Title:
Educators’ Opinions and Perceptions of the Direct Instruction Program, and its Effectiveness for Educating Students with Autism Spectrum Disorders

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Abstract

This study explored educators’ opinions of the Direct Instruction Programs, and their perceptions of its effectiveness for students with Autism Spectrum Disorders. Four educators were interviewed from Evergreen Academy, a school in Southern Ontario. It was found that these teachers had an overall positive opinion of the Direct Instruction Programs, and had a high self-efficacy towards utilizing the program to teach students on the Autism Spectrum. It was identified that insufficient professional development, inexperience, and a lack of commitment could be barriers to effective Direct Instruction teaching, yet these were not issues for the participants in this study. The educators in this study enjoyed aspects of using the program, including: less time planning lessons, consistency, classroom management strategies, positive reinforcement, and homogenous groupings. There was some discrepancy in the findings as to the ability to be creative in a Direct Instruction lesson, yet participants believed that there were other ways to be creative in the classroom. This study also revealed that these educators perceived the Direct Instruction Programs to have a positive effect on student academic success, self-esteem/self-confidence/self-efficacy, as well as a reduction in disruptive behaviour and anxiety for students. Educators in this study believed that aspects of the Direct Instruction Programs including consistency, homogenous groupings, fast paced lessons, repetition, and positive praise, were specifically beneficial to students on the Autism Spectrum. Overall, participants believed that the Direct Instruction Programs were enjoyable to teach and beneficial for students on the Autism Spectrum.

Key Words: Direct Instruction, Direct Instruction Programs, DI, Autism Spectrum Disorders, Autism Spectrum, Autism, ASD, Education.
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Chapter 1: Introduction

Introduction

Students with Autism Spectrum Disorders and other exceptionalities have historically challenged the traditional instructional approaches that exist in general education settings (Heflin & Alaimo, 2007). In Canada, as mandated by the Canadian Charter of Rights of Freedoms (Government of Canada, 1982), and the Advancing the Inclusion of People with Disabilities (Government of Canada, 2008) policy, all individuals have equal right to education regardless of disability, which includes students with Autism Spectrum Disorders. Through these declarations, United Nations Proclamations, educational policies, and a dedication to an equitable society, Canada’s education system has reached a commitment to inclusive education (Hutchinson, 2014). As a result, the Ontario Ministry of Education has released policies such as Education for All (2005) and Learning for All (2011), which focus on identifying at-risk students and differentiating instruction to educate diverse learners (Hutchinson, 2014). However, despite documented deficits in academic outcomes for individuals with Autism Spectrum Disorders, there has been little conclusive research on effective academic interventions for this population (Plavnick, Marchand-Martella, Martella, Thompson & Wood, 2014). Although there is a lack of research on specific interventions for this population, research has identified effective strategies and components of effective education programs for students on the Autism Spectrum. These critical elements that research has identified to be benefit students with Autism Spectrum Disorders include: systematic teaching, a structured learning environment, predictable routines, consistency, and specialized curriculum content (Iovannone, Dunlap, Huber & Kincaid, 2003; Yell, Drasgow, & Lowrye, 2005; Watkins, Slocum, & Spencer, 2011). Although this research is promising, there have been barriers to implementation including limited evidence of long-term success, incomplete development of interventions, and a poor fit with the school environment
(Kasari & Smith, 2013). For these reasons, and the challenge of translating these strategies into instruction, it has been documented that teachers are more likely to adopt complete programs where interventions are outlined, as opposed to isolated practices (Kasari & Smith, 2013). The Direct Instruction Programs discussed in this study are specific, detailed instructional programs and curriculum that include the core elements of effective educational practices for students with Autism Spectrum Disorders (Watkins, Soler & Spencer, 2011). Moreover, recent studies have demonstrated that the Direct Instruction Program has had promising results for students on the Autism Spectrum in multiple subject areas (Flores & Ganz, 2007, 2009, 2009). This study will further this research and contribute educator’s opinions and perceptions of the program’s success for this population, highlighting specific aspects of the program that are beneficial.

Direct Instruction (DI) is a model of education developed by Siegfried Engelmann and Wesley Becker in the 1960s that is scientifically proven to assist students from diverse learning backgrounds in the development and maintenance of skills they need for academic success, as well as improve self-esteem and affective measures (Adams & Engelmann, 1996). Direct Instruction is a highly effective integrated system of curriculum design and instruction techniques that is shown to promote student learning and material retention (Adams & Engelmann, 1996). Supported by over 40 years of research (Watkins, Slocum, & Spencer, 2011) the Direct Instruction philosophy controls environmental events and instructional details to promote learning (Becker, Engelmann, & Thomas, 1971). Using a bottom-up approach to learning, basic skills are developed and mastered before they are applied to higher order thinking skills (Rodman, 2007). It is essential that Direct Instruction (note the capitalization) not be confused with direct instruction, a term introduced by Rosenshine (1976), emphasizing task analysis and teacher modeling. The Direct Instruction referred to in this study is the complex teaching model developed by Engelmann and colleagues, which incorporates some aspects of, but is not
accurately described by, Rosenshine (1976)’s direct instruction. Engelmann’s Direct Instruction is a research validated educational practice that combines a meticulously researched curriculum design and systematic instructional methods (Binder & Watkins, 2013). An essential feature of the program is that it not only outlines how to teach, but it also outlines what to teach based on a sophisticated analysis of content that is field tested and proven to be efficient (Binder & Watkins, 2013).

With roots in assisting students who are at-risk or below grade level (Becker & Carnine, 1981), the Direct Instruction approach is a complex interplay between curricular design, teaching strategies, classroom management techniques, student assessment, and teacher training (Stein, Carnine & Dixon, 1998). The three main principles of Direct Instruction are: 1) Every child will learn, 2) If the child has not learned the teacher has not taught, and 3) The teacher must not assume what the child already knows (Berkley, 2002). These principles do not apply only to the general education population; they have been proven to extend to special education classrooms as well. Although limited, recent research has found that Direct Instruction can be beneficial for the education of students with Autism Spectrum Disorders (Flores & Ganz, 2007, 2009, 2009). Autism Spectrum Disorders are a group of neurodevelopmental disorders, characterized by deficits in three areas of functioning: social interaction, communication, and repetitive behaviours. (Newschaffer, Croen, Daniels, Giarelli, Grether, Levy, Mandell, Miller, Pinto-Martin, Reaven, Reynolds, Rice, Schendel & Windham, 2007). According to the Diagnostic and Statistic Manual Volume 5 (DSM-V), the spectrum includes three severity levels based on the level of support needed, and the extent of the repetitive/restrictive behaviours and the social communication deficits. These levels include requiring support, requiring substantial support, and requiring very substantial support (American Psychiatric Association, 2013). According to the Center for Disease Control and Prevention (2010), approximately 1 in 68 children are affected
with an Autism Spectrum Disorder in the United States. This prevalence rate has been consistently on the rise, growing at a rate of approximately 10-17% per year (Autism Society of America, 2006). Within Canada, the National Epidemiological Database for the study of Autism in Canada (NEDSAC, 2009) estimates that 1 in 94 children between the ages six to nine have a diagnosis of ASD. With this outstanding rate, it is essential to learn more about educational strategies that benefit this population.

The Direct Instruction Program is beneficial for all types of students, but some aspects are specifically beneficial for students who are struggling or at a disadvantage in their learning (Engelmann, 1980; Hicks, Bethune, Wood, Cooke, Mims, 2011). Unlike other teaching models, Direct Instruction evolved from work with students who were performing below grade level (Becker & Carnine, 1981), and is designed in a way that may benefit students who need extra assistance. The primary goal of the program is to “increase not only the amount of student learning but also the quality of that learning by systematically developing important background knowledge and explicitly linking it to new knowledge” (Stein, Carnine & Dixon, 1998, pg. 228). An essential feature of the Direct Instruction Programs is the consideration of students’ diverse levels of background knowledge. The Direct Instruction Programs account for the fact that disadvantaged children may have less academically relevant knowledge than their peers, and ensures this is not a barrier to their learning (Stein, Carnine & Dixon, 1998). In addition, language is controlled to ensure students are not left at a disadvantage due to variation in teacher vocabulary (Berkley, 2002). The program was designed with the idea that children performing at a lower level could catch up to grade level if they were provided with effective and efficient instruction (Binder & Watkins, 2013). The Direct Instruction programs assume that the student has not learned because there is a problem with how they are receiving instruction (Engelmann, 2005). If the environment the student is learning in and the instruction that the student receives
are controlled, the difference that the learner brings to the learning interaction will be evident and can easily be measured and evaluated (Engelmann, 2005). In this view, behaviour is the result of the combination of aptitude and instruction. If the instruction is maximized and there is no room left for multiple interpretations of the material, then variation will be caused by aptitude (Engelmann, 2005). There is no way to discover a student’s potential until all other variables are controlled.

Engelmann and colleagues have developed and published over 100 commercially available Direct Instruction Programs as of 2013 (Binder & Watkins, 2013). These programs all utilize the thoroughly field tested and validated methodologies of Direct Instruction (Binder & Watkins, 2013). As the program is continuously developing and improving, it has grown to include face-to-face teacher instruction as well as computer based programs and college education courses (Binder & Watkins, 2013). A full range of materials are available for kindergarten to Grade 12, including reading writing, math, science, social studies, and higher order thinking skills (Adams & Engelmann, 1996). Some of the more prevalent Direct Instruction programs, and those mentioned in this study include: Language skills Direct Instruction Programs: *Language for Learning, Language for Thinking, and Language for Writing* (Engelmann, 2005). Reading skills Direct Instruction Programs: *Corrective Reading Series, Horizons Series, Journeys Series, Language Through Literature Series, and Reading Mastery Series* (Engelmann, 2005). Writing skills Direct Instruction Programs: *Basic Writing Skills Series, Readers and Writers, Reasoning and Writing* (Engelmann, 2005). Math skills Direct Instructions Programs: *Connecting Math Concepts, Corrective Mathematics Series, and DISTAR (Direct Instruction System for Teaching Arithmetic and Reading)* (Engelmann, 2005).
Purpose of this Study

The purpose of this study is to further the research on the benefits and drawbacks of using the Direct Instruction programs for students with Autism Spectrum Disorders, as perceived by educators. It was conducted by gathering opinions of educators who are currently using the Direct Instruction Programs to educated students with Autism Spectrum Disorders. The study aims to analyze the attitudes of teachers towards the program targeting the areas of: specific aspects that benefit students with ASD, classroom management, creativity, and professional development. It also aims to uncover educators’ perceived changes in student self esteem, academics, and engagement. The strengths and weaknesses of this program have been the subject of debate for over 50 years, and the evidence for its effectiveness is growing constantly. Only recently has research been done on the effectiveness of the program for children with Autism Spectrum Disorders. There is little current qualitative research on how teachers, parents, and directors utilizing the Direct Instruction Program perceive its usefulness on this population of students.

Gathering more information on the perspectives of educators instructing children with Autism Spectrum Disorders using Direct Instruction will contribute to the understanding of the program’s effectiveness with this population. Due to the increasing prevalence rates of Autism Spectrum Disorders, more and more children are in need of special education assistance. If it were discovered that this program could help students on the Autism Spectrum learn at a faster rate, gain more advanced skills, experience improved engagement, and improve their self-esteem, it may improve the lives of the students and their families.
**Research Question:**

The goal of my research is to explore educators’ perceptions and opinions of the Direct Instruction Programs, and it’s effectiveness for educating students with Autism Spectrum Disorders.

**Sub questions:**

- What are educators’ attitudes towards the Direct Instruction Programs?
- How do the Direct Instruction Programs affect educators’ classroom management?
- How do the Direct Instruction Programs affect educators’ ability to be creative in the classroom?
- What professional development took place to assist educators in utilizing the Direct Instruction Programs?
- What aspects of the Direct Instruction Programs assisted in the education of students with Autism Spectrum Disorders?
- What aspects of the Direct Instruction Programs were hindrances in the education of students with Autism Spectrum Disorders?
- What aspects of the Direct Instruction Programs influenced student engagement?
- What aspects of the Direct Instruction Programs influenced student self esteem?
- What aspects of the Direct Instruction Programs influenced student behaviour?
Background of Researcher

As an aspiring teacher, I am passionate about improving my understanding of how students learn and discovering what strategies will increase student engagement and motivation to learn. I have a specific interest in special education, as I have grown up with a younger brother on the severe end of the Autism Spectrum. From a young age, there were teachers and therapists at my house nearly every day. I often observed lessons and enjoyed watching and helping them teach my brother. From then on, I had decided I wanted to be a special education teacher.

As my brother got older, he improved significantly and began to attend a private school, which will be referred to in this study as Evergreen Academy. Evergreen Academy is a school for children with learning difficulties and special needs who struggle in a typical school setting. As I grew older, I began volunteering at this school. One of the major differences between Evergreen Academy and other schools is the school-wide use of the Direct Instruction Programs for educating all students. I watched classes and helped run some of the lessons, and even had the opportunity to take charge of the class on occasion. I immediately supported the theories behind Direct Instruction and saw how many of the students responded positively in terms of self-esteem, behaviour management, and academics. This study is an opportunity for me to further research this teaching program and discover the benefits and drawbacks it may possess.

As part of my research into the Direct Instruction Programs, I have attended professional development sessions on utilizing the programs, which allowed me to understand the program on a deeper level. I have also spent more time using Direct Instruction to teach students with Autism Spectrum Disorders and have gained more personal experience with the program’s effects on this population.
Chapter 2: Literature Review

What is Direct Instruction?

The Direct Instruction Programs include specific systematically designed curriculum, unique pedagogy and procedures of organizing instruction, a precise delivery method, built in assessment, and efficient classroom management techniques. Through over 40 years of research, the programs are both research based and research validated with numerous studies providing evidence of their success with a diverse population of students (Watkins, Slocum, & Spencer, 2011). The Direct Instruction methodology is founded on the beliefs that the rate and quality of learning is a function of the environment, and that educators can increase the amount of learning in a classroom by controlling relevant details of instructional interactions (Engelmann, Becker, & Thomas, 1971). Although research is limited on the program’s effectiveness for educating children with Autism Spectrum Disorders, the research that exists has shown that there are many aspects of the Direct Instruction Programs that align with best practices for educating this population of students (Iovannone, Dunlap, Huber & Kincaid, 2003; Yell, Drasgow, & Lowrye, 2005; Watkins, Slocum, & Spencer, 2011). Specific elements fundamental to the design of the Direct Instruction Programs address the needs of children with Autism Spectrum Disorders. Specifically, it has been shown that students’ ability to focus on relevant stimuli, and generalize information improves when they are provided with the predictable instruction and motivational tactics of the Direct Instruction Programs (Watkins, Slocum, & Spencer, 2011).

The Direct Instruction Programs include specific curriculum and teaching methodologies that have been carefully researched and systematically structured. The program seeks “effectiveness and efficiency of instruction through program design, organization of instruction, and positive student-teacher interaction” (Stockard, 2011, pg. 3). To do so, the program controls
as many major variables as possible that may impact learning, utilizes a small step lesson design that build skills upon each other (Stockard, 2011), and teaches strategies that can be generalized to multiple concepts (Binder & Watkins, 2013). The program believes not only that all children are teachable, but additionally that they have the potential to be performing at the same grade level as their peers. To allow struggling students to catch up to their peers, the Direct Instruction Programs seeks to teach students more in less time by using specified teaching procedures that ensure students gain the most from instruction time. The program also teaches “general cases” (Binder & Watkins, 2013), which “uses the smallest number of examples, to produce the largest possible amount of learning” (Binder & Watkins, 2013, pg. 75). In other words, students are taught a strategy to learning that can be applied to numerous situations. Specifically for students with Autism Spectrum Disorders, who often have difficulty generalizing information (Scott, Clark & Brady, 2000), teaching students to generalize learning must be explicitly taught and reinforced (Watkins, Slocum, & Spencer, 2011). To ensure generalization of a concept, the Direct Instruction Programs are designed with carefully selected sequencing of examples and non-examples, to ensure that students receive the most from their learning. The principles that guide the setup of the program and the sequence of examples are the result of extensive research, and were created to reduce confusion and foster application of knowledge to multiple situations (Engelmann, 1980). The setup principle states that examples and non-examples should share the highest amount of irrelevant features (such as beginning with the same letter, or being the same length) to rule out possible misinterpretation (Binder & Watkins, 2013). The difference principle states that juxtaposing examples that are similar to one another, and pointing out their differences shows the limits of a concept or strategy in a clear way (Binder & Watkins, 2013). The sameness principle states that juxtaposing examples that differ from one another as much as possible, and indicating that they are the same, best shows the range of a concept or strategy (Binder &
Watkins, 2013). The testing principle includes random presentation of new examples and non-examples to evaluate if a concept has been learned (Binder & Watkins, 2013). If the teacher is delivering instruction following these principles the presentation will be delivered in an unambiguous logical way to the students (Kim & Axelrod, 2005).

To safeguard that examples and instructions are presented in a clear and logical way, the teachers follow a detailed script when delivering lessons (Engelmann, 1980). This also ensures that the wording principle is satisfied, in which teachers’ wording should be as similar as possible across examples and non-examples, and across a variety of concepts (Binder & Watkins, 2013). Controlling a teacher’s wording ensures that tasks are rarely failed due to student misunderstanding (Engelmann, 1980). Variables that may arise in a lesson such as pacing, inflection, and correction procedures, are controlled to provide consistency and ease transitions to new material. The scripted lesson plans result in what is called “Faultless Communication,” which produces the least amount of confusion for the student, and the opportunity for only one interpretation (Kinder & Carnine, 1991). By ensuring consistency in instructions and operations students can generalize strategies easily to new concepts (Kinder & Carnine, 1991). Cooke, Galloway, Kretlow, and Helf (2011) compared scripted to non-scripted explicit instruction, and found an increase in on-task instructional opportunities during scripted lessons. In this study, both educators and students also reported more enjoyment during the scripted lessons, as compared to the non-scripted lessons (Cooke, et. al., 2011).

The scripted lessons of Direct Instruction also provide correction procedures, and enables teachers to easily diagnose problems at any point in the operation, as each step is a sum of previously learned parts (Engelmann, 1980). Teachers are taught, through extensive teacher training (Engelmann, 2011), how to identify these errors and apply corrective procedures to fix them (Binder & Watkins, 2013). If an error is made, the student needs more practice with the
concept (Binder & Watkins, 2013), and the script will instruct the teacher on how to provide effective correction for each type of common mistake (Binder & Watkins, 2013). These correction procedures provide the teacher with additional teachings for the concept and how to ensure that no overgeneralization, or misinterpretation takes place (Binder & Watkins, 2013).

