involves much more than fluency and comprehension, however. The aforementioned Report by the National Reading Panel (National Institute of Child Health and Human Development, 2000) advocates for five main areas of focus within a literacy program: phonemic awareness, phonics, fluency, vocabulary, and text comprehension. A mastery of each process must be demonstrated in order for a student to become a skilled reader, which is likely to ensure continued reading success (National Institute of Child Health and Human Development, 2000).

Due to the complex system of interactions between aspects of a literacy program, Shanahan (2012) argues that “the teaching of fluency will be most productive when
teachers devote an appropriate amount of time to the teaching of literacy, [and] when that
time is divided among fluency and other essential elements of literacy that must be fostered” (Shanahan, 2012, p. 19). The Chicago Reading Framework developed by Shanahan (2012) thus details three steps instructors can take in order to encourage overall student success in reading: firstly, devoting the appropriate amount of instructional time to literacy instruction each day; secondly, the ongoing instruction of all aspects of literacy, not just fluency in isolation; and thirdly, the continuous, meaningful monitoring of student achievement in each aspect of reading and writing.

Timothy Rasinski, one of the world experts in fluency research, confirms that effective fluency instruction does not occur in isolation, but rather should occur “in an integrated and synergistic manner” (Rasinski, 2006, p. 705).

**Instructional Techniques For Building Reading Fluency**

From the previous two sections, one can conclude that fluency is an extremely important aspect of literacy, and that a rich literacy program is one that integrates the many skills needed to become a successful reader. Each aspect of literacy, however, is best developed using instructional techniques that address the specific characteristics and criteria for that particular literacy skill. In the case of fluency, one of the most commonly used instructional techniques is the exercise known as repeated re-reading, based on the principle of automaticity.

Repeated re-reading is advocated by many of the experts in the field as an extremely effective means of fluency instruction. The National Panel on Reading defined repeated re-reading as “students read[ing] passages orally with systemic and explicit
guidance and feedback from the teacher,” noting the effectiveness of the practice in increasing “word recognition, fluency, and comprehension across a range of grade levels” (National Institute of Child Health and Human Development, 2000, p. 9).

Samuels (2012) describes how thrilling repeated reading can be for a struggling reader, discussing how each rereading of a passage typically results in fewer errors and an increase in words-per-minute within the student’s oral reading. This means of measurable progress was a huge breakthrough in the field of reading instruction, and teachers and students alike embraced the method as a way to increase rate of reading and thus bolster the confidence of dysfluent readers, who finally were able to sound like “good” readers.

A limitation of repeated re-reading becomes evident, however, when students and teachers become overly focused on the rate of reading as opposed to the word recognition and comprehension skills being developed: Rasinski (2006) warns against over-reliance on repeated re-reading as a method of fluency instruction, suggesting that it could lead to students “reading faster for the sake of reading faster, without giving commensurate attention to comprehension…which is the ultimate goal of reading and reading instruction” (Rasinski, 2006, p. 705). Samuels (2012) noted another flaw in the repeated reading method: it is labor-intensive, requiring one-on-one instruction and assessment. The practicality of relying solely on repeated re-reading as a technique of fluency instruction has thus become questioned in more recent years.

Begeny and Martens (2006) therefore propose a selection of in-classroom exercises used in conjunction with repeated reading to increase fluency, including passage previewing, word practice, and phrase-drill error correction. These strategies use a variety
of organizational techniques, combining students into small groups, using the whole class, dividing into pairs, and including periods of independent work, providing variety and freeing up the instructor for assessment and supervision of student progress. The researchers therefore conclude that a similar combination of several different fluency exercises is more beneficial to struggling readers than a more intensive focus on repeated reading.

The Attention-Compromised Student Brain

The Student with ADHD

Each year, a significant number of Canadian children are diagnosed with Attention-Deficit/Hyperactivity Disorder, a phenomenon that is not exclusive to North America: approximately 3-7% of the childhood population worldwide is affected by ADHD, in varying degrees of severity (American Psychiatry Association, as cited in Ferrari, 2009).

Recent scholarship confirms that having ADHD is not an issue of having poor self-control, but rather is a psychiatric disorder that is intricately linked to neurochemical regulation and information processing within the brain, having significant behavioral, social-emotional, and academic consequences. Murphy (2012) identifies overall executive functioning impairment, working memory deficiencies, and decreases in processing speed to be the origins of many of the challenges students with ADHD face in performing at their best in a school environment. Furthermore, the inattention, hyperactivity and impulsivity most often associated with the disorder “interfere with a student’s ability to effectively and consistently met the demands of the classroom” that is traditionally structured around sitting still and listening quietly (Murphy, 2012, p. 25).
These challenges in performing effectively within a general education environment can have long-term consequences for the schooling of students with ADHD. Ferrari (2009) concludes, based on a review of several psychological and pedagogical studies, that students with ADHD “are more likely to be held back in school, get lower scores on standardized achievement tests, and are four times more likely to use special education services than children without ADHD” (Ferrari, 2009, p. 8).

While ADHD on its own can cause significant neurological and behavioral challenges for a student, ADHD in particular has a high rate of comorbidity with Oppositional Defiance Disorder, the combination of which is extremely likely to lead to poor performance in academic settings and disrupted social relationships for the affected child (DuPaul and Kern, 2011).

Many other learning and psychiatric disorders are comorbid with ADHD. Brown (2013) notes in particular that 34.5% of patients with ADHD have co-occurring adjustment disorders, and that 22.9% suffer from mood disorders in addition to their ADHD. He notes that children between 6-17 years of age, in particular, have reported statistically significant incidences of Learning Disabilities, conduct disorders, anxiety, depression, and speech problems as comorbid with ADHD (Brown, 2013).

It is clear that children with ADHD have significant barriers to achieving social-emotional and academic success in a classroom environment. While there are many different means through which students with ADHD can attempt to regulate their behavior, one of the most common – and controversial – methods is chemical intervention, or medication. Brown (2013) advocates for the use of medication, when needed:
Imaging studies have shown that stimulants improve, and may normalize, the ability of individuals with ADHD to get activated for assigned tasks, to minimize distractibility while doing tasks, to improve functional connections between various regions of brain involved executive functions, to improve working memory performance, to reduce boredom during task performance, and, in some cases, to normalize structural abnormalities. (Brown, 2013, p. 11)

Stimulant medication such as methylphenidate can also impact a student’s willingness to continue with a frustrating tasks and increase motivation, two outcomes that could be greatly beneficial in a general education classroom setting (Brown, 2013).

**Connections Between ADHD and Dysfluency**

While many studies have examined the relationship between attention-related disorders and general reading ability, few have specifically investigated the correlations between ADHD and reading fluency. It is widely documented, however, that “attention and behavior problems have been identified as characteristics of children who do not respond to generally effective reading instruction” (Al Otaiba and Fuchs, 2006, as cited in Ferrari, 2009, p. 7). This is perhaps due to the fact that emergent literacy requires such intense focus and concentration in young children, attributes which children with ADHD are unlikely to demonstrate for any extended period of time.

These challenges lead to below-average reading skills in most children with ADHD. Tannock determined through longitudinal epidemiological surveys in North America that “children with ADHD have 8% to 10% lower achievement scores in
reading” than neurotypical peers (Tannock, 2007, as cited in Murphy, 2012, p. 27). Murphy (2012) discusses weakness in text recall, weakness in comprehension, and difficulties in pragmatic language, higher-order language functions, and basic language abilities as reasons that students with ADHD have significant challenges in literacy.

Low achievement scores and literacy challenges may not be easy to address in children with ADHD: Rabiner and Malone (2003, as cited in Ferrari, 2006) found that, despite individual reading instruction, students with attention problems only made slight increases in reading achievement, whereas their neurotypical counterparts made significant improvement with the same amount of one-on-one instruction.

Such findings reinforce the notion that students with ADHD are at a neurological disadvantage for literacy due to their impairment of executive functioning, and – perhaps more importantly – that many of these attention-compromised students may be unlikely to respond to traditional instructional strategies, thereby making academic progress difficult.

Summary

The topics of fluency instruction and the experience of the student with ADHD are both areas in which much research has been conducted in recent years. Despite this increase in scholarship, however, each of these areas has aspects that have been neglected in recent study.

Several conclusions can nonetheless be drawn from the body of existing literature. Regarding reading fluency, it can be safely stated that, despite slight disagreement in its exact definition, there is general scholarly consensus that reading fluently is an intricate
process involving decoding, word recognition, prosody, speech rate, and comprehension. Fluency instruction must be undertaken with a great deal of intentionality and integrated into a rich literacy program in order to maximize student success. In terms of specific instructional techniques, the research tells us that, while repeated re-reading is one valid strategy used to increase reading fluency, it is by no means the only strategy, and it must be used in conjunction with other exercises so as to fully develop student skill sets.

Regarding the experience of ADHD students, a survey of relevant literature informs us that such attention-related exceptionalities are a reality in today’s neurotypical classrooms, affecting a sizeable portion of children worldwide. Due to their problems with neurochemical regulation, their executive functioning impairment, and possible comorbidities with related emotional and/or behavioral disorders, the academic potential of students affected with ADHD is significantly compromised. While medication can assist many children with ADHD in their ability to work effectively and have a positive experience at school, this is a complex and sensitive topic, and one over which classroom teachers have no control. As research shows that students with ADHD are often unresponsive to typical instructional strategies, classroom teachers must find ways of differentiating instruction to accommodate the needs of these learners in an equitable and realistic way.

The present study aims to investigate the intersection between the topics of reading fluency and the experience of students with ADHD, thereby addressing a gap in current literature and providing current and future classroom teachers with tools that can prepare them for the reality of differentiating instruction within their literacy program for inattentive and hyperactive learners.
Chapter 3: METHODOLOGY

Procedure

This research study is qualitative in nature, drawing information from contemporary literature related to the research topic and including anecdotal narratives taken from interviews with three practicing educators (see “Participants”, below). Conclusions were drawn through an analysis of this interview data, and recommendations were made for how to best translate the information contained within this study into a classroom setting.

The researcher began the study by conducting a review of relevant literature, consulting primarily peer-reviewed articles and research-based books published within the last fifteen years (roughly 2000-2013). The focus was on resources discussing reading fluency, young readers, effective literacy programs, young children with attention-related exceptionalities, differentiated instruction, Attention-Deficit/Hyperactivity Disorder, and the ways in which attention-related challenges affect a student’s classroom experience. Main themes were pulled from this literature review; these themes shaped the selection of interview participants and the line of questioning within each interview.

The literature review provided a sufficient knowledge base and frame of reference from which to position the study: the next step of research consisted of individual, informal interviews with educators, which formed the basis of the raw data collection within this study. Initial email contact with participants ensured that each participant had an adequate level of comfort with and understanding of the purpose and parameters of this research study before consenting to be interviewed. Once such preliminary
considerations had been addressed, each participant was interviewed at a time and location convenient for them, having received and signed a letter of informed consent (See Appendix A) prior to the actual interview taking place.

A list of 20 questions was compiled based on the research questions of this study and the information gleaned from the survey of current literature. Each of the three participants, selected based on a specific list of criteria (see “Participants” section, below), was asked all 20 questions; the participants’ answers were recorded and subsequently transcribed for the purpose of analysis. Although each interview was slightly different, due to the semi-structured format, each of the three interviews lasted approximately 70 minutes.

