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Examining Assistive Technology Use, Self-concept, and Motivation, as Students with Learning Disabilities Transition from a Demonstration School into Inclusive Classrooms

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Graduate Program in Education
A thesis submitted in partial fulfillment of the requirements for the degree in Doctor of Philosophy

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Abstract

Provincial demonstration schools provide specialized programs for students with learning disabilities and provide a supportive environment where students learn about their learning disabilities and how they learn best. Embedded within subject area instruction, these schools provide intensive training on the use of assistive technology. This mixed methods study followed 12 students (8 males and 4 females between 14 and 16 years of age) and their parents in order to understand students' transition from a demonstration school into high schools, their assistive technology use in both school environments, and how these environments may have impacted their self-concept and school motivation. Participants reported students experienced a positive transition to high school because of the independence and self-advocacy skills students acquired at the demonstration school. Teacher-student relationships were more positive at the demonstration school than at high school. There were no significant differences between the degree to which assistive technology impacted students' competence, adaptability, and self-esteem at the demonstration school and at high school. Students continued to benefit from assistive technology in high school and used the technology to varying degrees. Students' perceptions of their general intellectual ability and reading, writing, spelling, and math competencies increased while attending the demonstration school. Students' perceived reading and writing competences decreased in high school, yet remained higher from when students entered the demonstration school. There were no significant differences between students' motivation and engagement at the demonstration school and high school. Implications are discussed in regards to supportive school practices for students with learning disabilities and how these practices can be applied in inclusive schools

Keywords: demonstration schools, students with learning disabilities, school transitions, assistive technology, self-concept, self-esteem, school motivation, school belonging

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Introduction

Adolescence has been identified as a precarious stage regarding changes in achievement beliefs and behaviours (Eccles et al., 1993). There is evidence that school related worries increase and that perceptions of academic competence, academic values, and course grades decrease during the early adolescent period (Roeser, Midgley, & Urdan, 1996). More so than at any other age, some young adolescents begin to doubt their ability to succeed at their school work, question the value of their school work, and decrease their effort towards completing academic tasks (Eccles et al., 1993). Adolescence can also be described as a time of increased self-consciousness (Harter, 1990b), and because of this, the promotion of a respectful class setting and a supportive school environment may be especially beneficial to adolescents' adaptive social functioning in the classroom. In order to ensure that the school environment is supportive for adolescent students, especially those with learning disabilities, schools need to address issues concerning self-esteem and self-efficacy (Long, MacBlain, & MacBlain, 2007).

According to the Learning Disability Association of Canada (2002a, para. 1), "learning disabilities refer to a number of disorders which may affect the acquisition, organization, retention, understanding or use of verbal or nonverbal information." Learning disabilities differ from intellectual disabilities as they affect learning in individuals who otherwise demonstrate at least average abilities essential for thinking or reasoning. The current study followed students with learning disabilities as they transitioned from a demonstration school into their neighbourhood schools in order to better understand their perceptions of both school environments, the degree to which they may have been impacted by assistive technology in both school environments, and how these environments may have impacted their self-concept and school motivation. Self

concept and motivation are introduced in the text which follows. It is important to examine these constructs as they are salient in the research literature which addresses success in school for students with learning disabilities.

Feeling competent in your academic capabilities, believing that you can complete an academic task, being motivated and engaged in school, and feeling a sense of school belonging are self-oriented attributes which are impacted by the individual and the school environment; educators can influence these beliefs and behaviours and help the student to do the same. Due to the pertinence of academic self-concept to subsequent achievement (Marsh & Martin, 2010), the importance of motivation to school success (Balfanz, 2007), and the ability of a sense of school belonging to have a positive impact on academic achievement (Osterman, 2000), these constructs will be examined in this study.

Students with learning disabilities can use assistive technology as a means to become more independent learners and more successful academically. Assistive technology can help to facilitate a positive school experience and may impact academic self-perceptions and one€s motivation to complete academic tasks. This study will examine student€s use of assistive technology at the demonstration school and at high school.

Self-esteem is the overall evaluation of oneself as a person and it can be assessed by examining domain-specific competencies or areas of self-concept that are valued by an individual (Harter, 1990a). One should not infer low self-esteem because of low self-concept in a particular domain. How we view ourselves may not impact how we value ourselves, for it is only achievement in valued domains that predict self-esteem. Children with learning disabilities generally recognize the critical importance of academic

achievement and are aware they lack competence in this area (Elbaum & Vaughn, 2003). As a result, researchers have found that students with learning disabilities have lower self concepts than their non-disabled peers (Humphrey, 2002; Kloomok & Cosden, 1994; MacMaster, Donovan, & MacIntyre, 2002; McNulty, 2003; Stone & May, 2002; Valas, 1999).

School motivation can be conceptualized as a student's determination to learn, work effectively, and achieve to their potential (Martin, 2003). Some of the most powerful attributions affecting motivation are beliefs about ability (Woolfolk, Winne, & Perry, 2006). Students with learning disabilities are likely to recognize their academic difficulties and they may be reluctant to attempt school assignments if they expect to fail. This sense of learned helplessness has a negative impact on school motivation and may be a particular hazard for students with learning disabilities (Valas, 2001).

Assistive technology refers to any equipment that can be used to improve the functional capability of an individual (Reed & Bowser, 2005). For individuals with learning disabilities this may include computer programs that provide speech-to-text, text-to-speech, graphic organizers, and word prediction capabilities. Research has demonstrated that assistive technology can have a positive impact on the reading, writing, and spelling abilities of children with learning disabilities (Evmenova, Graff, Marci Kinas, & Behrmann, 2012; Easting & Halaas Lyster, 2006; Graham, 1999; Hall, Hughes, & Filbert, 2000; Hetzroni & Shrieber, 2004; Higgins & Raskind, 2000, 2004; Lange, McPhillips, Mulhern, & Wylie, 2006; MacArthur, 2000; Tam, Archer, Mays, & Skidmore, 2005). As students learn to use these programs they may improve their reading and writing abilities in all content areas (MacArthur, 2000).

Demonstration Schools

Provincial demonstration schools were developed by the Ontario Ministry of Education. These schools provide intensive and specialized educational programs for students with learning disabilities and are residential in nature. The program objectives of the demonstration schools are as follows: 1) to provide residential education programs for pupils with severe learning disabilities; 2) to assist enrolled pupils to develop personal life and learning strategies which will enable them to return to programs within local school boards, other educational jurisdictions, or the community; 3) to provide in-service teacher education and; 4) to provide resource services for school boards as required, including pupil assessment and/or programming assistance (Ontario Ministry of Education, 1990).

In Ontario, provincial demonstration schools provide specialized educational programs for students with learning disabilities who may also have attention deficit hyperactivity disorder (ADHD) or other co-existing identifications. These schools provide residential programming for students whose educational needs cannot be met in their local school boards. Demonstration schools provide individualized instruction and social skills and advocacy training so that students can be equipped with strategies to be successful when they return to their neighborhood schools. Students attend these schools for up to two years and transition plans and follow-up are utilized to increase the chances that students have a successful transition back into their local school boards.

The demonstration school follows provincial curriculum within a highly individualized setting. Class sizes range from five to eight students and teachers, as well as residence counsellors, work to implement a program designed to optimize each student€s academic and social growth. The demonstration school teaches students to read. The school employs a variety of strategies to improve literacy as student€s programs are

tailored towards their unique learning needs, and as a result, students often achieve significant gains in literacy skills (personal communication with demonstration school principal, August 17, 2009). Assistive software which provides text-to-speech, speech-to-text, word prediction, spell checkers, and graphic organizers are also used to support student€™s reading and writing during content area instruction.

The residency requirement is an extension of the demonstration school program because it provides structured homework periods and social skills training. Students are regularly assigned homework to reinforce organizational skills and promote good work habits. Counselors are also available to monitor student homework completion and provide support. Students with learning disabilities may also experience social difficulties (Haager, Watson, & Willows, 1995; Helper, 1997; Kavale & Forness, 1996; Nowicki, 2003; Stone & La Greca, 1990; Walkera & Nabuzokab, 2007; Vaias, 1999). Social skills training is provided within the residency program in order to improve student€™s language and communication, social skills, life skills, and independence. Students are also able to participate in a variety of extracurricular activities to help develop their confidence in a safe and supervised environment.

Rationale for Study and Research Hypotheses

Demonstration schools keep their class sizes small (between five to eight students), thus enabling teachers to gear their instruction towards each student€™s learning needs. The demonstration school also offers assistive technology which can help students compensate for their learning difficulties and provide a means for students to excel in school (Roberts & Stodden, 2005). By providing a means to be successful, students may experience improved academic outcomes which may result in improvements in academic self-concept.

Teachers at the demonstration school have been seconded from school boards across Ontario because of their exemplary teaching practices. In visiting the discussed demonstration school, it became apparent to me that teachers know their students on a personal level and are committed to helping them succeed. Relationships are one of the critical factors in developing young people's motivation and engagement in school (Martin & Dowson, 2009). Teachers need to develop a positive relationship with their students as students' feelings of acceptance by their teachers is associated with emotional, cognitive, and behavioural engagement in school, and students who believe that their teacher is caring tend to learn more (Martin & Dowson, 2009). In addition, teachers higher in warmth tend to foster improved levels of confidence in their students (Martin & Dowson, 2009).

The demonstration school, which is the focus of this study, provides a supportive environment where students can develop a better understanding of their learning disability and discover how they learn best. This school is designed to meet the needs of students with learning disabilities, and as a result, students at this school are provided with individualized instruction and intensive training on the use of assistive technology. This school provides its students with the most up-to-date training on the use of assistive technology, its educators know how to implement the technology in accordance with the curriculum, and students leave the school feeling confident and competent in their use of the technology (Young, 2007).

My Master's thesis (Young, 2007) was conducted with students who were in their first year of attendance at the demonstration school. Twenty-three students were interviewed; 87% of these students indicated that the use of assistive technology benefited their reading and writing and 83% of participants reported that their confidence improved

since using assistive technology. When asked if they felt the use of assistive technology increased their self-esteem, 87% of participants commented that it increased their self-esteem "quite a bit," and that their self-esteem increased because of "all of the computers." Although students commented that their self-esteem increased, these findings were not supported by data from the administered Self-Perception Profile for Learning Disabled Students (SPP-LD; Renick & Harter, 1988). As a result, with encouragement from the demonstration school principal, a follow-up study was conducted with a new cohort of demonstration school students in order to determine if changes in self-esteem and self-concept would occur after an extended period of time.

In a follow-up study (Young & Specht, 2009), a new cohort of demonstration school students were administered the SPP-LD (Renick & Harter, 1988) in September 2007, May 2008, and June 2009. From September 2007 to May 2008, 47 students demonstrated a significant increase in all of the academic self-concept domains. With the exception of Math Competence, which demonstrated a medium effect size, all of the academic domains presented large effect sizes (Cohen, 1988). Paired samples *t*-tests were also conducted with the SPP-LD (Renick & Harter, 1988) data from September 2007 and June 2009. All of the self-concept comparisons were significant and all effect size calculations were large, indicating that over the two year period in which students attended the demonstration school, marked improvements were made in their academic self-perceptions.

My doctoral study builds on my previous research and uses both surveys and interviews to provide an in-depth analysis of the way in which assistive technology and a supportive school environment influences academic self-concept and school motivation. Some of the students from the previously discussed study consented to participate in my

doctoral research. A mixed-methods approach was selected because of the potential richness of the data. The quantitative survey data examined group differences, whereas the qualitative interview data provided an examination of individual differences. In my Master€s research, one student commented that the use of assistive technology [made them] feel good, more confident so that [they] can do stuff„ (Young, 2007, p. 47); this comment was representative of the group. Based on former interview data, I hypothesized that the strategies and supports that the demonstration school provided would result in students having an improved academic self-concept as well as increased school motivation. If these improvements were to occur, I was unsure if they would persist when students transitioned back into their neighbourhood schools. The current study was exploratory in nature as I set forth to better understand the experiences of students with learning disabilities as they attended a demonstration school, transitioned into local high schools, and completed an academic year in these schools. I followed students as they transitioned into their neighbourhood schools in order to determine the degree to which they continued to use the assistive technology and how they were coping and performing in school. I focused on the following research questions: How did students find the transition to their neighbourhood school? What were students€ perceptions of using the assistive technology at the demonstration school and at their current high schools? Is there a change in self-concept and school motivation from when students were at the demonstration school to when they were situated in high school? And, is there a difference between the perceived level of support at the demonstration school and the perceived level of support in high school?

In the text which follows I introduce the constructs of self-concept, self-esteem, and motivation, as well as the research literature on supportive school environments,

school transitions, and assistive technology. This is followed by an overview of the research participants, the measures used in this study, as well as the data collection and analysis techniques. The results are organized according to students' previous school experiences, their perceptions of the demonstration school transition into their neighbourhood schools, as well as an examination of changes that may have occurred in regards to students' perceived school support, impact of the use of assistive technology, as well as perceived changes in self-concept and school motivation. This is followed by a discussion of the results, which utilizes the findings of the current study and other research literature to suggest strategies to make schools more supportive for students with learning disabilities.

Literature Review

A meta-analysis completed by Marsh and Martin (2010) demonstrated that prior academic self-concept has direct and indirect effects on subsequent achievement. It is important to examine academic self-concept as a positive self-concept is a desirable outcome as well as an important mediator to other outcomes (Marsh & Martin, 2010). Motivation is of interest to educators because of the role it plays in student learning. It is important to examine school motivation because middle school students' success can leverage continued success across content areas (Anderman, Patrick, & Ryan, 2004) and into high school, as well as higher education. School motivation is a critical component of middle grade students' success, and ensuring students maintain strong academic motivation during the middle school years is paramount to ensuring they remain on the path to high school graduation (Balfanz, 2007). In addition, an important reason for cultivating motivation in students is that academic proficiency is necessary for full participation in society (Long, Monoi, Harper, Knoblauch, & Murphy, 2007).

The middle school years are critical to young adolescents' development of their self-esteem and motivation to succeed. Middle schools play a significant role during these years and can have a positive impact on students' academic growth and personal development. Teachers can affect students' motivation and unmotivated students can become motivated when placed in a positive learning environment that provides engaging and relevant tasks (Dev, 1997). Academic self-concept and school motivation are central to student success, and as a result, these constructs will be examined in this study and will be explored in the literature review which follows.

School belonging refers to a student's sense of being accepted, valued, included and encouraged by others in the academic classroom setting and of feeling oneself to be an important part of the life and activity of the class" (Goodenow, 1993, p.25). Osterman's (2000) literature review indicated that a sense of school belonging can have a positive impact on academic achievement. Researchers have also investigated associations between students' sense of belonging and a range of affective-behavioral and well-related outcomes. Findings from the National Longitudinal Study on Adolescent Health demonstrated that the sense of school belonging was associated with lower levels of emotional distress, lower suicidal ideation, lower levels of involvement in violence, and less frequent use of tobacco, alcohol, and marijuana in adolescents (Resnick et al., 1997). The instructional and interpersonal characteristics of classes can contribute to students' perceptions of belonging at the class and general school level (Anderman & Freeman, 2004). Unfortunately, adolescents with lower levels of academic achievement may be less likely to report a sense of belonging than their higher-achieving peers (Anderman & Freeman, 2004). A sense of belonging is an important human need (Osterman, 2000), and

as a result, the current study examines students with learning disabilities' perceived sense of belonging at a demonstration school and various high schools.

The transition to high school is viewed as a difficult time for adolescents. In addition to a larger environment, increased academic demands, and reduced personal support (Smith, 1997), students also face social challenges including harassment or teasing by older students, re-establishing popularity, and difficulty in making new friends (Langenkamp, 2009). Little empirical research exists on the transition to high school or on the effectiveness of strategies designed to support this transition, and to date there is no published research examining the experience of students with learning disabilities as they transition out of provincial demonstration schools and into their community schools; this transition is the focus of the study.

Students with learning disabilities may benefit from the use of assistive technology as a tool to become more independent and successful learners. Assistive technology is an essential component of the demonstration school program discussed in this study. As a result, a review of the literature on assistive technology for students with learning disabilities is included in the text which follows.

Self-concept and Self-esteem

Self-concept is considered by most theorists to be multifaceted and hierarchical, and it is considered to be separate from self-esteem (Burden, 2008). Research supports the usefulness of academic self-concept as an important outcome variable *in* but also as a mediating variable that facilitates the attainment of other desirable outcomes„ (Marsh & Yeung, 1997, p. 50). Valentine, DuBois, and Cooper (2004) conducted a meta-analysis which established the cyclical nature of academic achievement and academic self concept. Holding a positive view of one's ability to be successful in school was found to

be a predictor of gains in academic achievement over time, for according to these authors, academic self-concept has a positive effect on achievement, which subsequently has a positive effect on academic self-concept.

The development of a positive academic self-concept is essential to the learning process, but this positive sense of self is not always found amongst students with learning disabilities. Researchers have suggested that a self-perpetuating cycle of failure becomes established early in the lives of children with learning disabilities (Chapman, 1988). For these children, early failures often lead to a lowered sense of academic self-concept, which in turn contributes to lowered expectations for future success and reduced achievement efforts, which then results in further failure (Durrant, Cunningham, & Voelker, 1990). Students with learning disabilities often do not achieve academic success. They need to be provided with the means to be successful so that they can experience a similar level of academic achievement as their peers without learning disabilities.