The consistency between lessons established by the script helps direct students’ attention to the details of the lesson, reduce confusion that may be caused by different terms, and eases the transition of a strategy to new concepts (Binder & Watkins, 2013). Students are not distracted by changes in lesson format or concerned with what to expect, which enables them to focus on the critical aspects of the instruction and understand what is expected of them (Watkins, Slocum, & Spencer, 2011). Studies have shown that students with Autism Spectrum Disorders often prefer predictable routines and consistency (Thompson, 2007), in which case the predictability and structure of the Direct Instruction Programs will be beneficial to them. Iovannone, Dunlap, Huber and Kincaid (2003) conclude that this structured learning environment is one of the core features of effective practices for students with Autism. The ability of the students to predict what will happen next, and to anticipate what is required of them in the setting are essential to effective educational practices for students with ASD. The scripted lessons can also be beneficial to teachers, as the script relieves teachers of the responsibility for instructional design and enables them to focus on instruction delivery, adapting to the needs of the students, and maintaining positive student-teacher interactions (Watkins, Slocum & Spencer, 2011). The scripts have been tested for effectiveness of examples and consistency of language, which can be largely beneficial for students with Autism Spectrum Disorders who may struggle with communication and language skills (Flores, Nelson, Hinton, Franklin, Strozier, Tery & Franklin, 2013; Waldron-Soler, Martella, Marchand-Martella, Tso, Warner, & Miller, 2002).
An essential feature of the Direct Instruction Programs is that a student cannot move on to the next level until they have achieved “mastery” of the skill, which is defined as no errors after repeated trials (Engelmann, 1997). Skills are broken down into the component parts, in which students engage in repeated practice with the correct response (Flores & Ganz, 2008). The next skill will then build on strategies used for the previous skill, giving students the tools they need to problem solve in real-life situations in addition to academic tasks (Binder & Watkins, 2013). Monitoring of student progress and performance is an ongoing assessment that occurs in each lesson. Students do not move on to the next lesson if they have not mastered the previous one. This allows teachers to respond to errors before the student falls behind, or has repeated experience with incorrect information (Berkley, 2002). Teachers are taught how to monitor progress in class, and work is checked in class or before the next lesson to catch errors before they have the opportunity to become a habit. In more typical child-centered classroom strategies, the students are responsible for their own mastery of a lesson (Gersten & Dimino, 1993), and there is often little confirmation that students have achieved mastery of a subject (Kozloff, LaNunziata, Cowardin & Bessellieu, 2001). Although some students may be able to fully understand a concept from open-ended engagement with the curriculum, students who need more practice and more support to reach mastery may be left behind (Gersten & Dimino, 1993). Direct Instruction provides a system that adjusts curriculum and instruction around each student’s performance (Engelmann & Carnine, 1991), and ensures each student experiences fluency with material as opposed to familiarity (Kozloff, LaNunziata, Cowardin & Bessellieu, 2001).

As opposed to being organized into units, the Direct Instruction Programs are organized into tracks of information in which content is consistent across lessons (Watkins, Slocum, & Spencer, 2011). These skill tracks follow a particular concept through multiple lessons until mastery of the skill is achieved. Within each lesson, students participate in exercises from a
variety of tracks where new tracks are mixed in with well-rehearsed ones (Watkins, Slocum, & Spencer, 2011). Each track is established using a bottom-up technique, where lessons build on each other and continue to expand and apply the skill to a variety of examples and contexts (Binder & Watkins, 2013). Only approximately 10% of every lesson is new material, with the remainder of the lesson focusing on reviewing concepts and applying learned skills to various situations (Stockard, 2011). Students are taught prerequisite knowledge explicitly, which is then linked to new material (Stein, Carnine & Dixon, 1998). Ensuring that all building blocks of knowledge are in place before a skill is introduced creates an environment where students who have a disadvantage in background knowledge can succeed. Consistent with this idea of review, lessons are designed in a way that students engage in a variety of tasks at various difficulty levels, which require different components of knowledge. This type of task variation has been shown to have a positive educational impact on children with Autism Spectrum Disorders (Charlop, Kurts, & Milstein, 1992). Research has shown that this type of task variation promotes a higher percentage of correct responses during skill acquisition (Dunlap & Koegel, 1980), increased levels of on-task responding (Dunlap & Koegel, 1980), faster knowledge acquisition (Dunlap, 1984), decreased problem behaviour (Winterling, Dunlap & O’Neill, 1987) and increased motivation, defined as increased responsiveness to social and environmental stimuli (Keogel, Keogel, & McNerney, 2001). Dunlap (1984) also found that students with autism acquired skills faster and student affect was more positive when maintenance tasks were interspersed with acquisition tasks. The Direct Instruction Program carefully sequences each lesson so that the majority of the lesson is review and consolidation of previous knowledge, with only a small amount of new information, so every student has successes within each lesson. The variety of tasks and variation in skill level provided by the lesson sequence of the Direct Instruction Programs is designed in a way to improve on-task behaviour and engagement.
One of the main predictors of success for students with Autism Spectrum Disorders is the amount of time they are actively engaged in instruction (Iovannone, Dulap, Huber & Kincaid, 2003; Watkins, Slocum, & Spencer, 2011). The Direct Instruction programs are designed in a way that holds students attention (Stein, et.al., 1998) and promotes increased engagement and on-task time (Magliaro, Lockee, & Burton, 2005). To further ensure that all students are on task and achieving success, students are divided into small homogenous groups determined by performance tests and amount of background knowledge (Stein, et. al, 1998). These groups typically range from approximately five to ten students, and are based on their level in the program (Binder & Watkins, 1990). This allows students who master the topic first to advance at their pace, while groups who need additional practice are not forced to move ahead before they reach mastery of the topic (Berkley, 2002). Although students are grouped by ability, the groups are flexible and dynamic in the way that students may move groups at any point (Kim & Axelrod, 2005). These groups are designed in a way that students will have a 90% success rate with the material (Kim & Axelrod, 2005; Gleason & Hall 1991). It is in these small groups that unison responding takes place, where all of the students in the group respond to the teacher’s question at the same time (Binder & Watkins, 2013). Unison responding generates the highest rate of responses from all students, which promotes student engagement, as engagement is directly related to the rate of opportunities to respond (Watkins, Slocum & Spencer, 2011). Evidence for this relation is apparent in a study by Haydon, Marsicano and Scott (2013) in which unison responding statistically increased on-task behaviour in students between the grades of kindergarten and grade 12. The students do not have the opportunity to disengage while the teacher addresses one student, or to copy another student’s answer and pass it off as their own understanding (Binder & Watkins, 2013). Students also benefit from the increased experience with correct answers, which is associated with motivation and improved self-esteem (Darch,
Gersten & Taylor, 1987). From an assessment perspective, Unison responding provides the
teacher with the maximum amount of information on the performance of the students (Binder &
Watkins, 1990), allowing the teacher to combine the benefits of one to one teaching where each
student’s needs are constantly assessed, while maintaining the efficiency of teaching a larger
group (Binder & Watkins, 2013). In an efficient Direct Instruction class, the teacher can facilitate
three to twenty responses per minute from students, depending on the material and difficulty
level (Kim & Axelrod, 2005). One of the reasons for this high rate of responses are the fast paced
lessons that are fundamental to the Direct Instruction Programs, and have been shown to improve
student engagement (Watkins, Slocum & Spencer, 2011). For students with Autism, this fast pace
can be particularly beneficial, as shown by Koegel, Dunlap, and Dyer (1980) who found students
performed higher levels of correct responding and lower levels of self stimulatory behaviour
when lessons were fast paced, as compared to slow paced.

The Direct Instruction Programs specifically address some of the main factors shown to
increase student motivation, including high rates of success (Kim & Axelrod, 2005), fast pace of
instruction (Dunlap & Koegel, 1980; Watkins, Slocum & Spencer, 2011), and task variation
(Dunlap & Koegel, 1980; Watkins, Slocum & Spencer, 2011). As motivational strategies are
built into the program, theoretically there is less need for explicit reinforcement. However, the
Direct Instruction Programs also involve explicit positive reinforcement and methods for
classroom management. Teachers are taught to ignore misbehaviour, and positively reinforce
desirable behaviour (Berkley, 2002). This is based on the idea that students who misbehave do so
for attention, and if they only get attention for positive behaviour they will be more likely to
produce it (Engelmann, 2005). Positive reinforcement is guaranteed by establishing a 3:1 ration
of positive to negative student-teacher interactions (Engelmann, 2005). This positive
reinforcement can improve student’s self-esteem, and their motivation to learn (Watkins, Slocum
& Spencer, 2011). By ensuring students are achieving a 90% success rate with material (Kim & Axelrod, 2005), students may also feel confident in their learning and ability.

Direct Instruction is not simply a teaching philosophy or approach; “it is more accurately a system of teaching technologies that have been developed in the pursuit of its fundamental pedagogical goal” (Kim & Axelrod, 2005). To use this system of teaching effectively, teachers receive extensive training before implementation (Kim & Axelrod, 2005). This training ensures they are comfortable and confident with the material, and using the program correctly. Coaches are provided for supervising and assisting teachers in the first stages of implementation until the teacher gains confidence utilizing the program (Binder & Watkins, 2013). This professional development is essential as research shows that teacher delivery and responsiveness in the classroom is directly related to the success of the Direct Instruction Programs (Grossen, 2004).

Engelmann believes that the child’s mind is completely logical, and what or how much they learn depends on how logically the child is taught (Barbash, 2012). In other words, what humans learn is perfectly consistent with the input they receive (Barbash, 2012). The theory of Direct Instruction is that if the student is not successful, the program or the instructions are at fault and must be changed (Binder & Watkins, 2013). The Direct Instruction Programs include specific elements of instructional design that prescribe how lessons and teacher student interactions are to unfold. Instructional strategies that are used within Direct Instruction include: active student participation, positive reinforcement, brisk pacing, explicit instruction, guided practice, distributed review, and constant feedback (Kim & Axelrod, 2005; Stein, et.al, 1998). The program outlines specific curriculum that is carefully sequenced and organized around generalizable concepts and skills, with a highly interdisciplinary focus across subject areas (Stein, et al., 1998), and delivered in a clear and consistent way. The combination of task variation, opportunities for success, ongoing assessment, fast paced lessons, accurate group placement, and
positive student teacher interactions, all contribute to the potential of the Direct Instruction Program to benefit students with Autism Spectrum Disorders.

**Academic Benefits of Direct Instruction**

One of the first appearances of the Direct Instruction Program in large-scale research was in the Project Follow Through study. Project Follow Through has been referred to as the largest controlled comparative study of teaching methods ever (Kim & Axelrod, 2005), involving approximately 700,000 students in 170 communities across the United States (Adams & Engelmann, 1996). It began in the summer of 1967 and continued until 1977 (Adams & Engelmann, 1996) involving students from communities between kindergarten and grade 3 (Adams & Engelmann, 1996). The participants spanned a wide range of demographic variables including geography, ethnic composition, and poverty level (Adams & Engelmann, 1996). The study used a planned variation experimental design to evaluate over 20 instructional programs, including Direct Instruction (Engelmann, 2007). Schools volunteered to be part of the study and implement one of the included educational models. They were then paired with a demographically similar control school. (Watkins, Slocum, & Spencer, 2011). The districts that participated were rewarded with 750$ per student (Engelmann, 2007), and every school received the same amount of funding and time to implement the program (Adams & Engelmann, 1996). During the study, students received a battery of tests that were divided into three basic categories: Basic Skills (spelling, reading, math computation), Cognitive Skills (higher order thinking, problem solving, reading comprehension), and Affective Responses (responsibility and self esteem) (Adams & Engelmann, 1996). Ultimately 12 models of instruction were compared using
scores on the *Metropolitan Achievement Test*, *Coppersmith Self-Esteem Inventory* and the *Intelligence Achievement Responsibility Scale*.

In 1977 the primary analysis of Project Follow Through from the Abt Association, a global research firm based out of the United States, found that the Direct Instruction Program outperformed all other programs in the study on all evaluation categories including Basic Skills, Cognitive Skills, and Affective Responses (See Appendix D) (Adams, 1996). Despite common misconceptions that the Direct Instruction Programs only promoted rote learning, it was also highly effective at promoting cognitive and conceptual skills, as well as improving affective outcomes (Watkins, Slocum & Spencer, 2011). The study was quickly challenged by researchers, resulting in articles such as “No Simple Answer: Critique of the Follow Through Evaluation” by House, Glass, McLean and Walker (1978). This article disputed the data analysis and test selection process, and questioned the credibility of the study. House et. al., (1978) argued that there was more outcome variance between sites using the same model than there was between the various education models. Gersten (1984) argued that House et. al., (1978) included sites that were not using the model appropriately and “untrustworthy” comparison groups without providing rational. Gersten (1984) noted that it was only when outliers were thrown into the analysis that between-site variability dramatically increased. Bereiter and Kurland (1981) reanalyzed the Project Follow-Through data, addressing some of the controversies brought up by House et. al (1978), and still found Direct Instruction to be the most effective program in the study. Becker and Carnine (1981) had additional concerns with the data and some of the inclusion criterion for the schools used in the study. They reanalyzed the data a third time, and found that the Direct Instruction Program scores were even higher than previously reported. Throughout numerous analyses and inclusion criterion, the results showed the Direct Instruction Program as superior to the other programs in the study on all tested skills including basic skills,
cognitive skills and affective responses. The students who participated in the Direct Instruction Program had managed to close the achievement gap between their projected outcomes and the national standard in just four years (Watkins, Slocum, & Spencer, 2011).

Although the results showed the evident benefits of Direct Instruction, there were still criticisms about the program working for a diverse population of students (Adams & Engelmann, 1996). In other words, many claimed that not all programs work for all children. Accumulating numerous studies, several meta-analyses of Direct Instruction have been conducted which show the program’s success for a variety of populations and contexts. In 1996 Adams and Engelmann analyzed 37 Direct Instruction studies, and found a large positive effect across many students ranging from special education to general education, and for a variety of age groups. The analysis also revealed a large effect size across various academic domains such as reading, social studies, math, spelling, and science. Borman, Hewes, Overman and Brown (2003) analyzed 323 studies on 29 different school reform programs, and concluded that the Direct Instruction Program, along with two others, were the only models to have “clearly established, across varying contexts and varying study designs, that their effects are relatively robust and that these models, in general, can be expected to improve test scores (pg. 168).” More specifically to reading skills, Schieffer, Marchand-Martella, Martella, Simonsen, and Waldron-Soler (2002) discovered that 14/21 studies on reading scores favour Reading Mastery relative to other reading programs. They concluded that the Reading Mastery program produces positive reading outcomes for general education, general education remedial, and special education students. Another Meta-Analysis by Przychodzin, Marchand-Martella, Martella and Azim (2004) analyzing Direct Instruction Math programs found that 11 out of 12 studies produced positive results for students exposed to the program. In an extensive and impressive analysis Hattie (2009) examined the results of 800 meta-analyses related to student learning and academic achievement in his book *Visible Learning: A
synthesis of over 800 meta-analyses relating to achievement. The results showed that Direct Instruction, more than any other curricular program, showed consistently strong effects with students of different ability levels, different ages, and with different subject matter. It is similarly effective for students in regular education, special education, elementary school and high school (Hattie, 2009). It is also effective for learning early reading skills and higher-level comprehension skills (Hattie, 2009). These studies synthesize the vast amount of research available on Direct Instruction and student achievement, and show that the Direct Instruction Programs produce consistently positive affects on academics across subject matter, age, and ability. Recent studies on the use of Direct Instruction for students with Autism Spectrum Disorders have shown positive results (Flores & Ganz, 2009, Flores & Ganz, 2007), further expanding the range of students experiencing success with the programs. As Binder and Watkins (2013) state, “more than any other commercially available instructional programs, DI is supported by controlled research studies” (pg. 90). The research on Direct Instructions shows evidence of its ability to improve outcomes on measures of academic achievement.

Another critique of the Direct Instruction Programs included that the results would not last (Adams & Engelmann, 1996). Some possible theories for this include that students are “babied” and will find it difficult to transition into a general classroom, and that they were taught more in less time while using the Direct Instruction Program so when they are in the general education program their scores will return to the median (Adams & Engelmann, 1996). Some follow-up studies to Project Follow Through reveal that this is not the case. Meyer (1984) examined the grade 9 math and reading scores of students from the Direct Instruction group in New York in comparison to three similar schools in the area who did not participate in the study. The results showed that the Direct Instruction group was on average one year ahead in reading and seven months ahead in math compared to demographically similar peers. Darch, Gersten, and
Taylor (1987) found statistically higher academic achievement in math and reading performance in students from South Carolina who were in the Direct Instruction group, compared to demographically similar students who participated in general education between grades 1 and 3. This difference was maintained seven years after the program was implemented. There was also a lower rate of dropping out of high school, a lower rate of grade retention, and a higher graduation rate for students taught with Direct Instruction. Meyers, Gersten and Gutkin (1983) found similar results in New York with the Direct Instruction group having statistically higher graduation, acceptance to college, and lower rates of dropping out. These studies show that the benefits of Direct Instruction are stability over time, even when the program was stopped in the third grade.

In more recent studies, Stockard and Englemann (2010) discovered statistically significant higher scores on measures of reading including oral reading fluency (the rate students can correctly read connected text at their grade level), and nonsense word fluency (the ability to read nonsense phonemic words) for elementary students who experienced the Direct Instruction Program- Reading Mastery, compared to nearby school with demographically similar students. In addition, students who were taught using Direct Instruction starting in kindergarten had higher scores than those who did not begin the program until grade one. Stockard (2011) studied three rural Midwestern districts in the United States that had lower than average test scores. It was that discovered students who were exposed to the Reading Mastery program from kindergarten to grade three achieved scores at above grade level on the Dynamic Indicators of Basic Early Learning Skills (DIBELS) standardized test. This result showed that the students achieved significantly higher reading scores than their demographically similar peers. In a particularly heated criticism of Stockard’s (2011) study, Eppley (2011) describes the Reading Mastery Program of Direct Instruction as “Pedagogy for Erasure”. Offended by the suggestion that this is the best way to improve rural students’ test scores, she describes the teacher using Direct
Instruction as a specialized technician whose only job is to manage and implement curriculum. In the article she states that the Reading Mastery Series requires teachers to ignore any possible links to their students’ lives and to stay on script at all times. In response to this, Siegfried Engelmann (2011), one of the founders of the Direct Instruction Programs, outlines Eppley’s misunderstandings. He states that a teacher does not follow the script at all costs, and is constantly responding to the students’ individual practice. He explains that most teachers do not achieve peak performance from their students until they have practiced the program for three years, which is a very long time if they are simply mindlessly performing. Engelmann (2011) states that Eppley (2011) assumed the term standardization meant treating all children in the same way, whereas with Direct Instruction a teacher must individualize what is being taught to the performance level of different students. The homogeneous groups are simply for the benefit of the students allowing them to move at their own pace, while the teacher can manage a classroom that would be unmanageable on a one-to-one ratio with every student. Eppley (2011) also claims there is bias in the study, and that the Reading Mastery Program is only assessed with the DIBELS test. It is true that for this particular study the principal form of data was the DIBELS test scores, but the Reading Mastery has been evaluated to be superior to comparable programs on at least 20 state assessments, a broad range of standardized achievement tests, and many criterion-reference tests (Engelmann, 2011; Engelmann & Carnine, 2011). Eppley (2011) also calls Direct Instruction an “assimilative cultural pattern” preparing the students for unskilled labour jobs. Contrary to this opinion, Delpit (1988) argues that more child-centered pedagogies rely too heavily on student intuition, which can be harmful to a student whose intuitions may be at odds with the cultural norms of the classroom, school, and society at large. Lacking specific instruction, these students face steep obstacles when attempting to succeed in these environments (Delpit, 1988). Direct Instruction may be a way to even the playing field for students, regardless
of their differences and diverse backgrounds. As Kim and Axelrod (2005) state, “the onus of success, then, has been shifted from the student to the teaching system” (pg.4) when using the Direct Instruction Programs. The program adjusts curriculum and instruction around each student’s performance, so each student experiences success and progression with no gaps in their knowledge (Kim & Axelrod, 2005).