Once the interviews had been conducted, the participants’ responses were transcribed and meticulously analyzed for recurring themes, recommendations, connections to the literature review, and anomalous data. Analysis of interview data was be performed by the researcher, using a variety of visual organization strategies, including annotation, grouping, tables, and flowcharts. During this process of analysis, interview data was cross-referenced and organized according to theme and sub-theme. Conclusions were drawn based on key findings from interview data and connections to the literature review.

Throughout the entirety of this study, the researcher attended regular meetings with a designated research supervisor, to whom all data and preliminary drafts were submitted, while maintaining the confidentiality of the research participants. Revisions were made as study progressed, and a final written copy of the study was provided to the
research supervisor and research course instructor. Study participants will be informed when the research project is presented and/or published.

**Instruments of Data Collection:**

Informal interviews comprised the instruments of data collection for this study. Following Turner’s (2010) recommendations for qualitative interview design, participants were initially identified as possibilities through network-based canvassing, then officially selected through criterion-based sampling. The interviews were semi-structured in nature, as research shows that this type of interview structure is likely to provide a reliable and consistent questioning framework, while still allowing for follow-up questions or clarifications within the interview period according to how each individual interview is progressing (Turner, 2010).

Each interview participant was asked a series of 20 questions and given ample time to provide answers to each question. Participants were provided with a list of interview questions at the commencement of the interview, for use as a memory aid if they desired. Questions asked during the interviews were specific, divided into five categories: introductory questions (ex: “How long have you been teaching, and what grade do you currently teach?”), questions relating to students with exceptionalities (ex: “What is your level of experience with students with exceptionalities in general education classrooms?”), questions relating to their experience with students with ADHD, questions relating to reading fluency (ex: “What instructional strategies and/or activities have you found to be most effective when teaching fluency?”), and questions relating to the reading fluency of students with ADHD (ex: “How do you differentiate your instruction
in fluency for struggling students, particularly for those with ADHD?”). A complete list of interview questions can be found in the attached Appendix B.

Responses were digitally recorded – with permission of the participant – and transcribed. The data gathered from the transcripts formed the basis for the qualitative portion of this study, as detailed below in the “Data Collection and Analysis” section.

Participants

Three education professionals were selected as participants for this research study. Due to the fact that the research being conducted was based on elements of the current Ontario Elementary curriculum, selected participants were education professionals currently working in Ontario, at a public or Independent board. The research in question examined differentiated instructional strategies used in general education classroom environments, so the participants had to be educators with experience in both Special Education and general education. Furthermore, as this study focused on strategies used to accommodate for students with ADHD, participants had to have experience in teaching students with ADD or ADHD. Lastly, as this study aimed to investigate effective differentiated instruction strategies for building reading fluency in children with ADHD, the participants must have self-identified or have been identified by peers as having a measure of success in explicitly differentiating fluency instruction.

Selected participants were Christina, Geraldine, and Anique. Christina is a Learning Specialist in an Independent school, and has Specialist Additional Qualifications in Special Education and Reading. Geraldine is a Grade 4/5 general education classroom teacher who spent many years teaching Grade 1, and who has a
Reading AQ Part 1 as well as a Special Education AQ Part 1. Anique is a teacher-educator and former Reading Recovery teacher whose own research focuses on the literacy experience of children with ADHD.

**Data Collection and Analysis**

Data for this study was collected in a number of ways. The researcher took notes by hand when consulting relevant literature, and jotted down by hand research ideas, observations, notes, and other information used for the purpose of drafting the final write-up of this study. These handwritten notes were contained in a notebook that remained with the researcher or locked in a drawer at all times. Electronic notes were contained on the researcher’s personal laptop computer and iPad, both of which are password-protected.

The interviews themselves were audio-recorded using GarageBand, then transcribed using InqScribe. The transcribed texts were each read several times, and important information was underlined and annotated. Relevant quotations from the transcripts were excerpted, color-coded, cross-referenced, and organized visually in groups according to themes and sub-themes. This re-organization formed the basis for the conclusions drawn from the data, as parallels were drawn and patterns became clear. Transcript data was then analyzed in connection to the literature review and evaluated.

Based on the process and content of the research study, limitations to the study, recommendations for further study, implications for practice, and conclusions were established.
Ethical Review Procedures

Each step of this research project followed the ethical review approval procedures outlined and mandated for the Master of Teaching program at the Ontario Institute for Studies in Education through the University of Toronto.

All participants were treated in a professional and collegial manner, with respect and concern for their level of comfort with the research process and with the study itself. It was made abundantly clear to the participants that they had the right to withdraw from the study at any time, even after consenting to participation. During initial contact and the interview itself, the participant was referred to by their given name, but pseudonyms have been used within this paper so as to ensure the participants’ confidentiality. Further, the researcher endeavored to remove all possible identifiers that could compromise the participants’ confidentiality, including only that information which was crucial to the study itself.

Participants were initially contacted via the researcher’s official University of Toronto email address. As previously mentioned, initial communications served to confirm the participants’ suitability for inclusion in this research study, as well as to provide the participants with an adequate level of comfort with and knowledge of the study and its procedure. Once participants had been selected and pre-briefed, a time and place was arranged for the actual interview to take place, according to the participants’ schedule and preferences (thereby ensuring the participants’ level of comfort with the interview process). In two cases, the interviews took place over Skype, since the participants were out of town.

Participants agreed voluntarily to take part in the study, and were provided with
ample information about the research process and the research itself prior to confirming their participation. Prior to the interview, participants received a copy of the Letter of Consent (see Appendix A), allowing them sufficient time to review the information and make an informed decision regarding their participation in the research. This Letter of Consent detailed the topic and purpose of the research, introduced the researcher, outlined general research parameters (including the use of pseudonym), and indicated risks and benefits of participating in the study. Participants were encouraged to ask questions or ask for clarifications both before and after the interview took place. Two copies of the Letter of Consent were signed: one remains with the participant, and the original will remain with the researcher.

The participants were informed that the interviews would be recorded and transcribed to ensure accuracy. The audio recordings will be destroyed after the study has been presented and/or published, and a copy of the completed study was provided to each participant. Interview data (audio recordings, interview transcripts, email communications, and the researcher’s personal notes) was contained on the researcher’s personal laptop computer, which is password-protected, and saved in password-protected files. The raw data was seen exclusively by the researcher, the data with participants pseudonyms was seen by the researcher and the research supervisor.

Limitations

As with any body of work, this study had a number of inherent limitations. One major limitation was time, as the research was conducted over the course of approximately eighteen months. If timing were not so constrained, the effects of
differentiated instruction strategies for reading fluency could be tracked longitudinally, providing greater insight into their relationship to student reading success.

A second major limitation was that of sample size. While a larger, more diverse sampling would be preferable in order to enrich and confirm findings of the study, the time constraint was a major factor in the number of one-on-one interviews it was possible to conduct and analyze effectively. As such, the number of participants in this study was limited to three. An additional group interview also took place, though the results of this interview were excluded for reasons of time and scope.

While time and sample size were two of the procedural limitations of the study, the execution of this research project was also subject to methodological limitations in terms of voice. A significant limitation in this regard was the fact that the researcher is neurotypical, and has self-identified as having a facility for and a vested interest in reading. This could be one potential source of bias within the data analysis. Similarly, the three research participants were all educated women with professional interest in the topic of literacy and ADHD, further contributing to bias.

A second, and perhaps more significant, limitation of voice was the lack of student voice within this study. As the overarching research question motivating this study was an exploration into *effective* instructional techniques for increasing reading fluency in students with attention-related exceptionalities, the experience and narrative of such students need to be taken into account in order to truly analyze how these specific instructional strategies affect their learning. While general effectiveness of instructional strategy can be determined through educator anecdotes, educational research and professional opinion, the inclusion of one or more voices of students with ADHD would
have provided the insight into student experience that is currently lacking from this study. Ethical considerations made such inclusion of student narrative impossible for this particular research project, however this should be considered an important avenue for future research in this area.
Chapter 4: FINDINGS

Introduction and Summary

Literacy, reading fluency, and ADHD are all complex topics, each of which relates to many widely debated issues in the fields of education, medical research, and parenting. This chapter is comprised of the research participants’ responses to a series of questions as recorded during each individual semi-structured interview. The line of questioning for each interview was guided by the overall research question – “What instructional strategies might be most effective in building reading fluency, specifically in students with ADHD?” – and participants were encouraged to discuss observations and experiences from their own teaching careers.

The transcripts from the interviews were coded for commonalities and differences, and the most relevant statements were collated, compared against each other, and grouped below according to the four major themes that developed from the coding process: why the experiences of children with characteristics of ADHD might differ from those of neurotypical children in the same classroom, accommodations to assist in the full integration of students with ADHD in a general education classroom, traditional fluency programming, and differentiated instruction strategies to build reading fluency in children with ADHD.

As mentioned above, this chapter is comprised solely of findings developed from the interview data. A discussion of the significance of the participants’ statements as they relate to the research questions and to the existing literature on the topics of reading fluency and the school experience of children with ADHD will be left to Chapter 5, the Discussions portion of this research project.
Classroom Contrasts: Why the Experiences of Children with Characteristics of ADHD Might Differ From Those of Neurotypical Children

The statements, observations and experiences of the participants are organized below into three sections: the social-emotional experience (comprising peer relationships, self-efficacy, and outside influence), the academic experience (comprising the potential for success, specific challenges faced by those with the different types of ADHD, coping mechanisms, and potential long-term consequences of academic struggle), and teacher perception of the ADHD student. Due to the interrelatedness of the topics themselves, there is some degree of overlap between sections.

The Social-Emotional Experience

The three participants all agreed that the social-emotional experience of a student with ADHD could be vastly different from that of neurotypical children in the same classroom environment, for a multitude of reasons. The positivity or negativity of the students’ experience in a classroom can depend largely on the teacher and the culture they have created, suggested Anique. If she has set up her classroom in an inclusive way, Anique said, the social-emotional needs of the child are more likely to be met. To this end, Anique said that if social problems were to occur within the classroom space, she would “need to take a look in the mirror: what is it that I’m not doing or am doing that’s creating a problem there?” She agreed that children with an exceptionality or learning difficulty might have a different experience than that of many neurotypical students, but maintained that if the teacher has “set up the classroom so that everyone feels comfortable and the needs of the child are met,” their experience would unlikely be a negative one.
All three participants agreed that a major concern for students with characteristics of ADHD, in particular, is forming and maintaining positive peer relationships. Geraldine attributed many of these social difficulties to the fact that students who have an executive function impairment often are quick to anger, have strong emotions, and demonstrate an apparent lack of empathy towards their peers:

They're really quite self-centered, or at least they appear to be, based on their behavior and their distractedness. Someone could tell them, ‘My dog just died’ and they're like, ‘Hey look at that piece of paper on the floor.’ It's not that they don't care about the person or they don't care that that happened, it's just that they're unable to control their impulses or their ability to focus, so it impacts on their social relationships absolutely.

Complicating this issue, Geraldine concludes, is the fact that students with ADHD are likely unable to reflect on how their behavior has caused social rift, and therefore remain seemingly unapologetic.

Coupled with high levels of impulsivity, this lack of understanding of long-term effects of their behavior can cause students with ADHD to lose friendships quickly. By the end of second grade, said Anique, most students with ADHD will lose their peer relationships, and the social dynamics of the classroom can shift as other students begin to exclude them. As Geraldine explained, the other students slowly begin to see the child with ADHD differently because of the seeming lack of social consideration, and the child with ADHD “doesn’t even recognize it” because of their inattentiveness.