Self-esteem is the overall evaluation of oneself as a person (Harter, 1990a). One approach to assessing self-esteem is by examining domain-specific competencies or areas of self-concept that are valued by an individual (Renick & Harter, 1989). Research has demonstrated that for individuals with learning disabilities, salient self-concepts include perceptions of one's general intellectual ability, performance on specific academic tasks, appearance, and social acceptability (Renick & Harter, 1989). When an individual is competent in domains deemed important, high levels of self-esteem will ensue, and conversely, when the importance of success far outweighs perceived competencies, low self-esteem is experienced (Harter, 1990a).

Social comparison theory.

Between middle childhood and early adolescence, social comparison information assumes increasingly greater importance in the child€s efforts to evaluate the self (Renick & Harter, 1989). When one€s performance on a task is discrepant from others, inferences about ability are likely to be made. As demonstrated by Smith and Naggle (1995), in comparison to the control group, children with learning disabilities perceived themselves to be less competent in the areas of intelligence, academic skills, behavior, and social acceptance. Students with learning disabilities in Grades 3 to 8 perceived themselves as less academically competent when they compared themselves with their normally achieving students in their regular education classes (Renick & Harter, 1989). However, when they compared their abilities to those of their peers with learning disabilities in their resource room, they maintained high perceptions of their own academic competence.

Smith and Nagle (1995) indicate that low self-concept is associated with high ability environments, whereas high self-concept is reported in low-ability settings - a concept they refer to as the „frog pond effect". According to Harter (1990a), different school environments provide different social comparison groups. New environments provoke new standards of evaluations which cause the student to evaluate his or her competences as well as the importance of success in various domains. Renick and Harter (1988) reported that students with learning disabilities who attended a private school, which was specifically structured to meet the academic and social needs of children and adolescents with learning disabilities, perceived themselves to be more competent than students with learning disabilities in the public school. Students with learning disabilities perceived themselves to be much more scholastically competent when comparing

themselves to their peers with learning disabilities than when comparing themselves to their non-learning disabled peers.

Impact of academic achievement on self-esteem.

School-aged children consider academic achievement and behavioral conduct when making self-evaluations (Bear, Clever, & Proctor, 1991), and as a result, deficits in these domains place children with learning disabilities at a greater risk for developing negative perceptions of their overall self-worth. Kloomok and Cosden (1994) hypothesized that students with learning disabilities might discount the importance of academics in order to build their self-confidence. However, similar to Bear, Clever, and Proctor€™s (1991) findings, students in Kloomok and Cosden€™s study appeared to value academics regardless of their perceived competence in academic domains. All groups of students had negative discrepancy scores, indicating that they felt that academic performance was important despite their low competence ratings. These findings are consistent with the research of Harter, Whitesell, and Junkin (1998) which demonstrates that cognitive competence is consistently rated as very important, even among children who feel their skills are poor.

Instruments that assess self-concept reveal that students with learning disabilities€™ perceptions of inadequacies are primarily found in academic areas (Kistner & Osborne, 1987; Renick & Harter, 1989). Academic performance is salient in the lives of students with learning disabilities, and as a result, Renick and Harter predicted that the relationship between perceived scholastic competence and global self-worth would be stronger than the relationships between global self-worth and perceived social acceptance or athletic competence. The authors€™ hypotheses were confirmed as students with learning disabilities€™ global self-worth was more highly related to their perceived academic competence than

their perceptions of their social acceptance or athletic competence. This research is also supported by Harter, Whitesell, and Junkin (1998) who found that for students in their study, cognitive competence bore a moderately high relationship with global self-worth.

Inconsistencies in the literature.

Research on self-esteem is often inconsistent and at times contradictory. Although early writings about children with learning disabilities suggested that they had lower self esteem than their peers without disabilities (Bear, Clever, & Proctor, 1991; Chapman, 1988; Harter, Whitesell, & Junkin, 1998; Heyman, 1990; La Greca & Stone, 1990; MacMaster, Donovan, & MacIntyre, 2002; McNulty, 2003; Stanley, Yong, & Nolan, 1997; Valas, 1999), there appears to be as much variation in self-esteem among students with learning disabilities as there is between students with and without learning disabilities. When compared to their normally achieving peers, children with learning disabilities generally demonstrate lower self-esteem on measures that define self-esteem as the aggregation of self-concepts across diverse domains. For example, Conley, Ghavami, VonOhlen, and Foulkes (2007) reported that students with learning disabilities felt they were less academically competent, and had less social skills, and had lower global self-esteem (as reported on the Rosenberg's (1965) Self-Esteem Scale), than their grade level peers. However, on measures that examine each domain separately, a more differentiated and positive picture of self-concept emerges.

One would expect that children with learning disabilities' lower perceptions of academic competence would lead to lower self-worth; however, this is not always the case. Research suggests that children with learning disabilities generally express positive self-esteem that does not differ from their normally achieving peers (Kistner & Osborne, 1987). While students with learning disabilities hold unfavorable academic self-concepts,

many of these students maintain positive self-esteem (Bear, Minke, Griffin, & Deemer, 1998; Burden, 2008; Clever, Bear, & Juvonen, 1992; Gans, Kenney, & Ghany, 2003; Kistner, Haskett, White, & Robbins, 1987; Kloomok & Cosden, 1994).

Children with learning disabilities may be realistic about their academic problems yet maintain positive feelings about themselves. Children with learning disabilities who report higher self-esteem are able to separate their intellectual abilities from their specific academic performance, allowing them to view themselves as intellectually competent (Cosden, Elliott, Noble, & Kelemen, 1999). This finding is consistent with the work of Renick and Harter (1987), as they reported that children are able to attribute their scholastic problems to their learning disability, rather than poor intelligence, which allows them to protect their self-esteem. While students with learning disabilities generally hold positive self-perceptions, teachers may make assumptions which are not reflective of how these students feel, because teachers may view these students as being more depressed, less competent, less motivated, and having lower self-esteem (Valas, 1999; Wiest, Wong, & Kail, 1998).

When considered as a group, students with learning disabilities are less accepted by peers, have lower self-esteem, and feel lonelier than their peers without disabilities (Valas, 1999). According to Valas, being labeled as a student with a learning disability can have a negative impact on peer acceptance and this may directly or indirectly result in feelings of loneliness. Other researchers have found that students with learning disabilities are less accepted by peers as they have lower ratings of peer acceptance and receive fewer positive peer nominations (La Greca & Stone, 1990). La Greca and Stone found low-accepted students experienced limited opportunities for positive peer interaction. In addition, low-accepted students may be deprived of opportunities to learn

adaptive modes of social conduct and this can lead to further peer rejection, a vulnerability to poor psychological adjustment, and problems later in life (Valas, 1999). While not all children with learning disabilities experience low self-esteem, they are at risk for experiencing lowered self-esteem because they typically experience repeated failures in academic settings (Stanley, Yong, & Nolan, 1997).

Importance of self-esteem.

Some researchers view self-esteem as an aggregate of how you perceive yourself in various areas (Rosenberg, 1965), while other researchers view it as a separate domain consisting of how you value yourself (Renick & Harter, 1988). Although there are different theoretical approaches to the construct of self-esteem, one cannot dispute the benefits of improving self-esteem, as it is important for health and well-being throughout the life span (Harter, 1999). A meta-analysis of the effectiveness of self-esteem enhancement programs for children and adolescents found that some participants experienced gains in self-esteem as well as behaviour, personality, emotional functioning, and academic achievement (Haney & Durlak, 1998). Programs designed to improve self-esteem may result in improved standardized test scores, reduced school disciplinary reports, and reduced use of drugs and alcohol (DuBois & Flay, 2004; Haney & Durlak, 1998). In addition, individuals with a standard deviation higher self-esteem were less at risk for a variety of negative outcomes (Trzesniewski, Donnellan, Moffitt, Robins, Poulton, & Caspi, 2006).

Self-esteem is positively correlated with achieving more goals in life (Baumeister, Campbell, Krueger, & Vohs, 2003). In addition, self-esteem may instill a self-fulfilling prophecy as individuals with high self-esteem are likely to set higher aspirations and have the confidence to tackle difficult problems, thus enabling these individuals to derive

satisfaction from progress and success (Baumeister et al., 2003). According to Marsh and Craven (2005), high self-esteem promotes behaviors that facilitate productive achievement and work experiences. These findings were further supported by the research of DuBois and Tevendale (1999) who found that relatively high levels of self-esteem during childhood and adolescence predict more favorable psychological, social, and occupational outcomes during adulthood.

Individuals with high self-esteem are more likely to persist in the face of failure (Baumeister, Campbell, Krueger, & Vohs, 2003). This may lead to greater academic and occupational success. High self-esteem is also of benefit as it acts as a buffer against the detrimental effects of failure and rejection and acts as a resource that enables people to quickly recover from negative life events (Marsh & Craven, 2005). This may be especially beneficial for students with learning disabilities who experience numerous academic setbacks over their school careers.

Motivation

School motivation.

School motivation is defined by Martin (2009) as students' energy and drive to learn, work effectively, and achieve to their potential at school, and the behaviours that follow from this energy and drive. While school motivation can be defined as students' energy and drive to learn and work hard, engagement is defined as the behaviour that reflects this energy and drive (Martin, 2009). Motivation and engagement play a large part in students' interest in and enjoyment of school and they also underpin students' achievement (Martin, 2002). According to Martin, when students are motivated and engaged they often get better marks in school, work more effectively on difficult academic tasks, understand more of their school work, and enjoy school more.

School motivation can be conceptualized broadly to include a student's interest in school, their desire to earn a positive grade (goal orientation), and the effort they expend in the classroom (goal pursuit) (Wentzel & Asher, 1995). Researchers such as Martin (2009) hold a broad view of motivation in relation to academic learning and view motivation as a trait, and would thus seek to identify stable patterns in individuals' motives and drives that remain consistent across situations and across time. Other researchers view motivation in domain specific ways (e.g., Harter & Jackson, 1992; Pintrich, 1994). Harter and Jackson (1992) found many students indicated that their motivation orientation (i.e., intrinsic or extrinsic motivation) was strongly related to the particular academic domain, thus causing these authors to stress the importance of examining motivation in each school subject.

Attribution theory and locus of control.

Attribution theory describes motivation as a function of an individual's perceptions of the causes of their previous successes and failures (Weiner, 2000). According to this theory, the causes an individual attributes to an event can determine how they behave on future occasions. In the classroom, a student's attributions influence his or her optimism, performance, and affect (Weiner, 1994). When individuals attribute success to factors within their control (e.g., effort), and failure to insufficient effort or unreasonable demands, they are more likely to exhibit an adaptive motivational pattern. These individuals will be motivated to perform well because they expect their effort will enhance their performance. Conversely, when success is attributed to luck, task ease, or teacher assistance, and failure is attributed to limited ability (factors which are not within one's personal control), a helpless motivational pattern is likely to emerge (Troia, Shankland, & Wolbers, 2012).

Research demonstrates that children or adolescents with learning disabilities are more likely than their peers to demonstrate a maladaptive attribution style, and have low achievement expectations, low persistence at school tasks, and low academic self concept; this is unfortunate as these attitudes reduce student motivation and generate negative feelings about themselves and their academic work (Montgomery, 1994; Núñez, et al., 2005). Núñez and his colleagues (2005) found that in comparison to students with learning disabilities, students without disabilities were significantly more likely to attribute their academic successes to internal factors, such as their ability and effort, and were less likely to attribute their failures to lack of ability and effort. These authors found that although a high percentage of students with learning disabilities developed a helpless attributional profile (55%), a substantial percentage of students with learning disabilities demonstrated an adaptive attributional profile (45%).

Locus of control refers to the extent to which individuals believe they can control their future educational outcomes. In relation to education, an individual with high internal locus of control would believe that their individual effort contributes to the grades they receive, whereas an individual with high external locus of control would believe that their academic outcomes are due to chance, luck, or teacher bias (Mamlin, Harris, & Case, 2001). In their analysis of 22 studies of locus of control, Mamlin and her colleagues (2001) found that in all but 4 studies, students with learning disabilities were found to have more external locus of control than their learning disabled peers.

Intrinsic motivation.

Intrinsic motivation for completing academic tasks may be perceived as participation in an activity out of curiosity which is driven by the need to know more about something. This form of motivation is based on the innate need for competence and

self-determination, as well as the desire to seek and conquer challenges (Andelman & Taylor, 1990). Individuals may also be intrinsically motivated because they show interest in or enjoy completing the task. Intrinsic motivation prompts individuals to seek out challenges, participate in tasks, feel competent, and feel part of a community (Deci, Vallerand, Pelletier, & Ryan, 1991). Individuals who are intrinsically motivated do not solely perform tasks because a reward is earned for completing the task (Murphy & Alexander, 2000). Events that promote greater competence enhance intrinsic motivation, whereas those that diminish perceived competence decrease intrinsic motivation (Zisimopoulos & Galanaki, 2009). Losier and Vallerand (1994) reported that perceived competence precedes intrinsic motivation; however, over time, motivation may also influence perceptions of competence.

Studies surrounding internal motivation have indicated that children tend to be more self-regulating and autonomous when they believe they are able to attain positive academic outcomes, feel a sense of personal autonomy, and do not feel pressured or controlled by adults (Grolnick, Ryan, & Deci, 1991). Students who are intrinsically motivated for a particular activity are more likely to persist at assigned tasks and less likely to require rewards or incentives to initiate and complete tasks (Dev, 1997). In addition, students who are intrinsically motivated by an academic task are more likely to retain the concepts learned (Dev, 1997).

Motivation and students with learning disabilities.

When faced with an activity or task to carry out, as a group, students with positive perceptions of their competence are more devoted, show more interest, work harder, and are more persevering than students who question their abilities (Bouffard & Couture, 2003). In addition, these students use more cognitive and metacognitive strategies and

increase their efforts to find solutions to obstacles in their way. These findings are supported by the research of Tsisimopoulos and Galanaki (2009), who found that students who believe they are competent enjoy tasks more and display greater intrinsic motivation than students with low perceived competence. Students with learning disabilities who have positive perceptions of their academic competences are more likely to persist on task and use strategies in their school work (Metzer, Reddy, Pollica, Roditi, Sayer, & Theokas, 2004); however, students with learning disabilities often report less effort, less familiar with learning strategies, and use strategies less than their peers without disabilities

Studies have documented the importance of motivation in the academic behaviour and achievement of students with learning disabilities (Bouffard & Couture, 2003). Unfortunately, students with learning disabilities have been found to display less motivation toward learning and more fear of failure (Botas & Padeliadu, 2003; Sideridis, 2003; Sideridis, & Tsorbatzoudis, 2003). Tsisimopoulos and Galanaki (2009) found that students with learning disabilities have more motivational deficits compared to their typically achieving peers as they preferred less challenging work, demonstrated less interest toward school learning, and were less likely to complete assignments independently. In addition, these authors found that students with learning disabilities demonstrated less intrinsic motivation in reading, math, and science.

Students with and without learning disabilities differ in regards to their achievement motivation (Oliver & Steenkamp, 2004), goal commitment (Bouffard & Couture, 2003), metacognition (Botsas & Padeliadu, 2003), and self-regulation (Fulk, Bringham, & Lohman, 1998). In reviewing the results from five studies, Sideridis, Morgan, Botsas, Padeliadu, and Fuchs (2006) found that as a group, students with

learning disabilities differ from their classmates in regards to their motivational and behavioral profiles, such as their achievement motivation, helplessness, goal commitment, metacognition, and self-regulation.

Differences in motivational levels persist when students with learning disabilities enrol in post-secondary education. Klassen, Krawchuk, Lynch, and Rajani (2008) found that post-secondary students with learning disabilities reported significantly higher levels of academic procrastination, lower levels of metacognitive self-regulation, and lower self efficacy for self-regulation than their peers without learning disabilities. For most participants in this study, having a learning disability was understood to be a contributing factor to procrastination, with most participants linking their procrastination to cognitive difficulties (reading, writing, memory, and general processing), as well as to difficulties with using metacognitive approaches to learning (planning, strategy use, managing and effort). When interviewed, students in this study indicated that they believe skill deficits play a key role in procrastination, and that a fear of failure may be a key antecedent of procrastinating behaviours. As a result, students with learning disabilities should be provided with learning strategies instruction and be provided with the opportunity to demonstrate academic success as a means to help improve their academic achievement and reduce their fear of failure.

Strategies to improve motivation.

Teachers can employ various strategies to foster adaptive school motivation. In conducting a review of the literature, Troia, Shankland, and Wolbers (2012) report that in order to facilitate interest in the task at hand, teachers should include choice when designing activities, assign engaging curricular tasks, explain the value of what is learned, connect what is learned to students' personal lives, help students experience the benefit of

strategies that are learned, and only use naturally occurring external rewards when necessary. A student who is sure of some level of success is more likely to tackle the task than one who is unsure of the outcome (Andelman & Taylor, 1990). If the assigned task is within the child€™s ability level, as well as interesting, the child is more likely to be intrinsically motivated to complete the task. If the task determines student ability it may reduce motivation (Schunk, 1990). In their review of research on motivation in writing, Troia, Shankland, and Wolbers (2012) suggest that teachers should ensure their students have opportunities to perform challenging tasks with which they can be successful, model coping strategies when faced with difficulty in completing a task, foster the belief that competence is alterable through effort, and give truthful and specific feedback regarding task performance.