Despite the quantitative research that demonstrates the benefits of Direct Instruction, there is still controversy and critique of the program’s strict format. Glass (1993) published an individual paper claiming, “teachers did not need statistical findings of experiments to decide how to best teach children” (pg.17) and that intuition and experience were more valuable than quantitative data. This controversy between which educational strategy is superior, child centered and teacher directed, has been ongoing in literature and is highly debated in research (Carnine, 2000). One of the main concerns of educators regarding the use of teacher directed strategies, such as Direct Instruction, is that they can hinder the proper social and emotional development of students (Watkins, Slocum & Spencer, 2011); however, research shows that this is not the case.

**Affective Outcomes of Direct Instruction**

In addition to academics, there has been research discussing the effects of the Direct Instruction programs on student behaviours and self-esteem. As stated above, Project Follow Through found higher scores on self-esteem assessments for the students who had been exposed to the Direct Instruction Programs (Adams & Engelmann, 1996). Although it was originally assumed that emphasis on tightly controlled instruction might inhibit the development of self-esteem and other affective measures, this was not the case (Carnine, 2000). Meyer (1984) found that 15 years after Project Follow Through was completed, students in the Direct Instruction
condition continued to have higher levels of self-confidence than their comparison, although it was not statistically significant. Darch, Gersten and Taylor (1987) analyzed a subsection of the Project Follow Through data, with a population of 600 students, and found that students taught with Direct Instruction had significantly higher scores on the Coppersmith Self–Esteem Inventory, and higher scores on a measurement of positive locus of control, compared demographically similar peers. This further supports the evidence that the Direct Instruction Programs can benefit students as a whole and improve their wellbeing, as well as promote academic success.

A critique of Direct Instruction in a study by Schweinhart, Larner and Weikart (1986) analyzed the long-term effects of Direct Instruction on preschool children’s social abilities. The students were assigned to a traditional nursery school classroom, a High/Scope child-centered program classroom, or a Direct Instruction classroom taught with the Direct Instruction Strategy for Teaching Arithmetic and Reading (DISTAR) program. The study claimed that students in the Direct Instruction condition had more emotional problems in kindergarten, and were engaged in twice as many juvenile delinquency acts by the age of 15. In a response to this study, Bereiter (1986) outlines some serious faults in the methods and sampling used. One of the major concerns is that the researchers were from the High/Scope Educational Research Foundation, and there is potential for bias. There was also very little done to control for bias on the self-reported data from the students, as the experiment was not anonymous, and students may have been fearful to report acts of delinquency or violence (Mills, Cole, Jenkins & Dale, 2002). The sample size was very small, and the random assignment of students to various conditions was incomplete resulting in a higher population of boys in the Direct Instruction condition, which may have skewed the results (Mills, et. al, 2002). There was also no consideration of what happened to the students between kindergarten and age 15 (Bereiter, 1986), and many external factors may have affected the data.
Mills, Cole, Jenkins and Dale (2002) attempted a follow up study using an increased sample size, a more complete random sampling method, and an even gender ratio, and they could not reproduce the results. They found no difference in violence or delinquency acts between groups in their follow-up study, and the claim that Direct Instruction leads to adult delinquency has not been replicated in any additional research.

**Misconceptions and Opinions of Direct Instruction**

There are many conflicting opinions of the Direct Instruction Program apparent in the literature. The variance in opinion is often caused by misconceptions, or a lack of experience with the program itself (Bessellieu, Kozloff, & Rice, 2001). Some of the most common misconceptions about the Direct Instruction Program are due to the fact that it shares its name with a style of teaching known as direct instruction (Rosenshine, 1976). The direct instruction Rosenshine (1976) introduced is a teacher directed style that involves a large amount of seatwork and lectures provided by the teacher. Typical teacher directed styles of instruction are based on textbooks and a focus on a large amount of concepts (Stein, Carnine, Dixon, 1998). The Direct Instruction Program designed by Engelmann in the 1960s is a scientifically research-based system of curriculum design and instructional techniques that integrates classroom management, monitoring of student progress, and staff development (Engelmann, 1980). The goal of the Direct Instruction Program is to increase the amount and quality of student learning by developing background knowledge and explicitly applying it to new knowledge (Stein, Carnine, Dixon, 1998). The difference between the DI program and the direct instruction teaching style (Rosenshine, 1976) is an important distinction to make, as it is the cause of many misconceptions and false generalizations.
Some common misconceptions about the Direct Instruction Programs arise from its structured nature. Bessellieu, Kozloff and Rice (2001) gathered the opinions of 83 teachers to identify some misconceptions that teachers may hold regarding the Direct Instruction Programs. The first misconception highlighted in the study by Bessellieu et. al., (2001) was that Direct Instruction Program is only for “certain children”, as in those with special needs. In a meta-analysis of the research, Adams & Engelmann (1996) show that the Direct Instruction Programs are proven to be effective for students of diverse backgrounds and the lessons are designed in a way that is proven to maintain students’ attention and engagement. Another misconception identified was that it is “Drill and kill” (Bessellieu et. al., 2001), which assumes that students are taught to memorize concepts and repeat them. This is not the case with the Direct Instruction Programs, which teach students generalizable skills and concepts that can be applied to multiple situations (Engelmann & Carnine, 1991). Teachers in the Bessellieu et. al., (2001) study also stated that it thwarts teacher creativity, whereas other educators in the research believe that there is room for teacher creativity within the Direct Instruction Lessons (Schug, Tarver, & Western, 2001). Studies have found that Direct Instruction Programs free up more time for the teacher to attend to their students’ needs, and that through this increased attention to student needs and personality opportunities for creativity present themselves (Kim & Axelrod, 2005). Another misconception illuminated was that the Direct Instruction Programs focuses only on basic rote skills, which is often caused by the confusion between direct instruction and Direct Instruction highlighted previously. Contrary to this theory, Direct Instruction encourages generalization and application of mastered concepts, fostering higher order thinking skills (Engelmann & Carnine, 1991). The fifth and final myth brought up in the Bessellieu et. al., (2001) study is that Direct Instruction is disliked by teachers and students, which was later disproved in their own study as teachers reported high rates of personal satisfaction and enjoyment from their students.
Teacher’s Beliefs in the Program

The success of the Direct Instruction Programs is directly influenced by the amount of commitment the teacher has to the program (Engelmann, 2011), and how much they believe in its success (Errthum, 2013). There is limited research on teachers’ beliefs and experiences with the Direct Instruction Programs, yet that which does exist shows that educators’ beliefs often change once they have implemented the program for an amount of time and observed their students’ successes (Bessellieu, Kozloff & Rice, 2001; Berkley, 2002; Kanfush, 2014; Goral, 2001). This finding is consistent with the Model for Teacher Change outlined by Guskey (2002), which states that to change a teacher’s beliefs, their practice must be changed followed by the teacher witnessing a positive improvement in student learning outcomes as a result of the practice change.

Bessellieu et. al., (2001) discovered that after experience teaching utilizing Direct Instruction, teachers held very positive beliefs about the programs and its effectiveness. The teachers in the study described the many successes that their students achieved while using the Direct Instruction Program, and stated that they would continue to use the program in the future. One teacher responded with “I loved it! I saw more growth and felt as if I accomplished something every day!” (Bessellieu et. al, 2001, pg. 17). The joy that the teacher describes is related to the success of their students, which is apparent in other studies addressing teachers’ beliefs surrounding the Direct Instruction Programs. In a review of the Baltimore Curriculum Project, on City Springs Elementary School, Berkeley (2002) revealed similar initial attitudes of teachers prior to experience with the Direct Instruction. The initial teacher reactions included attitudes that the DI program was “uncreative”, “bad for children”, and that it would not prepare them for Maryland School Performance Assessment Program [standardized test] (Berkley, 2002). However, after the program was implemented test scores began to increase annually, and the
school environment transformed into an organized environment with increased student engagement. Teachers soon began to change their opinion of the program and 80% of the teachers at the school wanted to keep using Direct Instruction after the project was complete (Berkley, 2002). The teachers who did not wish to continue utilizing the program were offered a transfer to other schools, but not one teacher chose this option. A possible explanation for why some teachers did not want to keep using Direct Instruction is that it involves more work for the teacher than some other approaches, through immediate feedback, ongoing assessments and consistently adapting to student needs (Engelmann, 1980). For most teachers in this study, “The learning of the children, the joy they take in their learning, and the success of the program eventually silences the doubts that accompany early phases of implementation” (Berkley, 2002, pg. 228).

Further support for the idea that experience with the Direct Instruction Programs influences belief change is apparent in a study by Kanfush (2014). Kanfush (2014) conducted a study that analyzed parent and teacher opinions of Direct Instruction in a Pennsylvania private school by interviewing four teachers and four parents about their experience. This school demographic consisted of students with low incidence disabilities, which means typically enrolled students had multiple cognitive, communication, and behavioural disabilities. The study found that both parents and teachers reported a high level of satisfaction with program, although this high level of satisfaction was not always the case for the teachers (Kanfush, 2014). One teacher addressed a misconception in her response “I could see how people would hate it because it seems stilted and monotonous, but I like it because when you see the results of the students’ progress, it totally outweighs that one little area” (Kanfush, 2014, pg. 6). This highlights a common theme in the literature that the rigid structure of Direct Instruction may seem undesirable at first, but student success often outweighs this concern.
As stated above, Guskey (2002) believes that this positive experience with student success of the program is a significant factor involved in changing participants’ beliefs of the program. As a teacher witnesses their student’s success, it is important that they believe their actions and teaching strategies are directly affecting this positive change. In other words, they need to have self-efficacy. Teacher self-efficacy is defined as “the extent to which a teacher believes he or she has the capacity to affect student performance” (Berman, McLaughlin, Bass, Pauly, & Zellman, 1977, p. 137). Self-efficacy is essential to consider when teaching, as Bandura (2001) states that self-efficacy is the most important motivational force behind human behaviour. An underlying reason to the behaviour change of the teachers in these studies may be due to an increase in their self-efficacy and teacher self-efficacy. Bandura (1977) identifies four aspects contributing to the improvement of self-efficacy including mastery experience, physiological and emotional arousal, vicarious experience, and verbal persuasion. Mastery experience includes personal success and positive experience with the event or activity (Bandura 1977). If the Direct Instruction Programs are implemented correctly, teachers should experience success of their students and see positive academic gains, which relates to the reported joy and positive attitudes of teachers stated above. Physiological and emotional arousal, such as the enjoyment and excitement that teachers report when seeing benefits in their students (Bessellieu et. al, 2001), can also contribute to improved self-efficacy when teaching. Witnessing other teacher’s success through vicarious experience can include discussion with other teachers about their success, as well as reviewing some on the research of the success of the program. As Direct Instruction is thoroughly researched, teachers may benefit from learning about the past successes of the program. If the Direct Instruction Program is implemented correctly, verbal persuasion is addressed through extensive staff training including professional development and on-going coaching sessions (Kim & Axelrod, 2005).
One concerning element of Kanfush’s (2014) study is that many teachers reported insufficient professional development for Direct Instruction, and claimed they were not given enough training. Research has highlighted the importance of teacher training and support in fostering effective strategies and instructional skills for educators (Stockard, 2011; Blakeley, 2001), and it has been documented that this training is of even more importance when teaching the type of explicit instruction and intensive curriculum present in the Direct Instruction Programs (Engelmann & Engelmann, 2004). Engelmann (2011) stated that it takes up to three years, and sufficient training, for a teacher to become a fully developed Direct Instruction teacher. The research supports that teachers who implement the Direct Instruction Programs more efficiently and consistently typically see greater success in their students (Engelman, 2011; Stockard, 2011; Ross, Nummery, Goldfeder, McDoland, Racho, Hornbeck & Fleishman, 2004), yet there is often not enough professional development provided for teachers to implement the program sufficiently. In a study from Ross, et. al, (2004) only two of six principals asked believed that training for the teachers was sufficient. This lack of teacher training may contribute to misconceptions or lack of understanding of the program, as well as lower teacher self-efficacy when implementing the program. Professional development is essential for the Direct Instruction programs as it may increase teacher’s understanding the philosophy behind the program and promote teacher buy-in and confidence in the program, and improve their self-efficacy. This is consistent with Errthum’s (2013) research that states that understanding and belief in the program influences how well it is implemented, which affects the amount of student success. If professional development is not sufficient, the teacher may not see success in their students, and thus will not wish to change their behaviour, resulting in lower satisfaction with the Direct Instruction Programs. For a teacher to fully change their beliefs all components of self-efficacy must be addressed and the Direct Instruction Program must be implemented properly.
Direct Instruction and Students with Autism Spectrum Disorders

Autism Spectrum Disorders (ASD) are a group of neurological disorders that fall under the category of a Pervasive Developmental Disorder. The DSM-V describes three levels of ASD based on the severity of repetitive/restrictive behaviours and social communication deficits. These levels include requiring support, requiring substantial support, and requiring very substantial support (American Psychiatric Association, 2013). Individuals with an Autism Spectrum Disorder often display deficits in communication, and their ability to understand and use language (Flores, Nelson, Hinton, Franklin, Strozier, Tery & Franklin, 2013). Approximately one quarter of children on the Autism Spectrum have language skills in the “typical” range for their age (Flores & Ganz, 2009), leaving the remaining 75% below average. Many children with Autism Spectrum Disorders do not achieve the expected chronological milestones at the expected age level (Rodman, 2007), which can result in falling behind their peers and struggling academically. Direct Instruction may be particularly beneficial at improving communication skills for students with Autism, as it has been shown promising improvements in receptive and expressive language skills and of students with Developmental Disabilities (Waldron-Solder et al, 2002).

According to Engelmann (2005), traditional education systems often believe that when students do not perform or learn it is due to a characteristic of the student. It is a natural reaction of a teacher to avoid taking the blame if a student fails, and sometimes a diagnosis is used as a way to escape that blame (Engelmann, 2005). Even subconsciously, it has been shown that a diagnosis can lower the expectations a teacher has towards the student, which can negatively affect student academic success and self-esteem (Eisenberg & Schneider, 2007). This can be detrimental to a student, and may further the gap between their peers’ performance and their own. Engelmann (2005), the founder of the Direct Instruction Program, has a different philosophy:
We do not deny the facts of a handicapping condition. We however, deny the cause. We do not conclude that the poor performance is the fault of the learner. Rather, we assume the learner is capable of learning skills if the skills are presented properly, and that the learner will respond in a predictable manner. (Engelmann, 2005, pg. 4)

One of the Underlying philosophies of the Direct Instruction Program is that the instruction style is at fault for poor performance, not the student. “We can make valid statements about the learner’s potential only if we rule out the possibility that the learner is completely normal and reasonable and that their responses are caused by instruction” (Engelmann, 2005, pg. 4). In fact, Engelmann (2005) believes that if a diagnosis is to be relevant to a teacher at all, it should imply a teaching technique to go with it. The only information Engelmann believes a teacher needs is the performance level of the learner, as they can use this to adjust their instructions.

It is a basic premise of Direct Instruction that every child can learn if they are taught in a way that is appropriate to them (Engelmann, 2005). Children with Autism Spectrum Disorders require specific, explicit, intensive instruction to learn new concepts such as language, which come more naturally to a typically functioning peer (Flores & Ganz, 2009). This is exactly what the Direct Instruction Programs are designed to target. Another critical factor to consider when teaching a student with Autism is that they may have low self-esteem from a history of failure with schoolwork. The Direct Instruction program requires teachers to give three positive reinforcements for every negative they say (Engelmann, 2005). In other words, 75% of what the teacher says must be positive. This positive reinforcement and encouragement can raise student self-esteem (Engelmann, 2005). Due to unison responding, students are also given many more opportunities for success, which may raise self-esteem. The Direct Instruction program closely links motivation and learning (Engelmann, 2005; Watkins, Slocum & Spencer, 2011) to encourage children to want to learn for their own benefit. By not assuming any background knowledge of the student, the Direct Instruction can be beneficial for students with learning
difficulties such as Autism, in that they will not be frustrated or confused by new material due to a lack of scaffolding.

There has been little research done on the effects of Direct Instruction on children with Autism Spectrum Disorders, but what has been discovered is positive. Flores and Ganz (2007) were some of the first to attempt a Direct Instruction lesson from the Corrective Reading Comprehension A Thinking Basics reading comprehension program for children with Autism Spectrum Disorders. Four students on the Autism Spectrum participated in a lesson sequence including statement inference, using facts and analogies to understand ambiguous text. All four students met the criterion across all categories, and showed an immediate and marked change that was maintained one month after the instruction stopped. A functional relationship between the Direct Instruction Program and the reading comprehension skills of the students on the Autism Spectrum was found. In a follow up study, Flores and Ganz (2009) extended these results by assessing the performance of students on the Autism Spectrum with more complex tasks. They were taught the Direct Instruction lesson sequences of picture analogies, inductions, and deductions from the Corrective Reading Comprehension A Thinking Basics program, and measurements were taken through curricular-based assessment as well as Direct Instruction assessment. Again the results showed a functional relationship between Direct Instruction and the reading comprehension of students with Autism Spectrum Disorders, this time with more complex material. In 2009, Flores and Ganz also performed a study based on the Language for Learning program of Direct Instruction. They analyzed the oral language skill of what objects are made of, and selected three students with Autism Spectrum Disorders (mild, moderate and severe). The students rapidly responded to the treatment in an upward trend and maintained the performance after instruction ceased. One student even generalized the skill to new material. This
showed a functional relationship between Direct Instruction and oral language skills for children with Autism.