These social problems may not be apparent to the child in question early on, suggested both Christina and Anique, but as the child ages, the effects of social instability
increase. “Think of the implications of that,” urged Anique, “if you multiply that happening in first grade, then second grade, then third grade.” School can become much more challenging for the student if they do not feel supported socially, agreed Christina, and both academic and social anxiety can begin to develop, leading to poor performance.

The level to which a student believes (or not) in their ability to accomplish tasks or perform in certain situations is referred to as self-efficacy. For students with ADHD, who are known to be highly emotional, maintaining a high level of self-efficacy can be a clear obstacle in a difficult classroom environment. Students are highly attuned to social and academic hierarchies within a classroom, suggested Geraldine, therefore – despite the teacher’s best effort to the contrary – “if you ask the kids in the class who is the smartest kid, they can tell you. They'll know. They know who can’t read. They know who can’t write. They can sense the difference.” This sense of difference, said Christina, is one of the major factors in a student having low self-efficacy, which can have significant academic implications.

Rotary support teachers are often witness to the social-emotional ramifications of difference, she continued, since their very presence in a classroom can cause disruption. The students “pick up quite quickly when I come into a classroom on who I'm there for, why I'm there,” Christina said, “especially as they get into the older grades. And that's hard for kids. Cause they want to be ‘normal.’” Combatting this othering can be a challenge, she admitted, but having open discussions about diverse learning needs is an important first step.

Anique shared a story that illustrated the link between a teacher’s classroom culture, a student’s self-efficacy, and the student’s academic success. In her role as a
Reading Recovery teacher, Anique would withdraw students from their general education classroom for periods of intensive literacy instruction. The majority of this program took place in Grade 1, but Anique would continue her instruction through the students’ second and third grades, if necessary. As a result, she came to know her students quite well. One particular Grade 1 teacher, Anique recalled, took pains to ensure that the children in her classroom who were having social or academic challenges saw themselves reflected in the classroom environment, and the students excelled in that classroom. As the same students moved into other classrooms in subsequent years, Anique recounted:

I would see the difference in their behaviors, their self-esteem, their sense of agency, self-efficacy… All of that would shift, I would say, in a way greatly depending on the kind of classroom climate it was. And oftentimes that depends on the teacher. The child didn't change so much - it's possible they did - but what I noticed was that when teachers were supportive, empathetic, helped them to feel confident about who they were, that there would be a visible difference in who they were.

It was situations like this, Anique said, that allowed her to get a bird’s-eye view of the variability of classroom culture and its effect on student wellbeing.

No matter how well a teacher sets up the classroom culture or accommodates for different learning styles, however, there are some students who do not benefit or thrive from being in a general education classroom, said Anique. Students are aware when they are not performing academically, she continued, which can create a self-fulfilling prophecy: “if someone isn't doing well academically, and they're being told they're not doing well academically, they start to believe they can't do well academically, and then it
can spiral.” Parents’ disapproval complicates the issue even further, she concluded, and the experience of disappointing themselves and others can have a significant impact on the student’s self-efficacy and overall social-emotional wellbeing.

Geraldine’s statements reiterated this important link between a student’s social-emotional experience and their self-efficacy: “the way they feel about themselves absolutely affects how they are able to begin tasks, to have a positive attitude towards learning and not be too frustrated or worried that they're not going to do well to even begin the task at hand (which can make it even more difficult to complete the task, which makes it even more difficult the next time).” An awareness of being different from one’s peers, either due to the presence of rotary support, academic challenges, or to a difficulty in navigating social dynamics, can cause children with ADHD to feel that they are unable to succeed in a classroom environment, which has further ramifications for their learning and their general wellbeing.

The Academic Experience

The three participants all indicated that children with characteristics of ADHD would be much more likely to have academic struggles than neurotypical children in the same classroom, due to the nature of their disorder. Each participant was prompted to describe their observations regarding the academic situation of student with ADHD in a general classroom, and to discuss possible reasons for this disparity, besides the neurological.

A main point of commonality between the three interviews was that each of the participants asserted that the reason that students with ADHD struggle academically is
not a lack of intelligence. Rather, Anique argued that children with ADHD have “average or above-average levels of intelligence,” and that the reason they have difficulties in school is “because they are not able to access the curriculum.” What classroom teachers should focus on instead of evaluating intelligence, said Geraldine, was rather the potential of the struggling student: what were the obstacles to this child’s achievement of his or her academic potential?

There may be many reasons for these challenges, claimed Geraldine, including the child’s social-emotional health, as described in the previous section.

The key difference, according to Geraldine, is not that students with ADHD are unable to complete the work, but simply that they are unable to complete it in the same manner as a neurotypical children. Children with ADHD need redirection, prompting, and other general assistance with self-regulation skills in order to complete tasks: “they’re just not mature enough or self-directed enough to be able to sit down and do the work independently, with simple instructions, and sustain that attention,” she continued. In order to provide equal access to the curriculum, Geraldine said, teachers must provide scaffolds that neurotypical children will likely not require beyond a young age, in order to accommodate for the executive function impairment of children with ADHD.

All participants mentioned the importance of building the executive function capacity of children with characteristics of ADHD. Christina in particular spoke repeatedly of the importance of explicitly teaching executive function skills and habits. The progressive nature of these functions, she argued, makes it so that some must be learned before others. She named attending, task initiation, planning, and organization as
the key executive functions that must be developed before children with ADHD can begin to access the curriculum on their own.

Any lag in these – and the other – executive functions becomes more apparent as the child moves through the grade levels, suggested both Anique and Christina. Though each child is differently affected by their ADHD, all three participants identified specific challenges that may present themselves, depending on the type of ADHD that the student exhibits.

The struggles that the child with predominantly Hyperactive or Combined type ADHD is likely to experience are perhaps best known. Since the traditional classroom arrangement involves sitting for most of the day, following a particular structure, and effectuating multiple transitions between activities and spaces, children with either of these types of ADHD may feel that the school environment is completely counter to their way of being, submitted Anique.

Christina and Geraldine discussed the behaviors and attitudes most commonly associated with this type of ADHD: blurt out, interrupting, fidgeting, inability to sustain effort, need for frequent body breaks, inability to complete tasks on time, forgetfulness, and repeated questioning. These behaviors might make it appear as though the student is intentionally not listening, suggests Christina, but often the reality is that they are simply unable to retain the appropriate amount of information in their working memory, so multi-step tasks become a true challenge. These are, Geraldine comments, often the behaviors that teachers spend most of their time mediating in a classroom setting.
Contrasting that image, the participants described the challenges often faced by students with predominantly Inattentive type ADHD. Though students with this type of behavior are often less likely to be an annoyance to classmates and teachers, Geraldine said, their academic challenges are equally as real. “They can be so distracted just in their own world, sitting there quietly and thinking their own thoughts, not bothering anyone, that they don’t get anything done,” she explained, and if the work isn’t getting done, the child isn’t reinforcing their learning at school, which can have serious academic repercussions.

This tendency to withdraw into their own world, argues Anique, is what puts students with Inattentive type ADHD at a “greater risk of failure” than their more hyperactive counterparts. The danger, she continued, is that these students might “fall through the cracks” academically because they are less obvious to teachers. Christina’s statements seconded those of Anique, mentioning the inability to attend to the details of text or speech as one of the most problematic elements of this type of ADHD, given that people must constantly attend to the world around them in order to make meaning of what is occurring.

In addition to naming some of the major challenges faced by students expressing the different types of ADHD, each of the participants identified a means by which students with this disorder are likely to cope with their academic struggles. The impulsive nature of students with the predominantly Hyperactive type can lead them to “create novelty” when bored, cautioned Anique. Similarly, those with characteristics of Combined type ADHD may avoid tasks that they dislike or find challenging by “acting out, getting up, making noise, moving around, or looking away,” according to Geraldine.
Christina indicated that, as opposed to creating a classroom-wide disturbance, students with predominantly Inattentive type ADHD will often try to hide incomplete work or simply copy the work of a classmate in order to keep up with the workload of a general education classroom.

Regardless of the type of ADHD exhibited by the student, there can be long-term academic challenges if accommodations are not made. Anique spoke of the dangers of the ripple effect – similar to those she described as potentially occurring due to social-emotional distress – that can occur if the student does not find ways to be more successful socially and to reach their academic potential: “if you're talking about, for example, a student in first or second grade - where they're learning to read – and they miss the opportunity because of their academic challenges, then that difficulty is going to carry through for many years afterwards,” she warned.

This difficulty can transfer to future academic experiences, should the child never find means of accessing the curriculum or develop effective learning habits. Anique described some of the potential consequences of long-term academic struggle:

Especially for kids with ADHD, when they don't do well academically, especially when they get older, they have a higher dropout rate, higher truancy rate... I think they're less likely to reach their potential because they, over and over again – and usually it happens year after year – they get a message that they’re not smart and that they can't succeed. So I think they're less likely to take good risks and to think of things like university, and to aspire to things. You can get into a really negative cycle.
Though all children learn differently and experience different struggles at one point or another of their academic career, all three participants indicated that children with characteristics of ADHD are less likely overall to reach their academic potential, and are at a higher risk of failure than their neurotypical counterparts.

Teacher Perception of Student

While teachers often attempt to remain as neutral as possible, the reality is that they form perceptions and opinions of their students, and that these opinions can affect the teacher’s interaction with the student. Though no direct question regarding teacher perception of their students was posed to the research participants, Christina, Geraldine and Anique all identified this as one of the factors contributing to a student’s level of success in a classroom environment.

ADHD is not in a category of exceptionality, explained Anique, so there are not many resources or training opportunities available for teachers regarding the challenges of living with the disorder. Instead, she expressed that “parents cross their fingers that the classroom teacher knows something about, or knows someone who has ADHD,” so that they will be able to accommodate for their child.

Unfortunately, most educators do not have any level of comfort with ADHD, Anique continued, expressing that there is in actuality “a very small percentage of teachers who really, truly understand how best to support kids with ADHD and who understand the academic challenges” that the disorder causes. The typical classroom teacher, therefore, spends a significant amount of time correcting the behavior of a
student with ADHD instead of determining how they can best support that student’s academic or social needs.

Anique admitted that that was the case in her own early teaching practice, before she came to learn about ADHD and its effect on the student’s ability to function to their potential within a classroom environment. She has since spent many years researching the disorder; part of her work involved speaking with other educators about their understanding of ADHD. A major finding of her own research, she explained, was that, before learning about the challenges faced by children with characteristics of ADHD, the teachers “weren’t quite as willing to differentiate their instruction” for such students.

This reluctance, Anique revealed, was due to a fundamental misunderstanding: the teachers were “annoyed, they were frustrated, they felt that the kids were being pains on purpose” because, at the time, “all they understood was that this child was inattentive and hyperactive,” and that they needed to mediate the disruptive behavior. The teachers she spoke to, Anique said, “used to blame the student” for such behavior, even though they were all “experienced teachers who knew how to differentiate.” It was not until the teachers received specific professional development regarding ADHD that they became more understanding of the student’s way of being.

Christina similarly expressed how frustrating it can be when a student is consistently inattentive or disruptive, and the classroom teacher must frequently refocus the child, at the expense of the wider student body. In such cases, she explained, “the behavior sometimes outweighs the academics,” out of necessity.