Enhancing the intrinsic motivation of students can result in improved learning (Schunk, 1991). Teachers can enhance intrinsic motivation by allowing their students to feel they are in control of their own learning (Skinner, Wellborn, & Connell, 1990). Teachers can also facilitate intrinsic motivation by encouraging students to monitor and reinforce their own progress (Pintrinch & DeGroot, 1990). In addition, positive feedback can enhance intrinsic motivation (Cameron & Pierce, 1994). In conducting a meta-analysis of 101 experimental studies, Cameron and Pierce concluded that rewards and reinforcement do not decrease intrinsic motivation, verbal praise can increase intrinsic motivation. Positive responses to questions posed by students can enhance intrinsic motivation and help the learner to develop feelings of competency (Dev, 1997).

Self-efficacy.

Albert Bandura defined self-efficacy as *„* beliefs in one€™s capabilities to organize and execute the courses of action required to produce given attainments„ (1997, p. 2).

Efficacy beliefs are not global traits, but rather differentiated sets of beliefs linked to distinct realms of functioning (Bandura, 2006; Pajares, 2006). According to Bandura (1994), people with high assurance in their capabilities approach difficult tasks as challenges to be mastered, whereas people who doubt their capabilities often avoid difficult tasks which they view as personal threats. When faced with difficult tasks, individuals with low self-efficacy in a specific domain are more likely to dwell on their personal deficiencies or on the obstacles they have to encounter, instead of concentrating on how to successfully perform the task at hand (Bandura, 1994).

How people act is often better predicted by the beliefs they hold about their abilities than by what they are actually capable of accomplishing, for self-perceptions contribute to what individuals do with the knowledge and skills they have (Bandura, 1997). Self-efficacy perceptions influence the type of activity a person is willing to attempt, the level of effort they are willing to expend, as well as the degree of success they are likely to obtain (Klassen, 2002; Schunk, 2003). Students who have high-self efficacy in a specific domain are more likely to select challenging tasks, persist at them, and perform them successfully (Bandura, 1997; Walker, 2003). In addition, students who are efficacious are more likely to achieve their goals, and this success motivates them to engage in more literacy activities, which in turn increases their reading and writing performance (Walker, 2003). Conversely, students who lack confidence in the skills they possess are less likely to engage in tasks in which those skills are required and may be more likely to give up when faced with difficult academic tasks (Bandura, 1997).

Students who believe they can succeed academically are more likely to show interest in academic work, put forth greater effort, and demonstrate increased resiliency when faced with difficulties (Bandura, 1997). These individuals tend to generate and test

alternative courses of action when they do not meet with initial success, function better in the classroom through elevated levels of effort and persistence, and deal more effectively with problem situations (Martin, 2009). Self-efficacy beliefs are also instrumental to the goals individuals pursue and the control they exercise over their environments. According to Bandura's social cognitive theory, self-efficacy beliefs influence the choices people make and the courses of action they pursue for individuals tend to engage in tasks in which they feel competent and avoid those in which they do not.

Students' difficulties with basic academic skills can often be attributed to their belief that they cannot read, write, or think well. Students have difficulty in school because they are unable to successfully perform the task, but also because they have come to believe they are incapable of handling academic work (Pajares & Schunk, 2001). Students with learning disabilities often receive poor grades on academic assignments. When repeated failures become internalized, weakened beliefs surrounding the student's ability to successfully complete academic tasks ensues, and this weakened sense of self efficacy may limit the type of academic tasks these students are willing to try and persist at (Hampton & Mason, 2003).

In examining the impact of having a learning disability on self-efficacy beliefs and the sources of those beliefs, Hampton and Mason (2003) found that compared to students without learning disabilities, students with learning disabilities had less accomplishments in the past, less positive reinforcement from others, and a higher degree of anxiety. Students with learning disabilities are more likely to possess lower self-efficacy for performing academic tasks (Baird, Scott, Dearing, & Hammill, 2009; Hampton & Mason, 2003). Lackaye, Margalit, Ziv, and Ziman (2006) examined 123 adolescents with learning disabilities and reported that students with learning disabilities placed less investment in

their academic work, and reported lower academic self-efficacy and lower social efficacy. While poor academic achievement corresponds with poor efficacy beliefs in the same domain, students with learning disabilities' weakened sense of efficacy may also contribute to their increased difficulties in academic settings (Hampton & Mason, 2003).

It is important to examine self-concept, motivation, and self-efficacy as these constructs are salient in the literature on success in school for students with learning disabilities. In the text which follows, I will provide an in-depth review of the literature on practices that create supportive school environments for students with learning disabilities and will review the research literature on school transitions. I will also discuss the academic difficulties of students with learning disabilities and explore various forms of assistive technology which can be used to support their learning needs.

Practices that Promote Supportive School Environments

Classroom social belonging.

Having a sense of belonging within social contexts is a basic psychological need which is associated with comfort, exploration, and personal motivation (Furrer & Skinner, 2003; Goodenow, 1993; Murray & Greenberg, 2006). Adolescents who have higher ratings of school connectedness are likely to have lower ratings of emotional distress, suicidal ideation, violence, alcohol use and drug use (Resnick et al., 1997). In addition, higher levels of school belonging have been shown to be associated with lower levels of depression, social rejection, and school problems, and increased academic achievement (Anderman, 2002). Students who feel they belong in schools are more likely to adopt healthy and adaptive motivational orientations toward academic achievement (Anderman & Freeman, 2004; Osterman, 2000). Similar to the findings listed above, Murray and Greenberg's (2006) longitudinal examination of 96 students receiving special education

services found that school belonging was related to the social, behavioural, and emotional adjustment of students with learning disabilities. Students' perceptions of school environments emerged as the strongest unique contributor to students' ratings of school competence (Murray & Greenberg, 2006). Students with learning disabilities who felt a sense of belonging or connectedness in school environments were more likely to be academically engaged in schools. This finding suggests that school cultures which promote connectedness contribute to the positive adjustment of students with learning disabilities(Murray & Greenberg, 2006)

Students become motivated to succeed when they experience a sense of connection and belonging to the school through relationships with adults and other students (Bringharm, Morocco, Clay, & Zigmond, 2006). In Cemalcilar's (2010) structural equation model analysis, social relationships emerged as a strong predictor of a sense of school belonging. In addition, a sense of belonging at school is positively associated with students' expectancies for success and intrinsic value for school, both of which are indicators of motivation (Goodenow, 1993). Ryan and Patrick (2001) investigated students' perceptions of their classroom social environment as they transitioned between grades. They found that when students moved into a junior high school classroom they perceived as supportive, their efficacy for accomplishing their school work and communicating and getting along with their teacher increased, their disruptive behaviour decreased, and they engaged in more self-regulated learning. Results of this study indicate that students' perception of being in a class where teachers encourage classmates to respect their ideas was the most important dimension of the social environment in predicting changes in academic efficacy and self-regulation of school work.

Teacher-student relationships.

At a time when adolescents are in particular need of supportive relationships with adults outside the home, the quality of relationships with teachers has been found to be less than optimal. Teacher-student relationships deteriorate after the transition to junior high school (Eccles, Midgley, Wigfiled, et al., 1993), and in comparison to elementary school classrooms, junior high and high school classrooms have been characterized by less personal and less positive teacher-student relationships. Roorda, Koomen, Split, and Oort (2011) conducted a meta-analysis of 99 studies and found positive teacher-student relationships to be associated with school engagement and achievement; these relationships remained important, or more influential, for older students and children who are academically at-risk. It is important for teachers to foster positive teacher-student relationships as research on the effects of classroom climate indicates that the quality of teacher-student relationships is associated with students' academic motivation, attitudes toward school, and achievement (Cornelius-White, 2007; Eccles et al. 1993; Goodenow, 1993; Roorda et al., 2011), and teacher support is generally associated with better mental health (LaRusso, Romer, & Selman, 2008; Murray & Greenberg, 2000; Reddy, Rhodes, & Mulhall, 2003; Roeser, Eccles, & Sameroff, 2000; Way, Reddy, & Rhodes, 2007). Roesner, Midgley, and Urdan (1996) examined adolescents' perceptions of teacher-student relations and how they relate to adolescents' affect toward school during eighth grade. These authors found that perception of a positive teacher-student relationship predicted positive school-related affect. In addition, the quality of relationships that children have with their teachers has also been shown to be associated with children's school involvement (Birch & Ladd, 1997; Roorda et al., 2011).

Factors surrounding students' school relationships strongly impact their capacity to be academically engaged (Johnson, 2009). The interpersonal relationships, support, encouragement, and guidance which can be found at school help students to negotiate school and the particular challenges they are faced with along the way (Martin, 2009), and positive and supportive teacher-student relationships have been identified as key protective factors in children's lives (Johnson, 2008). In reviewing the literature, Martin and Dowson (2009) found that positive teacher-student relationships predicted enhanced social, cognitive, and language development in children, and that students' feelings of acceptance by teachers was associated with emotional, cognitive, and behavioural engagement in class. Martin and Dowson also found that teachers higher in warmth tend to foster greater confidence in their students and that students who believe that their teacher is caring tend to learn more. The above findings indicate that when the social and emotional needs of students are met, students are more likely to be engaged in the process of information and skill transmission.

Teacher-student relationships that are characterized by open communication, support, and involvement can promote social, emotional, and academic competencies, and can provide children with a sense of security within their school settings. Murray and Greenberg (2006) examined the perceptions children with learning disabilities had of their relationships with teachers and their social, behavioural, and emotional adjustment. In doing so, they found that social relations with teachers were positively related to the social, behavioural, and emotional adjustment of these students. Murray and Greenberg found that students with learning disabilities who felt supported by and attached to their teachers were less likely to experience anxiety. In contrast, weak teacher-student relationships were negatively associated with school competence and positively

associated with conduct problems, delinquency, anxiety, and depression (Murray & Greenberg, 2006). Weak relationships with teachers contributed to conduct problems, as students with learning disabilities who were not satisfied with their teacher-student relationships had more externalizing behaviour problems.

One component of teacher support is the extent to which students believe their teachers value and establish personal relationships with them (Ryan & Patrick, 2001). Teachers who are perceived as supportive are generally described as being friendly, caring, understanding, dedicated, and dependable. Perceived teacher support has been linked to students' achievement motivation, for when students perceive their teacher to be supportive they report higher levels of interest and enjoyment in their school work, a more positive academic self-concept, and greater expectancies for success in the classroom (Goodenow, 1993; Ryan & Patrick, 2001).

Ryan and Patrick (2001) investigated how students' perceptions of the social environments of their grade eight classroom related to changes in motivation and engagement when they moved from seventh to eighth grade. They found that teacher support and promotion of interaction and mutual respect were related to positive changes in students' motivation and engagement. Teacher support, promotion of interaction, and mutual respect were also positively related to academic efficacy, social efficacy with teachers and peers, and self-regulated learning, and negatively related to disruptive behaviour (Ryan & Patrick, 2001). Perceiving the teacher as supportive was especially important for students' confidence relating to the teacher, self-regulated learning, and disruptive behaviour.

Practices that inhibit supportive school environments.

Through their policies and practices schools can emphasize improvement, mastery, and intellectual development (task mastery goals), or social comparison, relative ability, and competition among students (relative ability goals). Schools that are competitive and ability focused are likely to promote feelings of frustration and self consciousness, whereas settings that emphasize task mastery and improvement relate to decreased levels of self-consciousness during learning (Roeser, Midgley, & Urdan, 1996). Roeser and his colleagues examined the relation between adolescents' perceptions of the school psychological environment and school-related beliefs, affect, and achievement. In doing so, these authors found that perceiving an emphasis on relative ability and competition in schools was positively correlated with students' adoption of personal relative ability goals, and negatively correlated with feelings of school belonging, positive affect in school, and final semester grade point average. As a group, students who perceived an emphasis on competition and relative ability were more likely to feel self conscious in academic settings, and when students perceived that only the most able students were recognized, rewarded, and given support they also perceived that relationships between students and teachers in the school were less warm and responsive (Roeser et al., 1996).

Grouping students according to ability, public honour rolls or assemblies for the highest achieving students, and separate report card marks for achievement and effort may all provide important messages about what constitutes success at school (Maehr & Midgley, 1991). School characteristics such as size, departmentalized teaching, ability grouping, normative grading, and class size can also impact the climate of a school. Class size impacts school climate as it is difficult for teachers to maintain warm, positive

relationships with their students when they have to teach 25 to 30 different students each period of the school day (Eccles et al., 1993). Eccles and her colleagues investigated the relationship between psychological changes associated with adolescence and their social environments. These authors found the shift to junior high to be associated with an increase in practices such as whole-class task organization, between-classroom ability grouping, and public evaluation of the correctness of work, factors which may have a negative impact on early adolescents' self-perceptions and motivation. These authors also found that the combination of the large size of the schools, departmentalized teaching and large class sizes made it difficult for teachers and students to form close relationships.

School Transitions

The elementary to junior high school transition is associated with negative effects on adolescents, including declines in self-esteem (Eccles et al., 1993), and motivation (Anderman, Maehr, & Midgley, 1999). The transition to high school has also been accompanied by negative consequences for some students, including declines in academic achievement (Alspaugh, 1998), and dropping out of high school or failing to graduate on time (Mizelle & Irvin, 2000). Although the transition to high school does elicit some concerns, research surrounding this transition is more limited (Akos & Calassi, 2004). While there have been investigations of early adolescents' school transitions, few studies have focused on students with learning disabilities. In addition, little research has focused on adolescents' perceptions of their experiences in junior high schools (Arowosafe & Irvin, 1992; Reid & Button, 1995), and it is difficult to locate published research on parent perceptions of the transition process.

The transition to high school is viewed as a difficult time for all adolescents; however, it may be especially difficult for students with learning disabilities because of

the emphasis on competition and social comparison during the developmental period when self-awareness is especially heightened (Eccles et al., 1993). When students enter high school they face more of a focus on ability and competition and less on effort and improvement (Anderson, Jacobs, Schramm, & Splittgerber, 2000). They also experience less personal relations with teachers and less tolerance for misbehaviour. In addition to experiencing a more competitive grade-oriented environment, young adolescents moving from junior high to high school may feel inadequate to make academic and extracurricular decisions which may have a significant impact on their futures (Mize, 2005). Students with learning disabilities have increased school dropout rates (Learning Disability Association of Canada, 2007), and this may be due in part to the difficulties they experience when making the transition from junior high to high school.

Impact of school transitions.

School climates are positively associated with mental health (Fahlman, Samdal, Baban, & Bancila, 2012; LaRusso, Romer, & Selman, 2008; Lucas, & Robinson, 2004; Newman, Newman, Griffin, O'Connor, & Spahn, 2007). Unfortunately, for many children, the nature of the learning environment changes in a negative way during early adolescence (Anderman & Midgley, 1997). Junior high schools are typically larger, have more impersonal teacher-student interactions, and are more evaluative and competitive than elementary schools (Harter, Whitesell, & Kowalski, 1992). Junior high schools have also been associated with whole class task organization, between-classroom ability groupings, external evaluations, and practices that may increase the saliency of social comparisons and self-assessments of ability (Feldlaufer, Midgley, & Eccles, 1988). In addition, these schools are often characterized by more formal, controlling, and less trusting teacher-student relationships, stricter grading standards, a greater emphasis on

evaluation and social comparison among students, and a disruption of children€™s social networks (Eccles & Midgley, 1989). Junior high school teachers are often subject specialists and typically instruct a much larger number of students than do elementary teachers, making it less likely that they will get to know their students, believe they are trustworthy, and grant them autonomy (Eccles & Midgley, 1989). The challenges of adjusting to a number of different teachers is amplified for students with learning disabilities as they are more likely to have difficulties with organizational and social skills (Knestinga, Hokanson, & Waldrone, 2008).

Some students may experience a ƒhoneymoon„ period following the transition to junior high school as students may be excited about new friends and classroom regimes. For these students, the reality of academic or social success and failures my not set in until later (Harter, Whitesell, & Kowalski, 1992). Many adolescents become more negative about school and themselves after the transition to junior high school (Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991), and on average, students€™ sense of school belonging decreased from Grade 6 to 7 (Anderman, 2003). The increase in whole class task organization and the decrease in opportunities for cooperative interaction among students makes it likely that students will be aware of how they are performing relative to others in class (Feldlaufer, Midgley, & Eccles, 1988). In addition, their transition from elementary to junior high schools has been causally implicated in producing lowered perceptions of academic competence and decreased motivation (Eccles & Midgley, 1990). These changes in adolescents€™ attitudes and beliefs may be partly due to the differences between elementary and junior high schools, with a greater emphasis on evaluation, stricter grading standards, competition, and increased social comparisons found in junior high schools (Wigfield & Eccles, 1994).

Around the transition to high school, the characteristics of school environments become less facilitative towards continuing achievement and positive personal development (Barber & Olsen, 1997; Galton, Morrison, & Pell, 2000). In addition, adolescents making the transition to high school are faced with organizational and role changes as high schools are often larger, more bureaucratic, less personal, and students may lose status as they go from being the oldest in junior high to the youngest in high school (Roeser, Eccles, & Freedman-Doan, 1999). For some students, these changes can overtax their capacity to cope and thus compromise their academic and emotional functioning. As high schools are larger, busier, and less personalized environments, students may receive less individualized attention and feedback at a time when it is most needed (Litner, 2003). Cotterell (1992) found that students who moved from small schools to large high schools were more optimistic than their peers prior to the transition, but were more anxious and disorganized in the weeks after the change. Students perceived their high schools as less supportive (i.e., friendly, cohesive, organized, and goal oriented), and more pressured (i.e., competitive and individualistic; Cotterell, 1992). However, after five months in high school, the effects of change in school had diminished and more adaptable students perceived their classrooms as more supportive, more organized, and more growth-oriented.