In a larger scale study, Flores, Nelson, Hinton, Franklin, Strozier, Terry, and Franklin (2013) simulated a whole lesson presentation over time, as it would be implemented in a classroom setting. Eighteen male students on the Autism Spectrum participated in the Direct Instruction program for four weeks. They were divided into two homogenous subgroups, one completing the Corrective Reading Comprehension A Thinking Basics program and one completing the Language for Learning program. The results were extremely positive. Each student progressed rapidly and participated in all aspects of the lesson, allowing them to successfully advance through the program. They were actively involved in group situations and unison responding, while progressing through lesson sequences. The results showed a statistically significant positive effect of the Direct Instruction Program on student learning. The study involved a realistic implementation of the Direct Instruction Program, as a classroom teacher presented the program to the students without any modification. This hopeful research highlights the capabilities of every student if they are provided with instruction that matches their specific needs. These studies establish a relationship between Direct Instruction and the skill acquisition and maintenance for students with Autism Spectrum Disorders. Using Direct Instruction in special education classes or general classroom settings may benefit all students regardless of their previous knowledge or diagnosis.
Summary

There has been a large amount of research conducted on the academic benefits of Direct Instruction for a diverse range of students. The literature shows that Direct Instruction fosters rapid, reliable and focused instruction regardless of ethnicity, race, family background, or socio-economic status (Bessellieu, Kozloff & Rice, 2001). A number of misconceptions about the program have been identified through qualitative studies. One of the main issues apparent in the literature is the confusion between Engelmann’s Direct Instruction, the highly researched curriculum and instructional techniques, and direct instruction the teaching style introduced by Rosenshine (1976) (Binder & Watkins, 2013). The literature shows that teachers are often hesitant towards the program at the beginning of implementation, but are satisfied with the program once they gain experience with it (Kanfush, 2014). Direct Instruction is often dismissed as “too behavioural” by mainstream educators (Binder & Watkins, 2013), but extensive research shows that the beneficial results of the program are consistently supported and replicated (Hattie, 2009). Recently, research on Direct Instruction has expanded to include students with Autism Spectrum Disorders. The Direct Instruction Program has resulted in skill acquisition and maintenance for this population, and had a statistically significant effect on student learning (Flores, et. al, 2013). The research on using Direct Instruction for students with Autism Spectrum Disorders is limited, but the results to date have been positive. The literature supports that Direct Instruction is an educational model that is effective for teaching a diverse population of students.
Chapter 3: Methodology

Purpose

The purpose of this qualitative study is to explore educators’ opinions, experiences, and attitudes towards the Direct Instruction Program and its use for students with Autism Spectrum Disorders. Some quantitative studies have been conducted exploring the potential benefits of the Direct Instruction Program for this population of students (Rodman, 2007, Flores & Ganz, 2009, Flores & Ganz, 2007, Flores, et. al, 2005), but more research is needed on the subject. Researchers often debate if educational practices are best examined by qualitative or quantitative data (Carnine, 2000), which is one of the criticisms of experiments that rely heavily on quantitative data such as Project Follow Through (Carnine, 2000). This study aims to add some qualitative data to the numerous quantitative studies on the Direct Instruction Programs. By acquiring opinions and experiences of educators who witness the program being utilized for these students, this study aims to contribute to the literature on the effects of Direct Instruction on students with Autism Spectrum Disorders. It also aims to expand the research further and uncover why educators believe that the program is effective or ineffective for this population.

There is evidence in the literature of some discrepancy in teacher’s opinions of the program (Bessellieu, Kozloff & Rice, 2001). For example, the concept of scripted lessons has been a deterrent for some teachers because they fear it will inhibit their creativity, while other teachers enjoy the scripted lessons and believe creativity is still possible (Stein, Carnine, Dixon, 1998). The goal of this study is to expand the research on the Direct Instruction Program by providing additional opinions and experiences of educators who are currently utilizing the programs for education of students on the Autism Spectrum, and uncover what specific aspects of the programs these teachers like and dislike. Furthermore, this study aims to uncover why
teachers’ attitudes towards design or delivery of the program exist, and draw attention to aspects of the program that increased and decreased teacher satisfaction.

Procedure

This is a qualitative research study, which explores educators’ perceptions and understandings of the Direct Instruction Programs for students with Autism Spectrum Disorders. When conducting this study, a combination of the phenomenological study and a collective case study approach was used. A phenomenological study addresses a “common meaning for several individuals in their lived experiences on a concept or phenomenon” (Creswell, 2013). In other words, it is discovering what participants have in common in regards to their feelings and perceptions of a certain concept. This study aimed to uncover the commonalities and discrepancies in the attitudes of educators based on their experience with the Direct Instruction Program for educating students with Autism Spectrum Disorders.

Utilizing the case study approach to research, the participants were gathered from a specific context. The context selected was Evergreen Academy, which is a private school located in Southern Ontario, and the concept explored was the Direct Instruction Program. The teachers and directors at this school are all trained in the Direct Instruction Program, and consistently use it to teach students with Learning Difficulties and Autism Spectrum Disorders. This study was an instrumental case study, as the participants were selected based on their understanding of the concept (Creswell, 2013). A case study utilizes multiple forms of qualitative data to create a complete picture of the case (Creswell, 2013). For this reason, I used semi-structured interviews with participants who possess alternate perspectives and asked 20 questions to accurately represent their opinions. Data was gathered utilizing face-to-face semi-structured interviews,
which was then coded and analyzed by themes identified in the data and the existing research on Direct Instruction and Autism Spectrum Disorders.

**Instruments of Data Collection**

The primary tool of data collection for this study were the semi-structured interviews with each participant, complemented by the existing research outlined in Chapter 2 of this study. The semi-structured interview process allowed educators to elaborate on their experiences and opinions providing as much detail as they believed was appropriate. There was one 45-minute interview conducted for each participant, and further clarification was done via email or telephone if needed. These interviews were scheduled based on the most convenient time for the educators. The interview questions were guided by current research on the topics, and included questions based on ideas from the phenomenological style of research including “what have you experienced in relation to the Direct Instruction Program?” and “what situations have influenced/affected your experience with the Direct Instruction Program?” (Creswell, 2013). These overarching questions were divided into multiple smaller questions to encourage more detail from participants and uncover more meaningful data. A full list of the 20 open-ended interview questions can be found in Appendix B. The research questions are designed to illuminate a general understanding of the participants’ unique experiences. All interviews were recorded and later transcribed into text. The recordings were kept for future reference, and all names were kept anonymous in the transcribing and coding process.

**Context of Research**

All participants were from a private school in Southern Ontario, which will be referred to in this study as Evergreen Academy. This school is catered specifically to students with special needs and learning difficulties, and it requires that all teachers have training with using the Direct
Instruction Programs. Every teacher at the school has teaching experience using the Direct Instruction Program, many of them with students on the Autism Spectrum. This was an ideal location from which to recruit participants, as their experiences were aligned with the research question of this study.

**Participants**

Participants in this study were selected using a purposeful sampling strategy. Due to the combined approach of a phenomenological study and a case study, my participant pool was narrow. All participants had to satisfy specific criteria, including:

- They must be practicing educators who are willing to speak about their experiences
- They must have training and experience using the Direct Instruction Programs, and
- They must have experience educating students with Autism Spectrum Disorders utilizing the Direct Instruction Programs.

Once the participant list was narrowed down, an email was sent out (see Appendix C) to the potential participants that met the criteria for this study. This email described the nature of the study, and requested a response if they were interested in becoming a participant. An interview was then set up for participants who had time and were willing to participate in the study. Four participants were selected, including two teachers and two directors. This number provided a sufficient amount data to discover similarities and differences in participant responses, while maintaining a manageable amount of information.

*Kate*

The participant referred to as Kate has been using the Direct Instruction Programs for twelve years. She began at Evergreen Academy as a teacher, and has since become an Assistant Director of the school. Kate achieved her Direct Instruction coaching accreditation through
courses in the United States, and has taken on the role of training new staff and supporting existing staff in utilizing the program effectively.

Jess

The participant referred to as Jess has also been at Evergreen Academy using the Direct Instruction Programs for twelve years. Jess has had experience using this program for students with a wide range of exceptionalities, including students with Autism Spectrum Disorders. She began at Evergreen Academy shortly after receiving her teaching degree, and her only experience with more mainstream educational strategies came from her practice teaching experience.

Mary

The participant referred to as Mary has eighteen years of experience teaching with the Direct Instruction Programs, eleven of them being at Evergreen Academy. She attended coaching and training courses in the United States including workshops on: Reading Mastery, Connecting Math Concepts, Expressive Writing, Corrective Reading Decoding Skills, Language for Learning, Reasoning & Writing, Spelling Mastery, and Advanced Techniques in Direct Instruction, Training the Trainer. She is now a Direct Instruction Coach and a Director at Evergreen Academy.

Andy

The participant referred to as Andy has been working with the Direct Instruction program for approximately one year, and has recently joined the Evergreen Academy staff. His experience with the training and coaching process is recent, and he is still experiencing ongoing coaching.
**Data Analysis**

To analyze the data, a variety of techniques and strategies were used. Anecdotal notes were kept during the interview process regarding participants’ emotions, body language, and other aspects that would be difficult to capture through the recording. After the interview, I reviewed the recording with my notes and created a transcript of the interview. I then made sure that all questions were answered, and emailed participants for further clarification if needed. Once a full transcript was created and all information necessary was gathered, I began coding the information. Initially each individual case was considered separately, and patterns and themes in the participants' response were noted. I then used the technique of “categorical aggregation” (Stake, 1995) and collected instances of similarity within the case to discover meaning and find the essence of that participant’s experience.

Once I had individually discovered themes in each participant’s interview, I began to compare the cases using a “cross case analysis” (Creswell, 2013) to discover similarities and differences between participants’ responses. The data was coded using descriptive codes based on a description of the participants’ quote, and in vivo codes based on direct words the participant used. These codes were then organized into categories and subcategories, and then further into themes that became evident through all participant interviews.

**Ethical Considerations**

The ethical review for this research was granted under the approval procedures for the Master of Teaching Program at the Ontario Institute for Studies in Education (OISE). Participants in this study were all educators, defined as to include principals and teachers. There were no classroom observations or student participants. All participants were volunteers, and were informed that they could stop the interview or withdraw from the study at any time.
A consent form (See Appendix A) was sent to the participant for review prior to the interview, and was discussed and signed prior to starting the interview to ensure that the participant was fully aware of the nature of the study, and their rights as a participant. The interviews took place at a mutually agreed upon location, as was convenient for the participant. The interviews were recorded for the purpose of future reference, but a participant was informed that they have the right to decide what is utilized for the study and what they wish to be left out. The participants were made aware of their right to “pass” at any point during the interview, or retract information they have said. Any information the participants wished to remain private was not included in this study.

Anonymity is essential for this study. Teachers and principals may not give their honest opinion if they feel it would jeopardize their future career or reputation. All participants’ names were changed and pseudonyms were used to protect the participants’ identity. The name of the school was also changed, and the pseudonym of Evergreen Academy was used. The data gathered will be used for the purpose of the study only, and will be destroyed within five years of the study’s completion. Each participant was offered a copy of the transcribed interview, and a copy of the final report upon completion.

**Limitations**

This study provides a summary and review of a wide range of literature on the topics of Direct Instruction and Autism Education, and aims to contribute more information through educators’ perspectives. Although the review encompasses a wide range of literature and research on the topics, it is not possible to address all research that has been done within the scope of this study. The information provided in the literature was predominately based out of the United States, which is not necessarily representative of the Canadian demographic that is the focus of
this study. As more research emerges on the topics, it is expected that information and understandings of autism education and Direct Instruction will evolve, both in literature and in practice.

This study only included educators from Evergreen Academy, which reduces the generalizability of the results. It cannot be assumed that the opinions and perspectives of this group of teachers will extend to other schools and organizations. The study only addressed the usefulness of Direct Instruction for students with Autism Spectrum Disorders, and does not extend to other learning or developmental delays. This study also had a small sample size (n=4), which further reduces the generalizability of the results. Due to the nature of qualitative research, analyzing more cases within the two-year time frame would provide an overwhelming amount of information for one researcher. Having multiple researchers focused on the same study would allow an increased sample size, as well as an alternate opinion on the data.

Despite the limitations of this study, it provides a sufficient examination of exemplary practice and provided insight into educators’ perspectives of the use of Direct Instruction for students on the Autism Spectrum.

Contributions to Literature

This study aims to add additional information to the limited data on educators’ opinions of the Direct Instruction Program, and its use for students with Autism Spectrum Disorders. The current research has listed some opinions that teachers’ may possess; yet it was difficult to find evidence of where these opinions originated. By providing additional opinions and directly addressing some of these misconceptions, a stronger understanding of how teachers feel about using the Direct Instruction Programs was established.
The study also aims to add qualitative data to the evidence of potential benefits of this program for students with Autism Spectrum Disorders (Rodman, 2007; Flores & Ganz, 2009, Flores & Ganz, 2007; Flores, et. al, 2005). The information available showed academic benefits of using Direct Instruction to teach students with Autism, but there was little information on how the program affects self-esteem and classroom management. This study includes questions addressing aspects of Direct Instruction beyond academic benefits. By interviewing educators with experience implementing the Direct Instruction Programs with this population, a clearer picture of how educators perceive the program’s effectiveness, strengths, and drawbacks is created.
Chapter 4: Findings

Introduction

In this Chapter I present findings based on the analysis of data from interviews conducted with four staff members at Evergreen Academy School. The participants in this study were all from Evergreen Academy, an elementary school in Ontario. The participants were selected based on willingness to participate, and ability to fit the criteria of having taught students with Autism Spectrum Disorders using the Direct Instruction Programs. The questions used were developed to gain insight into the educators’ perceptions and beliefs surrounding the use of the Direct Instruction Programs for students with Autism Spectrum Disorders. The purpose of this research is to contribute to the literature on the perceived effectiveness of the Direct Instruction Programs for this population of students, and uncover educators’ attitudes towards using the programs for teaching.

The findings present educators’ perceived strengths and limitations of various components of the Direct Instruction Program including unison responding, repetition, fast pace, and positive reinforcement, scripted lessons, and homogenous groups, in relation to their use for teaching students with Autism Spectrum Disorders. Educators described their own challenges and successes when implementing the program, and how these changed over time. To illustrate the opinions and attitudes of these participants I have coded the data into eight themes that appeared throughout the four interviews. These themes are then further divided into subthemes to highlight the complexities of the data and draw attention to the parallels and discrepancies between the educators’ opinions.
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**Findings 1: Extensive Professional Development is a key component to efficient Direct Instruction Teaching. Participants in this study believed they had received a sufficient amount of Professional Development.**

**Kate**

Kate is an assistant director at Evergreen Academy, and has been teaching with the Direct Instruction Programs for 12 years. In her first years at Evergreen she attended an introduction course to Direct Instruction, and received on-site coaching throughout the year. This ongoing coaching and feedback is an essential part of the Direct Instruction Programs as it ensures teachers are delivering the lessons in a manner that is most efficient for the students (Kim & Axelrod, 2005). After becoming comfortable with the program, Kate attended two conferences in the United States in Oregon and Chicago to build upon her knowledge of using the Direct Instruction Programs for various subject areas. From there, Kate continued to expand her knowledge of the program and attended a third conference in which she became a Direct Instruction coach. In her current role as the Assistant Director at Evergreen she has taken on the responsibility of training new staff and supporting existing staff in utilizing the program effectively.

**Jess**

Jess has been using the Direct Instruction Programs at Evergreen Academy for 12 years, and has experience using the programs with students ages four to twenty-one. She received the same initial instruction as Kate, as well as the regular on-site coaching sessions. Jess also mentioned staff are refreshed on the Direct Instruction Methods at the beginning of every school year, and that the on-site coaching is made readily available throughout the year. Jess later attended reading and math seminars in Oregon, and participated in small group professional development sessions.
Mary

Mary has had 18 years of experience teaching with Direct Instruction Programs. Her first seven years of experience were at another school in Southern Ontario that also used Direct Instruction Programs for education. She then transferred to Evergreen Academy where she has been using the program for another 11 years. In her first years, she experienced on-site coaching and found this very helpful to get started. She attended four Direct Instruction conferences while at the first school, and one while at Evergreen Academy. She is now a Direct Instruction coach and a Director at Evergreen Academy.

Andy

Andy has been working with the Direct Instruction program for about one year, and has recently joined the Evergreen Academy staff. He attended the training session at the beginning of the school year for teachers to refresh their knowledge of Direct Instruction programs, where he learned many of the techniques and practiced using the program with colleagues. Andy has had an administrator/coach observe his lessons three times per year to give him feedback, which he finds very helpful. His only concern was that there were occasionally long periods of time between these coaching sessions, and he would have benefited even more from their increased frequency.

Sufficient Professional Development

Numerous educational research studies have outlined the importance of thorough teacher training and support in improving and fostering superior instructional skills and strategies in educators (Stockard, 2011; Blakeley, 2001). There is evidence that this teacher training is most beneficial when it is ongoing, ideally incorporating on-site support (Stockard, 2011; Blakeley, 2001). In relation to Direct Instruction, the research suggests that sufficient teacher training is
even more essential when teachers are learning to use this type of explicit and intensive curriculum (Engelmann & Engelmann, 2004). Teacher training and support is a built-in part of the Direct Instruction Programs, often involving on-site coaches and assistance from an outside support group (Stockard, 2011; Kim & Axelrod, 2005). There is support from the research that outlines how teachers who implement the program more efficiently and consistently often see greater success in their students (Engelman, 2011; Stockard, 2011; Ross et. al, 2004). Although the research seems to agree that this teacher training is necessary and essential, it is not always sufficiently provided to teachers and educators. In a study by Ross, et. al (2004), only two out of six of the principals asked believed that the training was effective for teachers, and the others said that more extensive training was needed. Teachers in this study reported little follow-through or on-site training after implementation, despite this being an essential part of teacher training. Another example of teacher reporting inadequate teacher training when learning to use the Direct Instruction Program appears in a study by Kanfush (2014). In this study, all four participants interviewed commented on their lack of training in Direct Instruction, and referred to the training as lacking detail. The participants seemed to teach themselves how to use the program, and did not understand the reasoning behind technical aspects of the program or why they were effective. The opinions of teachers in these studies were problematic, as teacher delivery and responsiveness in the classroom are essential to the success of the Direct Instruction Programs (Grossen, 2004).

Although the research demonstrates that cases of inadequate teacher training are common (Ross, et. al, 2004; Kanfush, 2014), the opposite pattern was revealed in this study. All participants interviewed had extensive training in the Direct Instruction Program, and three of the four had gone to conferences specifically to improve on their Direct Instruction teaching. All
participants received on-going coaching at the beginning of their training. Kate mentions that this was particularly beneficial for her:

Right at the start, I was given in-service training to introduce me to Direct Instruction, and in my first several years at [Evergreen], I received coaching on an on-going basis. This was crucial to my development as a Direct Instruction teacher because it gave me feedback on my teaching, and it allowed me the opportunity to sit down with my coach to receive constructive feedback and reflect on my teaching in a collaborative manner. Kate describes the in-class coaching as beneficial for her when learning to use the program effectively. It has also been cited in the research that regardless of how good the initial training is, the in-class coaching is an essential part of teachers’ professional development towards becoming efficient Direct Instruction teachers (Grossen, 2004).

Andy, who has only been at the school for a year, has attended a school-wide training session on the principles of Direct Instruction, and is receiving on-site support from a coach three times per year. Andy found these sessions to be beneficial and found learning from his colleagues and seeing their successes a major contributor to his own belief in the program. Despite having less experience with the programs, Andy reported that he is gaining confidence in the program and improving his lesson delivery, due to the professional development he is receiving.
Findings 2: Inexperience and lack of commitment to the Direct Instruction Programs can be barriers to effective Direct Instruction Teaching.

Inexperience as a Barrier to Effective Direct Instruction Teaching

A common thread throughout the data collected in this study was that teachers experienced difficulty using the Direct Instruction Programs in the first years of implementation. This is consistent with the research, which states that it takes more than three years for teachers to achieve peak student performance when using Direct Instruction Programs (Stockard, 2011). This learning curve presented itself in this study as educators often spoke of challenges or apprehension with the program at the beginning of using it. For example, Jess found the adjustment to using the script strenuous.