While such constant mediation can certainly be frustrating for the teacher, it can also affect the student, Geraldine warned. If a child is inattentive, the tendency is for the
classroom teacher to verbally cue the child by saying their name, which can become a marker of difference between the child with characteristics of ADHD (whose name is called on a regular basis), and neurotypical children who are more able to stay on-task. She shared a story that illustrated the potential social-emotional effects of a teacher’s perception of their students:

I was observing in a classroom and the classroom teacher was there - excellent classroom teacher - she just wasn't using non-verbal cues. She was cueing the child using his name. And I started to count, just out of curiosity, how many times she said his name versus the names of the other kids, and it was overwhelmingly more than she would say the others'. I think I heard her say his name ten times in the hour that I was there. And the other kids maybe once or twice. So as much as these kids may have self-esteem issues just for personal reasons, I think that when they're being singled out like that, that that also plays into it.

Unfortunately for the child in question, Geraldine continued, this very public redirection had social repercussions, since the other children in the class began to say the child’s name repeatedly to get him to pay attention. The teacher’s perception and tone of interaction with a distracted child, in this instance, gave silent permission for the other children to mimic her behavior and use similarly stern tones with their classmate.

This awareness of difference, coupled with academic and social-emotional difficulties, can take a heavy toll on a student with characteristics of ADHD. Anique shared that in her discussions with parents of children with ADHD, the parents would often cry on the phone with her, sharing that “their kids would come home saying ‘I'm
stupid, I'm dumb, I wish I had a different brain.”’’ This extremely low self-confidence level, Anique posited, was likely due to the fact that “those [were] the messages they were getting from school, because they weren't able to access the curriculum, they weren't getting the support they needed, because teachers didn't understand them.”

**Accommodations to Assist in Integrating Students with ADHD into a General Education Classroom**

The classroom space and its established social codes have a clear influence on the experience of the students operating within them. Given that the previous section confirmed that students with characteristics of ADHD will likely face several challenges in a general education classroom, the following includes the participants’ recommendations for accommodations to assist in the more effective integration of students with ADHD into a general classroom environment.

The section is divided into four main topics: classroom set-up and routines, the potential effects of chemical intervention, professional development regarding ADHD, and parent-teacher dialogues.

**Classroom Set-up**

A classroom is a very important space for children, as it is a major component of their weekday life. It follows, therefore, that the way in which a classroom is physically set up and the social expectations that are established therein have significant impact on the experience of every student in the class. For a student with an exceptionality or learning challenge, the classroom can be an even more sensitive space.
Anique acknowledged the delicate nature of the physical classroom space. “It is how we set a student up for success,” she explained, “If they walk through the door and see themselves reflected, regardless of whether they have an exceptionality or not.” Teachers must, however, think about the students who will be operating in the classroom space, Anique continued, as in some instances, certain accommodations must be made.

The traditional classroom set-up, for example, may not be optimal for students with characteristics of ADHD, since these students may need more space in which to move around. Within the confines of the physical classroom, consequently, teachers must create areas in which students “can get up when they need to, to have two desks, to stand up if they’re writing, have a space where they can take extra time if they need to… all of the things that help kids with ADHD that aren’t often [built into] a classroom.” If you set up a class in this way, Anique argued, the student will feel welcomed, like it has been set up with them in mind instead of being an add-on. As mentioned in the findings of the previous theme, the social-emotional wellbeing of a student has a high degree of correlation with their academic success, so the importance of an inclusive physical environment cannot be ignored.

Smaller, more temporary, accommodations can also be effective in more fully integrating students with characteristics of ADHD into a general education environment. Christina recommends, in particular, noise-reduction headphones to increase concentration, “fidget toys” to calm students when agitated, and therapy balls to satisfy the child’s inherent need for movement without them physically getting up. Self-advocacy in asking specifically for such accommodations is a new concept for children, she remarked, but the more we make such accommodations available to every student,
the more comfortable the students who truly need the accommodations will be in using them during class time.

Another key aspect of the classroom experience is the set of routines established by the teacher and followed by all students. Here, Anique suggested, is another opportunity to blend the needs of one student into those of the larger group. Introducing accommodations at the beginning of the year, and making them available to the entire class, is an effective means of addressing the specific needs of a student with characteristics of ADHD without singling them out in front of their peers, she said, providing the example of an “I need to stand up for a while” signal that can be used by any student, though that is designed for the student with ADHD. This aims to ensure that the student with the learning challenge will not feel uncomfortably different from their classmates.

While some accommodations can be blended into the larger classroom experience, there are others that are only required by students with characteristics of ADHD or similar executive function impairments. For these students, mentioned both Christina and Geraldine, the teacher must provide assistance with self-regulation in order for the student to have the same access to the curriculum as does a neurotypical children on their own.

Geraldine expressed that in her own classroom, she positions herself as compensation for the lagging planning, task initiation, organization, and self-regulation skills that are a symptom of ADHD. Disregarding what would be seen as “age-appropriate organizational skills,” she explained, she frequently checks to ensure that her students have written down their homework, organized their desk, packed their bags, and
completed required tasks. “I really have to check everything they do, step by step, so they can get through the day,” she confirmed, “I'm basically their frontal lobe.”

When students are experiencing continued difficulty with attending to details and task completion, Geraldine gives the students preferential seating. “Some students need a quiet place to complete work,” she expressed, and others “can’t get any work done unless they're sitting right beside me and I'm there to tap on the paper and refocus them.” Once the student is in their optimal seating arrangement, Geraldine asks them to read any instructions back to her as a check for understanding, and scribes for many writing tasks. In this way, the student has the best opportunity to demonstrate their learning, minimizing distraction caused by outside stimuli, anxiety over missed instructions, or the physical and mental exertion of writing.

**Chemical Intervention**

Whether or not to medicate children with ADHD is a continuous debate amongst educators, medical researchers, and parents. While the choice to pursue chemical intervention for ADHD is ultimately that of the parents or guardians of the child in question, teachers have a degree of insight into how common stimulants such as methylphenidate or amphetamine affect a student’s performance in the classroom. Research participants were asked for their opinion regarding the effectiveness of such chemical interventions in heightening the executive functioning of students with ADHD in an academic setting, then were prompted to opine as to whether chemical intervention affects whether or not students with ADHD are able to achieve a reasonable level of success in a general education environment.
All three participants indicated that the topic of mediating children with ADHD was a polemic one. Anique said that she tends to avoid the topic entirely due to the intensity with which most people defend their opinion, and both Christina and Geraldine recommended that the most important thing is that a specialist in pediatrics and ADHD monitor the medication and its effect on the child very closely. Each participant asserted that they would never personally recommend that a student be put on medication, but that they could offer information to parents about their child’s classroom experiences that might prove helpful in the decision-making process.

It is not only teachers who are wary of the topic of mediation. “Oftentimes parents are afraid of medication because of the stigma attached,” said Anique, “and because of the media portraying it as medication that can cause addiction in kids.” The reverse is true, she argued: the children who do need medication and who do not receive it often self-medicate through other means, and fall into addiction in the teen years or early adulthood.

Christina reiterated that the medication needs to be closely monitored, and the needs of the child put first. If and when a doctor recommends that children with ADHD receive chemical intervention, she suggests not just speaking to the family doctor, but conferring with a specialist as well. From that point on, Christina explained, it’s a matter of time and observation: “It takes a lot of back and forth with the parents, back and forth with the doctor, in getting this right, because you want to make it work for the child. You don’t want it to be too high a dose; you don’t want it to be too low… So it’s going to take some time.”
The teacher plays an important role in this scenario, Christina continued. Having the opportunity to observe the student over the course of the day, the teacher can be in communication with the parents as to how the medication is affecting the child in many scenarios, not just the academic. Conversely, the parent can reach out to the teacher to let he or she know if a dose was missed, and what to expect that day at school. In maintaining an open dialogue between parents, teachers and doctors, Christina claimed, the medication can be properly supervised.

The effectiveness of stimulant medication is an entirely individual concern, as each child will react differently to chemical intervention. Anique described the broad range of manifestations and symptoms of ADHD as a “continuum,” saying that some students with ADHD can be successful in school as long as the teacher sets up an inclusive classroom (providing lots of opportunities for movement, lots of repetition, high-engagement activities, etc.), but that there are others – “at the very end of the continuum” – for whom success in a general education environment can only be achieved when these accommodations of classroom set up and routines are paired with chemical intervention. In such cases, when differentiation and rotary support simply are not enough, giving students an equal opportunity to the curriculum means chemical intervention.

Once a child who needs medication begins taking it regularly, the effects within the classroom are noticeable, agreed all three participants. “When we see kids on these specific chemicals, it really does help them to regulate themselves and to kind of get all the stuff that's going on with their brain in a more settled way,” explained Christina. Anique agreed, suggesting that medication “allows the brain to slow down so that the
students can attend more, and then succeed more, since research shows that it’s the inattention – the executive function impairment – that causes kids to have difficulties with succeeding academically.”

The students can feel the positive effects of the medication, too, argued Christina. When the dosage has been calibrated to optimize the student’s success, she says, “they can see it working for them; they don’t feel like this hyped-up child who struggles with keeping control” and their self-efficacy is strengthened. As discussed in previous sections of this chapter, having a high level of self-efficacy is integral to student success in the classroom environment.

Geraldine spoke more positively of the effectiveness of chemical intervention, but maintained that the dosage and type of medication need to be correct in order for the full effects to be evident. When the right levels have been reached, she said:

I think it works wonderfully. There are a few students in my class where I can absolutely tell if they've had their pill or not, and it has a huge impact if they don't. They're not very productive at all. I think what happens is that the kids who do take their medication have that two-second delay, they're able to function more independently - they're not blurtting out, they're not as annoying to the friends around them, and that helps to keep their self-esteem intact. They feel better about themselves, so with that self-confidence they're able to do better in school. The ones who do not have that chemical intervention generally do not have the same sense of self-control, and it's just a downward spiral. Other kids are upset with them; that affects their self-esteem, and then their performance.
In Geraldine’s experience, therefore, medication – properly supervised – is a key factor in the successful integration of students with ADHD into a general education classroom environment.

Anique acknowledged that not everyone is on board with the idea of medication, and that there are some children who are pursuing chemical intervention and do not need to be. “But that doesn’t negate the fact that there are others whom the medication helps. That’s where the problem is with those blanket statements of, ‘Everyone’s on medication! We’re drugging childhood!’ because there are children who benefit greatly from being on medication,” she reasoned. The effectiveness of chemical intervention, like any other accommodation, must be evaluated on a case-by-case basis.

**Teacher Awareness of and Professional Development Relating to ADHD**

As mentioned earlier in this chapter, the classroom teacher’s understanding of ADHD can greatly affect how they interact with a child exhibiting the characteristics of ADHD in their class, which can, in turn, affect the child’s academic performance. Research participants recommended that professional development was key to facilitating teachers’ differentiation for children with characteristics of ADHD.

As this was one of the areas of Anique’s own research, she had much to say on the topic. Attending authentic, varied, and repeated opportunities for professional development and training (not just one-off workshops) is one of the most important things a teacher can do to accommodate students with ADHD, she argued, as “the research really shows that teachers who don't feel that they have a general understanding of or self-efficacy with how to support kids with ADHD are less likely to modify and
adapt their instruction for those kids.” A teacher’s own confidence in their ability to effectively differentiate will dictate whether or not they take those risks, she concluded.

In her experience, Anique said, after professional development and training as to the challenges created by executive function impairments, many teachers had an ‘Aha!’ moment, and were more willing to differentiate their instruction. As previously discussed, many teachers mistakenly blame the students with characteristics of ADHD for their inattention or hyperactivity; after learning about how the challenges of ADHD translate into classroom struggles, however, teachers in Anique’s research “changed their attitudes towards their kids, and that changed their teaching.” Once the students experienced this new approach to instruction and classroom management, they began to change their attitudes, as well, responding to a different way of being treated.