Learning environments which promote success are characterized by positive relationships (Ryan & Deci, 2000). Students who feel supported by their teachers have been found to have a more positive motivational orientation towards schoolwork (Hamre & Pianta, 2001; Legault, Green-Demers, & Pelletier, 2006), and are more likely to experience positive social and emotional well-being (LaRusso, Romer, & Selman, 2008; Murray & Greenberg, 2000; Reddy, Rhodes, & Mulhall, 2003; Roeser, Eccles, &

Sameroff, 2000; Way, Reddy, & Rhodes, 2007). Teachers of young students have been found to have a more caring approach as they put a stronger emphasis on building relationships with students (Bru, Stornes, Munthe, & Thuen, 2010). Multiple subject based teachers are found in junior high and high schools. Having to rotate between classes has been found to reduce the salience of the relationships between students and teachers, a factor which has been found to be crucial to students' achievement motivation (Murdock & Miller, 2003). Junior high school teachers have been found to be perceived as less warm, caring, and supportive than elementary school teachers (Feldlaufer, Midgley, & Eccles, 1988; Martínez, Aricak, Graves, Peters, Rhoades, Wyrszak, & Nellis, 2011), and the quality of teacher-student interactions and the degree of teacher support is perceived to deteriorate in high school (Bru, Stornes, Munthe, & Thuen, 2010; Ferguson & Fraser, 1998). Teachers of older students are more likely to have a formal approach to teaching as they place their focus on communicating subject content; this may result in a growing mismatch between students' needs and the support teachers provide (Eccles, et al., 1993; Roeser, Eccles, & Sameroff, 1998).

Eccles and her colleagues (1989) found that both self-esteem and self-concept of ability decreased between the end of Grade 6 and the beginning of Grade 7. For some students these declines appear to mark a negative trajectory for academic and emotional functioning throughout high school. However, researchers (Eccles et al., 1989; Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991) reported that mean levels of self-esteem were lowest after the transition, but generally recovered during Grade 7. A subsequent longitudinal study conducted by Wigfield and Eccles (1994), found that while stable during elementary school, a notable decline in children's self-esteem and perceived academic competence occurred following the transition to junior high school. These

changes may be attributed to changes in the school and classroom environments, as self esteem may decrease after the transition to junior high school as students adjust to the school change and develop new social networks and ties (Wigfield et al., 1991).

Children and adults' competence and efficacy beliefs relate to their choice of achievement task, achievement goals, effort exerted, cognitive strategy use, achievement performance, and overall self-worth (Wigfield & Eccles, 1994). Upon transitioning into high school, students experience reduced self-efficacy beliefs surrounding content area knowledge and learning strategies. In addition, the transition from elementary to junior high school has been associated with a decline in student perceptions of academic competence (Cantin & Boivin, 2004; Wigfield & Eccles, 1994; Zanobini & Usai, 2002), and in academic performance (Alspaugh, 1998; Barber & Olsen, 2004; Grolnick, Kurowski, Dunlap, & Hevey, 2000; Zanobini & Usai, 2002). These findings were not supported by Whitley, Lupart, and Beran (2007) who noted that the academic achievement of Canadian students remain stable from elementary to junior high school.

Numerous studies demonstrate that as students move from elementary to junior high school, perceived competence, motivation, achievement, and attitudes decline (Anderman & Maehr, 1994; Anderman & Midgley, 1997; Eccles et al., 1993; Harter, Whitesell, & Kowalski, 1992; Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002; Wigfield, Eccles, MacIver, Reuman, & Midgley, 1991). Martin (2007) found junior high and high school students reported less adaptive patterns of motivation and engagement. More specifically, Harter (1996) found shifts from a predominately intrinsic orientation in Grade 3 to a more extrinsic orientation by Grade 9. This research is supported by Eccles and Midgley (1990) who determined that between Grades 6 and 7 students demonstrated a significant shift from an intrinsic orientation to an extrinsic orientation towards scho

Even though the changes may not be dramatic for most young people, the majority of studies show that the transition from elementary to high school has a negative impact on various dimensions of students€ motivational system, as seen in negative€ attitud towards school and learning, lowered confidence in their competencies, and decreased motivation (Eccles, Wigfield, & Schiefele, 1998). Whereas elementary schools tend to be characterized by small classes, stimulating projects, efficacious teachers, and cooperation, junior high schools often emphasize rote memorization, basic skills, completion, and less creative assignments (Anderman, 1998). In addition, junior high schools tend to have highly structured environments, use a lot of between class ability groupings, and offer students few opportunities to undertake creative, challenging, and meaningful academic tasks (Anderman & Maehr, 1994). Adolescents experience these changes in school environments at a developmental period when they would benefit from experiencing creative and meaningful academic tasks and a sense of belonging (Eccles et al., 1993).

Strategies to support school transitions.

Large numbers of youth need a lot more attention than they are getting in school, especially when they are making the transition from one level or one school to another (Gregory, 1995). Efforts should be made to improve teacher-student relationships in schools that serve early adolescents (Eccles et al., 1993). In order to facilitate a smooth transition, students, parents, and teachers recommended the following: (a) teach study skills and time management before and after the transition; (b) discuss academic expectations with students; (c) increase communication between the teachers at the sending and receiving schools about curriculum and academic expectations at the receiving school; and (d) increase direct communication between parents and teachers in

order to assist students with homework and the academic demands of the new school, and to prevent or remediate academic problems (Akos & Galassi, 2004).

All teachers and staff who work with a particular student with a learning disability need to communicate with each other in order to better meet the needs of the student. In addition, resource teachers, classroom teachers, educational assistants, and school guidance counsellors should meet with the adolescent and his or her parents at the beginning of the year to ascertain need, establish learning and behavioural goals, and decide on accommodations and interventions (Litner, 2003). These individuals should also meet regularly to monitor the student's progress and discuss problems that may arise. Before the start of the school year, the student with a learning disability, his or her parents, and core subject teachers should meet to discuss realistic expectations of each other; these individuals should also meet toward the end of the year to evaluate strategies which worked and didn't work as this information can be used to plan for the next year (Litner, 2003).

Students with learning disabilities or attention related difficulties often exhibit weak organizational and study skills (Learning Disability Association of Canada, 2002); these deficits may be partially attributed to their poor self-regulation or reduced school motivation. These students may not know how to effectively take notes or prepare for tests, and as a result, Litner (2003) recommends that teachers should employ direct instruction to teach learning strategies. In addition, it is important to introduce self advocacy skills which are poorly developed in these teens but essential to them becoming autonomous, self-aware, and successful learners (Learning Disability Association of Canada, 2003; Litner, 2003).

Assistive Technology and Students with Learning Disabilities

Many students with learning disabilities exhibit some type of reading problem (Hall, Hughes, & Filbert, 2000). More specifically, Bender (2008) reported that 85% to 90% of students with learning disabilities would benefit from reading services. Poor reading achievement can act as a major barrier to future learning opportunities. Students with poor reading abilities will experience difficulty in most curriculum areas as they will lose out on content because of their inability to acquire knowledge from reading texts (Montalie & Lewandowski, 1996). In addition, failures in reading may lead to self-defeating strategies whereby students with learning disabilities avoid opportunities to practice their reading skills (Lundberg, 1995).

Many students with learning disabilities also have difficulties with written expression as they often experience problems in handwriting, spelling, and the composing process (Hetzroni & Shrieber, 2004; Higgins & Raskind, 1995; MacArthur, 1996, 2000; Roberts & Stodden, 1995). Students with dysgraphia write slowly, form letters incorrectly, and their final product is often messy and at times illegible (Hetzroni & Shrieber, 2004). Experiencing handwriting difficulties and a poor understanding of writing strategies may constrain a child's development of writing skills, leading them to avoid academic tasks which require writing (Freeman, MacKinnon, & Miller, 2004).

Students with learning disabilities in the area of written expression may experience difficulty with the physical act of writing as well as the use of spelling and grammar rules. Focusing on these low-level writing skills may interfere with their ability to participate in higher-order processes such as organization and revision. This is demonstrated by MacArthur who noted that students with written language difficulties have less knowledge of the characteristics of good writing and the writing process

(MacArthur, 2000), and typically do not devote a large portion of their writing time to planning activities (MacArthur, 1996). In addition, these students typically lack awareness of common text structures which causes them to have difficulty organizing their writing.

Many students with learning disabilities in the area of written expression have difficulty coordinating the complex cognitive process of setting goals, generating content, organizing their writing, and revising their text (MacArthur, 1996). As a result, students with learning disabilities often experience frustration and embarrassment when asked to write. Students who have been unsuccessful in writing may experience low self-esteem and learned helplessness, and may feel their written products are not worth the effort they expend (Sitko, Laine, & Sitko, 2005). Students with learning disabilities should be provided with the opportunity to express themselves without having to worry about the mechanics of their writing. Assistive technology is a tool which can enable them to do so.

Relevant assistive technology for students with learning disabilities includes computer programs that provide speech-to-text, text-to-speech, graphic organizers, and word prediction capabilities. Blackhurst (2005) suggests that assistive technology can be used to assist learning, to make learning environments more accessible, and to enhance independence amongst individuals with learning disabilities. Assistive technology allows individuals to accomplish educational goals, and when used strategically, technology can help bypass conditions that once prevented students from obtaining higher-order levels of learning. In addition, the use of technology can help circumvent mechanical difficulties in writing allowing the quality of written work to align more closely with the intellectual abilities of individuals with learning disabilities (Laine & Breen, 1996). The use of

assistive technology may provide a compensatory alternative, and when embedded within quality writing instruction, improved achievement may ensue (MacArthur, 2009).

Kurzweil 3000, Dragon Naturally Speaking, WordQ, and Inspiration.

Kurzweil 3000 is a speech synthesis program that has a text-to-speech engine with the ability to convert any type of print media into computerized speech through a process known as optimal character recognition. Little research has been conducted on the use of assistive technology by students with learning disabilities; however, the use of speech synthesis shows promise for assisting students in proof reading their text. Speech synthesis programs enable students to hear what they have written, allowing students to use their general language sense to monitor the adequacy of their writing (MacArthur, 1996). This may help students to notice awkward or incomplete sentences, misspelled words, or errors in meaning. According to MacArthur (2009), an instructional context which incorporates assistive technology may help bridge the gap between what children with learning disabilities want to express and what they are able to do on their own.

Speech synthesis can help students to revise and edit their work and produce final products with less spelling errors. Raskind and Higgins (1995) studied the effect of speech synthesis programs on college students with learning disabilities and found that students detected significantly more errors using the screen reader, than students who used a human reader or had no assistance. Individuals who possess oral language skills that are superior to their written language abilities may benefit from the ability to hear what they have written as it may enable them to catch errors in grammar, spelling, and punctuation that would otherwise go unrecognized (Raskind & Higgins, 1998). Sitko, Laine, and Sitko (2005) note the ability of students with learning disabilities to detect errors orally is often significantly better than their ability to detect errors in written form.

However, students who misspell a high proportion of words may find that speech synthesis cannot read their writing fluently enough to be helpful; and as a result, speech synthesis may be most beneficial in combination with other word prediction programs and spelling and grammar checkers.

Speech synthesis programs such as Kurzweil may increase the reading comprehension of students with learning disabilities as they provide the opportunity for students to hear the text and see individual words highlighted as they are read aloud. In reviewing the literature, Strangman and Dalton (2005) reported that the use of speech synthesis can improve students' sight reading and decoding abilities. For example, a Norwegian study (Fasting & Halaas Lyster, 2005) found that, when provided with speech synthesis software, students with reading problems learned to decode words as speech feedback and word highlighting co-occurrence can strengthen the alphabetic phonological coding process. Speech synthesis programs may reduce the frustration of inaccurate decoding for students with learning disabilities. Programs such as Kurzweil may remove the negative emotions students associate with reading and provide students with a more complete comprehension of the text (Lundberg, 1995). As a result, speech synthesis programs are recommended for use along with research supported reading intervention practices.

Chiang and Jacobs (2009) conducted a study to examine the effects of using Kurzweil 3000 on the academic self-perceptions and functional ability of high school students with learning difficulties. Fifty high school students were assigned to either the Kurzweil intervention group or the regular language arts comparison group. Students in the intervention group used Kurzweil intensively for 10 weeks, and made significantly more progress than the comparison group in the reading competence and general

intelligence subscales of the SLDT (Renick & Harter, 1988), as well as significantly more progress than the comparison group in completing the work experience and education information section on a job application. While further research on the educational implications of Kurzweil 3000 is warranted, the findings of Chiang and Jacobs€ (2009) study appear promising in regards to Kurzweil€s ability to have a positive impact on academic self-perceptions and functional task performance.

Dragon Naturally Speaking enables the user to navigate the computer by speaking or dictating into a microphone. Through the use of voice commands and dictation, speech recognition software enables the user to perform word processing tasks, navigate the computer€s operating system, and browse the Internet hands free. Dragon Naturally Speaking can benefit students whose oral communication skills are superior to their writing abilities as it can help students bypass their problems with lower-order writing skills by dictating their written work. In addition, speech recognition software can help students to relay their ideas before they are forgotten due to slow handwriting or typing speeds. In one study, in comparison to the control group, 39 students with learning disabilities from 9 to 19 years of age who used voice recognition software demonstrated significant improvements in their reading comprehension, spelling, and word recognition scores (Higgins & Raskind, 2000).

Problems with transcription can impact the quality and quantity of the writing completed by students with learning disabilities. By composing orally, students with learning disabilities may be able to circumvent transcription or text production problems such as handwriting, spelling, and punctuation, thus providing opportunity for greater focus on higher-order concerns such as planning and content generation. Higgins and Raskind (1995) conducted an experimental study on the impact of speech recognition

software on the writing of post-secondary students with learning disabilities. Participants using speech recognition software produced writing samples that obtained higher holistic scores than participants who composed their work with the assistance of a transcriber or without assistance. When provided alongside writing instruction, speech recognition software may allow students to produce papers that are longer and higher in quality (MacArthur, 2000).

Word prediction programs such as WordQ prompt the user with a list of potential word choices based upon the most recently used words, the frequency of word use, and the grammatical spelling of the word. Individuals can refer to the predictive list and choose the desired word rather than experiencing the frustration of remembering the correct spelling. Word prediction acts as a compensatory tool which augments spelling and syntax as it enables users to make word choices to complete sentences (Raskind & Higgins, 1998). Word prediction programs may assist students in generating texts with less spelling errors. Although there were only a small number of students in the study, word prediction had a dramatic effect on the legibility and spelling in journals for four out of the five students (MacArthur, 1998). Word prediction demands a fairly high level of attention to make use of the suggested words (MacArthur, 1998); and as a result, each child must be considered on an individual basis in order to select appropriate assistive technology for his or her unique learning needs.

Six students in Grades 3 to 6 with severe writing and/or spelling difficulties attended a month-long summer writing program and participated in a study investigating the benefits of WordQ, Co:Writer, and WriteAssist. The authors of this study (Evmenova, Graff, Marci, & Behrmann, 2010) reported evidence of the effectiveness of all word prediction programs, but especially WordQ, over word processing, and reported that

students demonstrated improvements in spelling accuracy across conditions. Students in this study enjoyed the word prediction programs and found them beneficial because they perceived writing as much easier task when they used word prediction. However, given the small sample size, one must be cautious in making generalizations from the findings. While word prediction was considered to be more effective than word processing, the authors caution that one must take typing skills into consideration when determining the effectiveness of these programs. In a separate study (Tanner, Mays, & Skidmore, 2005), 42 children and their families who received services from a writing clinic in Toronto were asked to assessed their perceived effectiveness of WordQ in enhancing written productivity. Children and families generally found WordQ to be helpful, and reported increased independence, productivity, motivation to write, and vocabulary use. While this study highlights the potential benefits of WordQ, caution must be taken when interpreting these findings as the data was self-reported.

Inspiration is a graphic organizer that helps students organize information and ideas through the creation of semantic webs on a computer screen. Through the use of Inspiration, brainstormed ideas can be entered into a visual organizer which can be converted into an outline prior to writing. Graphic organizers provide an organizational framework to help writers generate topics and content for writing projects, and can assist with the planning and organizational stages of writing. Being taught a strategy to plan and organize writing increases the compositions of students with learning disabilities, one such strategy is the use of visual organizers (MacArthur, 2009).

Benefits of assistive technology.

For every critical reading skill there is a form of assistive technology with the demonstrated potential to remediate learning failure (Strangman & Dalton, 2005). Fasting

and Halaas Lyster (2005) found that assistive technology has the potential to improve the basic literacy skills of struggling readers as their analyses indicated that assistive technology had the potential to enhance reading comprehension, word reading rate, and support spelling. However, as this study was conducted in Norway, one must be cautious when generalizing these findings to North American contexts. Lundberg (1995) examined assistive technology as a remediation tool for students with learning disabilities and found that students enjoyed the benefits of computer training with speech synthesis programs and gained more in reading and spelling performance compared to students who only had access to conventional special education. Lundberg reported that although students with learning disabilities started at a much lower reading level, they were able to outperform their peers who did not use assistive technology by the end of the school period.

There are numerous software programs designed to compensate for the learning deficits students with learning disabilities may have; however, word processing may be the most important application for these students (Behrmann & Marci Kinas, 2002). Word processing can address fine motor difficulties, improve the appearance of students' work, and enable them with to write without being overly concerned with making errors as their texts can be easily modified. When students with learning disabilities are not preoccupied with the mechanical aspects of writing they have greater opportunity to focus on planning and content generation (Quenneville, 2001; Raskind & Higgins, 1998); however, students need to be provided with strategy instruction for planning and content generation to be effective (Graham, McKeown, Kiuhara, & Harris, 2012). Content revisions are more likely to occur with the use of word processors as the writer can insert or delete text without having to rewrite the entire document (Lewis, 1998). The potential impact of

word processing on revising is significant as revision is an aspect of the composing process that distinguishes expert writers from less skilled writers (MacArthur, 1996).