It was a little stressful at first. I was nervous about straying from the script. With the coaching sessions, they really drive how important it is not to stray from the scripted lesson. I was always nervous that I would mix up the correction procedure or not give my signal at the appropriate time. However, with years of practice, I do not find this as a challenge anymore!

Adjusting to the structure of the program takes time for teachers. As Kate mentions:

The most challenging part of Direct Instruction is getting to know your programs. Although they are scripted, you need to move at a very quick pace, and you need to be able to implement correction procedures seamlessly. As a beginning teacher, it felt a bit overwhelming, but I grew to love it very quickly, especially when I saw the level of success, as well as the increase in happiness and confidence in my students.

The overwhelming feeling that Kate expresses is common for teachers beginning to teach using the programs. Kate felt anxiety with the pace of the lessons, and the introduction of the correction procedures when she first used the Direct Instruction Programs, but began feel more comfortable and confident when she witnessed students achieving success. Andy, who has been using the program for only one year, also mentioned difficulty with the pace.

One difficulty I found was keeping up with the pace. It’s a program that is meant to be administered very quickly. Maybe it’s because I’m new to the program, but
it’s good to have a refresher. It’s beneficial for me to have someone else who’s been using the program for 10 years to give me some tips and some things I can improve on.

Andy is still undergoing professional development and is gaining confidence as he has support from staff in the school. The fast pace of the lessons in the Direct Instruction Programs is a drastic change for some teachers, and can cause some anxieties surrounding the program. Fortunately, teachers often lose these fears as they become comfortable with the programs (Bessellieu, et. al, 2001).

Once you get familiar with the tempo of it and get more comfortable with the material, you can move quicker. It comes with knowing your students better too, so you can expect what they need. Initially it’s a lot of getting familiar with the program and as you get used to it, it becomes easier to up the pace.

This quote by Andy discusses how he is already becoming more comfortable and familiar with the program. The majority of the participants found that there was a learning curve with the program, but as they gained confidence and experience with the features of Direct Instruction they became more efficient at using it to teach.

Need to Buy-In to the Program

Another major feature of the program is that you must believe in it for it to be effective. Teachers who are not fully committed to the program and do not stay on the script during lessons often do not see the same amount of successes from their students (Engelmann, 2011). Kate, who is a Direct Instruction coach, mentions how essential this buy in is:

As a Direct Instruction coach, I have definitely experienced challenges. One of the most important components of any Direct Instruction program is to have a staff that believes in Direct Instruction and is passionate about it. This need for the staff to be on board with the pedagogy of the school is an essential part of implementing the program. Kate also states:

Direct Instruction also requires energy because you need to move at a quick pace so that your students stay interested, so some personalities find it difficult to
deliver. As a coach, it’s about trying to foster that passion in your staff so that they bring the best to their pedagogy.

It is essential for a teacher to be passionate about what they are doing, as this reflects on their students’ engagement. Mary complements this with her statement:

When a teacher isn’t enthusiastic about teaching a DI program, it is often reflected in student attitudes towards the work, something we have to be aware of and careful about (i.e., placing teachers in areas where they have expressed desire to teach). … An enthusiastic DI teacher can have an incredible impact on student engagement and student success.

The need for enthusiasm, energy, and passion when teaching the Direct Instruction Programs were common themes from all participants, Andy further states:

I just think that the program works really well. I think that you have to have an effective instructor and teachers need adequate resources and to really buy in to the program and understand it. It is quite repetitive and can seem strenuous at times, but working with colleagues, and finding success in different ways, and seeing success in the students, are the most effective means for a teacher to be able to progress with DI.

Andy also mentions the need to buy in and believe in the program, and brings up the issue of resources. It is important that teachers do not feel isolated within the program, and that they have support to help them continue and have success with their students. Interestingly, Andy also mentioned how important it is for staff to understand the program. Understanding the program and why certain features are present may be beneficial in promoting teacher buy-in and confidence in the program. This is consistent with Errthum’s (2013) research that states how important it is for teachers to understand what they are doing in order to believe in its effectiveness.
Findings 3: Once educators had received sufficient professional development, experience with the program, and were committed to it, their beliefs and opinions of the program changed. This change in belief was accompanied by a change in self-efficacy.

Belief Change

Once a teacher has had sufficient professional development (Stockard, 2011), experience using the program (Bessellieu, et. al, 2001), and a commitment to the program (Errthum, 2013), they may experience a change in belief towards the program. In this study, it was apparent that the educators had a positive attitude towards the Direct Instruction Programs. However, participants noted that the positive attitudes they held at the time of the interview were not always in place. The results of this study complement the research, as there was a strong theme of teachers changing their opinions and beliefs about the program.

It is apparent in the research that once teachers have experience with using Direct Instruction, their opinion of the program becomes increasingly positive (Bessellieu, et.al, 2001). For example, Berkeley (2002) found that many teachers at City Springs Elementary School considered the programs to be bad for students before its implementation, yet they were satisfied with the program after having experience with it. Berkley (2002) went on to say that “DI has invigorated every school that has adopted it” (pg. 228). Considering another Project Follow Through school, Goral (2001) noted that some teachers were so against implementing the program that they requested a transfer, yet once they had experience using the program and saw success in their students, they became advocates for the programs. Bessellieu et. al (2001) also found that once teachers had experience with the program, they had much higher opinions of the program and its success for student learning. In this study, similar patterns were found in the participants’ responses. As Jess stated:

I’ll admit, at first I was very weary of the DI techniques. But having 12 years experience and a lot of successful students, I feel I am more confident as an
educator. I am more consistent as a teacher and as a role model. I enjoy the pace of the lessons and love the way the students are constantly engaged in my classes. This type of belief change was also apparent in other participants’ interviews, as Kate stated:

As a beginning teacher, it felt a bit overwhelming, but I grew to love it very quickly, especially when I saw the level of success as well as the increase in happiness and confidence in my students. The participants were originally concerned about using the program, as it is different from other mainstream teaching strategies. However, both of these participants expressed a strong positive attitude towards the program once they had used it consistently. The satisfaction with the program that these teachers expressed is similar to educators’ attitudes in the research.

As teachers change their beliefs of Direct Instruction through training, experience, and an increased commitment to the program, their opinions of the program are often reinforced by the success they see in their students (Berkley, 2002; Bessellieu et. al, 2001; Goral, 2001). This is consistent with the Model for Teacher Change outlined by Guskey (2002), which states that to change a teacher’s beliefs, their practice must be changed followed by the teacher witnessing a positive improvement in student learning outcomes as a result of the practice change. This model may explain why the educators in the research often attributed their positive attitude for the program to student success (Berkley, 2002; Bessellieu et. al, 2001; Goral, 2001). Teachers who may have been doubtful of the program before implementation are often convinced of its effectiveness as they begin to see a positive change in their students. As Mary stated, “I am open-minded to new methods of teaching and teaching students with ASD; however, I haven’t found anything better as of yet.” The educators in this study were very confident with the program’s success, and overtime they had become increasingly fond of Direct Instruction. A qualitative study by Kanfush (2014) also found that there was a high level of satisfaction with Direct Instruction as a methodology for teaching and learning, particularly for students with learning difficulties. Further complementing this belief change, Kim and Axelrod (2005) state that when
using the Direct Instruction Programs, teachers often find their classrooms more meaningful and rewarding. It was apparent that educators in this study also believed that the Direct Instruction Programs lead to student success, and reported a high level of satisfaction with the programs. In a particularly descriptive quote by Kate, she states:

I love many aspects of Direct Instruction programs. First of all, their delivery appeals to all types of learner styles. In every lesson, there is an auditory component, an oral component, and a kinaesthetic component. Secondly, they are developmental in nature, and they have been rigorously field-tested for many years, proving their efficacy. Finally, ensuring that students are placed appropriately is key because students are successful. Unlike many public school settings where no matter what level of functioning, students are placed in their age-appropriate grades, in Direct Instruction programs, students are delivered a curriculum that meets their academic needs.

Kate refers to many aspects of the Direct Instruction Programs as being beneficial for the students. Specifically that multiple learning styles are addressed in each level, the programs are effective for students, and that the students are placed based on academic level. This quote demonstrates how Kate believes that these programs can meet the needs of any student, regardless of learning style or academic level.

It is evident that educators in this study changed their beliefs about the Direct Instruction Program once they had sufficient professional development, experience with the program, a commitment to the program, and witnessed student success with the program. Their high self-efficacy with using the program can be contributed to the conditions that were in place, fostering positive teacher attitudes and perceptions of the Direct Instruction Programs.

**Self-Efficacy**

In addition to having a positive outlook on the program, it became apparent within the interviews that teachers in this study had increased confidence with using the program, and a belief that they had the ability to improve their students’ performance. For example, Jess said, “I
feel I am more confident as an educator” and Kate mentioned that “More than ever before, I believe that every child can learn.” The teachers in this study truly believed that when using the Direct Instruction Programs, they had the ability to affect student learning. This self-efficacy in their own teaching is what Bandura (2001) considers one of the most important characteristics and a powerful motivational force that can influence a person’s behaviour change. In the realm of education, teacher efficacy has been defined as “the extent to which the teacher believes he or she has the capacity to affect student performance” (Berman, McLaughlin, Bass, Pauly, & Zellman, 1977, p. 137). This high self-efficacy in using the program to benefit students has been identified in research as an integral part of teachers believing in the program and implementing it in the most successful way (Errthum, 2013). Bandura (1977) identifies four aspects contributing to this improvement in self-efficacy, which includes Mastery Experience, Physiological and Emotional Arousal, Vicarious Experience, and Verbal Persuasion.

Mastery includes personal success and positive experiences with a particular event or field (Bandura, 1997). In education, teachers witnessing student success while using the program can be an influential factor affecting their belief in the program and their self-efficacy when using it. In this study, all participants stated that the success of their students was a pivotal part in their belief in the program. As Mary states “I feel that my experience and training in DI has helped me to reach a wide range of students who were previously hard to reach... and that is the most satisfying accomplishment as an educator” and Kate states “I am impressed with how effective the Direct Instruction Programs can be when teaching students on the [autism] spectrum”. By witnessing first-hand the improvement in students on the Autism Spectrum when these teachers began using the Direct Instruction Programs, the teachers began to believe in the program and their ability to teach it. This experience with success has improved their self-efficacy as educators for students on the Autism Spectrum.
Physiological and emotional arousal towards something, for example teaching with a new curriculum, can also contribute to one’s self-efficacy. Positive feelings and emotions when using the program, or anticipating using the program, can benefit the teacher’s self-efficacy regarding it. Kate mentioned that the scripted lessons provided her with a reduction in anxiety at the beginning of her teaching career, as she did not have to focus on coming up with curriculum for the students. Reducing anxieties and having consistent instructions and lesson formats can assist in teachers becoming more confident with using the program and teaching students on the Autism Spectrum.

Vicarious experiences can be described as seeing other people have success when performing an activity (Bandura, 1997). As Kate discusses how she has become more comfortable with the program, she states, “I also work with an amazing staff, which makes a huge difference”. As this quote highlights, the colleagues and staff that surround you make an enormous difference on your perceptions of your own ability to succeed. Andy also addresses the importance of vicarious experience when he mentions:

I think that rather than having someone come in and just explain how DI works, seeing it first hand and seeing other teachers have success is really a great way to learn and helps you understand and buy-into the program. I think if everyone understands its success it can help more students. By witnessing other teachers have success, Andy has found it easier to understand the program, and felt more self-efficacy towards using it himself. The vicarious experience he had increased his dedication to the program and made him more confident in its ability to assist students on the Autism Spectrum. Increasing self-efficacy through vicarious experience is an important part of behaviour change.

Verbal persuasion is another component of improving self-efficacy, and is essential for teachers who are implementing the Direct Instruction Programs. Verbal Persuasion including
feedback from colleagues, administration, and coaches can strengthen a person’s beliefs regarding what they are capable of and if they will be successful. On-going coaching and support throughout the use of the Direct Instruction Programs is an essential feature that participants in this study found to be critical in their development as a Direct Instruction educator. Kate describes it as:

Crucial to my development as a Direct Instruction teacher because it gave me feedback on my teaching, and it allowed me the opportunity to sit down with my coach to receive constructive feedback and reflect on my teaching in a collaborative manner.

The feedback and assistance that teachers receive as part of on-going coaching provides an opportunity for teachers to reflect on their own teaching practices, and collaborate with colleagues to improve the efficiency of their lessons.

It is apparent that for the participants in this study, all conditions were in place to promote self-efficacy in using the Direct Instruction Programs for students with Autism Spectrum Disorders. The overall positive attitude that these participants had regarding the use of the Direct Instruction Programs, and their comfort and confidence in the program was evident in the interviews. All teachers had high self-efficacy and teacher efficacy when utilizing the programs, which is essential for teachers to implement the program correctly (Errthum, 2013). As teachers report high levels of satisfaction with the program, and positive attitudes towards their program, their self-efficacy with using the program also increased.
Finding 4: Educators found aspects of the Direct Instruction Programs beneficial and enjoyable, and would continue to use it in the future.

Less Time Planning

As mentioned previously, the research shows that the scripted lesson plan is often a point of conflict surrounding the Direct Instruction Programs (Stein, Carnine, & Dixon, 1998). Often criticized for rigidity and obstructing the ability to adapt to student needs (Eppley, 2011), the scripted lessons have often been a deterrent point for teachers considering using the Direct Instruction Programs (Besselliu, et. al, 2001). Contrary to these opinions the educators in this study had a positive outlook on the scripted lessons. Kate found the scripted lessons took away the anxiety of lesson planning and allowed her more time to get to know the students.

Having a scripted program that you knew worked took away a lot of pressure of trying to come up with curriculum for your students. I was able to focus on effective teaching and getting to know my students, rather than planning lessons each day. This quote highlights how beneficial it can be for teachers to have more time, as it allows them to focus on other aspects of their teaching. Jess also mentioned that the scripted lessons allowed more time to get to know the students, “I feel that DI is great for teachers because it minimalizes planning and can easily help find where students need most assistance”. Knowing students is very important for teachers and can help a teacher engage students’ specific needs. Mary mentioned the increased time as improving her ability to engage students in the classroom, “because you are not creating the script or creating daily lesson plans, your focus can be on engaging the kids”. By eliminating the focus on what the teachers were going to say next, the focus was switched to the students and their needs and responses. These teachers felt as if the script provided a way for them to focus less on lesson plans and more on classroom dynamics, which was beneficial for their relationship with their students. This responsiveness to the students
that the educators in this study mentioned is one of the most essential pieces of the Direct Instruction Program, and key for the success of students (Grossen, 2004).

**Consistency**

Beyond scripted lessons providing simplicity for the teachers, the educators in this study found that the Direct Instruction Programs provide consistency throughout lessons and the entire school. Consistency is one of the founding features of the Direct Instruction Programs (Engelmann, 2005), and has been shown to be beneficial for students with Autism Spectrum Disorders (Flores & Ganz, 2009). With this consistency, students know what to expect from teachers and classroom environments, which can make transitioning much easier for students. This consistency may be particularly beneficial for students with Autism Spectrum Disorders, who often struggle with transitions and changes in environment (Iovannone, Dunlap, Huber & Kincaid, 2003). Andy mentioned that:

> The students know how to answer the questions and what to expect, it’s not very sporadic, all over the place, or disjointed. There’s good consistency to it. I think this allows students to feel comfortable with the program and the questions being asked.

The students understand the format of the questions and become comfortable with the way that lessons are approached. For students with Autism Spectrum Disorders, this can be particularly beneficial as it provides them with a routine. Jess stated, “I enjoy that the manuals are scripted. I see the benefits of consistency with the population of students with a variety of learning needs.” Flores and Ganz (2009) outline that structure and consistency of instruction benefits the learning of students with Autism Spectrum Disorders, which may explain why teachers in this study found the consistency beneficial for this population.

The increased consistency within the lesson also provides increased consistency between lessons. As Kate mentions:
The Direct Instruction Philosophy permeates teacher beliefs and, often times, schools that use Direct Instruction not only use consistent delivery techniques, but they also use consistent reinforcement strategies and consistent marking expectations. This consistency across the academic domains of instruction and marking can be beneficial to teachers as they are better able to track student progress. Andy found that this consistency in assessment made it easier to take over the class part way through the year, as he could decipher the assessment style and continue using it. He mentions that this assessment style is always a good starting point for teachers at the beginning of the year as well. The consistency in the instruction that students received and the consistency in assessment made it easy to track the student progress regardless of a new teacher or new assessment style.

Classroom Management

Fast Paced Lessons

All participants believed that the Direct Instruction Programs benefited their Classroom Management, particularly due to the fast pace of the lessons. According to Mary:

When you are really comfortable teaching a DI program, classroom management becomes easier not harder. The lesson is fast-paced, structured and predictable, and the reinforcement is built into the program. This quote highlights the ways in which the features of the Direct Instruction Programs improved a teacher’s ability to manage a class. Kate mentions that the efficiency of the class and the fast paced lessons may result in less off-task behaviour from students, resulting in efficient lessons.

If a Direct Instruction class is being run efficiently, there are typically less behaviours to redirect. The reason is that the lessons are moving fast, and the children are engaged, so there is no time to be off-task. Jess also mentions that students are more engaged due to the fast paced lessons, saying: “I enjoy the pace of the lessons and love the way the students are constantly engaged in my classes”. This quote shows Jess’s agreement with Kate and Mary, as the students are more on-task and focused
on the material, as opposed to having the opportunity to disengage. Andy also mentioned increased student engagement as a result of the fast paced lessons:

Going back to having a quick pace when working with DI, it keeps students accountable for their answer and students stay on their toes because they know that they have to answer soon so there’s not a lot of downtime when students can disengage.

Andy believed that the fast pace of the lessons kept students accountable for answering questions, as they know they will have to respond soon. By having less time between questions asked by the teachers, the students also have less time to become distracted. All participants mentioned that the fast-paced lessons improve classroom management, as there are fewer interruptions and behaviours to redirect, resulting in more efficient classes and improved classroom management.

*Unison Responding*

In addition to the fast paced lessons, Andy believed that unison responding improved his classroom management.

The participation is almost 100% for the whole class, which is very unique to the program. There isn’t so much lecturing going on, there’s a bit of guided discussion or self-discovery, but for the most part students are participating actively, they are engaged. That downtime that they might disengage or go off into space or have a behavioural issue is gone, they just don’t have time to do it.

The full participation across the class is a key component to Direct Instruction programs, and is often considered an effective tool for gaining information about all students understanding (Engelmann, 2005). Andy views unison responding as another way to keep all students engaged. As all students are answering all questions, students do not have time to tune out or disengage from the lesson as they are continuously participating in it.

*Positive Reinforcement*

Also mentioned frequently by the participants in this study is the feature of Positive Reinforcement. In the Direct Instruction Programs it is required that 75% of what a teacher says
is positive reinforcement, (Engelmann, 2005). Kate mentions this as she explains that there is specific positive praise built into the lessons “For example, every lesson needs to have at least one specific comments of praise.” This highlights the frequency and importance of positive praise as part of the Direct Instruction Programs. One of the benefits of positive reinforcement mentioned is the positive effect on classroom management.