This newfound understanding of how best to differentiate is, of course, predicated on a fundamental understanding of what differentiation truly is. The level of flexibility and individual attention required for true differentiation is hard for some teachers, Christina warned, who may need additional resources and support in order to do this successfully. The administration should provide professional development opportunities, print resources, and specialist teachers to the entire staff, recommended Christina, as classrooms are getting too big for teachers to handle everything on their own. As Anique put it, professional development regarding differentiation for ADHD “isn’t so much about teaching them how to [differentiate], but teaching them to understand a different way of being, so that teachers can use what they already know.”

Of course, in order to differentiate for one’s students, one must know one’s students. This is an integral part of the process, argues Christina, as rapport and trust are a
重大元素是学习障碍儿童在普通教育课堂中的体验。由于差异化教学需要你与努力学习的学生紧密合作，他们需要信任你：你不会因为他们无法理解某件事而生气，你不会因为他们缺乏注意力而感到沮丧，”她坚持说。承诺理解和接受你的学生和他们面临的挑战是建立这种信任的第一步。

当试图在普通教育课堂中为具有注意力缺陷多动障碍（ADHD）特征的孩子进行差异化教学时，你必须首先了解ADHD是什么。要求的了解水平不仅包括对自身障碍的过客般熟悉，据杰拉尔丁说，还包括对大脑的工作方式以及孩子们如何处理他们世界的理解。在追求这种丰富，你将更能够根据每个孩子最有助于他们的方式来回应他们，她解释说，“因为没有‘典型’的ADHD孩子——他们都不同。这是真正关于理解ADHD和执行功能障碍如何工作，并能够围绕它工作，而不是简单地‘简化’或‘提供一个较容易的’。”

所有参与者都得出结论，利用专业发展机会——从而向学生展示你对他们成功的承诺——是将具有ADHD特征的学生更全面地集成到普通教育课堂中的最有效方法之一。

**Teacher-Parent Dialogue**

一个开放和诚恳的父母或监护人与教师之间的对话是成功学校经验的关键。当孩子有学习障碍时，
difficulties, however, this line of communication becomes even more important. The research participants were not asked any questions regarding relationships with parents, but both Anique and Christina mentioned the importance of communicating regularly with parents at least once during their interview.

Early and frequent communication with parents is a key step to even determining whether or not a child has learning difficulties, Anique observed. Once a diagnosis or plan of action has been made, she explained, the teacher can target their instruction to the specific needs of the child by discussing with family members and caregivers “what strategies have worked in the past, what the child’s strengths are,” and how they are feeling about their current classroom experience. This type of “strong partnership” based on shared information about the student’s successes and challenges, will assist in the creation of a unified vision for the school year, Anique opined, which can make supporting the child that much easier.

Partnership with parents is also something Christina recommended. Parents and teachers can be seeing two different versions of the same child, she admitted, which is why “communication with home is so needed, because we can only do so much here at school.” When the parents are aware of the classroom routines, goals, and areas of focus, however, they can mirror these at home, creating a consistent experience of the child.

**Traditional Fluency Programming**

For the purposes of this study, fluency was defined as the ability to simultaneously decode and comprehend a text while reading it aloud with proper prosody and pace. The participants’ statements on the topic of traditional fluency are organized
into four categories: planning and instruction, assessment, repeated re-reading, and why children with ADHD might struggle with fluency. Differentiation strategies to accommodate for students with ADHD will be discussed under the next theme.

**Planning and Instruction**

Christina, Anique and Geraldine all said that fluency was an integral part of a student’s experience, adding that fluent reading was a skill that played a major role in a student’s future academic success. “It’s absolutely crucial because it’s a reliable predictor of whether or not a child will have reading comprehension problems,” explained Anique, adding that fluency is also an indicator of whether or not a child will continue to read independently. Both Geraldine and Christina referred to fluency as “extremely important.”

Christina and Geraldine added that reading with a high degree of fluency allows for deeper understanding of the text. “The way we speak helps us in our understanding,” described Christina, “so if I’m talking to you in an excited voice, I’m reinforcing the picture in my mind of me being excited; reading with fluency and great expression does the same thing” in literacy experiences. Reading a passage with a high degree of fluency, argued Geraldine, is how a student increases their understanding of what they’ve read and the concepts within it.

Since comprehension is the ultimate goal of reading and fluency is a significant aspect of comprehension, according to all three participants, fluency is therefore a key aspect of a child’s reading experience. In fact, Christina argued that, “if a child is reading just for the sake of reading, and isn’t understanding, then they’re not, in my opinion,
reading at all.” Anique made a similar statement, suggesting that reading is futile unless the student derives meaning from what they have read.

As discussed in Chapter 2, the specific link between fluency and comprehension is a topic that is still debated amongst literacy specialists. Geraldine described the two concepts as being symbiotic: “meaning influences fluency and fluency influences meaning, so when you lose the meaning of a story, [your] fluency is affected because [you] don’t know what you’re reading anymore.” Such scenarios often occur, Anique argued, when the text is at a level inaccessible to student, and they expend all of their cognitive energy decoding as opposed to comprehending and higher-order thinking.

Despite the participants’ acknowledgement of the importance of fluency in regards to a student’s overall academic success, each indicated that explicit fluency instruction is only commonplace in the younger grades. Anique and Geraldine both confirmed that direct, class-wide fluency instruction occurs in Grade 1, but that such instruction is rare beyond Grade 3. At that point, said Anique, specific instruction is only provided for struggling learners.

Beyond the Primary grades, students are expected to develop their own fluency through self-directed reading, explained Anique and Geraldine. At that point, Anique explained, teachers switch from direct instruction to providing “ongoing, multiple opportunities to read: the button has been pressed to go, and [the students] are just on their way.” Some students, she acknowledged, will still experience problems with fluency, but these striving learners are a smaller percentage of the population in older grades.
Christina described the challenges that some students may face with reading fluently, even on a temporary basis. Children can be showing signs of dysfluency for reasons other than ability, particularly if they are experiencing distress in their personal lives. “Who knows what happened in that day, or even that morning before they came to school?” Christina commented, noting that anxiety is a source of inattention and, when experienced to a high degree, can even make it difficult for students to articulate sound, making reading a text fluently extremely challenging.

Explicit, class-wide fluency instruction, said all three participants, is something that occurs primarily in Grades 1 and 2, after which point most instruction is remedial. In later grades, suggested Anique and Geraldine, teachers should focus primarily on providing ongoing opportunities for children’s self-directed reading as a means of independently building fluency.

**Assessment of Student Achievement in Fluency**

As assessment is inseparable from instruction, participants were explicitly asked how they assessed and tracked student achievement in fluency within their instructional program or intervention. The consensus was that reading conferences and running records are the most reliable means by which to assess a student’s level of fluency.

Reading conferences allow teachers to differentiate their instruction for each student, suggested Geraldine, as they provide important information as to the student’s particular strengths and challenges. She shared her strategy for approaching conferences when she was teaching in a Grade 1 classroom, explaining:
We would practice a specific text as a class for four days, and on the fifth day, they'd put it in their poem and song book, then they'd circle the words that they knew how to read, underline the Word Wall words... we had a little code of different things they would do with written text. And then it was really easy to tell where they were, by saying, ‘You’ve circled the words you say you know how to read, so come on up with me and read them,’ because in isolation, you can truly tell if they read that particular word or not, out of the context [of the larger passage]. It made it more efficient.

After you had assessed each student’s level of fluency based on their self-evaluation and their conference with you, Geraldine concluded, you could prepare follow-up activities that would hone in on the skill with which the student needed support. In this way, your assessment would provide you with the information you needed in order to differentiate.

All three participants identified running records as the other common assessment tool for evaluating reading fluency, since many commercial running record assessments include a calculation of fluency percentage, based on pace and errors. Such assessments should be done with each student – struggling learner or not – at the beginning of the year, said Anique, in order to provide a baseline on which to develop programming. Christina argued that running records could be used as a tool throughout the year, since they provide information as to the type of error a student is making, from which you can “identify exactly where your teaching should be [for that student] at that point [of the year].” These upkeep-type running records do not have to be extensive, Christina indicated, as even a two-minute record will provide a significant amount of data.
Repeated Re-Reading

One of the most common strategies for building reading fluency in struggling learners is repeated re-reading. While the participants were not explicitly asked for their opinions about this strategy, Geraldine and Anique both indicated that it was a popular method of instruction, and one that has roots in language development practices.

Geraldine identified the goal of repeated re-reading as automaticity. “In order to become fluent when reading something, you have to practice reading it in the beginning - over and over - so that you're reading things in an automatic way. So that it feels natural, so that you can put in your natural phrasing, and the text sounds like you're just talking,” she explained. Effectively, reading a text repeatedly allows for the words and phrasing to become ingrained in the student’s mind, so they can then work on adding expression.

Both Anique and Geraldine discussed some of the challenges with using the repeated re-reading strategy, noting in particular that it is not very stimulating. Many students might struggle with attending to such a task, suggested Geraldine, “because it’s difficult to get them to buy into reading something more than once. Kids are just inherently reluctant to do that.” Anique similarly warned of the stale nature of the task, especially for students with attention difficulties: “I think that, particularly for kids with ADHD, the repeated rereading strategy would be a nightmare. I think they would do that a couple of times, and then would be bored.” The only way to engage students in repeated re-reading, Geraldine concluded, is to modify the task so that the students found the reading fun.

One way to achieve this, according to Anique, is to add a time-based element, challenging students to beat their own pace. “You could set a student up with a passage
and time them,” she explained, “and then they could graph their reading [as they repeated the passage].” With each reading, the students tried to beat their own time, “which would increase their reading rate, and then you could focus on prosody later.” This strategy does prove effective for increasing reading rate, Anique said, though she reiterated that it was still not a truly engaging activity, and that most students – particularly those with attention challenges – will likely find it boring after a certain length of time.

According to Geraldine and Anique, repeated re-reading is one of the most commonly used strategies for differentiating reading fluency. The inherent goal of repeated re-reading – building a student’s automatic reading of a text – is what can make it challenging to execute, however, as building automaticity requires multiple viewings of the same text, which can easily deter students. Adding time-based challenges can increase student engagement, Anique suggested, though even this task modification is unlikely to remain effective over the course of an instructional year.

**Why Students with ADHD Might Struggle with Reading Fluency**

While each child will have their own individual strengths and challenges, children with characteristics of ADHD, as discussed earlier in this chapter, are more likely to have specific difficulties in accessing the curriculum, due to the nature of their impairment.

Anique and Geraldine both mentioned that not every student with characteristics of ADHD will struggle with reading fluency, and that there are some neurotypical children who will have challenges similar to those of someone with ADHD. Everything is case-dependent, said Anique, but oftentimes children with ADHD will have problems with their reading due to their challenges with executive function and processing speed.
These elements of cognition, she continued, are extremely important for reading. The processing speed affects how quickly a student will recognize the words in front of them, and connect them to meaning, whereas the working memory allows readers to make connections from what they have read. Children with characteristics of ADHD will often have impaired processing speed and working memory, she said, and will “not process what [they are] reading quickly and not be able to hold on to the meaning of things for very long,” which can greatly affect fluency. For this reason, Anique explained, longer passages of text or chapter books can prove extremely challenging for children with ADHD to read fluently, and the child’s reading rate is greatly reduced.