Word processors provide students with the means to complete well organized and well written assignments that are reflective of their knowledge and skills (Hetzroni & Schrieber, 2004). Hetzroni and Shrieber (2004) found that three students with writing disabilities' motivation to write increased and their frustration diminished when using word processors. These authors speculated that the use of word processors may foster students' confidence in their written work and may change their peers' and teachers' attitudes toward their written output. These speculations are supported by the work of Raskind and Higgins (1998) which demonstrated that using a word processor leads to neater documents which may lead students develop a sense of pride in their written work and enhance their image of themselves as writers.

Hetzroni and Shrieber (2004) reported that the spell check feature in word processors reduced the number of spelling mistakes made by children learning disabilities. The use of spell check allows students to remain focused on communicating their ideas rather than being overwhelmed with the process of trying to identify and correct spelling errors. However, for students with learning disabilities, it is important that the spell check program includes phonetic rules in generating suggestions (MacArthur, 2000). Although the research is not extensive, sufficient work has been conducted to conclude that computers can provide assistance to individuals who struggle with writing.

Assistive technology can foster academic success and independence in students with learning disabilities (Bryant, Bryant, & Raskind, 1998), as it allows students to interact with curricular content in order to develop knowledge and skills (Rapp, 2005).

Assistive technology may also enable students to complete tasks more efficiently which can lead to greater academic success (Forgrave, 2002). In addition, assistive technology can support students in becoming self-regulated learners (Sitko, Laine, & Sitko, 2005). Raskind and Higgins (1998) conducted a study in which 140 post-secondary students with learning disabilities received training on assistive technology over a three year period. Participants in this study demonstrated positive academic outcomes as they significantly increased their grade point averages for courses with heavy reading or composition requirements. Participation in this study also led to changes in the use of compensatory strategies and an overall increase in independence. Participants in this study changed roles as students who were previously the ones being helped became a "helper." For students with learning disabilities, assistive technology can foster interactive participation in general education classrooms, and as a result, it supports the basic objectives of inclusive education which include a sense of belonging to a group, shared activities with individual outcomes, and a balanced educational experience.

Need for assessment and training.

Although assistive technology can remove barriers to learning, provide compensatory and remedial benefits, and increase academic achievement, it is recognized that providing technology does not ensure its successful use. Informed decision making is crucial to ensuring the successful use of assistive technology and preventing its abandonment (DeRosier & Farber, 2005). It is important to have an understanding of the different types of technology and it is equally important to ensure that the obtained technology is properly implemented and evaluated to determine its effectiveness (Blackhurst, 2005). When considering which technology is best suited for a specific student, it is important to consider the cost of the technology, the availability of funding,

the environment in which the child will be using the technology, as well as the technology skills of the teachers and educational assistants (Freeman, MacKinnon, & Miller, 2004). The individual using the assistive technology should also play a role in its selection, for their involvement in the selection, acquisition, and maintenance of the technology may help prevent the abandonment of these devices.

Relevant aspects of a person€s cognitive capabilities, as well as their functional limitations, should be taken into consideration when recommending assistive technology (Bryan, Bryant, & Raskind, 1998). When selecting assistive technology it is critical that members on the individual education planning committee examine the student-technology match and work with family members to elicit their support and opinions (Bryant, Bryant, & Raskind, 1998). The student€s view of the technology, their motivational level, and their family members€ experience and comfort level with the technology must also be taken into consideration (Bryant, Bryant, & Raskind, 1998). Family members should be provided with training on the assistive technology as these devices can enhance the families€ ability to meet their child€s needs (Bryant, Bryant, & Raskind, 1998). The assessment of assistive technology is a continual process that requires careful consideration of the student€s current level of performance and changes in the educational environment. It is imperative that assistive technology recommendations are carefully evaluated or technology may turn into a frustrating barrier for the child.

It is crucial that students and teachers are taught to use assistive technology. Students must be provided with training and ongoing support because for assistive technology to be successful students must have adequate training and opportunities for practice (Ofiesh, Rice, Long, Merchant, & Gajar, 2002). DeRosier and Farber (2005) conducted a pilot study of user satisfaction and the psychological and

social impact of speech recognition software. In this study, the participant who did not receive training on the speech recognition software provided negative ratings on the competence and self-esteem subscales of the Psychosocial Impact of Assistive Devices Scale (Day & Jutai, 1996); however, the remaining participants reported positive feelings in regards to their quality of life as a result of using the software. Due to the lack of training and support, individuals report that they are unprepared to benefit from the available technology (DeRosier & Farber, 2005; Mull & Sitlington, 2003).

Educators need to develop the necessary skills to provide technology services to students with learning disabilities (Blackhurst, 2005). Unfortunately, there is a critical shortage of personnel trained in assistive technology (Fuhrn, 2000). The successful use of assistive technology depends on the training received by educators; however, few pre-service training programs or courses related to the application of assistive technology are available to teachers (McGhie-Richmond, Specht, Young, & Katz, 2011; Mull & Sitlington, 2003). Teachers frequently report feeling unprepared to support students in their use of assistive technology, largely as a result of inadequate pre-service training (Chmiliar, 2007; Chmiliar & Cheung, 2007). Teacher preparation programs must develop ways to structure their curriculum and practicum experience in order to prepare teachers to meet the needs all of their students, including those who use assistive technology.

The issues surrounding assistive technology service delivery are complex, require collaboration, and involve much more than the basic operation of the assistive technology device (QIAT, 2000). One of the critical shortcomings of teacher training is the failure to link the use of assistive technology to individual strengths and weaknesses as indicated on student€s individual education plans (QIAT, 2000). Educators need to be provided with broad knowledge of assistive technology so that they can consider strategies for

implementing assistive technology with students in their classes (Bryant, Erin, Lock, & Allan, 1998). The potential of assistive technology will only be obtained if educators are trained on instructional methodologies that allow it to be integrated in a meaningful way (Edyburn, 2000).

Assistive technology can increase academic capabilities (Bryant, Bryant, & Raskind, 1998; Hetzroni & Shrieber, 2004). As students learn to use text-to-speech, speech-to-text, graphic organizers, and word prediction programs they may improve their reading and writing in all content areas. However, in order for assistive technology to be used to its fullest potential it must be assessed for a person-technology match (Blackhurst, 2005). Training on assistive technology is directly related to user satisfaction (DeRosier & Farber, 2005), and as a result, students and teachers should be provided with ongoing training and support.

Research has been conducted on the benefits of assistive technology (e.g., Hughes, & Filbert, 2000; Hetzroni & Shrieber, 2004; Higgins & Raskind, 2004; MacArthur, 2000) and the self-esteem of students with learning disabilities (MacMaster, Donovan, & MacIntyre, 2002; McNulty, 2003; Valas, 1999). However, prior to the completion of my Master's thesis (Young, 2007), no studies investigated the impact of assistive technology on academic self-concept when used in a supportive school environment (D. Edyburn, personal communication, August 27, 2009). My doctoral research builds on my previous research (Young & Specht, 2009) which indicated that the use of assistive technology was associated with an increase in perceived academic competence and perceived intellectual ability, which are components of self-concept (Harter, Whitesell, & Junkin, 1998). This dissertation employs multiple data sources to examine student's use of assistive technology and their academic self-concept and school

motivation as they transition from a two-year elementary demonstration school program and reintegrate into their local high schools.

Method

Participants

In order to be eligible to attend provincial demonstration schools for students with learning disabilities, students must be formally diagnosed with a learning disability, with or without ADHD (demonstration school website). Students who attend the demonstration school have: pervasive language difficulties; weak phonological awareness; very weak academic achievement, particularly in reading (mostly grade equivalents of 1 to 3 on standardized tests) despite many years and methods of remediation; emotional reactions secondary to the chronic deprivation of success at school; and they may also have additional difficulties with fine- and gross-motor skills, visual-motor integration, or attention (demonstration school website). The program is not designated for students who present with emotional or behavioural issues (demonstration school website). In order to be eligible to attend the demonstration school, students must have exhausted the resources of their current school board's program and require a residential program to assist in the development of personal life and learning strategies (demonstration school website). The demonstration school which is the focus of the study accepts students in Grades 7 to 9, and these students range from 11 to 15 years in age when they are accepted into the program. Depending on the progress made, students may attend the demonstration school for one or two years. Each year attendance at the discussed demonstration school is between 40 and 50 students and under half of these students are in their second year of attendance. Nineteen students recently graduated from the demonstration school program and transitioned back into their neighbourhood

schools. Twelve of these students and their parents consented to participate in my doctoral study.

Overview of participants.

Former demonstration school students and their parents participated in this study. Parents were asked to verbally describe the diagnosis of their children's learning disability and what led them to apply to the demonstration school. The overview of participants which follows is based on parent interview data.

Nigel's learning difficulties were noticeable when he started school; however, his mother noted that "his school wouldn't acknowledge it and didn't want to deal with it," as they felt he was "unmotivated and lazy." His mother said that by "Grade 1 he was sad and would often cry at his desk. By Grade 2 it turned to frustration and anger and he would lash out a lot of, 'I can't do it.'" Nigel's school was reluctant to provide him with a psychoeducational assessment, and as a result, in Grade 4 his mother asked to see a copy of his Canadian Achievement Test. The school provided him with an assessment after his mother observed that his achievement was in the first percentile. Nigel's mother reported that his psychoeducational assessment confirmed that he had a learning disability and experienced difficulty with word association and retrieving words from memory. At the recommendation of their paediatrician, Nigel's parents began looking at attending the demonstration school. He attended the demonstration school for Grades 7 and 8 and was 14 at the beginning of the study.

Derrick's biological parents were drug users which led to an unstable family life. He was living with his foster parents at the time of the study and his foster mother agreed to participate in the study. His biological parents moved houses often, and as a result, Derrick's foster mother noted that his various elementary school teachers were often

unaware that he was unable to read. Derrick was eventually assigned an educational assistant because his poor reading ability led to poor achievement in all subject areas. The educational assistant recommended that he attend the demonstration school because he really wanted to learn, just didn't know how to. Derrick attended the demonstration school for Grades 7 and 8, and he was 14 at the beginning of the study.

Daniel completed his first psychoeducational assessment in Grade 2 when his parents noticed he would memorize texts instead of reading them. The assessment indicated that there was a discrepancy between his ability to comprehend new material and read new material. The assessment also uncovered his weaknesses in the area of math. Daniel's elementary school teachers recommended he attend the demonstration school. He went to the demonstration school for Grade 7 and 8 and was 14 at the beginning of the study.

Ava experienced difficulty reading and this negatively impacted her achievement in other academic domains. After hearing the success stories of previous demonstration school students, her parents decided to start the application process. Ava attended the demonstration school for Grade 7 and 8. She was 14 at the beginning of the study.

Mike was a good reader who experienced difficulty writing. His mother noted that prior to attending the demonstration school, his writing was similar to that of a Grade 2 student because of his poor handwriting skills and his difficulty recalling information. Mike's parents paid for his psychoeducational assessment when he was in Grade 2. After reviewing his past assessment records, his resource teacher felt he was a good candidate for the demonstration school. Mike attended the demonstration school for Grade 7 and 8 and was 14 at the beginning of the study.

Sasha was first diagnosed with a nonverbal learning disability when she was in senior kindergarten. A second psychoeducational assessment was completed when she was 11. The assessment indicated that she experienced difficulty with reading, mathematic computations, processing new information, and organizational skills. At the recommendation of the psychologist, Sasha's parents began completing the demonstration school application. She attended the demonstration school for Grade 7 and 8 and was 15 at the time of the first interview.

Kristine's mother realized she had difficulty reading because she would recite stories that were previously read to her instead of reading the words on the page. She also had difficulty completing written assignments. Due to her difficulty completing academic tasks, Kristine's educational assistant recommended that she attend the demonstration school. She attended the demonstration school for Grade 7 and 8 and was 15 at the beginning of the study.

Darren experienced difficulty reading. He was able to understand information he received orally, but was unable to read. Darren's elementary school resource teacher recommended he attend the demonstration school. Darren was 16 at the beginning of the study. He attended the demonstration school for Grade 8 and 9.

Jamie experienced difficulty reading and completing written tasks. She also experienced difficulty understanding mathematic computations. Jamie's mother wasn't happy with the instruction she was given at elementary school, and as a result, she switched into a different school board in Grade 7. Jamie received a formal diagnosis of a learning disability in Grade 7 and her family started thinking about the demonstration school at that time. Jamie was 16 at the beginning of the study and attended the demonstration school for Grade 8 and 9.

From a young age it was apparent that Frank had strong oral language abilities. However, he experienced difficulty with academic tasks that involved reading, writing, or maintaining attention for an extended period of time. He was never the class clown but was often inattentive and would lay his head down on the desk whenever he felt overwhelmed by school work. His mother "had a really hard time convincing [his elementary school] to assess him because [his behaviour] was put down to laziness and disrespect." Frank's family paid for his psychoeducational assessment as the school board would not fund it. His parents began the application for the demonstration school based on the recommendation of the psychologist and his paediatrician. Frank was 16 at the beginning of the study and attended the demonstration school for Grade 9 and 10.

Rhys experienced difficulty with reading, writing, and organizational skills. In addition, his mother noted that he "was like he's in kindergarten." Rhys' principal and resource teacher felt his learning disability made him a good candidate for the demonstration school. He was 16 at the beginning of the study and he attended the demonstration school for Grade 9 and 10.

John experienced difficulty when asked to read or write. He attended a private elementary school, and after hearing about the demonstration school from his aunt, he was transferred into a public school and had an updated psychoeducational assessment so that he could apply to the demonstrations school. John was 16 at the beginning of the study and attended the demonstration school for Grade 9 and 10.

Measures

Self-Perception Profile for Learning Disabled Students.

The Self-Perception Profile for Learning Disabled Students (SPP-LD; Renick & Harter, 1988) is a self-report measure for investigating domain-specific judgments of

competencies and adequacies. It was chosen to measure self-esteem as it was developed specifically for use with students with learning disabilities. Individuals with learning disabilities differentiate between their perception of their general intellectual ability and their performance on specific academic tasks (Renick & Harter, 1988). This tool is of value as it allows the researcher to differentiate between students' perception of their general intellectual ability and their competence levels in each of the specific academic domains. The SPP-LD was designed to measure the following domains: General Intellectual Ability, Reading Competence, Spelling Competence, Writing Competence, Math Competence, Social Acceptance, Athletic Competence, Behavioral Conduct, Physical Appearance and Global Self-Worth. By examining a child's perceptions across a variety of domains, one is provided with a richer and more differentiated view of the child than can be provided by a single scale construct of self-esteem (Renick, & Harter, 1988).

Each domain contains four to five questions and questions are scored on a four-point Likert scale, with average scores ranging from 1 (very low self-concept) to 4 (very high self-concept) for all questions on each subscale. Based on the upper 21% and the lower 13% of the sample of students participating in the standardization study for the SPP-LD, subscale scores less than 2 are considered to reflect relatively low self perceptions and subscale scores greater than 3.75 are considered to reflect relatively high self-perceptions (Renick & Harter, 1988). Based on Cronbach's alpha, internal consistency reliabilities were found to be quite acceptable with subscale reliabilities ranging from .78 to .89 (Renick & Harter, 1988). In order to determine the validity of each of the domains, a factor analysis with an oblique rotation was performed. The results of the factor analyses indicate that each of the subscales provides a different and meaningful profile of the self-perceptions of children and adolescents with learning

disabilities, and as a result, this tool is deemed as a valid measurement device (Renick & Harter, 1988).

Motivation and Engagement Scale – High School.

The Motivation and Engagement Scale (MES; Martin, 2009) measures students' motivation and engagement in school. The MES assesses motivation through three adaptive cognitive dimensions (Booster Thoughts), three adaptive behavioural dimensions (Booster Behaviours), three impeding/maladaptive cognitive dimensions (Mufflers), and two maladaptive behavioural dimensions (Guzzlers) of motivation and engagement. Motivation Boosters are thoughts and behaviours that reflected enhanced motivation and engagement; they include Self-beliefs, Valuing School, Focus, Planning, Task Management, and Persistence. Motivation Mufflers reflect impeded motivation and engagement; they are Anxiety, Failure Avoidance, and Uncertain Control (Martin). Motivation Guzzlers reflect reduced motivation and engagement and include Self sabotage and Disengagement (Martin, 2009). Each of the eleven factors is composed of four items, which are scored on a Likert scale with items ranging from 1 (disagree strongly) to 7 (agree strongly). The four items are added together to form a score out of 28, which is then converted into a percentage. For the Motivation Boosters, scores closer to 100 reflect higher levels of motivation and engagement, and for the Motivation Mufflers and Guzzlers, scores closer to 100 reflect impeded motivation and engagement.

The MES has a strong factor structure with Cronbach alpha scores ranging from .77 to .82 (Martin, 2009). The relationships among all Boosters, Mufflers, and Guzzlers were examined through a correlation matrix which was generated by confirmatory factor analysis. All Boosters were highly positively correlated with each other, as were Mufflers and Guzzlers (Martin, 2009). In addition, all Guzzlers were

negatively correlated with Boosters, and Mufflers had no relationship or correlated negatively with Boosters (Martin, 2009). A confirmatory factor analysis was also conducted to test the fit of the four higher order factors (i.e., Booster Thoughts, Booster Behaviours, Mufflers, and Guzzlers). The confirmatory factor analysis yielded an excellent fit to the data (χ^2 = 335, 315.47, df = 886, CFI = .98, RMSEA = .042).