There is also the very important component of positive reinforcement, and the idea is that if one child is behaving inappropriately, then you specifically reinforce the child that is behaving appropriately in an effort to shape the behaviour of all children in your class. For instance, you might say, “I love how Johnny has his pencil down and his finger on part one,” rather than saying to Mackenzie, “Put your pencil down. I’ve asked you to do that three times now, so please listen.” This comment draws attention to the negative, which can be a self-fulfilling prophesy for some children.

This quote by Kate explains how the positive reinforcement in the Direct Instruction Programs can benefit students, particularly students with frequent disruptive behaviour. The theory she presents outlines that if students are constantly given attention for negative behaviours they are more likely to repeat them. This is consistent with Engelmann’s (2005) theory that positive reinforcement is necessary because students who misbehave do so for attention, and thus should only get attention for positive behaviour. The positive reinforcement built into the lessons can assist a teacher in managing the classroom environment and keeping students’ on-task.

In addition to classroom management and keeping students on-task, Jess notes that students experience a perceived improvement in student motivation as a result of the positive reinforcement. “Students seem to want to do well when they are continually praised for all of their efforts”. Kate has also documented this apparent increase in desire to succeed, as she states:

In almost all of the cases, however, they start to realize that they are being successful, and they thrive on that success, as well as all of the positive feedback that they are receiving. That results in an improved work ethic and an increased desire to learn.
Jess and Kate believe that positive reinforcement can improve student work ethic and apparent drive to succeed and learn. Mary also identifies this enthusiasm as an important component of Direct Instruction teaching:

A top-notch DI teacher is kind of like a cheerleader. They are well-practised, coordinated, energetic, and happily cheering the students on, praising them when they are doing things well and telling them exactly what they have done well. An enthusiastic DI teacher can have an incredible impact on student engagement and student success.

In this quote Mary highlights the importance of the positive praise being specific, and drawing attention to exactly what the student has done well. The educators in this study have identified the positive effects of Positive Reinforcement on classroom management, engagement, and student desire to succeed. As it is one of the essential components of the Direct Instruction Programs, it is important to note how these educators positively perceived the effects on student learning and engagement.

**Homogenous Groupings**

Another feature of Direct Instruction that educators in this study found positive was the homogenous groupings. Within the Direct Instruction Programs students are grouped based on ability level as opposed to age (Engelmann, 2011). The homogenized groups allows for the teacher to reach the most students and promote understanding with the least amount of individualization (Engelmann, 2011). In other words, a teacher can ensure that all students are receiving a lesson that is at their level, while not having to take time to address the separate levels of students who may be in the class. As Mary claimed, “One key to classroom management is having those homogenous groupings.” Homogenous groups can improve classroom management as having students all grouped based on their ability level as opposed to age keeps all students working on the same lessons and at the same pace. Kate also mentioned that, “children are taught according to their academic level, rather than their age, so they are successful. Successful
children equal confident children, which equals engaged children.” It has been mentioned before that engagement is a key component of classroom management, as it reduces behaviour issues and promotes time on-task for students. Kate’s quote also highlights how homogenous groupings can lead to success. By teaching to students who are all at the same level, the teacher can ensure that all students have sufficient background knowledge to complete the task and no student has gaps in their knowledge.

Kate also mentions that students can experience positive affective measures of being placed in homogenous groups “It’s effective because students are placed according to their level of functioning… This allows students to be successful, which fosters a huge increase in self-efficacy.” Allowing students to perform at their own level can improve students’ self-efficacy and their belief in their own ability to succeed. The educators in this study believed that homogenous groupings were a contributing factor to the program’s ability to keep students more engaged, improve academic success, and improve student self-efficacy.

Continue to use in the Future

As it was evident that the educators in this study enjoyed many aspects of the Direct Instruction Programs, they also showed an interest in continuing to use them in the future.

I would definitely continue to use the DI programs outside of this setting in some regard. Once trained in DI and aware of the effectiveness of the programs it’s hard to imagine not using it, though some children learn and thrive without DI programs. This quote from Mary is depictive of how attached teachers can get to the Direct Instruction Programs due to student success while using the program. Andy also mentioned specific aspects of the Direct Instruction Programs that he would continue to use in the future, such as unison responding and repetition. He also considered this a good way to “get students back on track in a short period of time”, but acknowledges that the program itself may be difficult to implement in
alternate settings. Andy believed that certain strategies from the Direct Instruction Programs may benefit students, however implementation of the entire programs would have challenges in a typical classroom. Kate also mentioned that there might be financial barriers to using the DI Programs in another setting, yet she would use it if it were possible. As Kate said,

I have been fortunate enough to be exposed to these amazing programs and experiences. I wish that they could be made available to everyone because they are so effective. She would continue to use these in the future and wishes that other people had the same opportunities as her to utilize the programs and experience their successes.

Jess brought up the efficiency of the Direct Instruction Programs outside of a school setting as well.

I use D.I techniques with my nephew and many other kids that are in my life. By that, I mean that I have become a master of positive praise! I allow time to ask and have answers repeated back to ensure understanding. The use of these components of the Direct Instruction Programs outside of the classroom and with children close to her suggests that she is satisfied with the results of the programs, and believes they are truly effective. All participants mentioned in one way or another that they would continue to use the principles of Direct Instruction in the future, even away from Evergreen Academy.
Finding 5: There are challenges for Creativity in Direct Instruction Lessons.

Challenges of Creativity

One of the major criticisms of the Direct Instruction Programs is its lack of creativity and rote style of teaching (Adams & Engelmann, 1996; Goral, 2001). There has been considerable dialogue in the research on Direct Instruction regarding its effects on teacher creativity, and the argument is still ongoing. The same pattern was apparent in this study. Mary mentioned that:

The only aspect of the DI programs that I do not like is the lack of creativity at times, but I am used to the DI programs so there is comfort and confidence with using them and knowing their effectiveness, being able to spend more time on the kids and figuring them out than on planning a lesson.

This quote highlights the ability to engage on a deeper level with the students, yet Mary has noted that at times it is difficult to be creative. Jess also notes that:

Sometimes, I’d like to add some “spice” to my lessons. I love being creative and find that sometimes these regimented lessons do not necessarily adhere to the more creative learners.

Both of these educators noticed that the actual DI lessons could hinder creativity. Jess also found the DI script could be “emotionless” at times, and mentioned that the scripted praise and correction techniques could take the personality out of teaching. However, Jess later states that her opinion has changed over time and she has found new ways to encourage creativity in her classroom. When asked if the Direct Instruction Programs hindered creativity, she answered:

As a new teacher, I would’ve said yes, absolutely to this question. But with experience, I have found ways to be creative and still use the DI script. (For example, in a math lesson, I can still read a math story before a scripted lesson about fractions, just to make it more fun.)

This change in perception is common amongst teachers as they gain more experience with the program (Bessellieu, Kozloff & Rice, 2001). Although teachers mentioned that there was a certain lack of creativity when following the script itself, there is still hope for adding creativity into the classroom.
Still Ways to Be Creative

As Jess mentioned above, there are ways to be creative in a lesson by adding additional activities and events within the classroom. Although the script is used for the actual instruction part, there is time around this to incorporate creativity into the classroom. Andy also agreed with this as he stated:

To an extent, I feel like they are quite rote. I mean, they are effective and there’s a reason why, and so it’s good to follow them closely. I think there are other classes or other aspects of the day where you can be creative. I think that the DI programs are extremely effective, but maybe every 5th class or every 6th class you switch it up a bit and try something else if you want to be creative or go about it in a different direction to meet a different students’ needs. I think the program is great but slight variation can be good for some kids. For example, we are using the DI programs in writing and its going really well, but then every other Friday we do writing in a journal to mix it up and give the students some more informal practice. That allows the students to work on sentence structure, verbs, pronouns, and nouns. They can demonstrate what they learn in the journal, which gives them a chance to show what they know in a creative context.

The addition of a story as Jess mentioned, or a journal such as Andy’s example, can provide opportunities for creativity in the classroom. These teachers used the script for the lesson and added additional features to enhance creativity. Kate also mentions the use of extension activities that are available as part of the program, and how they can bring more creativity into the lesson.

When asked if she believed her creativity was at all affected, she said:

No, I don’t. This is one of the main concerns when people hear about scripted programs. I think energy and an enthusiasm for learning is what is important. Additionally, there are many extension and cross-curricular activities available. At the end of the day, our students are learning, and they feel a sense of autonomy and self-efficacy; all essential tools for success in education and beyond.

Kate felt very strongly that the Direct Instruction Programs did leave room for creativity, and that there was room for teacher’s to incorporate their own personality into the lessons. In another quote by Kate she states:
Many people believe that Direct Instruction is boring because the teacher reads a script; therefore, there is no room for creativity. In actual fact, teachers can incorporate their personality into their teaching, and this becomes easy once you know your scripts and your students. The majority of participants believed that it was possible to be creative in the classroom despite the scripted lessons. Although some of the suggested alternatives involved activities that complement the lessons as opposed to the script itself, the lesson can still be creative for the students and teachers.

*Findings 6: Educators believed that the Direct Instruction Programs positively affected their students.*

**Student Academic Success**

Throughout educational research there has been meaningful debate about which teaching styles and programs benefit the highest amount of students. Although this research is ongoing and constantly changing, there has been a significant amount of research demonstrating the academic benefits the Direct Instruction Programs for a wide variety of students. Bormen et al. (2003) found that Direct Instruction consistently improved student test scores across a variety of contexts and student demographics, as compared to 29 other school reform models. Hattie (2009) also found that out of 800 studies, Direct Instruction was shown to consistently improve academic scores across a diverse population of students.

No specific measures of academic achievement were taken in this study, however all four teachers reported improvements in students’ academic performance as a result of the Direct Instruction Program. Many of the students who come to Evergreen Academy are falling behind academically in the regular school system, and come to Evergreen to catch up to grade level or improve their learning through the Direct Instruction Programs. Jess highlights the effects of this school transition:
Students who came to our school who had no DI experience and were for the most part not being successful, started improving immensely after just a few months (in some cases) and were most often able to make some notable academic upgrades. Contributing more detail to this idea, Jess adds:

In my experience, with ASD students as well as students who have just needed more effective tools to help with their learning needs, the DI programs have allowed a lot of students who struggled in public school settings without DI, to thrive and be successful in their academics.

Jess’s response is consistent with the research, which states that students who are struggling academically or defined as “at-risk” often benefit from Direct Instruction Programs (Hicks, Bethune, Wood, Cooke, Mims, 2011; Engelmann, 2005). Kate also supports this belief that Direct Instruction can improve student’s academics, as she states with this example:

If placed appropriately, students can make considerable gains in a short period of time. For example, a seven-year-old student started with us in February. By the end of June, he had completed all of a grade one program, and half of a grade two program in math. And, that was with two weeks off at March Break, as well as his family taking a two-week holiday.

The student in this story improved rapidly, and at an accelerated pace once beginning the Direct Instruction Program. This rapid movement through the program is consistent with one of the foundational goals of the Direct Instruction Programs, which includes teaching more in less time (Engelmann, 2005). Mary also had strong beliefs in the Direct Instruction Programs ability to assist students academically, she stated:

I have seen incredible results in student progress with DI programs that we use at [Evergreen] Academy. It is difficult to give only one example but I will try. I think of one student. When he began at the school, he was in a 2:1 reading group (i.e., two students and one teacher) and he had tremendous difficulty focusing on his work and he couldn’t read (which is why he came to [Evergreen]). When he graduated from [Evergreen] last year, he was awarded the Most Distinguished Achievement Award, and the boy read everything in sight and had the knowledge to discuss any topic you could name. Once we taught him how to read using the DI programs, the sky was the limit! The DI programming at the early levels made such a difference in his life, and he is just one vivid student example who comes to mind. Several students graduate from [Evergreen] and do exceptionally well in
high school because they have the perseverance and the diligent work ethic. They learn through DI not to give up as they have been rewarded for their efforts all along, not just correct answers. Mary’s story of the student who learned to read using the Direct Instruction Programs highlights the potential benefits that the program has for students. This quote also highlights that students who are taught using the Direct Instruction Programs have success in high school, as Direct Instruction has provided them with a diligent work ethic and consistently rewards them for effort. This addresses one of the major misconceptions identified by Adams & Engelmann (1996), which suggests students using the Direct Instruction Programs will fail to adjust to typical educational classrooms. Mary did not believe this was the case, which supports research by Meyer (1984), Meyers, Gersten and Gutkin (1983) and Darch, Gersten and Taylor (1978) who all reported that the academic benefits of Direct Instruction were maintained for years after students stopped the program.

Andy also believed that the Direct Instruction Programs can improve student achievement, and identifies the importance of students reaching Mastery before moving on to another lesson.

One of the big positives of using the DI program is that in order to go onto the next stage you have to hit 80% Mastery. You have to hit a very high level of success with the concept. In mainstream school systems sometimes a student goes through a concept, or gets some experience with it, but doesn’t always quite get it, and then they move on very quickly. By the end of the year certain students have lost a lot of what they’ve learned and they’ve missed a certain amount of the curriculum. Andy highlights that students who have typically struggled in a mainstream classroom often have gaps or holes in their knowledge. Furthermore, students who are struggling may fall further behind because they are missing certain building blocks of knowledge that are needed for the next steps. The Direct Instruction Programs state that before moving on in the lessons, students are required to reach and 80% correct benchmark of success. In other words, students must get
the material right 80% of the time before they continue with the program. This ensures that they
do not have any gaps in their knowledge and fully understand a concept before information is
built on it. Andy highlights that when using Direct Instruction:

There’s a certain amount of confirmation that the student has comprehended and
has really obtained the material. It’s seen in every exercise and lesson. And the
concept is reiterated in the next lesson or a few lessons after that. The mastery and
repetition are needed for some students to be successful, as it allows students to
comprehend and gain the skill and knowledge they need to progress.
This confirmation between teacher and student that the concept is grasped is an essential part of
student achievement. As stated before, the participants in this study believe that knowing your
students, and what level they are at is an essential component of promoting their academic
success. Andy has highlighted the link between an increase focus on student response and their
ability to reach mastery, as well as how this connection can directly affect student success. It is
important for teachers to receive confirmation that students have achieved each building block of
knowledge throughout the curriculum as they move forward in their academics.

**Rise in student self-esteem/self-confidence/self-efficacy**

Research shows that once a student has been taught with the Direct Instruction Programs,
there is often a positive result on students’ self-esteem. As mentioned before, in the Project
Follow Through study, students who were taught using Direct Instruction performed statistically
higher on affective measures than comparisons (Adams & Engelmann, 1996). Darch, Gersten and
Taylor (1987) also found higher scores on measures of self-esteem for students who had been
taught using the Direct Instruction Programs. Consistent with this research, participants in this
study also believed that the Direct Instruction Programs improved student self-esteem and self-
efficacy. As Kate mentions:

It’s effective because students are placed according to their level of functioning.
At [Evergreen], a student may be in a grade 5 homeroom; however, they may be in
a grade 6 math class, a grade 4 reading class, and a grade 3 writing class. This allows students to be successful, which fosters a huge increase in self-efficacy. Kate relates the students’ increase in self-efficacy to homogenous groupings, and to the success students are having surrounded by peers at the same academic level as them. This may be due to increased peer support, or the fact that students are not comparing themselves to peers at a different level. Students are allowed to work at their own pace without feeling as though they are falling behind. In addition, teachers may be more able to promote student success when students are all working at the same level. Mary also relates the improvement in self-esteem and confidence to the students’ pride in their own success:

Students at [Evergreen] generally respond very positively to the DI programs if and when they are implemented well. They soon realize that they are successful learners, and success indeed breeds success. Enthusiasm grows! The kids are able to attain mastery of skills (not always quickly, but some at a very accelerated pace), and they are very proud of their accomplishments, they begin to take increased pride in their work, and parents often observe and comment that they are eager to sit down and complete their homework each evening independently (because they can do it). They become happy to come to school and happy to do their work. For many of our students, the DI programs are life changing. As Mary states, success breeds success. As students make gains in their academics they acquire more confidence in their own ability to succeed, which promotes further success in the future. This confidence in their ability makes homework and class time a positive experience, as they associate it with something they are good at. This can be a life-changing event for students who have struggled in the past, and may have low self-confidence in their ability to succeed academically. Kate compliments this statement when she says:

The biggest change that we see is in student self-confidence. Because they are placed in the appropriate programs, they are successful, and perhaps more importantly, they are successful when working independently. Parents often comment on how the change to [Evergreen] has affected their whole family’s life. It’s incredible!
The change in the whole family’s life that Kate refers to here relates back to how students begin to feel confidence and pride in their work, and believe they can succeed if they try. These teachers believe this dramatic change in students’ perceptions of themselves is a result of success.

Andy believes that the program is set up in a way that students gain confidence in themselves, as he states: “it’s structured in such a way that it does set up an individual for success. I think all the little successes and goals that a student has are encouraging, and help them move forward”.

Andy’s quote draws attentions to how small successes encourage students to continue in their advancement towards a larger goal. This is consistent with the Engelmann’s (2005) premise that the DI programs can increase students’ intrinsic motivation to learn, meaning they will want to learn because they enjoy it. Kate sums up the attitudes of these educators nicely in her statement: “At the end of the day, our students are learning, and they feel a sense of autonomy and self-efficacy; all essential tools for success in education and beyond” Kate believes that the Direct Instruction Programs can equip the students with what they need to become independent and successful in their future lives. The dramatic effects of the program on students’ self-esteem and motivation are essential factors in learning and succeeding beyond the classroom walls, and all educators in this study believed the program benefited the students in this way.

Fewer Behavioural Issues

As mentioned previously when addressing classroom management, educators found that the Direct Instruction Programs improved the individual behaviour of students. Educators in this study attributed this reduction in problem behaviours to the fast-pace, positive reinforcement, unison responding, and consistency of the lessons. As Kate states:

Direct Instruction allows students on the [autism] spectrum to be successful because the programs move quickly. There is not a lot of time to focus on extraneous thoughts, and the consistency of the delivery allows for success.
Kate believes that the fast pace lessons keep the students minds stimulated, and do not allow for time for their minds to wander. By keeping students engaged and thinking about the lesson, Kate believes they have more opportunity to be successful, and less time for distracted behaviour. Jess also felt as though the Direct Instruction Programs reduce behavioural issues in students, as she stated:

> In my experience, DI techniques can reduce behaviour problems in a classroom because of the fast-paced lessons and the consistent positive reinforcement. Teachers who teach DI material effectively should be able to keep the students engaged at all times therefore minimizing time for behaviour issues. As well, students seem to want to do well when they are continuously praised for all of their efforts.

In agreement with Kate, Jess states that the student engagement and fast pace of the lessons limit the opportunities students have for behavioural issues. Jess also states that students become more motivated to succeed as they are positively reinforced for their efforts. Being continuously praised for good behaviour, and not for disruptive behaviour, can reduce behaviour issues in students. Andy also found that through increased student engagement and superior classroom management, as mentioned above, that there are fewer behavioural issues in the class.