Weaker phonological awareness and other linguistic skills than would be considered typical for their age range can also contribute to the challenges often faced by children with characteristics of ADHD. These problems with word and sound recognition can lead to the reading of children with characteristics of ADHD sounding “staccato,” explained Anique, because “they get stuck reading word by word,” and are not able to recall the proper sound(s) to make. Christina expressed the same sentiment, describing the reading of children with characteristics of ADHD as “choppy…their reading fluency is definitely compromised” by their impairment.

Another obstacle to fluency often experienced by children with characteristics of ADHD is a hampered ability to self-correct. Self-monitoring is accomplished by our brain’s executive functions, explained Anique, and triggers us to go back and fix a mistake that we have made before continuing. For many children with ADHD, this ability to monitor is not strong enough for them to notice errors that they make, so “they are more likely to make an error in their reading and continue on instead of going back and
fixing it up, because they’re not monitoring as efficiently as someone who doesn’t have those challenges,” she said.

Similarly, children with characteristics of ADHD may have more of a challenge comprehending what they have read, since it has taken so much cognitive energy for them to physically read the words on the page. Weak text comprehension in children with ADHD, argued Anique, is intricately linked with dysfluency: “They’re really just reading word by word, or just not really thinking about their own reading, or holding what they’ve read in their memory” long enough to comprehend the concepts in the passage, argued Anique. This is a major difference between children with characteristics of ADHD and neurotypical children, suggested Geraldine, as the latter are more able to spend cognitive energy inferencing and analyzing the text they have read, and therefore are more likely to comprehend the subtleties of the language.

Such continued challenges with reading fluency are likely to increase with time, noted Anique, due to the Matthew Effect. Based on the biblical phrase “the rich get richer and the poor get poorer,” the Matthew Effect predicts that “good, strong readers - the rich get richer - continue to become better readers, and - poor get poorer - poorer readers, or students who are less fluent, are more likely to continue to be poor readers, or even poorer readers” as they move through the school system. As the texts get harder and more complex, the reading level of students with challenges is no longer adequate, and their continued struggle and resulting drop in self-efficacy can result in a decline in reading ability.

Another obstacle to the fluency experience of children with ADHD is book choice, according to both Anique and Christina. As mentioned above, children with
characteristics of ADHD are more likely to have challenges with reading due to their struggles with executive functioning, working memory, processing speed, and phonological awareness. As such, they must have access to manageable texts, which may differ from those that students their age are “supposed to be reading,” said Anique.

This may be extremely disheartening to students, cautioned Christina, as the student may have a strong desire to read the same texts as their peers, regardless of how much they will struggle with it. Anique reiterated, however, that if students are given materials that are too difficult for them, their fluency will not improve or could even decline, as the student will be unable to effectively access the text.

The book chosen for the student with characteristics of ADHD must, in addition to being at the appropriate reading level, also be high-interest and high-engagement, added Geraldine. As students move into the older grades, they are required to read lengthier and more complicated texts, which can – as Anique and Christina indicated – be particularly difficult for students with ADHD. Even if the text is at the correct level, Geraldine explained, the student may not be able to sustain focus due to the features of the text:

If it's an article, and it has little boxes and quotes and diagrams -- if it's non-fiction -- they're fine. But if I give them a story, say, like a narrative or some type of a novel where there are no pictures, just print, it's a nightmare. They don't want to read it, because it's too long, the page is too busy. It takes them a lot of effort to remain focused, so that makes a big difference.
The choice of a book that is too long, too difficult, or has a text-heavy layout can therefore be a reason that children with characteristics of ADHD will face challenges in reading fluency that a neurotypical children of the same age may not face.

**Differentiated Instruction Strategies**

This section responds specifically to the overall research question of this project: what are the most effective differentiated instruction strategies to build reading fluency in children with characteristics of ADHD?

The participants’ views of effective differentiation strategies are grouped below into three categories: expectation and delivery of material (comprising a teacher’s inherent task modifications or accommodations, as well as any changes in the material to be read or the manner in which the task is presented to the students), physical differentiation strategies (accommodations or extensions that allow for the child to physically move), oral performance strategies (choral reading and Reader’s Theatre), auditory strategies (accommodations or extensions that require the child to listen), linguistic strategies (comprising of classroom-wide or individual means of raising word knowledge), and lastly the benefits of effectively differentiating instruction for these students.

**Expectations and Delivery of Material**

The following section describes specifically any differentiation in the teacher’s expectations of the students with characteristics of ADHD, as well as any changes participants recommended regarding the presentation of tasks to students.
Professional development is a significant aid here, said Anique, as understanding executive function impairments will allow teachers to modify their expectations of students with characteristics of ADHD. “Knowing that kids with ADHD have greater challenges with their working memory, and are more likely to have processing speed issues, I would probably spend more time working on those things” independently, continued Anique, calibrating expectations to the potential of the student.

Geraldine similarly indicated that a thorough knowledge of the specific challenges faced by children with characteristics of ADHD would influence her manner of interacting with the students, specifically in regards to providing instructions. Chunking, or the conscious parsing of one task into small parts, is crucial for this population. “If you give them a large stretch of stuff, like what you would typically give a neurotypical kid in the classroom,” Geraldine explained, the students with executive function impairments “just [won’t] know where to start, they’ll immediately feel overwhelmed, frustrated. So, just giving them a little bit at a time, they can handle it, and remain positive when moving through their day.”

Christina similarly spoke of the importance of understanding the disorder before attempting to differentiate for students with ADHD. Students with characteristics of ADHD, she explained, will need direct, explicit instruction, a significant amount of repetition (certainly more than one would expect that a neurotypical children might need), and a generous time allowance in order to complete most tasks. The classroom teacher must be aware of these needs in order to provide this population with equal access to the curriculum.
Once the student has the text to be read physically in front of them, there are several accommodations that teachers can provide which will increase the child’s likelihood of achieving their potential level of fluency. Increasing the text size, whether on assistive technology or on paper, Geraldine noted, “gives them a different access point to the same reading material” as other students in the class, as having less text on a page will decrease the potential that the child will feel overwhelmed or become distracted by the word shapes.

Similarly, Geraldine suggested the use of a “reading window” to narrow the child’s focus towards smaller chunks of text. This window is comprised simply of a laminated piece of paper with a small strip cut out, which the child can place over the page they are reading, moving the window down as they progress. Focusing on one or two lines of text at a time, she explained, is an effective means of directing the student’s attention non-verbally.

Once the child is comfortable with the amount of text in their field of vision, Christina recommended providing them with an opportunity to pre-read the required passage in order to address the potential anxiety caused by fluency difficulties. This early practice, she explained, can provide the student with experience in the text style, vocabulary, and markers for inflection in the passage, so they feel more prepared before reading it out loud in front of the class.

As discussed in the previous theme, book choice can be a means by which fluency instruction is differentiated. As Geraldine noted in a comment presented earlier, a student with characteristics of ADHD will likely find a page of plain text overwhelming and frustrating. When given the opportunity to choose their own texts in the higher grades,
she observed, “kids with ADHD will often read non-fiction, [or other] reading material that has noticeable text features” such as graphic novels.

In the Primary grades, when the classroom teacher is often selecting the material for the students’ fluency practice, the important thing is to ensure that the chosen text is at the child’s Independent level, explained both Geraldine and Christina. Reading such texts will build up the confidence of striving readers, according to the latter, as the students begin to perceive themselves as successful and fluent. This boost in confidence is a function of the child working within their Zone of Proximal Development, added Anique, something which classroom teachers can determine using running records and other formative assessment strategies.

Geraldine also noted that home support must be provided in order for children to move through the reading levels smoothly. In her Grade 1 classroom, she shared, she would send students home with a leveled reader as soon as their reading level had been assessed, and have them exchange it for a new one only once they had mastered the text. The student would then practice the book, she explained, “work[ing] through it with their parents or whomever at home, and once they could read it fluently, they would bring the book back to school and read it to a volunteer or to myself, who would assess the demonstrated level of fluency.” If the book proved too difficult to read with fluency after three or four nights of practice, Geraldine would ask that the book be returned, and she would provide an easier text.

Physical Strategies

One of the more challenging aspects of the classroom for a student with predominantly Hyperactive or Combined type of ADHD, as discussed in the first theme
of this chapter, is the low level of movement during the typical day at school. Anique, Christina and Geraldine all suggested, accordingly, incorporating a modicum of physical activity into the reading experience as a means of differentiating for children with characteristics of ADHD.

When the child is reading, Anique and Geraldine suggested, allowing them to stand or pace in an agreed-upon area of the classroom may increase their ability to focus. Similarly, allowing the child to have “body breaks” — time to move about the classroom or take a short walk — on an as-needed basis may help them attend to the reading of others upon their return.

When movement around the classroom or school is not possible, Geraldine recommended providing students with characteristics of ADHD with opportunities to manipulate materials. Building puppets to correspond with a given text, or illustrating the lyrics to a song may be enough physical stimulation for these children to feel soothed.

**Oral Performance Strategies**

Reading fluency is more often than not an oral task, yet the participants suggested that creating diverse opportunities for oral *performance* might create enough novelty to stimulate children with characteristics of ADHD, engaging them to a level where they can practice texts repeatedly and build their fluency.

Choral reading was a strategy mentioned by all three research participants. Geraldine, in particular, discussed her use of choral reading in a Grade 1 classroom: “I would put a poem up on the SMARTboard at the beginning of the week and we would read it, or sing it if it was a song, and practice it every day for five days, and that would
definitely build fluency in the kids.” The whole-class aspect of this instructional strategy lowers the level of anxiety children with characteristics of ADHD might feel at being asked to read independently in front of their peers.

Anique, however, favored Reader’s Theatre as a means of differentiating fluency instruction for students with characteristics of ADHD, calling it “one of the best literacy instructional tools” that she ever used. In Reader’s Theatre, explained Anique, students are placed in small groups, then given a script to practice and to eventually perform in front of an audience. There are numerous benefits to this approach, she said, but the biggest is that, due to the structure of the task:

It gave you, embedded, access to manageable texts (because each of the kids would get texts that they could read – it would be at their levels), effective modeling (because they would be reading the script with other kids, so they would hear how it was supposed to sound), an opportunity to re-read (if they're practicing their script in order to perform it, they're reading it over and over again), and then the instructional support and feedback [as they rehearse and improve], which is the other thing that's really important for kids to build their fluency.

Through this one task, Anique expressed, a classroom teacher could therefore holistically develop the fluency of striving readers.

While Reader’s Theatre is a powerful learning experience of all children, she continued, it has significant benefits for children with characteristics of ADHD in particular. It is highly engaging and interactive, she explained, and has infinite possibilities regarding script choice (many are available online), group arrangements, and
role selection. Reader’s Theatre also has a degree of physical stimulation, Anique mentioned, as students are standing in front of the class and holding script books when performing.

Furthermore, students with characteristics of ADHD can find Reader’s Theatre particularly engaging if they are provided with the opportunity to write their own scripts, Anique suggested, which can then increase the students’ sense of autonomy and intrinsic motivation when performing. This activity can also be a valuable means of assessment as learning, she added, if students co-create the success criteria for evaluating the fluency of the performances, thereby stimulating their creativity and reasoning, and increasing the likelihood that the students will feel engaged with the task.

Reader’s Theatre is, in essence, an exercise in repeated re-reading, Anique acknowledged, since they students are “practicing and re-reading the script over and over again, building their reading rate or prosody through re-reading and performance.” The key difference, however, is that “they’re building their fluency for an authentic purpose – something that’s engaging, interactive, and novel.”

Oral performance strategies such as choral reading and reader’s theatre can mimic the effects of repeated re-reading to build automaticity, suggested all three participants, but these types of performances are more likely to engage students with ADHD for an extended period of time due to the novelty, variability, and creative potential of the tasks.