The MES (Martin, 2009) has been validated with many educational outcome measures and the factors have been shown to have good external validity. Each Booster has been shown to have a significant positive correlation with academic achievement, literacy, numeracy, class participation, enjoyment of school, educational aspirations, and homework completion (Martin, 2009). In investigating the Guzzlers, students higher in self-sabotage and disengagement were shown to achieve at a lower level on the achievement measures, display lower literacy and numeracy scores, and demonstrate lower levels of class participation, educational aspirations, and enjoyment of school (Martin, 2009). These students also scored lower on homework completion and were more likely to be absent from school.

Patterns of Adaptive Learning Survey.

The Patterns of Adaptive Learning Survey (PALS; Midgley et al., 1995) was developed to assess personal achievement goal orientations, perceptions of teacher's goals, perceptions of classroom goal structure, as well as academic related perceptions, beliefs, and strategies. Roeser, Midgley, and Urdan (1996) selected scales from the PALS which assessed School Goal Dimensions, School Relationship Dimensions, Personal Achievement Goals, Relatedness and Self-Beliefs. The School Goal Dimension is composed of the school task goal structure which assesses students' perceptions of emphasis in the school on effort and understanding, as well as the school ability goal

structure which taps students€ perceptions that relative ability is a prominent and rewarded marker of success in school (Roeser et al., 1996). The School Relationship Dimension assesses students€ perceptions of the quality of teacher-student interactions in school (Roeser et al., 1996). The Personal Achievement Goals is composed of personal task goals which assesses students€ preferences for challenging work, task mastery, and learning new things, as well as personal relative ability goals which assesses students€ desire to demonstrate their ability relative to others (Roeser et al., 1996). Relatedness is composed of school belonging which assesses whether students feel that they matter and belong in their school (Roeser et al., 1996). Self-beliefs is composed of academic self efficacy which assesses students€ beliefs that they can master the materials taught in school (Roeser et al., 1996). These scales can be used in order to examine the psychological environment of the school and the extent to which students perceive their school environment as cooperative rather than competitive. Questions in these scales are organized in a five-point Likert survey format with items ranging from 1 (not at all true) to 5 (very true). Respective subscale responses are added together and divided by the number of responses in each subscale in order to obtain an average subscale score. In interpreting the responses, scores closer to 1 are viewed as less positive (i.e., low self efficacy) and scores closer to 5 are viewed as more positive (i.e., high self-efficacy). Normed with elementary, middle, and high school students from nine school districts in three Midwestern United States, the revised version of the PALS has a strong factor structure with Cronbach alpha scores ranging from .76 to .86 (Roeser et al., 1996).

Psychosocial Impact of Assistive Devices Scale.

The Psychosocial Impact of Assistive Devices Scale (PIADS; Day & Jutai, 1996) is a 26-item self-report questionnaire designed to assess the psychological as well as the

social benefits of assistive devices on their users. Each item is scored on a seven-point Likert scale with scores ranging from negative 3 (maximum negative impact) through 0 (no perceived impact) to positive 3 (maximum positive impact). The PIADS is composed of three subscales. The first subscale, Competence, measures feelings of competence and efficacy and is sensitive to the perceived impact of assistive technology on school performance and productivity. The second subscale, Adaptability, measures the willingness to try new things and to take risks and is sensitive to the enabling aspects of assistive technology. The third subscale, Self-Esteem, demonstrates the perceived impact of assistive technology on self-confidence and emotional well-being.

This questionnaire was used to determine if assistive technology increases one perceived competence level which may contribute to the individual succeeding academically. It is important to assess the degree to which assistive technology affects feelings of perceived competence, as feeling of proficiency in daily activities are at the root of self-esteem (Dodds, Bailey, Pearson, & Yates, 1991, as cited in Day & Jutai, 1996). The PIADS is well suited to this study as its focus is on all forms of assistive devices including communication and writing aids.

A reliability coefficient was computed based on 157 respondents to the PIADS who ranged in age from 17 to 53, with a mean age of 22 (see Day & Jutai, 1996). The Cronbach's alpha coefficient was .96 suggesting that the internal consistency of the scale is very high (Day & Jutai, 1996). In order to determine the validity of each of the domains a principal components analysis of the 26 items was performed. Using varimax rotation, the principal components analysis yielded a three factor solution (i.e., the Competence, Adaptability, and Self-Esteem subscales) that accounted for 61% of the total variance (Day & Jutai, 1996). Based on the findings from their previous research, Day and Jutai

report that the PIADS is a reliable and valid tool that appears to have significant power to predict important assistive technology outcomes.

Interviews.

Semi-structured interviews were conducted with parents and students. Background information questions were posed in the first interview with parents. I asked parents to provide information surrounding the diagnosis of their child€s learning disability, the type of academic tasks in which their child experiences difficulty, and whether their child used assistive technology prior to attending the demonstration school (see Appendix D for additional information). Interview questions also surrounded their child€s experience at the demonstration school, their child€s use of technology, and whether or not they felt their child€s level of self-concept and school motivation improved as a result of attending the demonstration school.

When conducting the first interview with students, logistical questions were posed in order to know which grade they were in and the courses in which they were enrolled (see Appendix D for additional information). Interview questions also surrounded student€s experiences at the demonstration school, their experiences with the use of assistive technology, and whether or not they felt attending the demonstration school had an impact on their self-concept and school motivation.

The second interview with parents surrounded their child€s experiences at high school. More specifically, interview questions focused on their child€s transition to a new school, whether or not their child continued to use their assistive technology, and whether they felt their child€s level of self-concept and school motivation increased or decreased since attending their new school (see Appendix D for additional information). The second interview with students focused on their experiences attending their current school,

whether they perceived their current school to be a supportive learning environment, whether they continued to use their assistive technology, and their current level of self concept and motivation in school (see Appendix D for additional information).

Procedure

Table 1 provides an outline of the research protocol.

Table 1 - Outline of the Research Protocol

	Students	Parents
Time 1 - Start of Year 1 - September 2007	Start of demonstration school program. - SPPLD (Renick & Harter, 1988)	
Time 2 - End of Year 1 - May 2008	End of first year at demonstration school. - SPPLD (Renick & Harter, 1988)	
Time 3 - End of Year 2 - June 2009	End of demonstration school program. - SPPLD (Renick & Harter, 1988)	
Time 4 - Year 3 - January 2010	End of first semester in high school. - Semi-structured interviews with students. - Student surveys: MES (Martin, 2009) PIADS (Day & Jutai, 1996) PALS (Roeser, Midgley, & Urdan, 1996)	- Semi-structured interviews with parents.
Time 5 - End of Year 3 - June 2010	End of second semester in high school. - Semi-structured interviews with students. - Student surveys: MES (Martin, 2009) PIADS (Day & Jutai, 1996) PALS (Roeser, Midgley, & Urdan, 1996) SPPLD (Renick & Harter, 1988)	- Semi-structured interviews with parents.

Time 1, 2, and 3.

Nineteen students recently graduated from the demonstration school program and transitioned into their neighbourhood schools. While attending the demonstration school students were administered the SLEP (Renick & Harter, 1988). This scale was administered in order to determine if findings from my Master's thesis (Young, 2007) would replicate in future studies. I wanted to determine that students' academic self concept increased from when they first entered into the demonstration school, had completed the first year of the program, and had completed the second year of the program and were making the transition to their local neighbourhood schools.

The principal of the demonstration school contacted former demonstration school students in order to determine which students were interested in being contacted for further study. Thirteen students and their parents provided consent to be contacted and were invited to participate in my doctoral research. In doing so, I asked to utilize their previous survey data. In total, 12 students and their parents consented to participate in my doctoral study.

Time 4.

Former demonstration school students and their parents who consented to participate took part in semi-structured interviews. Students were also asked to complete surveys. Interviews and surveys occurred at a time and place which was of convenience to the participants (such as their home and their local community library).

The transition to high school can be a difficult experience for all students, especially those with learning disabilities (Letrello & Miles, 2010). In moving to a new school, students are not only faced with changes to their physical environment, but also with different academic requirements and new social interactions. Students who have a

difficult time transitioning to their new school may look back on their previous school experience with undue fondness. In order to provide sufficient time for students to become accustomed to their new surroundings, students and their parents were interviewed in January. By conducting interviews at the end of the first semester, students had four months in their new school environment and had time to reflect on their previous experiences at the demonstration school.

Interviews with students took approximately 30 minutes and parent interviews took slightly longer. Upon conducting the student interviews, students were asked to complete the MES (Martin, 2009), the PIADS (Day & Jutai, 1996), and the PALS (Roeser, Midgley, & Urdan, 1996). Students were asked to think back to their experiences at the demonstration school when completing the surveys. The MES was used to determine students' level of motivation and engagement while attending the demonstration school, the PIADS was used to assess the impact assistive technology may have on students at the demonstration school, and the PALS was used to establish the psychological environment of the demonstration school. In total, the surveys took approximately 30 minutes to complete.

Many students with learning disabilities experience reading difficulties, and as a result, I read all of the survey items to the students. I also provided each student with a blank piece of paper which could be used to cover survey items to which they were not immediately responding. This strategy was used because encouraging students with learning disabilities to expose only one survey item at a time may help them to maintain their attention on the particular item being answered (Renick & Harter, 1988).

I worked one-on-one with each student in completing the MES (Martin, 2009) and the PALS (Roeser, Midgley, & Urdan, 1996). When providing students with

instruction on how to complete the surveys, I stressed that the surveys were not tests and that there were no right or wrong answers. I ensured students that their responses to the survey were confidential and that no one at home or at school would have access to their survey responses. I also explained that similar questions were asked in different ways in order to ensure that I had an accurate view of what students were saying. A sample question was included at the beginning of each survey to introduce the use of the Likert scale. I read the sample question aloud and ensured that each child understood how to select their appropriate response, then continued to read the remainder of the questions and ensured that each child understood the material was following along.

I worked one-on-one with each student as they completed the PIADS (Day & Jutai, 1996). In completing the survey, I first provided a definition of the term, for example: "Competence: The ability to succeed in the important things you need to do in life." I then asked students if they understood what the term means and asked them to respond to whether the use of assistive technology decreases or increases their "competence".

Time 5.

Students and their parents were contacted towards the end of the school year in order to complete their second interview. Upon completing the interview, students were once again asked to complete the MES (Martin, 2009), the PIADS (Day & Jutai, 1996), and the PALS (Roeser, Midgley, & Urdan, 1996). The results of these surveys were used to establish students' current level of school motivation and engagement, the influence assistive technology continued to have on these students in high school, and the psychological environment of students' current high schools. While attending the demonstration school, students completed the LSDP (Renick & Harter, 1988) on three

separate occasions. Survey results demonstrated an increase in perceived general intellectual ability and an improvement in perceived competencies across academic domains. The SPPLD was administered for a fourth time in order to determine if there was a change in students' academic self-perceptions and their overall self-esteem.

The SPPLD took approximately 15 minutes to complete and was similar in administration to the other surveys. I read the questions aloud and ensured that the student was following along. Questions on the SPPLD are organized in the following format: "Some kids are sure they are pretty smart in school," BUT "Other kids are not so sure they are all that smart in school." I ensured that each student was able to choose the "kids" they best relate to, and then choose if the scenario was "really true" for them or only "sort of true" for them. By differentiating between the two scenarios, and selecting the degree to which they could identify with the chosen scenario, the SPPLD was scored similar to a four-point Likert scale.

Member checks are an important component of construct validity and are arguably the most important criterion in establishing credible interview data (Mertens, 2005). At the end of each interview, I briefly summarized what had been said and asked participants if I was able to accurately relay the concepts and information they were trying to share. Respondent validation can be especially useful as participants may suggest a better way to express an issue or may wish to qualify points (Cohen, Manion, & Morrison, 2007). Upon analyzing the data, I sent an overview of the findings to participants for feedback. While I presented group data, I asked parents to provide feedback in regards to the degree to which the research summary and selected quotes provided an accurate portrayal of their child's use of assistive technology and their transition back into their neighbourhood

schools. Three parents responded; these responses have been modified to remove identifying information and are included in Appendix F.

In order to ensure participants' responses to all surveys and interview questions remained confidential, I provided each participant with a numerical code which was used to compare the results of the surveys that each participant completed. Pseudonyms were also assigned to each participant. After conducting the interviews, the digital voice files were stored on a password protected computer and transcribed interview data was kept in a locked desk drawer. After the data is published, the transcribed data and accompanying surveys will be destroyed.

Data Analysis

Interviews with students and their parents were transcribed verbatim. After each interview was transcribed, I reviewed the transcripts to identify the main concepts, themes, and issues that arose during the interview. I began analysis early in the research process for as Seidman (1991) notes, marking passages that are of interest, labelling them, and grouping them is interpretative and analytic work that should commence as soon as any new data is collected.

Codes are tags which can be used to assign units of meaning to information compiled during a study (Miles & Huberman, 1994). Codes can be attached to chunks of data ranging from single words to phrases, sentences, or whole paragraphs, and they can be used to retrieve information or to organize information into larger chunks or patterns. The coding scheme was created inductively as I created my coding scheme based on patterns, themes, and categories that emerged from the data (Patton, 2002). I read all transcripts in order to identify and define the codes, and in order to minimize bias, a critical peer was used to validate the emerging themes (Miles & Huberman, 1994).

Transcripts were coded thematically using the qualitative data analysis software ATLAS.ti. In order to ensure codes were applied consistently, and to check for coding drift over time, an undergraduate student independently coded 10% of the transcripts. In order to demonstrate inter-rater reliability, I randomly selected portions of parent and student transcripts from both the first and second interviews. There was 95% agreement which is sufficient to move on to the final stages of analysis (Miles & Huberman, 1994). Coding and recoding are over when the analysis appears to have run its course. This means that all of the selected excerpts can be readily fitted into codes and the categories are saturated (Lincoln & Guba, 1985). Lincoln and Guba recommend that data analysis be stopped with the emergence of *f*regularities,„ or when no new information emerges with additional data analysis. In total there were 48 interview transcripts (24 student interviews and 24 parent interviews), which was sufficient for saturation of the emerging themes (Lincoln & Guba, 1985).

In reporting the data I strove to provide an accurate portrayal of students with learning disabilities€ transition from a demonstration school into their neighbourhood schools. I provide a broad overview of the students, their previous and current school experiences, the degree to which they used assistive technology in both school environments, and their previous and current levels of self-esteem and school motivation. As many participants wanted to discuss their school experiences prior to attending the demonstration school, I have organized the results according to students€ initial school experiences, participants€ perceptions of the demonstration school, students€ experience with the transition to high school, and participants€ perceptions of their local high schools. I also examined potential changes to students€ self-concept and motivation, and

utilized interview data to highlight individual differences which may have been hidden within group survey data.

According to Cresswell (2007), in utilizing a mixed-methods approach, the researcher combines qualitative and quantitative approaches in roughly equal proportions throughout the study. This form of research provides rich data which cannot be acquired through the sole use of quantitative or qualitative methodologies, and allows the researcher to demonstrate convergence in the results through the process of triangulation. In discussing the benefits of triangulation, Cresswell (2007) notes that biases inherent in a particular source, sample, or method can be neutralized when used in conjunction with other data sources, samples, and methods. In presenting findings, the quantitative data is presented alongside the interview data in order to better explain perceptions of students€ initial school experiences, participants€ perceptions of the demonstration school, the skills students acquired at the demonstration school, students€ transition to high school, students€ experiences at high school, and the degree to which students€ newly acquired skills and competencies transferred with them to high school.

Results

Initial School Experience

Parents described their children€s elementary school experience as painful and isolating: ƒIt was quite painful because [Ava] didn€t care or want to go to school, She felt left behind so it was hard for her to go to school.„ Nigel felt his elementary school teachers ƒdidn€t care about learning disabled people, I couldn€t do anything because they wouldn€t help me. So I didn€t try, I just slid through.„ His mother echoed these sentiments saying,

ƒHe didn€t want to be there. He didn€t want anything to do with the teachers. He was isolating himself, Grades 1, 2, and 3 were the worst years for him. By Grade 5 he just slid through. He was there, but not there. He wasn€t doing the work.„

Derrick€s mother also expressed her son€s sense of isolation saying, ƒIn Grade 6 he was doing Grade 1 and 2 level work, He didn€t make friends because he didn€t want friends to know he couldn€t read.„

Some students received remediation through pull-out programs and participants discussed the stigmas associated with these programs. Nigel€s mother felt pull-out programs categorized students as being unintelligent:

ƒYou are smart or you are not that€s how they labelled them, [Teachers] actually single [students] out by putting them into small groups of five or six to go out to get help with reading, It wasn€t in the class getting extra help, they were definitely singled out as not smart kids.„

Daniel said, ƒThey€d pull me out of class and we€d sit there all day doing Grade 1 or 2 work.„ He felt the pull-out programs reflected his teachers€ low expectations for him, ƒI did Grade 2 work when I was in Grade 6 and 7, They didn€t challenge me and they pulled me out of the class so I really didn€t like it.„

Students felt some teachers were publically demeaning and their mothers reported teachers€ negative perceptions were transferred to their peers. Nigel€s elementary teachers said ƒthey€d be lucky if he could add and subtract, They didn€t believe in him at [his elementary school] because they already said, ^He€s never going to learn how to do this.€„ Frank€s mother said, ƒIn Grade 2 he had a teacher [who] literally stood at the front of the classroom and would yell out that he was lazy and stupid, That€s the year the bullying started.„Nigel and Frank internalized comments they received from teachers and reported

that this resulted in decreased self-esteem. Nigel's mother said, "As far as school, there was no self-esteem there at all. He was not confident, If anybody was trying to help him it would instantly be, 'I can't do it.' Academically he was completely shut down." Other students had similar experiences. Derrick's mother said, "his self-esteem wasn't there because he didn't feel he could do anything right."