> In addition to the fast-paced lessons and positive reinforcement, Mary mentioned that unison responding keeps students engaged and reduces behavioural disruptions.

> A student is not able to tune out for 10 minutes and think about a TV program from the night prior; they are expected to respond with the group, and this is reinforced early on. Eager students do not have to compete for a teacher’s attention by putting their hand up first. All students are engaged.

Mary believed that having students all respond in unison was a way to ensure that students were engaged in the class, which minimized behavioural issues and kept students on-task. Andy also mentions this consistent active participation and improving student engagement, and keeping them accountable for their responses. This is consistent with research by Haydon, Marsicano and Scott (2013) in which unison responding statistically increased on-task behaviour in students.
between the ages of kindergarten and grade 12. Having all students actively participating in the
lesson at all times ensures no competition for attention, and more experience with answering
questions about the material. The behavioural issues can be reduced due to students knowing they
will have to produce an answer in the near future. The Direct Instruction programs have built in
mechanisms that reduce disruptive behaviours from students and maintain their engagement,
which can be particularly beneficial for students on the Autism Spectrum.

Reduced Anxiety

Throughout this study educators mentioned a reduction in student anxiety and fear as a
result of the Direct Instruction Programs. Mary mentioned that this reduced anxiety might have a
positive impact on student behaviour, as she states:

DI programs can have a positive impact on behaviour. When you have placed a
student at their instructional level rather than their grade level, they can learn
without unnecessary pressure and anxiety. The anxiety that they once felt in
another environment literally disappears, so they can focus on what they are
learning and taking small incremental steps toward a greater goal.

Mary emphasizes the fact that the anxiety and pressure students feel may cause them to act out in
attempt to escape the situation. Mary also highlights two specific examples of when behaviours
improved as a result of the Direct Instruction Programs. She mentions that these students were
very defensive about what they could not do and did not trust the teachers or the school. Mary
says that once they spent some time at Evergreen, and were engaged in the Direct Instruction
Programs, they had significantly fewer behavioural issues. Mary relates this to the students
gaining trust in the teachers.

The difference in my opinion is “trust”….the kids trust that we have their best
interests at heart. They trust that we will never embarrass them if they don’t know
something. DI scripts simply give you the correct response if you don’t get it the
first time. These students trust that their effort will lead to recognition. Trust
makes such a huge difference when dealing with challenging behaviours, and it doesn’t happen overnight. Trust is something that is earned over time. The DI programs provide the structured environment and predictable formats in which to earn student trust.

In this quote Mary introduces her belief that the Direct Instruction Programs provide foundation on which the students and the teachers can build trust. This trust can help students feel more comfortable at school and reduce any negative behaviour they may have had as a result of feeling unsafe in the school environment.

In addition to a reduction in anxiety and behavioural issues, Direct Instruction can contribute to a more positive school experience for students and improved confidence. As Jess states:

The consistency with language, positive praise and highly effective correction procedures, have given students confidence and taken away the fear of the unknown or the “what’s next?” in their day while at school.

The consistency of the Direct Instruction Programs may assist in reducing students anxieties and fear of the unknown, which may produce a safer environment for students. It may also provide students with an increased sense of confidence, as they are comfortable with the format of the lessons. In addition to consistency, Andy believes that unison responding can also reduce anxiety for students as “a lot of barriers are brought down because everyone is able to share their response at all times.” Through unison responding all students respond at once, and are not singled out or put under pressure to answer individually. As students perceive fewer barriers and anxieties in their day, they can become more engaged and confident in their own ability. This reduced anxiety can be a major contributor to student learning, success, and a reduction in behavioural issues.
Finding 7: Educators believed that certain aspects of the Direct Instruction Program met the needs of students with Autism

Although there is limited research directly evaluating the effectiveness of Direct Instruction on students with Autism Spectrum Disorders, there is significant research on how isolated components of the program can benefit students on the spectrum (Watkins, Slocum, & Spencer, 2011). Research has shown that effective programs for students with Autism Spectrum Disorders include systematic teaching, a structured learning environment, predictable routines, consistency, and specialized curriculum content (Iovannone, Dunlap, Huber & Kincaid, 2003; Yell, Drasgow, & Lowrye, 2005). Evident parallels have been drawn between the components of the Direct Instruction Program and these best instruction practices for students with ASD (Watkins, Slocum & Spencer, 2011). Research directly analyzing the use of the Direct Instruction Programs for students with Autism Spectrum Disorders has also shown positive results in increased skill acquisition and maintenance (Flores & Ganz, 2007), and increases in student learning (Flores, et. al, 2013). The educators in this study also felt that many elements of the programs were specifically able to meet the needs of students with Autism Spectrum Disorders.

Fast-Pace

One aspect of the Direct Instruction Programs that is mentioned in this study as being specifically beneficial to students on the Autism Spectrum is the fast pace of the lessons. Kate highlights this as she draws attention to the ability of the program to move quickly as beneficial for student engagement and success.

Direct Instruction allows students on the [autism] spectrum to be successful because the programs move quickly. There is not a lot of time to focus on extraneous thoughts, and the consistency of the delivery allows for success. The fast paced lessons have been documented in research as being beneficial for students with Autism, as shown by Koegel, Dunlap, and Dyer (1980) who found students performed higher
levels of correct responding and lower levels of self-stimulatory behaviour when lessons were fast paced, as compared to slow paced. The increased pace holds their attention as there is less time to disengage. This higher engagement rate can lead to greater academic success, as students spend more time on-task (Watkins, Slocum, & Spencer, 2011).

Repetition

In addition to fast paced lessons, Kate mentions the high amount of repetition and review as specifically beneficial to students on the Autism Spectrum.

There is a lot of repetition and review. All students can learn… Where it may take the “average” child three to five exposures to learn a concept, students on the [autism] spectrum may require several hundred exposures depending on their level of functioning.

In this quote, Kate also draws attention to the aspect of repetition and review, which she mentions is particularly beneficial to students with Autism Spectrum Disorders. Within the Direct Instruction Programs, much of the material students receive in a lesson is review, and only approximately 10% is new (Stockard, 2011). Research has shown that this type of task variation between review and new information promotes a higher percentage of correct responses during skill acquisition (Dunalp & Koegel, 1980), increased levels of on-task responding (Dunlap & Koegel, 1980), faster acquisition (Dunlap, 1984), increased motivation (Keogel, Koegel, & Mc Nerney, 2001), and decreased problem behaviour (Winterling, et al, 1987). Dunlap (1984) also found that students with autism acquired skills faster, and student affective measures were more positive, when maintenance tasks were interspersed with acquisition tasks. Variation in difficulty level and tasks are key components of the Direct Instruction Programs, and are built into the curriculum. Through a combination of repetition and Unison Responding, students have multiple exposures to concepts and skills. Kate states that his high degree of exposure and high amount of experience with material is important for students on the Autism Spectrum. In addition
to increased exposure, Kate mentions the variety of programs that can be effective for students on the Autism Spectrum.

I am impressed with how effective Direct Instruction programs can be when teaching students on the [autism] spectrum. Some of the language programs, like *Language for Learning* and *Language for Thinking*, can be extremely useful for developing language skills. Due to the repetition and review, all of the programs can be useful, depending on the level of functioning of the student.

Drawing attention to language skills and the importance of communication, the Direct Instruction Program *Language for Learning* mentioned here has been shown to improve expressive and receptive language skills for preschoolers on the Autism Spectrum (Waldron-Soler, Martella, Marchand-Martella, Tso, Warner, & Miller, 2002). Considering that language skills are often an important instructional target for students on the Autism Spectrum (Watkins, Slocum & Spencer, 2011), the Direct Instructions can be a valuable tool for teaching these skills explicitly to students. Interestingly, Kate points out the level of functioning of the student as a dependent variable to the success of the program. This highlights the importance of placement tests and ensuring that students are working at the academic level they are at, not what grade they would be in based on age.

**Consistency**

It has also been shown that students with Autism Spectrum Disorders respond well to consistency throughout lessons, and information that is presented in a predictable format (Thompson, 2007; Plavnick, et. al, 2014; Iovannone, Dunlap, Huber & Kincaid, 2003; Yell, Drasgow, & Lowrye, 2005). As Kate mentioned above, this consistency is a contributing factor to student success, which is another reason in which she views the Direct Instruction Programs as successful to this population of students. Jess also brings up the value of consistency within the program as beneficial specifically for students with Autism Spectrum Disorders, “I also now better understand that consistency is extremely important. Students with ASD generally need
structure and routine to be comfortable as well as more successful.” She believes that the routine and comfort established through the use of the routine lessons is beneficial for the students with Autism. The consistency that Jess refers to here is often provided by the use of the script and the detailed instructional strategies that accompany the Direct Instruction Programs, which have been shown to be efficient tools for teaching students with Autism (Plavnick, et. al, 2014; Iovannone, Dunlap, Huber & Kincaid, 2003; Yell, Drasgow, & Lowrye, 2005). Jess also stated:

In my experience, with ASD students as well as students who have just needed more effective tools to help with their learning needs, the DI programs have allowed a lot of students who struggled in public school settings without DI, to thrive and be successful in their academics. The consistency with language, positive praise and highly effective correction procedures, have given students confidence and taken away the fear of the unknown or the “what’s next?” in their day while at school.

In this quote, Jess identifies that students with Autism Spectrum Disorders may need specified teaching programs, namely Direct Instruction, to help them with their learning needs. The programming facilitates student success due to the consistency, positive praise, and effective correction procedures. These correction procedures mentioned include additional teachings about the subject provided in the script, to ensure no overgeneralization or misunderstanding has occurred (Binder & Watkins, 2013). Jess’s quote underlining the benefits of the program is consistent with the research highlighting how the program addresses the specific needs of students with Autism (Plavnick, et. al, 2014; Iovannone, Dunlap, Huber & Kincaid, 2003; Yell, Drasgow, & Lowrye, 2005; Watkins, Soler, & Spencer, 2011) and the research studies that have shown academic success of students on the spectrum when using Direct Instruction Programs (Flores & Ganz, 2007, Flores & Ganz, 2008, Flores, et. al, 2013).

The consistency of the lessons can provide predictability for students. Jess describes the predictable nature of the Direct Instruction Programs as beneficial for students on the Autism Spectrum, as it takes away the “What’s next?” out of the day and eliminates any fear of the
unknown. Iovannone, Dunlap, Huver and Kincaid (2003) asserted that this predictability and understanding is a core factor in effective educational practices for students on the Autism Spectrum. Jess also commented on the efficiency of the program for students with ASD, “I believe DI programs are well-written, well-researched methods to teach all students and they have a particular way that meets the needs of students with ASD.” Jess’s praise of the programs and the “particular way” of meeting the needs of students with ASD is consistent with the research that the program is effective for this population. Complementing this, Mary describes the Direct Instruction Programs as “the best method of reaching and teaching students with ASD that [she] has had experience to this date”. This obvious confidence in the program may be due to the many ways in which the program meets the needs of this population of students. All of the educators in this study demonstrated confidence in the ability of the Direct Instruction Program to meet the needs of Students with Autism Spectrum Disorders.

**Finding 8: Educators believed that certain aspects of the Direct Instruction program did not meet the needs of students with Autism**

Although all participants in this study believed that overall the Direct Instruction Programs met the needs of students with Autism Spectrum Disorders, some areas of the programs were identified that did not meet these students’ needs. Mary states:

Many students on the ASD spectrum are high functioning and actually get irritated by the amount of repetition built into the programs. For some learners, the repetition is wonderful, but for a child with Asperger’s for instance, the child can become easily bored which can lead to behaviour management problems, especially if they are grouped with students who need lots of repetition. One strategy that can prevent this is putting a lot of time and energy into the student placements in academic groupings, which we attempt to do. The goal is not only to have similar ability levels based on placement test results, but also to take into consideration students who learn similarly (needing the same level of repetitions to grasp a new concept).
Mary brings up the importance of understanding that Autism Spectrum Disorder is in fact a spectrum, and that all students have different learning needs. Another important point is the precision of the homogenous groupings based not only on student performance, but also learning style. An administrator or teacher must pay attention to each student’s needs and the multiple dynamics that are present in the classroom in order to create effective groupings for the instruction to take place.

An educator must ensure that beyond grouping strategies, they are considering student’s individual strengths and needs in all aspects of teaching and learning. An educator must adapt instructional interactions and assessments based on the student’s individual qualities. Mary discloses that the assessment criteria of the Direct Instruction Program that does not always compliment students with Autism:

The DI programs count each non-response as an error; however, when you are teaching a child with ASD, a non-response is quite typical. They are very capable learners, but insisting that they answer each time on signal with the group can be challenging (but not impossible). Some strategies are: to have great immediate reinforcement and allow frequent breaks to increase the level of engagement, or to implement many “individual turns” following a task to ensure that everyone has attended and mastered the concept. Individual turns is a strategy built into the DI programs, but we tend to add it more frequently, as well as additional practice and repetition of a scripted lesson.

Considering the various needs of your student is again brought up as an essential part of implementing the Direct Instruction Programs, as sometimes for a particular student a non-response is not actually an error. Slight modification to the program is also mentioned, as students may need additional individual turns to further ensure that they have mastered the concept. The benefits of this type of individualized instruction is important to ensure that all students are receiving instruction that best suits their needs.
In addition to being able to know your students learning needs, it is also essential that a teacher incorporate student’s interests and passions into the classroom to promote engagement and enjoyment. This is one area that Andy felt was not always present in the program.

With the older students, I feel like they feel it’s kind of basic. They sometimes feel like “what’s next?”, as if they are looking for something more mature or something closer to their interests. So at their reading level the book might be *Fido Barks* and it’s great to make those connections, but I think sometimes students are looking for something a little more creative and similar to their interests as they get into the 14-15 age range. I think it’s really affective for elementary/primary, but I’d be looking to see it progress more in the intermediate senior curriculum. I think the books were designed for the grade level that they are for, but if you have a student who is 15 and he’s reading at a grade two level, books like *See Spot Run* are not the best for them for engagement and keeping their interest. Andy introduces the idea that although the DI programs have a wide variety of resources that are scientifically based and designed to promote learning at that grade level, sometimes the interests of the students learning at that grade level do not reflect the material of the program. This insight that students may not be engaged by a book in which the material is too young is an important consideration, and one that stems from knowing your students. It is essential to make the learning material relevant and interesting to students in order to make their class time meaningful and productive.

Another concern with the relevancy of the material in the Direct Instruction Programs to the students is the cultural relevance of the information. The Direct Instruction Programs are based out of and designed in the United States (Binder & Watkins, 2013) and are reflective of this culture. Andy presents this point when stating:

I would say that the only thing that I find is that sometimes the material covered, (10-15% of it) seems a little irrelevant given our Canadian demographic, or even our Ontario demographic. The concern with this is that some of the information in the DI programs is not relevant to students. Within a language variation in terminology and spelling can be present, and although
the Direct Instruction Programs are in English, some of the terms and examples are not relevant to students of various demographics. This is an important consideration for teachers when implementing the program, as they may have to modify the content slightly or design lessons presenting important cultural specific information that was not included, to prepare students for the future.

In addition to presenting relevant material that prepares students for the future, it is important to ensure that students are able to apply their knowledge to various formats and situations. Another concern that was mentioned in the interviews was the ability of students to generalize their knowledge after becoming accustomed to the Direct Instruction Programs format. Kate mentions this when she says:

I think sometimes children find it hard to generalize their learning. Because the Direct Instruction programs are so developmental and similar in layout from lesson to lesson, children have difficulty demonstrating their knowledge when they are faced with tests and assignments that do not look the same, for example, a standardized test. Students can also have difficulty when they transition to high school because the formats are so different. This concern that students won’t be able to apply their knowledge to various situations is one that has been brought up within the literature (Adams & Engelmann, 1996). However, research has shown that students who are exposed to the Direct Instruction Programs are able to generalize learning (Binder & Watkins, 2013; Flores & Ganz, 2008), and that the benefits of the program are still evident in high school even once the program has not been implemented for a number of years (Meyer, 1984). Interestingly, the concern about generalizability is still present, and one that would benefit from further research.
Summary

In summary, the findings of this study reveal that these educators had confidence in the Direct Instruction Programs and its benefits for students with Autism Spectrum Disorders. Contrary to the trends in the research, all staff interviewed for this study felt that they had received or were receiving sufficient professional development to support their use of the programs. All teachers reported high self-efficacy with using the program, and belief in its ability to benefit students with Autism Spectrum Disorders. Specific items such as the fast paced lessons, unison responding, repetition, and consistency of material were highlighted as beneficial for students with ASD, whereas other aspects such as maturity of material and non-response error were areas that may need to be adapted to better suit the needs of this population. Overall, teachers enjoyed using the program, and felt it benefited their classroom management as well as provided more opportunity for them to connect with their students. Although some participants mentioned that the programs could be a slight hindrance to their creativity, they also believed that there were other methods of bringing creativity into the classroom. Two factors that may impede the teacher performance of the Direct Instruction Programs were teacher’s belief in the programs’ effectiveness and teachers’ inexperience with using it. Overall, the educators in this study saw a benefit to student’s academic performance, self-esteem, and behaviour, and felt that they would continue to use it in the future due to the positive effects it has had on their students.
Chapter 5: Discussion

The purpose of this study is to contribute to the research of educators’ perceptions and opinions of the Direct Instruction Programs, and its effectiveness for educating students with Autism Spectrum Disorders. There are many quantitative studies regarding the benefits of the Direct Instruction Programs for students, but there are few studies examining how teachers perceive the Programs. This study revealed participants’ positive opinions about the program, and a high self-efficacy when utilizing the program to teach students with Autism Spectrum Disorders. Educators in this study believe the Direct Instruction Programs address the needs of students with Autism Spectrum Disorders, and that their students benefit academically, affectively and behaviourally from the program.

Research has shown that Direct Instruction Programs success is influenced by the amount of commitment the teacher has to the program (Engelmann, 2011), and how much they believe in its success (Errthum, 2013). For the program to be implemented successfully, it is important that teachers are provided with sufficient professional development (Gutsky, 2002), visible evidence of student success (Stockard, 2011; Blakeley, 2001), and that they believe in the program (Errthum, 2013). Professional development is a built-in component of the Direct Instruction Programs, which is necessary for the attainment of superior instructional skills and strategies (Engelmann & Engelmann, 2004; Ross et.al, 2004). All educators in this study were provided with adequate professional development, and sufficient on-going support throughout the year. Research has also highlighted that inexperience can be a barrier to the Direct Instruction Programs (Stockard, 2011; Engelmann, 2011). Participants in this study found there was a learning curve when teaching with the Direct Instruction Programs, yet they were more confident with their ability after some experience, and the opportunity to witness the program’s success with their students. All participants cited student success as one of the main factors for their
belief in the program, which is consistent with research that positive attitudes towards the program often stem from student progress (Berkley, 2002; Bessellieu, et. al, 2001; Goral, 2001). The participants in this study all believed in the Direct Instruction Programs, and had a high self-efficacy with their ability to use the program to promote student learning. Teacher belief in a program is one of the fundamental pillars in teacher’s efficacy and the belief that they can have an impact on student learning (Bandura, 2001). The teachers in this study all showed a high level of self-efficacy towards using the program, which may be due to their experiences with the program. Bandura (1977) identified four major contributors to self-efficacy, including: mastery experience, physiological and emotional arousal, vicarious experience and verbal persuasion. All of the teachers in this study saw their students succeed when using the program, found it reduced some of their anxiety around lesson and curriculum planning, had seen others’ success when using the program, and received sufficient professional development and on-going coaching throughout the year. The high self-efficacy these teachers had with the program may contribute to their high degree of confidence when using the programs, and their satisfaction with the results for students on the Autism Spectrum.