**Auditory Strategies**

In order to read fluently, one must first know what fluency sounds like, mentioned both Christina and Anique. Effective reading models provide a baseline for struggling students, said Anique, giving them context for their own reading experience. This
modeling can be accomplished in many ways: “reading to them, reading with them, taking turns reading…anything that gets them hearing over and over again, ‘this is what it’s supposed to sound like.’”

Christina has also used modeling as a means of providing students with non-examples of fluency, she said: “I would model what a choppy-sounding passage would be, and what a smooth-sounding passage would be, and ask what they would prefer to listen to,” which would open up a discussion of how fluency is linked to comprehension. Additionally, Christina would explain to the students that, although it may sound tedious, repetition of a text is important because it helps reinforce the different language sounds.

Recording students’ reading is a similar means of having them critically assess the sounds they are hearing upon playback, as suggested by Anique and Christina. Anique, when working with small groups of struggling learners, would videotape each student, and play back the tape in front of the larger group. Having co-created a fluency checklist prior to viewing the tape, she explained, each student would assess the fluency of their peers, which would ensure that every student received multiple affirmations and next steps regarding their work.

The particular audience is not so important as the practice itself, argued Christina. No matter who is listening to the student – “a stuffed animal, a parent, brother, sister, even themselves” – practicing fluent reading is one of the most important ways to build efficacy in the area. Hearing themselves speak is excellent, she added, but having the student follow along with an audiotape or another person’s reading can be equally effective for striving learners. The important thing, she maintained, is that they have multiple opportunities to hear examples of appropriate pacing and prosody.
**Linguistic Strategies**

To be able to read a text with any degree of fluency, Christina argued, one must first have a solid knowledge of the words within it. For this reason, she advocated for linguistic support as a key mode of differentiation for struggling readers.

Fundamentally, the student must develop their phonological awareness by identifying sounds and how they interact to create words. The next level of linguistic differentiation is an intense study of sight words, Christina continued, as “sounding out some words just doesn’t make sense, and a lot of times, the choppiness that the students are experiencing in their reading is because they don’t know the words.” For more challenging vocabulary, Christina recommended teaching students to visually parse words into recognizable chunks, or use context and picture clues to make connections.

Classroom features such as a word wall, sound-letter charts, and other visual cues can reinforce such linguistic support, adds Geraldine, especially in the younger grades when students are transitioning from rote memorization of word and text patterns to true reading.

**Benefits of Differentiation**

There are many different means of differentiating instruction, agreed Christina, Geraldine and Anique, based on the needs of the particular learners in the class. When differentiation is done mindfully and effectively, Anique suggests, the benefits can be incredibly positive, as students feel empowered, accepted, and generally positive about their school experience.

Since students with characteristics of ADHD often have significant struggles with the classroom experience, they are in many ways a high-needs population. Differentiation
for these students can seem daunting, Anique said, but can ultimately benefit the entire classroom:

I really think that teachers should go into their teaching and imagining they're planning their curriculum for kids with ADHD. Because if they are, then they're really creating highly engaging, accessible opportunities for kids to learn, and that's going to support everyone in the best possible way.

Every child will get bored or frustrated at some point during their school experience, Anique explained, and the children with characteristics of ADHD are likely to get bored much more quickly than neurotypical children, in addition to experiencing other challenges. Differentiating for children with ADHD is therefore a means of ensuring that all students in the space are engaged and attentive, making them more likely to reach their full potential.

All three participants indicated over the course of their interviews that there is no special key to changing the experience of children with characteristics of ADHD in a general education classroom. The strategies that teachers use to differentiate for students with ADHD are, however, inclusive practices that can help many other students in the space, whether they have been identified as struggling or not.
Chapter 5: DISCUSSION

Introduction

The purpose of this study was to investigate means of differentiating instruction of reading fluency for students with characteristics of ADHD in a general education classroom environment. Secondary research purposes were to evaluate how the social-emotional and academic experiences of students with characteristics of ADHD might differ from those of neurotypical children in the same classroom, to explore how reading fluency is traditionally taught and assessed in general education classrooms and why students with ADHD in particular may struggle with this area of literacy, and finally to determine how a fluency program can be differentiated to support this population of students.

Major findings from the study included, firstly, that students with characteristics of ADHD are likely to have more challenging social and academic experiences than their neurotypical peers, and that such difficulties can have long-term impacts on a child’s self-efficacy and positive academic risk-taking later in life if no accommodations are made to support them. Secondly, it was found that professional development regarding ADHD and other executive function impairments is recommended as one of the key ways in which teachers can support the success of students with ADHD in their classroom.

A major finding regarding reading fluency was that direct fluency instruction is provided only on an as-needed basis past the early grades. The repeated re-reading strategy, one of the main strategies for building reading fluency, was considered by research participants to be low-engagement for all students, particularly those with characteristics of ADHD.
The most significant finding from this study was that though not every child with characteristics of ADHD will struggle in a classroom setting – and some neurotypical children might – the general use of strategies to increase the reading fluency and overall academic and social-emotional experiences of children with characteristics of ADHD in a general education classroom is likely to be beneficial for all students in the environment.

**Analysis of Findings and Connection to Literature**

One main finding of this research was that each participant identified numerous ways in which the social-emotional situation of a student can affect their academic situation: if a child feels positively about their school experience and their ability to learn, they are more likely to do well academically. For children with ADHD, who often experience very strong emotions and often struggle academically, this is a major point of concern, as confirmed in the doctoral thesis of Murphy (2012).

To that end, another finding suggested that whether or not the classroom teacher had any professional development as to the challenges faced by children with ADHD could be a significant factor in the success of child with ADHD in their classroom. The findings of this research study therefore align with those of Murphy (2012): the teacher sets the tone for the classroom, and the presence or absence of a sense of difference within the space will influence the social interactions of the children, and subsequently the academic performance of a singled-out child.

All three participants stated that the social-emotional wellbeing of children (as filtered through their self-perception and their interactions with others) has a serious impact on their general health, as well as on their current and future academic success.
The social-emotional experience of children with ADHD in a general education classroom, however, may be considerably different from that of neurotypical children in the same environment. The participants indicated that the hyperactivity, impulsivity, apparent lack of social consideration, and inattentiveness of children with characteristics of ADHD can make it extremely difficult for them to form and maintain healthy peer relationships, and their exclusion from the social sphere, paired with their awareness of not reaching their academic potential, can cause more significant problems later on in life.

This aligns with the findings of Dupaul and Kern (2011) and Brown (2013), who indicate that ADHD has a high rate of comorbidity with Oppositional Defiance Disorder, adjustment disorders, mood disorders, anxiety and depression, all of which are likely to cause disrupted social relationships and academic performance in children. The classroom teacher’s role, according to the research participants, is therefore to create a climate of care and acceptance within the classroom environment, so that every child – neurotypical or not – feels positively about him- or herself and about his or her social role in the classroom.

Being placed in a general education classroom can have many benefits for children with characteristics of ADHD, but it also poses several challenges. Christina, Geraldine and Anique each described academic, social and emotional obstacles faced by children with executive function impairment, obstacles that can be exacerbated when the classroom teacher does not fully understand ADHD or how it can affect a student brain. The participants indicated that children with characteristics of ADHD are less likely to form and maintain strong peer relationships, are more likely to have problems accessing
the curriculum, have low self-confidence and subsequently take fewer positive risks later in life. These findings corroborate those of Ferrari (2009), who concludes that students with ADHD are more likely to be held back in school, have low academic achievement, and access special education services, all of which have long-term impacts on the children’s self-confidence.

Regarding fluency in particular, a main finding was that repeated re-reading – the traditional means of remedial fluency instruction – is not engaging enough to stimulate most students for long, and is likely to prove strenuous and upsetting for a child with characteristics of ADHD. This counters the arguments of Samuels (2012), who suggests that repeated re-reading can boost the confidence of struggling readers, since they finally begin to hear themselves as fluent after several orations of the text. The findings from this research, however, suggested that students with ADHD will be unlikely to ever reach that point of mastery due to their inattention and challenges with working memory, and therefore are likely to continue to have frustration-related drops in confidence level rather than the boost to self-efficacy through experiencing success.

Geraldine and Anique both indicated that, since fluency instruction is usually provided on an as-needed basis past grade 2, it is the struggling learners for whom teachers recommend repeated re-reading, and the low level of engagement with this strategy could lead to a stall or decline in the readers’ performance, particularly if the reader has characteristics of ADHD. Due to the fact that children with attention problems have been identified as less likely to respond to effective reading instruction overall (Al Otaiba & Fuchs, 2006, as cited in Ferrari, 2009), the repeated re-reading strategy – qualified by Samuels (2012) as being labor-intensive and requiring one-on-one
instruction and assessment – would seem to be an inefficient means of building reading fluency within the population of students with ADHD.

Taken as a whole, the participants’ responses indicated that students with characteristics of ADHD may experience challenges with their decoding, comprehension, prosody, and reading rate due to the nature of their impairment. Since these are the four key areas of reading fluency (Kuhn, Shwanenflugel & Meisinger, as cited in Shwanenflugel & Benjamin, 2012), it can be concluded that, according to the participants and the existing literature on the subject, children with characteristics of ADHD can have significant challenges with reading fluency, challenges that neurotypical children are unlikely to face to the same degree. Fluency, according to the participants, is an integral part of a literacy program, intricately linked with text comprehension and a child’s self-efficacy.

A variety of reasons for which students with ADHD in particular may struggle with reading fluency, and may not respond to traditional programming, were provided by the participants. Working memory, processing speed, phonological awareness, and low engagement with text were chief among those described. Anique added that the Matthew Effect in reading suggests that, if accommodations are not made to increase student success, the ability of a weak or dysfluent reader will ostensibly decline as the student progresses through the school system. This concern is mirrored in the research of Rabiner and Malone (2003, as cited in Ferrari, 2006), who found that the progress of students with attention problems was far inferior to that of their neurotypical peers, despite having had the same amount of one-on-one instruction.
Perhaps most importantly, a main finding of this research was that differentiation strategies to increase academic performance and the social-emotional experience of children with characteristics of ADHD in general education classrooms are differentiation strategies that would be helpful for all students. As one participant succinctly explained, “Good teaching is just good teaching.”

**Evaluation of Findings**

While most participants were able to answer all planned interview questions, their responses were not always what I had expected. In particular, I thought that the participants would provide more specific strategies for differentiating reading fluency, but instead the data suggested that reading fluency instruction beyond Grade 2 is already differentiated. The lack of specific accommodation strategies could potentially be attributed to a renewed focus in the field on Universal Lesson Design, the attempt to create programming that is designed for diverse learners from day one.

Similarly, I anticipated that the participants would each confirm that reading fluency is usually a problem for students with ADHD, but this was not always the case. While each agreed that students with ADHD might face more challenges than some neurotypical children, one participant mentioned several times that some neurotypical children can experience the same challenges, and that her differentiation would not necessarily be different for a child with an executive function impairment, since she would always be targeting instruction to the needs of the specific student.

Another unexpected finding was the conviction with which participants recommended Readers’ Theatre and similar oral performance strategies as an effective
means of improving reading fluency. This was one of the strategies upon which all participants agreed, though there was in general a significant area of overlap between recommended strategies for accommodating students with ADHD into a general education classroom.