Student's difficulties did not end when they left school and parents discussed their child's difficulties with homework completion. Kristine's mother said, "She wouldn't come home and do homework because she struggled for the eight hours she was in school, She had struggled to the point that she was so frustrated that she hated school." Similarly, Sasha's mother said, "We did no homework because there was no point in ruining her evening. She saw it as the continuation of a punishment because she thought school was a punishment." Mike's mother also felt "It was horrible. He didn't want to go to school. He got very poor marks, I would have to study with him at home so it was a lot of work for everybody."

Two of the twelve students had not been exposed to assistive technology prior to the demonstration school. Seven of the remaining ten students began using assistive technology in Grade 6 and the remaining three students began using technology in Grade 7 and 8. Parents lamented over the time it took to get the technology running: "Unfortunately it sat in a box for many months, [Jamie] lost a whole year waiting for a technician to drive twenty miles [to install the technology]."

Eight of the ten students received insufficient assistive technology training. Students felt their training "wasn't very good. It was just the basics," and noted that they "really didn't get any training until [they] went to [the demonstration school]." Parents echoed these sentiments saying, "They didn't have the resources to learn how to use it

properly. It was available but it really wasn€t usable.„ Darren€s mother said, ƒThey get the technology into these schools but they don€t have enough help. There were almost 600 kids at [his previous school]. They had two learning support teachers.„ Mike€s mother described his previous technology use saying,

> ƒHe had a desktop but he had to sit at the back of the room. There really wasn€t a lot of support for it, The resource teacher was very good but if your teacher isn€t providing you with what you need there€s a big problem.„

Perceptions of the Demonstration School

Class size.

All students found it helpful to be in a class with fewer students. In his first year at the demonstration school Daniel had nine students in his class and in his second year he had six; smaller classes were ƒReally helpful ˆcause it was one teacher and one resource and they were here to help you.„ Similarly, Nigel said, ƒIt was helpful ˆcause there was two teachers and six kids. If someone needed help one teacher would go there.„ Rhys€ mother said, ƒsmaller class sizes mean more one-on-one time.„ Jamie and Derrick felt the smallerclasses were ƒhelpful because you got more attention from the teacher„ and ƒIf you put your hand up the teacher would be right there.„

Kristine felt ƒYou learn better when the teacher is one-on-one.„ Her mother said, ƒThey got to know which weakness and which strength each student had. You can€t do that with a class of 30.„ John felt more comfortable being in a smaller class: ƒIf I had to present something, I wouldn€t be as embarrassed doing it in front of a few people.„ Ava also felt more comfortable learning in smaller classrooms: ƒIt€s a lot less pressure and you get more time with the teacher so you can get the help you need.„ Her father, ƒ, said

small class sizes, the one-on-one, having the technology available, all contributed to a better school experience.

All students benefited from the individualized homework help. Derrick's mother appreciated that "There was always somebody there that could help them in case they ran into a problem with the technology." There were a number of people Ava could go to for help: "The teachers usually stayed late, the councillors, the E.A.'s [educational assistants], the computers, there are choices for who can help." Frank said, "If you asked for help they would help you and make sure you understood it before they left." Accessing help reduced Mike's anxiety surrounding homework completion: "It made homework a lot easier to understand and then I wouldn't panic if I couldn't get it done." Jamie was thankful her math teacher would stay after school to "explain things to me and make sure I understood it for the next day so I wouldn't be behind." John also found the support helpful because "they really know how to answer my questions."

Teacher-student relationships.

Data from the PALS (Roeser, Midgley, & Urdan, 1996) indicated that students felt there were positive teacher-student relationships at the demonstration school, with a mean School Relationship subscale score of 4.53 (SD = .53; with 5 being the highest potential score). Similar findings arose in the qualitative data, for when discussing what their child enjoyed most about the demonstration school, many parents brought up the relationships that were developed with the principal, teachers, counsellors, and fellow students. Darren's mother said, "The teachers are great, they cared, and the principal is fantastic." Similarly, Sasha's mother said, "She loved all of her teachers, her counsellors were wonderful." Jamie's mother said, "The residence staff are pretty special people. They care very deeply about each of them. They bring out the best, they recognize the

weakness and work with it.„ Darren felt his demonstration school teachers cared about him ƒA lot more than they do at a regular high school.„ Students knew their demonstration school teachers cared about them because of the encouragement they provided. Sasha said, ƒI could tell they cared because if we didn€t understand something and we got frustrated they€d try to encourage us to keep doing our work.„ Teacher encouragement extended to all aspects of school life. Nigel said, ƒWhen we did sports they were really encouraging.„

The PALS (Roeser, Midgley, & Urdan, 1996) survey responses indicated that students felt the demonstration school teachers wanted them to really understand their work, with a mean School Task Goal Structure subscale score of 4.34 (SD = .56; with 5 being the highest potential score). They survey data was supported by the interview data as Darren said the demonstration school teachers ƒwould go out of their way and help you one-on-one and make sure you got the meaning. If you didn€t get it the first time they will try to explain it a different way.„ Similarly, Jamie said the demonstration school teachers ƒtook their time helping students out. If we got something wrong they would show us how to do it properly.„ Kristine felt the teachers ƒwere really caring and actually wanted to help us. Whereas other teachers go on with the school work and don€t care if you get it or don€t get it.„ Daniel felt the demonstration school teachers genuinely wanted him to succeed: ƒEveryone encourages you and they help you get it done, they wanted you to succeed. After hours when they could be at home making dinner and marking their work they€re still at school helping you.„

The School Relationship subscale from the PALS (Roeser, Midgley, & Urdan, 1996) indicated that students believed their ideas were listened to and valued at the demonstration school. In alignment with the survey data, Darren€s mother said, ƒNo

question is dumb or stupid; doesn€t matter if you€ve asked three or five times.„ Ratings on the School Relationship subscale also indicated that the demonstration school teachers treated students with respect. Nigel€s mother said, ƒWhen he went to [the demonstration school] people were right there to help him if he didn€t understand something they treated him with respect.„ Data from the School Relationship subscale of the PALS (Roeser, Midgley, & Urdan) also indicated that students felt the demonstration school cared about students as individuals. During the interviews, students reported that they felt their demonstration school teachers were genuinely interested in them for Rhys ƒcould have a conversation with them after class. If I had a question they would have no problem answering it.„

Parents judged that students developed a strong relationship with their demonstration school teachers because they understood their learning disability. Jamie€s mother felt ƒThere was a general caring about the academic and a general understanding of disability.„ Frank noted that some of the teachers ƒhad problems themselves with learning disabilities, or they had family members with learning disabilities, so they knew where you were coming from.„ Ava appreciated that her teachers knew her on a personal level and desired to learn how she learned best. Each of her teachers ƒhad a little profile of every student, how you learn, don€t learn, and if that person needs to work to understand.„She was thankful her teachers developed learning profiles for each student as it helped to direct their instruction. Sasha€s mother felt ƒVery skilled people work there, They have a love for their job and those kids, These are specialized teachers for kids who have specialized issues, The principal pulls it all together, he€s the one who hand picks these people.„

Students belonged.

Data from the PALS (Roeser, Midgley, & Urdan, 1996) indicated that students felt they belonged at the demonstration school, with a mean School Belonging subscale score of 4.56 (SD = .73; with 5 being the highest potential score). The quantitative data was supported by the qualitative data as all students commented that their demonstration school teachers were welcoming and made them feel like they belonged. Kristine€s teachers ƒfelt warm and welcoming. I was„ not afraid to walk into a classroom.„ Mike felt he was destined for the demonstration school: ƒI never belonged at any other school, but [the demonstration school] felt like I was meant to go there and make friends.„

The demonstration school teachers made Jamie feel like she belonged because ƒThey wouldn€t put us down or say we were wrong. They would show us how to do it right.„ Similarly, John felt he belonged because his teachers ƒreally understood what kind of help I needed and how to get me that help.„ Nigel said, ƒIf you needed help they were there for you. If you needed encouragement they were there for you. There were there for you all the time.„ Darren said, ƒKnowing that you need help and they€re willing to help you, it made you feel good.„

The School Belonging subscale of the PALS (Roeser, Midgley, & Urdan, 1996) indicated that students strongly felt like they mattered at the demonstration school. In alignment with the survey data, 11 students commented that they felt important at the demonstration school: ƒThe staff and teachers at [the demonstration school] took time to listen to what we had to say, so you felt like you were important and they wanted to work with you.„ (Sasha). John felt important because the ƒteachers always knew how to answer my questions. They seemed to always have the time.„ Derrick also felt important because

his teachers ƒwere always there when I needed them,„ Daniel said, ƒThe people cared about me, they would help me, and that made me feel really important about myself.„

The School Ability Goal Structure from the PALS (Roeser, Midgley, & Urdan, 1996) demonstrated that students felt relative ability, an individual€s current level of achievement in relation to their previous achievement, was a prominent and rewarded marker of success at the demonstration school. Students responded negatively to survey items such as: Teachers treat kids who get good grades better than other kids; and Only a few kids get praised for their school work, with a mean score of 1.53 (SD = .59; with 1 being the lowest potential score). Survey responses were supported by interview data as 11 participants reported all students were recognized for their effort and achievement at the demonstration school. Sasha said, ƒA few times I studied really hard, and I did really well on a test, and they would say, ˆGood job€ and recognize how hard I was working.„ Similarly, Mike and Daniel said teachers ƒrecognized a student if they really worked hard and if they wanted to succeed.„ John appreciated how teachers recognized the effort he put into school work: ƒThey recognize students who tried hard in class. They showed that on the [report] card you got at the end of the week,„ Alva said, ƒEach kid was important. They didn€t talk about the best student or the worst student, they talked about everyone. They recognized everyone€s achievements.„

All students were provided with the opportunity to participate at the demonstration school: ƒThey always recognized everybody in the class to make sure they were getting the help they needed, If the teacher was asking questions they wouldn€t just ask one student, they would ask every person.„ (Derrick). Teachers noticed when students were not achieving and provided them with appropriate supports: ƒThey recognized all of us for different reasons, We stand out if we€re failing something or we

stand out sitting in class not raising our hand. They will know if we don€t get it.„ (Kristine). Darren appreciated that all students were given the opportunity to participate because ƒkids who never got chosen before got chosen.„ The demonstration school culture was exceptional for Jamie€s mother said, ƒIf you were cheering or participating in the sport you were valued at school. You don€t get that anywhere else.„

Peers with learning disabilities.

Eleven students liked being in a class with peers with learning disabilities because you ƒdidn€t feel alone when it came to difficulties reading or writing„, ƒyou aren€t the only one„, and you ƒdidn€t have to be afraid of what [my peers] would think of me„. Mike preferred the demonstration school because ƒit doesn€t make me feel different from other kids„ Darren€s mother felt ƒIt was good he was with other kids with similar needs. He found out he could help other people because it wasn€t that he couldn€t do it, it was just the way they taught it.„ Sasha also liked being in a class with students with learning disabilities because ƒI wasn€t scared to ask the teacher for help because a lot of kids had the same problem as me, I felt comfortable.„ Daniel said,

> ƒBefore I went to [the demonstration school] I felt I wasn€t the same as everyone else because I wasn€t in class with them. After the first month of [the demonstration school] I noticed I wasn€t going to get pull out, I was always there with the full class. So it built up your confidence.„

John€s mother was happy because her son ƒrealized he was not the only one. Before he went to [the demonstration school] his self-esteem was low because he couldn€t function at the level of other kids.„

Students felt attending a school with peers who also had learning disabilities reduced bullying. Derrick enjoyed not having to explain his learning disability: ƒThey

don€t ask you, ˆWhat€s your problem?€ They all know what€s wrong; this is why we are all here.„ Jamie enjoyed the demonstration school because everyone understood each other and there wasn€t teasing or name calling. Similarly, Ava said, ƒI liked it ˆcause they couldn€t make fun of you or say anything bad about you ˆcause they had it too.„

Supportive environment.

All participants felt the demonstration school was supportive of their or their child€s learning needs. Darren€s mother said, ƒI don€t know what teachers at normal public schools would do if they had six kids. They would have more time to help but would still be a handout, It€s the way they teach that was the problem.„ Frank€s mother appreciated that the demonstration school recognized different learning styles and taught accordingly because ƒpeople learn in different ways.„ Sasha€s teachers presented information in ways which were relevant and practical for the students. She appreciated that her teachers ƒwould explain [information] using something from our daily life to try and explain it better„.

Participants felt the demonstration school teachers were always willing to provide additional support. Nigel€s mother appreciated how responsive the teachers were: ƒIf he had his hand up they were right there. They got that confidence in him, They built independence in him so he could start doing [school work] on his own.„ Sasha€s mother said, ƒIf she needed extra help they would always stay after.„ Daniel elaborated on the provided support saying, ƒA teacher would stay there ˆtil 6:30 to help you and the counsellor would stay up ˆtil 9:00 to make sure you got the work done.„ Frank€s mother said, ƒThey were teachers because they should be teachers, they had the passion.„

Frank noted the demonstration school was supportive because it met the needs of students with learning disabilities. Jamie€s mother said, ƒThey understand the disabilities,

they€re capable of reading the [psychoeducational assessments], they€re able to decode the information and teach to it.„ Jamie said, ƒA lot of the teachers there also have learning disabilities so they took their own time to help us.„ Similarly, Nigel said, ƒThey knew what we were going through and what would help us learn better because they went through this in their childhood.„ The demonstration school helped students learn to cope with their learning disabilities. Ava appreciated that her teachers taught students ƒhow to deal with [your learning disability] and socially how to communicate with other kids about it.„ Mike€s mother noted that ƒhe had a lot of emotional issues that affected his learning abilities. They were able to deal with both at the same time and that really helped him.„

Assistive technology was deemed an important component of a supportive school environment. Mike and John felt the demonstration school was supportive ƒbecause they had the technology to help me understand everything.„ Similarly, Derrick€s mother noted that he ƒfelt supported because he€s always got somebody there that knows the technology, They are great at knowing how to teach them so they don€t get frustrated easily.„ Mike€s mother also felt the demonstration school provided a supportive environment because of ƒthe technology of course—they€re all trained on it and everybody was the same. He wasn€t the only one with a computer; he wasn€t the only one who had learning disabilities.„

Students were successful.

Responses to the Relatedness subscale of the PALS (M = 4.56; SD = .73; with 5 being the highest score) (Roeser, Midgley, & Urdan, 1996) indicated that students strongly agreed with statements such as: I feel like I am successful at this school. In alignment with the interview data, ll students commented that they felt successful at the

demonstration school. Rhys knew he was successful ƒ because my grades were high, I understood what was going on.„ Students' grades made them feel successful: ƒ My grades went up, Before I went to [the demonstration school] they were just over passing and now they€re 80€s.„ (Darren). Similarly, Kristine€s mother said, ƒ She€s pulling off 80€s. She never did that until she went to [the demonstration school].„ Nigel€s grades were also ƒ higher than any report card I had from my other schools.„ Sasha said, ƒ looking at my work before I went, and looking at my work after, I can tell it changed within a year.„

Students reported they were successful because of their improved reading abilities: ƒ I went up six grades in my reading.„ (Derrick). Ava said, ƒ I used to be at a Grade 1 reading level and now I am at the standard Grade 8 or 9 reading level.„ Similarly, Frank€s mother said, ƒ When he left last year he was reading at a high Grade 9, low Grade 10 level. He came in at a high Grade 2, low Grade 3 level when he started two years prior.„ John felt successful because ƒ I could actually finish the homework and I understood what was happening, I am reading independently now.„ The demonstration school also ƒ helped [Nigel] become an independent person. It definitely built his self esteem. Academically, he went from reading at Grade 1 or 2 up to Grade 6.„

Students reported that their demonstration school ƒ teachers taught at least two different ways to teach us, Whereas at other schools they taught us one way and we would have to learn it that way.„ (Kristine). Participants felt that direct instruction contributed to gains in students€ academic achievement. Ava said, ƒ At old school the teachers never taught me, they just gave you the worksheets. But here at [the demonstration school] they actually teach you what to do.„ Ava also discussed the gains she made in mathematics: ƒ My teachers used to keep me outside to do homework But [the demonstration school] caught me up.„ She described the instruction she received

saying, ƒEverything was very short but they made you understand it, They wouldn€t give you the answers as other teachers would. They would make you do it so y understand it.„

The demonstration school placed an emphasis on reading instruction, provided strategy instruction, and focused on social skills, organizational skills, and the use of assistive technology. Participants commented that students benefited from these components of the school. Daniel benefited from the demonstration school because ƒHe doesn€t feel dumb being put in the ˆstupid class€ and with the technology he€s been able to do things on the computer and get a lot done.„

Academic and social skills were taught at the demonstration school. Frank ƒbecame more confident with my reading and writing, It made me feel confident in my personal life too.„ Kristine said, ƒLearning how to talk to our teachers about our learning disabilities was a good social skill because we can go up to them and say, ˆThis is what I need for my [individual education plan€], She felt attending the demonstration school made ƒA big difference especially for my grades and self-esteem.„ Nigel benefited from the advocacy training ƒbecause if you can€t ask for help you are screwed.„ The demonstration school also taught Mike how to complete work independently. His mother said, ƒHe€s getting good marks, he€s using his equipment, he asks for help if he needs it, and he€s working very independently.„

Ten students and ten parents felt the demonstration school positively impacted their or their child€s social skills. Participants felt the social skills instruction was necessary because ƒmost kids that have a learning disability they have a social disability as well.„ Derrick said the demonstration school ƒdefinitely helped me with social skills„ because he previously had difficulty interacting with people. His mother said, ƒHe would

withdraw because he didn€t want people to pick up on his disability. Now he€ll talk to anybody and not worry about that.„ Mike also benefited from the social skills training as evidenced in his mother€s comment: ƒHe€s more outgoing, he€s more confident. He will initiate conversations with people. He can apply those social concepts that he€s learned.„ Frank said the counsellors ƒtaught you how to speak to people and not seem self-conscious about it. They made you feel like you weren€t a piece of garbage, that people would be willing to hang out.„ Similarly, John and Mike appreciated the demonstration school because ƒIt made me experience how to make new friends, learn social skills and learning strategies, and how to get work done.„

The demonstration school taught students the importance of sticking to a schedule. Kristine€s mother said the teachers and counsellors ƒsupported these kids in getting their homework done at a scheduled time and not whenever you feel like doing it.„ Frank€s mother felt the demonstration school stressed the importance of school work: ƒYour job is to do your school work. You don€t do your school work, you don€t get to do anything else.„ The structured routine carried over into Mike€s study habits because ƒHe comes home from school and does his homework first. [The demonstration school] set his routine.„ Rhys benefited from the consistency at the demonstration school: ƒfrom the teachers, to the dorm, to the work, everything seemed to have a defined schedule and consistency to it.„ His mother said, ƒThe consistency, the follow through, the technology, the knowledge of the teachers, the support system they have in place for these kids, these factors made the demonstration school a supportive learning environment.