Educators in this study found that aspects of the Direct Instruction Program benefited their teaching, and made them more confident educators. All participants interviewed spoke highly of the scripted lessons, as they resulted in less time planning and more time to form connections with students. These scripted lessons, and the design of the Direct Instruction Programs, also provided these educators with consistency throughout the school in forms of assessment, lesson delivery, and tracking student progress. Educators believed that aspects of the Direct Instruction Programs improved their classroom management through fast paced lessons and unison responding, which increased student engagement and participation. In this study, the educators stated that they enjoyed aspects of positive reinforcement in the program, believing
them to be beneficial for student confidence and future student success. Additionally, aspects of homogenous groupings were mentioned as beneficial as they allowed educators to reach all students in the same lesson, without having to modify their instruction based on various academic levels in the class. The largely positive attitude these educators displayed towards Direct Instruction was evident in the many benefits they described. Overall, educators in this study had very positive opinions of the Direct Instruction Programs, specifically in terms of time to build relationships with their students, classroom management, consistency, positive reinforcement, and homogenous groupings.

In addition to enjoying aspects of the Direct Instruction Program, educators in this study felt as if characteristics of the program had benefits for their students in the domains of: academics, self-esteem, behaviour, and a reduction of anxiety. All of the educators in this study believed that the Direct Instruction Programs had resulted in positive improvement in students’ academics. The participants in this study attributed this to the high levels of repetition, the confirmation that the student has achieved mastery, and an environment that is more consistent and predictable for the student. The general improvement in academics when using the Direct Instruction Programs that was mentioned by all teachers in this study is a promising result, one that warrants further future research. In addition to academics, the educators in this study reported an increase in student’s self-esteem/self-confidence/self-efficacy and affective measures such as engagement and willingness to learn. Educators in this study believed that this increase in self-esteem was due to student success, positive reinforcement, and a sense of autonomy. It was also mentioned that students had an increase in motivation, and improved desire to come to school and learn. It has been shown that the design and delivery of instruction has a large impact on student motivation (Watkins, Slocum, & Spencer, 2011), and the Direct Instruction Programs incorporate many of the factors shown to increase motivation of students with ASD, including
task variation, positive reinforcement, and success (Keogel, Koegel, & McNerney, 2001). Educators in this study also felt as though the consistency and predictable nature of the Direct Instruction Programs could reduce anxiety for students, and contribute to a more positive school experience. More research on how aspects of the Direct Instruction increase student motivation and self-esteem/self-concept/self-efficacy, and reduce anxiety, would be positive additions to the literature.

Beyond the positive effects of the program on students, educators in this study believed that certain aspects of the Direct Instruction Programs met the needs of students with Autism Spectrum Disorders. This is consistent with the literature, as The Direct Instruction Programs have been research validated for teaching reading, language and math to a range of learners including those with intellectual disabilities (Watkins, Slocum, Spencer, 2011). There are few studies directly assessing the program’s effectiveness on students with Autism Spectrum Disorders, but the limited research available is promising (Flores & Ganz, 2007, Flores & Ganz, 2008, Flores, et. al, 2013). Research has been conducted examining the design and delivery principles of Direct Instruction, and how these compare to research on effective instructional strategies for students with Autism Spectrum Disorders (Watkins, Slocum, Spencer, 2011). Clear links were established and it was evident that there are numerous ways in which the Direct Instruction Programs can benefit students on the Autism Spectrum (Watkins, Slocum, Spencer, 2011). Educators in this study believed that the fast pace of the lessons kept students focused and increased amount of time on-task. This is consistent with research (Koegel, Dunlap & Dyer, 1980), which demonstrates the benefits of fast paced lessons for students on the Autism Spectrum. Participants in this study also found the consistency of Direct Instruction Programs beneficial for students on the Autism Spectrum, which is further supported with research outlining consistency as one of the essential features of effective education strategies for students
with Autism Spectrum Disorders (Iovannone, et. al, 2003). Repetition was mentioned in this study as a key component of Direct Instruction that is beneficial for students on the Autism Spectrum. Consistent with the research, educators in this study also believed that task variation and the careful sequencing of events provided by the Direct Instruction Programs are beneficial for students on the Autism Spectrum (Dunlap & Koegel, 1980). This is a very encouraging finding as time on-task and engaged in learning is directly related to successful interventions for students with Autism Spectrum Disorders (Iovonne, et. al., 2003). This engagement and increased level of on-task activity improved the teacher’s classroom management, and reduced disruptive behaviour from the students. Developing language and communication skills for students on the Autism Spectrum is often a priority, and the Direct Instruction Program Language for Learning was mentioned as beneficial in this study as well as well as highlighted in research (Waldron-Soler, et. al, 2002). Educators in this study further supported the trend in the research that aspects of the Direct Instruction Program are beneficial for students with Autism Spectrum Disorders.

Despite the positive research, one major criticism of the Direct Instruction Programs apparent in the literature is that it lacks creativity, and provides only a rote style of teaching (Adams & Engelmann, 1996; Goral, 2001). Although the teachers in this study believed that there were ways to be creative in the classroom, there was discrepancy in teachers’ beliefs about the extent of originality a teacher can bring to a Direct Instruction Lesson. This has also been a common theme in the research, and one that may continue to vary from teacher to teacher. Another slight discrepancy in educators’ opinions in this study surrounded students’ ability to generalize their knowledge outside of a Direct Instruction format, as they become accustomed to a very specific routine. It is interesting that these controversies in the literature were also
apparent between these four educators’ opinions. As research continues, further exploration of educators’ opinions surrounding these topics may be beneficial.

**Implications as a Teacher:**

As a teacher, I have always been interested in pedagogical tactics and strategies to reach students of all learning needs. As Canada’s policy on students with disabilities emphasizes inclusion, and reports such as *Education For All* and *Learning For All* (Ontario Ministry of Education, 2005; 2011) emphasize quality and fairness of instruction regardless of diverse learning needs, it is essential that teachers understand best practices for students with exceptionalities. As one in sixty-eight children are diagnosed with an Autism Spectrum Disorder (Center for Disease Control and Prevention, 2010), it is likely that teachers in Ontario will have experience educating this population of students. For this reason, I am convinced it is of the upmost importance that teachers know best practices for educating students with Autism Spectrum Disorders, and understand why these practices are effective. Throughout this study, these best practices have been highlighted, and a clear connection has been made between them and the Direct Instruction Programs aspects of curriculum, assessment, and instructional delivery tactics. It has also been highlighted that sufficient professional development, experience with the program, and self-efficacy when using the program are essential components to efficient Direct Instruction teaching.

The Direct Instruction Programs incorporate many strategies that improve motivation and engagement of students with autism, and are shown to have positive results on language, academic, and affective measures. Small independent schools such as Evergreen Academy can adopt school-wide measures of the Direct Instruction Programs, which may not be feasible in a
public education setting. However, classes specifically for students with Developmental Disabilities, Home School Placement classes, and tutoring for students with Autism Spectrum Disorders may benefit from the Direct Instruction Programs. Through this study I have seen how Direct Instruction can benefit students on the Autism Spectrum, and how it can improve their learning and self-esteem. The educators in this study all reported positive attitudes towards the program, and believed that the programs were helping their students. All educators deserve to feel as if they are making such a difference in the lives of their students, and this study may contribute to strategies and methodologies to assist teachers in this ambition.

**Implications for the Educational Community:**

In education, there is consistent dispute about best practices, superior pedagogy, and most efficient forms of assessment (Carnine, 2000). Over the years, supporters of child-centered approaches, and those supporting direct teaching of academic and cognitive skills, have often disagreed on what educational tactics are beneficial for students (Carnine, 2000). This study may contribute to the literature on the debate between superior pedagogy, in particular relation to students with Autism Spectrum Disorders. Child-centered pedagogy often calls for students to be responsible for their own mastery and success, not ensuring that a concept is completely understood before moving on (Kim & Axelrod, 2005). In contrast to this, the Direct Instruction Programs take the responsibility of success off of the student and places it on the teaching system (Kim & Axelrod, 2004), through ensuring mastery of concepts before new ones are introduced, and building upon tracks of knowledge with high degrees of repetition and review. The Direct Instruction Programs adjust curriculum and instruction around each student’s performance, and ensures that all students have success (Kim & Axelrod, 2005). For students who are less likely to take responsibility for their own learning, or who’s intuitions are at odds with the curriculum
norms of the classroom (Delpit, 1988), Direct Instruction may be a more efficient pedagogy. Through this study, it is evident that the teachers felt that the program was effective for this population, and it was quoted by a director that it was the best tool for educating students with autism that they had found to date.

Regardless of what pedagogical practice a teacher is using, it is important that a teacher believe in the program they are using and their ability to promote student learning. In other words, they need high self-efficacy in their teaching. Teachers’ self-efficacy is a key determinant of the effort they put into their teaching, which can in turn affect the outcomes of the lesson on the students (Bandura, 1997). If the Direct Instruction Programs are implemented in an effective way, with sufficient staff training and on-going support, witnessing other teachers’ success, appropriate placement of students, and evidence of student improvement, these programs may help improve teacher self-efficacy, specifically when educating students with Autism Spectrum Disorders. This also brings up the importance of professional development and ongoing coaching, which was illuminated by how beneficial and essential the teachers in this study described their support and training. One aspect of the Direct Instruction Programs that may be beneficial to all educators is specific training in a pedagogical practice, and on-going coaching and support throughout the year.

A teacher not only has to believe that they can make a difference in student learning; they must also have the resources to do so. Although beneficial instructional strategies have been identified for students with Autism Spectrum Disorders, there has been a lag in implementation of these into the classroom (Kasari & Smith, 2013). Reasons for the lack of implementation of these strategies include the challenge of turning isolated strategies into instruction, and the lack of evidence for long-term success (Kasari & Smith, 2013). These may be reasons why Kasari and Smith (2013) found that teachers are more likely to adopt entire programs as opposed to isolated
practices. The Direct Instruction Programs address these issues by consolidating aspects of effective instruction for students with autism along with detailed curriculum and assessment strategies. Teachers may also have confidence in the long-term success of their teaching as the Direct Instruction Programs effectiveness is supported by research (Watkins, Slocum, & Spencer, 2011). A teacher who is uncomfortable teaching students on the Autism Spectrum, or who does not have high self-efficacy when educating this population, can benefit from the comfort and resources the Direct Instruction Program provides.

Although the Direct Instruction Programs can benefit students with Autism Spectrum Disorders, there are some important considerations to keep in mind. One teacher in this study addressed the problem of the Direct Instruction Programs not always being applicable to a Canadian demographic, as they are based out of the United States. With this in mind, a teacher using these programs may need to make slight variations based on the demographic and needs of their students. Another consideration is the age appropriateness of the material. An older student working at an elementary level may not be interested in the subject matter being taught, and may need modifications such as more age appropriate books. It is always essential to know your students and make accommodations that will make material relevant and interesting to them.

**Limitations:**

The goal of this study was to contribute qualitative data to the expanding quantitative research on the effects of the Direct Instruction Programs for students with Autism Spectrum Disorders through the perspectives of teachers. Interviewing only four teachers all from a single school location is in no means generalizable to other situations. The findings have demonstrated that the educators in this study found the Direct Instruction Programs to be effective for improving academics, engagement, behaviour management, and self-esteem of their students who
are on the Autism Spectrum. More research is needed expanding to an increased number of participants from various demographics, languages, and geographical locations to make the results more representative of a larger population.

**Future Study:**

The majority of the research on Direct Instruction is based out of the United States; however, this study took place at a Canadian school. To fully understand the effects of the Direct Instruction Program on students with Autism Spectrum Disorders in Canada, more research is needed including quantitative studies with increased amounts of participants. This study found that teachers had a high amount of confidence and self-efficacy when using the Direct Instruction Programs for educating students with Autism Spectrum Disorders. Future studies surrounding this topic may include the Direct Instruction Program’s effects on Teacher Self-Efficacy, and how Teacher Self-Efficacy affects Autism Education. Other studies of interest may include why some teachers believe the Direct Instruction Programs inhibits their creativity, while others do not. In this study there was a large focus on the benefits that the Direct Instruction Programs have on Classroom Management, which may spark future studies such as: Effective Classroom Management for Students on the Autism Spectrum, and Effects of the Direct Instruction Programs on Classroom Management. This study is only a snapshot of educators’ perceptions at the time of the interview, and there is so far no planned follow up study in place. To expand this study, tracking the engagement, self-esteem, academic and behavioural success of the students in a longitudinal analysis may provide more insight into the lasting effects of the Direct Instruction Programs for students with Autism Spectrum Disorders.
Glossary

**Autism Spectrum Disorders**: The DSM-V defines Autism Spectrum Disorders as a neurological disorder, characterized by persistent deficits in social interaction across situations, and restricted and repetitive patterns of behaviour interests or activities. These symptoms must be present at an early developmental age and cause significant impairment to functioning. In addition to this, Autism Spectrum Disorders often are characterized by deficits in communication, including receptive and explicit language (Newschaffer, et. al, 2007). These deficits in social and communication skills often negatively affect their academic success (Plavnick, et. al, 2014).

**Direct Instruction**: The specified and extensively researched curricular design, instructional strategies, and teaching principles designed by Siegfried Engelmann and Wesley Becker in the 1960s. Direct Instruction is a system of teaching developed in the pursuit of educating all students, regardless of ability or background knowledge, through putting the responsibility of student learning on the teaching system as opposed to the student. The program’s ability to support learning and retention of material has been supported through over 40 years of research, including diverse contexts and demographics. Direct Instruction is based on two major beliefs:

1) The rate and quality of children’s learning is a function of environmental events, and
2) That educators can increase the amount of learning in a classroom by carefully controlling all relevant details of instructional interaction.

Direct Instruction involves a complicated interplay between the following components:

- Clear systematic presentation of knowledge explicitly linking new material to previously mastered concepts (Gleason & Hall, 1991)
- Curriculum organized around generalizable concepts and skills (Stein, et. al, 1998)
- Specific sequencing of examples and non examples in a way to reduce confusion and misunderstandings (Gleason & Hall 1991), and provide task variation shown to improve student engagement (Dunlap & Koe gel, 1980; Watkins, Slocum & Spencer, 2011)
- A presentation that uses clear, consistent, unambiguous language to produce faultless communication around concepts (Kinder & Carnine, 1991).
- Active student participation engaging the entire class using unison responding
- Consistent Positive reinforcement
- Fast paced lessons
- Extensive and ongoing instructional training and professional development. (Stockard, 2011; Kim & Axelrod, 2005)

Direct Instruction seeks to maximize instruction time and increase student engagement and success (Watkins, Slocum, Spencer, 2011).

**Direct Instruction Programs:** There are over 50 commercially available programs developed by Engelmann and colleagues utilizing Direct Instruction to teach many subjects, including: oral language, writing, developmental and remedial reading, comprehension, spelling, math, science, and history (Watkins, Slocum, & Spencer, 2011)
References:


Kanfush, P. M. (2014). Dishing Direct Instruction: Teachers and Parents Tell All!. *Qualitative Report, 19*(1).


http://www.nedsac.ca/index.html


Ontario Ministry of Education (2005). *Education for All (The report of the expert panel on literacy and numeracy for instruction for students with special needs, kindergarten to grade 5)*. Toronto: Queen’s Printer for Ontario.


Appendix

Appendix A: Letter of Consent for Interview

Consent Form

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 how we can help students develop number sense in the earlier grades for the purposes of investigating an educational topic as a major assignment for our program. I think 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._____________________. My research supervisor is _____________________. 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 minutes interview that will be tape-recorded and a 45 minutes group discussion that will be audio-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,

Researcher name: _________________________________

Phone number, email: ______________________________
Instructor’s Name: ____________________________________________
Phone number: ___________________ Email: ______________________

Research Supervisor’s Name: ___________________________________
Phone #: ______________________ Email: _______________________

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 ______________________(name of researcher) and agree to participate in an interview for the purposes described.

Signature: ________________________________________________

Name (printed): __________________________________________

Date: ______________________
Appendix B: Interview Questions

**Interview Questions**

1) What is your experience with the Direct Instruction Programs?
   - Prompts: Ages/Grades taught, number of years using, location of experience
2) What training or Professional Development have you done for the program?
3) Are there any specific aspects of the Direct Instruction Programs that you like?
4) Are there any specific aspects of the Direct Instructions that you do not like?
5) Have you experienced any barriers or challenges when using the Direct Instruction Programs?
6) Do you feel that the Direct Instruction Programs have affected your ability to be creative in the classroom?
7) What are some challenges you have faced when teaching students with Autism Spectrum Disorders?
   - Can you think of any examples?
8) Do the Direct Instruction Programs address any of these challenges?
   - Can you think of any examples?
9) What were your attitudes towards teaching Students with Autism Spectrum Disorders?
10) Did the Direct Instruction Programs address any of these attitudes?
11) How would you describe student’s responses to the program?
12) Have you noticed any changes in students’ academics as a result of the Direct Instruction Programs?
   - Can you think of any examples?
13) Have you noticed any changes in students’ behaviour as a result of the Direct Instruction Program?
   - Can you think of any examples?
14) Have you noticed any changes in student engagement as a result of the Direct Instruction Program?
   - Can you think of any examples?
15) Are there any changes to classroom management as a result of the Direct Instruction Program?
   - Can you think of any examples?
16) What is your overall impression of the Direct Instruction Programs, in relation to teaching students with Autism Spectrum Disorders?
17) Do you have any experience with mainstream education strategies? If so, how do you feel the Direct Instruction Programs compare to these more mainstream strategies?
18) Would you continue to use the Direct Instruction Programs outside of this setting? Why or Why not?
19) How do you feel the Direct Instruction Program has affected you as an Educator?
20) Is there anything you would like to add about your experience with the Direct Instruction Program for teaching students with Autism Spectrum Disorders?
Appendix C: Sample E-mail

Hello,

This e-mail is a request to participate in a research study, for the purpose of a Masters of Teaching Research Paper (MTRP). This study is supervised by The University of Toronto and the Ontario Institute for Studies in Education (OISE). The purpose of this study is to gather opinions on educators’ (parents, directors, and teachers) opinions of the utilization of the Direct Instruction Program for students with Autism Spectrum Disorders. This study is completely confidential and will consist of two, 45-minute interviews scheduled at your convenience and a small survey. If you are willing to participate, please e-mail me at: sj.johnson@mail.utoronto.ca.

Thank you very much,
Sarah Johnson
Appendix D: Figure 1: Significant Outcomes Across Follow Through Models