While some participants felt more strongly than others about the fluency challenges faced by children with ADHD, all three clearly articulated that students with executive function impairments face numerous challenges in a general education environment. A notable amount of data collected, correspondingly, pertains to the inclusive integration of students with ADHD into a general education classroom, and general strategies that can be used to support their learning and overall experience. Despite these slight complications, I was able to gather several strategies of differentiating reading fluency that might be benefit students with ADHD in particular, and struggling learners in general.

My findings therefore answer my research question, but not in a conclusive way. While the strategies and recommendations provided by my research participants are likely to be more effective than traditional programming at building the reading fluency of children with ADHD, they are not the only strategies, and are not guaranteed to provide results either for this population or for neurotypical children. They do provide, however, suggestions to support classroom teachers in more successfully integrating students with ADHD into a general education environment, both in their literacy experience and in their overall wellbeing.
Limitations and Recommendations for Further Study

Several limitations to this study must be reiterated from Chapter 2 of this study. A major limitation to this research was voice, as the three participants and the researcher are all North American women. The inclusion of data gathered from men, children, and voices from other cultures would provide diverse perspectives that would contribute to a well-rounded study. A second major limitation was time, as this research project had to be completed in roughly 18 months, and therefore was limited in scope. Researcher bias in study design and data collection must similarly be acknowledged as a limitation, since the study was qualitative in nature.

After conducting this research project, a few questions remain. Chiefly – since my research participants mentioned that not all children with ADHD struggle with fluency – is fluency the most challenging aspect of literacy for children with executive function impairments, or are there other elements of literacy that are more problematic? Correspondingly, how do children with ADHD feel about their experiences in the classroom, and about their fluency skills? What differentiation strategies do they find most helpful – for overall classroom integration, or for building their fluency?

As the above would indicate, there are still many opportunities for research to be conducted in the areas of reading fluency and improving the classroom experience of children with ADHD. One recommendation for further study is to incorporate student voice, asking children with ADHD what strategies and accommodations they find to be most effective in supporting their learning.

Another recommendation is to survey teachers in order to find out how realistic the implementation of the suggested strategies is: will a general education classroom
teacher be able to use the findings of this study in order to improve the literacy and overall classroom experience of children with ADHD? A longitudinal study is recommended in order to evaluate the effects of these differentiation and inclusion strategies on student achievement long-term.

**Implications of Study and Conclusion**

This study has several implications for the field of teaching. Firstly, it advocates for the importance of learning about ADHD, since having students with an executive functioning impairment is to be expected in general education classrooms. The findings further reinforce that children with ADHD are not misbehaving or being inattentive on purpose, but rather are expressing behaviors that are symptomatic of their executive function impairment. This knowledge will hopefully build empathy and understanding regarding the disorder, and explain why certain strategies may not be effective for this population. Lastly, and perhaps most importantly, the specific findings of this study provide several means of differentiating instruction for students with ADHD and creating inclusive general education classrooms.

This study found that, as observed by the participants, the classroom experience of children with characteristics of ADHD is likely to be significantly different from that of neurotypical children within the same space, due to the nature of the disorder. The executive function impairment symptomatic of ADHD can greatly affect a child’s ability to form and maintain peer relationships and to interpret nuanced social dynamics, which in turn can negatively affect the child’s self-efficacy. Additionally, the academic struggles a child may face due to impairments of working memory, processing speed,
phonological awareness, and executive functioning can further decrease the child’s self-confidence, which can affect their positive risk-taking in the future, according to the participants.

Many accommodations can be made to assist in the successful integration of students with characteristics of ADHD in the school environment, however. Such potential accommodations include chemical intervention; classroom set-up, resources and routines; and, most importantly, teacher awareness and understanding of ADHD and the challenges it can create for a child’s school experience.

Literacy is a ubiquitous aspect of not just the classroom experience, but also of daily life in our society. The ability of a student to read fluently is a reliable predictor of future success in literacy, suggested both study participants and the existing literature, and is therefore an crucial element of reading to develop.

Traditional fluency programming, however, is often low-engagement, and provided beyond Grades 1 and 2 only to striving students. Students with ADHD, due to the nature of their disorder, may experience multiple barriers to reading fluently, which can impede their future learning, yet the most common strategy for building reading fluency – repeated re-reading in an attempt to develop automaticity in students –is likely to be particularly inaccessible to this population, for a variety of reasons.

The use of diverse methods of differentiating instruction are therefore recommended in order to increase the abilities of children with characteristics of ADHD to read fluently. According to the participants of this study, potential strategies include: modifying the expectations and delivery of materials, incorporating physicality and oral performance into reading practice, and providing auditory and linguistic support.
We must move beyond automaticity to *engagement* if we want to best support the fluency and overall learning experience of children with ADHD in general education classrooms. This requires the creation of learning experiences that are novel, diverse, stimulating, and authentic: learning experiences from which every child in the classroom can benefit.
REFERENCES


APPENDICES

Appendix A: Letter of Consent for Interview

Date: ___________________

Dear ___________________,

I am a graduate student at OISE, University of Toronto, and am currently enrolled as a Master of Teaching candidate. I am studying instructional strategies for building reading fluency in children with Attention-Deficit/Hyperactivity Disorder for the purposes of investigating an educational topic as a major assignment for our program. I believe that your knowledge and experience will provide insights into this topic.

I am writing a report on this study as a requirement of the Master of Teaching Program. My course instructor who is providing support for the process this year is Dr. Susan Schwartz. My research supervisor is Dr. Shelley Stagg Peterson. The purpose of this requirement is to allow us to become familiar with a variety of ways to do research. My data collection consists of a 60 minute interview that will be tape-recorded. I would be grateful if you would allow me to interview you at a place and time convenient to you. I can conduct the interview at your office or workplace, in a public place, or anywhere else that you might prefer.

The contents of this interview will be used for my assignment, which will include a final paper, as well as informal presentations to my classmates and/or potentially at a conference or publication. I will not use your name or anything else that might identify you in my written work, oral presentations, or publications. This information remains confidential. The only people who will have access to my assignment work will be my research supervisor and my course instructor. You are free to change your mind at any time, and to withdraw even after you have consented to participate. You may decline to answer any specific questions. I will destroy the tape recording after the paper has been presented and/or published which may take up to five years after the data has been collected. There are no known risks or benefits to you for assisting in the project, and I will share with you a copy of my notes to ensure accuracy.

Please sign the attached form if you agree to be interviewed. The second copy is for your records. Thank you very much for your help.

Yours sincerely,

[Signature]
Madison Cumbaa

Researcher’s Email: maddie.cumbaa@mail.utoronto.ca

Instructor’s Name: Dr. Susan Schwartz
Phone number: (905) 764-6783   Email: susan.schwartz@utoronto.ca

Research Supervisor’s Name: Dr. Shelley Stagg Peterson
Phone number: (416) 978-0329   Email: shelleystagg.peterson@utoronto.ca

Consent Form

I acknowledge that the topic of this interview has been explained to me and that any questions that I have asked have been answered to my satisfaction. I understand that I can withdraw at any time without penalty.

I have read the letter provided to me by Madison Cumbaa and agree to participate in an interview for the purposes described.

Signature: ______________________________________

Name (printed): ___________________________________

Date: ______________________
Appendix B: Interview Questions

Introductory Questions:

1) How long have you been working in education, and what is your current position?

2) What was your path to teaching/education?

3) Do you have any specialties in the field of education?

Questions Relating to Students with Exceptionalities:

4) My research focuses on differentiating instruction for students with exceptionalities in general education classroom environments. In your role, what is your level of experience with students with exceptionalities in neurotypical classrooms (as opposed to those in streamed Spec Ed programs)?

5) Could you discuss any indicators you look for that help you to recommend whether a child should be placed in a streamed Special Education program or in a general education classroom with case-appropriate rotary support?

6) In your opinion, is the social experience of a student with an exceptionality/learning difficulty appreciably different from that of a neurotypical student within the same classroom?

6b) Could you discuss any particular situations, observations or experiences that have led to you forming this opinion?

7) In your opinion, how might being placed in a general education classroom (with case-appropriate rotary support) influence the self-efficacy of a student with an exceptionality/learning difficulty?

Questions Relating to Students with ADHD:

8) I'm specifically interested in the academic experience of students with ADHD who are placed in general education classrooms. Could you describe a specific situation you experienced or a general pattern you have observed regarding the academic situation of students with ADHD in a general education classroom?
9) What, if any, are the factors that could increase or decrease the possibility that a student with ADHD might have of achieving a reasonable level of academic success within a general education classroom environment?

10) What is your opinion regarding the effectiveness of such chemical interventions as methylphenidate and/or dextro-amphetamine in heightening the executive functioning of students with ADHD in an academic setting?

10b) Would such a chemical intervention, in your opinion, affect whether or not a student with ADHD was able to achieve a reasonable level of academic success in a general education classroom environment? Why or why not?

11) How might the academic situation and the socio-emotional situation of a student with characteristics of ADHD be connected?

Questions Relating to Reading Fluency:

12) For the purposes of this study, I have defined fluency as a student's ability to simultaneously decode and read aloud a text with developmentally appropriate pacing and prosody (expression). What is the role and/or level of importance of fluency in regards to the overall academic success of a student?

13) What instructional strategies and/or activities have you found to be most effective when teaching fluency?

13b) Why do you believe that this strategy/activity is/was so effective?

14) How do you differentiate your instruction in fluency for struggling students?

15) How do you assess and track student achievement in fluency within your instructional program/intervention?

Questions Relating to the Reading Fluency of Students with ADHD:

16) Please compare and contrast the reading fluency of a neurotypical student you have taught and that of a student of a comparable age with characteristics of ADHD.

16b) How did your instruction for each student differ, and how was it the same?

17) What indicators (behavioral or academic) have you observed that suggest that students with ADHD have a different experience with fluency than neurotypical children?
18) Which teaching strategies do you find most effective for improving reading fluency, specifically in children with ADHD?

18b) Why do you believe those strategies were so effective for this population?

19) Based on your experiences in education, do you believe that a teacher of a general education classroom can effectively differentiate reading fluency for students with characteristics of ADHD?

19b) What would be one recommendation that you could make to facilitate a teacher’s differentiated instruction of reading fluency for children with characteristics of ADHD in a general education classroom environment?

20) What resources (interventions, programs, series, etc.) could aid teachers of general education classrooms in differentiating instruction of reading fluency for students with characteristics of ADHD?
Appendix C: Selected List of Differentiated Instruction Strategies to Build Reading Fluency in Children with ADHD

The following list includes many of the strategies discussed in this research study. Not all strategies in the study are included below, and not all strategies will be useful for every student. Discussions of the implementation of these strategies are included in Chapter 4 of this study. This list is meant solely as a resource for teachers looking for potential means of differentiating fluency instruction for children with characteristics of ADHD. It is in no way exhaustive, but should rather be considered a starting point when differentiating for students with characteristics of ADHD.

Physical Strategies

- Providing student with body breaks
- Providing student with a second desk
- Allowing student to stand or pace while reading or writing
- Providing student with fidget toys
- Allowing student to sit on a therapy ball instead of a chair
- Allowing student to build puppets, colour, illustrate, or engage in other text-related extension activities that require hand movement

Oral Performance Strategies

- Choral reading (small groups)
- Choral reading (whole class)
- Reader’s Theatre

Auditory Strategies

- Recording the student and having them listen to playback
- Having student follow along with audiotape
- Modeling proper fluency for student
• Providing opportunities for student to read to an audience

Linguistic Strategies
• Engaging in active word study
• Assisting student with memorization of sight words
• Teaching student to parse words into phonemes or recognizable chunks
• Displaying sound-letter charts, word walls, and other visual cues around classroom