All participants agreed with Ava€s father€s comment that attending the demonstration school made a difference ƒon all levels for her self-esteem, ability to do school work, and socialize. It€s been a big improvement.„ Kristine€s father said, ƒIt€s the

best thing she ever did. It helped her a lot with the technology and herself.” For Frank “It made a difference in my school work, in my self-confidence, It didn’t make me fear speaking to other people or hanging out with other people.” His mother said, “It changed the trajectory of his life.” The demonstration school made a difference for Daniel because his father said, “He’s been able to supplement his weak points, which was reading and math, with technology.” Sasha’s mother said, “She was so frustrated and so overwhelmed by the shortcomings she always felt she had. Academically, she didn’t feel she had a place at school. So I think it’s made a world of difference for her.”

Derrick’s mother felt he “needed a special way to be taught and without [the demonstration school] he wouldn’t have got it.” Nigel’s mother said, “This demonstration school is the answer because they’re with kids that are dealing with the same issues. They start believing in themselves, they learn the tools they need to learn.” Jamie’s mother wished the demonstration school program could be modified and implemented within inclusive classrooms. She felt “More teachers need to know about [the demonstration school] and why it exists, or how to recognize a student that should go.”

Assistive technology use at the demonstration school.

Parents provided a positive description of their child’s use of assistive technology at the demonstration school: “He loved to be able to show how it worked. So it was certainly a source of pride.” (Frank). However, Derrick’s mother wondered if her son had become too dependent: “His grasp of technology came very easy to him and he’s done well with it, He’s got it into his head that it’s going to be beside him all the time.” Daniel benefited from the technology “Because if I need it I can use it and I know how to use it. There are programs that help me read, so it’s a big positive.”

It was easier to use assistive technology at the demonstration school ƒ because [teachers] knew what they were doing; they weren€t just learning it for themselves.„ Students liked the way the technology training was presented because ƒ It was in the subjects, We would go to a computer lab and learn about it and do [the work] at the same time.„ Students appreciated receiving assistive technology training within their subject area instruction as it enabled them to understand how to apply the various functions of the technology. Mike€s mother said, ƒ They trained him how to use it, when to use it, and how much time it can save. They showed him a lot of things and [his achievement] improved. He€s a different boy.„

The Psychosocial Impact of Assistive Devices Scale (PIADS; Day & Jutai, 1996) is comprised of three subscales (Competence, Adaptability, and Self-Esteem) which were used to assess the psychological as well as the social benefits of the assistive technology. With a mean Competence score of 1.82 (SD = .87; with scores ranging from -3 to +3), data from the PIADS indicated that students perceived that the use of assistive technology had a positive impact on their skilfulness, performance, and independence in completing academic tasks at the demonstration school. Survey data was supported by students who noted they liked using technology because:

> ƒ If I talk it comes out a lot better than when I am writing with Dragon I can say the word and it spells it for me. I have trouble reading so Kurzweil helps me read my study notes so I can remember it.„ (Sasha)

Similarly, Frank said, ƒ It€s difficult to write using my hand or typing. Speaking is a lot faster and I can get everything that€s in my mind out on paper.„ Other students felt assistive technology eased the burden of completing academic tasks: ƒ If it wasn€t for [the technology] I wouldn€t be able to understand my work.„ Assistive technology also

reduced the pressure which surrounded completing academic tasks: ƒIt takes off str when you have exams, You can do better because the technology is helping you.„ (Kristine).

The Competence subscale of the PIADS (Day & Jutai, 1996) indicated that students perceived that assistive technology had a positive impact on their adequacy completing academic tasks. The qualitative data supported this quantitative as ten students reported that assistive technology enabled them to finish tasks they otherwise would be unable to complete. Assistive technology assisted Darren in English study hi ƒBecause I can€t read, the technology helps me read it. Then I can understand it.„ The technology enabled Frank to write long essays, for without the technology ƒI couldn€t write what I wanted to say.„ Without the technology exams would be more difficult ƒIf I didn€t have Dragon and Kurzweil I wouldn€t be able to write as fast or I wouldn€t be able to check it over because I use Kuzweil to read it back.„ (Derrick).

Eight parents commented that assistive technology enabled their child to demonstrate their academic ability. Darren€s mother said, without Kurzweil, ƒhe would miss sections of what he€s reading and won€t be able to put it together.„ Derrick€s mother said, ƒHe relies on [Kurzweil] to read it so he can grasp it better, If he reads it himself he doesn€t get the full meaning because he€s missing words.„ Sarah€s mother noted that Kurzweil assisted her in test writing: ƒShe feels much more successful knowing that she can have that read to her, rather than having to multitask by reading, and then processing, and then writing.„ Without the technology ƒ[Nigel] would never be able to get it done because he wouldn€t be able to get it read.„ His mother proceeded to say, ƒTechnology is productivity—being able to produce something that is grade appropriate,

He€s able to produce work that actually shows what his intellect is, He€s able to do it, he€s able to cope.„

Participants reported that assistive technology improved students€ writing. Dragon Naturally Speaking was essential for Frank because ƒThere is such disconnect between what can come out of him by hand and what is going on in his head.„ His mother continued to say, ƒIf he lets it out verbally it€s remarkable, you get the whole picture. If he€s got to write that out, it will not come out.„ Nigel relied on Inspiration because ƒhe can put it in the order he wants. Then he can go back, build on that, and have it flowing in an actual order.„ Derrick€s mother felt he benefitted from the technology because ƒhe doesn€t have the spelling to write out the message with words he would like to use. If he doesn€t use his technology it looks like a Grade 2 or 3 student did.„

Participants felt assistive technology had a strong impact on students€ academic achievement: ƒHer writing has increased exponentially because of Dragon, The technology has transformed her academic life. The technology has given her freedom to understand her work, express herself, feel confident, and feel like she has ability invaluable.„ (Sasha€s mother). Mike€s mother felt that with the technology, ƒhis answers are lengthier and more detailed so he gets better marks.„ Similarly, Derrick€s mother said, ƒHe can pretty well do anything they give him as long as he uses the technology to do it.„

The Competence subscale from the PIADS (Day & Jutai, 1996) indicated that students perceived that the use of assistive technology had a positive impact on their capability and ability to adapt to academic expectations. In alignment with the survey data, ten students commented that assistive technology enabled them to compensate for their learning difficulties: ƒIt makes it easier because I don€t struggle trying to understand what I am reading. It does that for me so I can understand what I am supposed to be

doing.„ (John). Assistive technology also helped Darren comprehend his school work: ƒIt helps me ˆcause if it wasn€t for [the technology] I couldn€t understand my work.„ Similarly, Kristine said, ƒIf I have to do research on the internet I don€t have to struggle reading through it I can use Kurzweil to read it.„ Students noted various ways Dragon Naturally Speaking assisted with writing: ƒIt makes it easier because I have terrible penmanship. Dragon Dictate allows my words to get out clear and correct in terms of grammar and spelling.„ (Frank). Similarly, in discussing Dragon Nigel said, ƒYou can think it and then it writes it down and I can read it over. Instead of writing it out on a piece of paper and I don€t understand it,„ Mike also felt Dragon assisted with editing his work, for without the use of Dragon ƒthere is a whole bunch of erasing, writing, and erasing,„

Assistive technology made it easier for students to complete school work: ƒIt makes me more motivated because I have technology and it€s making it easier.„ (Darren). Derrick€s mother felt he was motivated because with the technology ƒIt€s not going to be a dragged out hard thing to get done. He knows he can get it done.„ Similarly, Ava€s father said, ƒI don€t think she€d be able to do it if she didn€t have [the assistive technology], It would take much longer and it would be frustrating.„

The Competence subscale from the PIADS indicated that students perceived that assistive technology had a positive impact on their independence. As per the survey data, Kristine noted that with the use of assistive technology there was ƒmore of a chance to be able to understand it, whereas when I didn€t have [the technology] I would just give up.„ Her mother said, ƒShe doesn€t ask for as much spelling help because she knows to go to her technology.„ Ava said, ƒKnowing I have help close by makes it easier. If I can€t do it myself there€s something there to help me.„ Mike€s mother felt the technology enabled

him to independently complete school assignments: ƒHe€s much more confident. He takes tasks on himself; he doesn€t need my assistance for anything.„ Similarly, Darren felt better about himself because of the independence the technology provided: ƒHe feels great that he can sit down and do it on his own.„

The Competence subscale from the PIADS (Day & Jutai, 1996) indicated that students perceived that the use of assistive technology had a positive impact on their efficiency and productivity in completing assignments. The survey data was supported by the interview data as ten students felt assistive technology sped up their work completion. If John had to read ƒfive pages it should only take ten minutes to read it on Kurzweil, but if I read by myself it would probably take half an hour.„ Kurzweil also increased Sasha€s reading speed: ƒIt takes me a lot longer to read than listening to it being read to me.„ Dragon was especially beneficial for Kristine in terms of exam writing: ƒI can get it done in an hour because I will have the answers already in my head and I don€t have to figure out the words to write, I can just say it.„ Dragon also helped Derrick with his writing because ƒI€m not a very good writer so it does it for me. It€s there to help me spell.„

Ava and Darren felt assistive technology enabled them to complete their school work in half of the time; however, Daniel, Jamie, and Rhys didn€t feel the technology made a difference in regards to their rate of work completion. Jamie said, ƒIf it€s scanning stuff in, it can take longer but you get the work done more efficiently. But if it€s looking something up it€s easier.„ Other students talked candidly about issues they faced using technology in the classroom. Rhys felt Dragon Naturally Speaking was helpful but sometimes it takes ƒforever for it to figure out what you€re saying.„ In discussing Dragon, Mike said, ƒI can€t use it in the classroom because everybody talks so it messes it up.„

With a mean Adaptability subscale score of 1.60 (SD = .93; with scores ranging from -3 to +3), responses to the PIADS (Day & Jutai, 1996) indicated that students perceived that the use of assistive technology had a positive impact on their willingness to take chances and eagerness to try new academic tasks. Sasha€s mother felt that through the use of technology, ƒ[Sasha€s] much more confident and willing to take on new avenues in school.„ Assistive technology made Derrick more confident: ƒYou just know I have to get my computer and I can do it, It gives you confidence if it€s sitting there you know you€re fine.„

The Competence subscale of the PIADS (Day & Jutai, 1996) indicated that students perceived that assistive technology had a positive impact on their self-confidence. As would be expected based on the survey data, nine parents commented that the use of assistive technology helped to boost their child€s confidence: ƒTechnology gives [Derrick] the confidence to do the work and not second think it, If he had to do it without the technology he€d be second guessing himself constantly.„ Some students felt assistive technology set them apart from their peers; however, this wasn€t the case with Derrick: ƒIt doesn€t bother him that people know he uses the technology, He doesn€t care because he knows the work he€s doing on it is his.„ Assistive technology helped Derrick compensate for his learning disability. His mother said, ƒHe really relies on it and if it wasn€t there I think he would lose some of his self-esteem. When it comes to the school work he wouldn€t have the confidence in himself without it.„

With a mean Self-esteem subscale score of 1.51 (SD = .88; with scores ranging from -3 to +3), responses to the PIADS (Day & Jutai, 1996) indicated that students perceived that the use of assistive technology had a positive impact on their happiness and self-esteem at the demonstration school. Assistive technology enabled students to

complete grade level work. Students felt better about themselves because ƒI know I can complete whatever I am assigned.„ (John). Sasha said, ƒKnowing I can use Dragon to write makes me feel a lot better because I know the quality of my work will be better.„ Kristine also said, ƒI feel way better [knowing] that I can get the same grades as other kids, knowing that I€m just learning differently.„

Nigel did not want to go to school prior to the demonstration school; however, he now ƒwants to be there and that€s partly because of his self-esteem. He feels good about being there and that€s all part of the technology, He knows he can do the work, whereas he didn€t feel that way before.„ Kristine€s success with the technology positively impacted the way she felt about herself. Her mother said, prior to attending the demonstration school, ƒShe thought she was dumb and that€s not the case, [The demonstration school] really helped to get their self-esteem up.„ Frank€s mother said, ƒIt€s amazing the self-confidence that he has, His self-worth has increased dramatically. That was probably the greatest thing that he got out of [the demonstration school]; he found out he could€„

Eight students and seven parents commented that assistive technology positively impacted students€ motivation. Sasha, Frank, Mike, and John were motivated because ƒwith my technology I can do better quality work„, ƒI can finish with a certain mark„, ƒI can do way better than I could writing it down with pencil and paper„ and ƒI know with the technology I can actually complete it.„ Darren€s mother said, ƒHe enjoys school because with the technology he can get it done.„ Derrick enjoyed ƒbeing able to use the technology and people saying, ˆWow, this is amazing. There€s nothing wrong€ with it He felt his motivation came from the technology: ƒEverything goes back to the technology because I can go to it whenever I want and I can always help myself.„

Three students and three parents felt assistive technology made students “less motivated because it’s a hassle, In class it takes too long to get up and going.” (Nigel). Nigel’s mother noted this was only with “short answers,” because she “can’t imagine him writing a complete essay [without it].” Rhys also found the technology “frustrating to use,” because “it takes so much time.” Jamie and Daniel felt a stigma surrounded the use of technology. “Knowing I have technology there in case I need it is a good feeling.” However, Jamie did not like being “dependent on [assistive technology] and not trying to be normal like most people.” Daniel said, “It is motivating because it helps you read, but if you’re the only one in the class with it, it makes you feel different.”

Three parents felt assistive technology could be frustrating and four students discussed the downfalls of the technology. Darren and Nigel’s mother said, “Dragon can be a little frustrating,” and “It takes a long time to train on Dragon and I know he did get frustrated. But he persevered through it and the outcome was fantastic.” Similarly, Sasha’s mother felt her daughter “was excited about the technology, but it can be frustrating to train it and frustrating to know all that you need to know to do it.” Kristine said, “It’s a pain when you have to train Dragon because it takes so long.” However, she felt “It’s better that we have it because it takes less time on tests and you don’t have spelling mistakes.” Daniel felt Dragon was beneficial because “it can read your work and you don’t have to get it checked over.” However, he noted in some cases “if you’re sitting there trying to correct it for five minutes.” Rhys spoke about the stigmas associated with the technology. He liked using the technology because “it helps my marks and makes it a lot easier,” but he didn’t “like it in school because it takes too long to set up and everyone is looking at you because you have a laptop.”

Transition to High School

The majority of participants (nine students and eleven parents) felt the transition to high school was a positive experience: "It was a smooth transition. We haven't had too many issues." (Sasha). However, four students and six parents also discussed reasons why the transition was difficult, and ten students and ten parents discussed reasons why it took time to adjust. Students reported that they experienced a positive transition when there was communication between the two schools. Daniel's father said, "We had a meeting with the principal and the [demonstration school] teachers and it's been seamless." Darren had a smooth transition because "I went to see the teachers before he started." Frank's mother said, "Guidance transitioned him slowly, What works better with [Frank] is verbal, so he did hospitality, drama, gym, and one math, and it worked perfect."

Participants indicated that students had a positive transition when they were supported in using their technology. Nigel's mother said, "They had his equipment ready to go, so it was good that way." (Nigel). Similarly, Derrick's mother said, "He didn't have any problems. He was comfortable using his technology." Students had difficulties when their use of technology was not supported. John was not able to use his technology because "it took a month before they installed it." Similarly, Ava's father said, "They keep having problems getting it working. It's been non-existent for quite some time." Sasha also experienced problems "not having access to her computer, or Kurzweil, or scanner when she went to take a test." Jamie experienced difficulty because of "where it's located, the inability to use it for extracurricular work, there's no assistance with it, They switched programs she was taught on, Her existing files did not get transferred." In addition, she was bullied because of her use of technology: "I don't use it at school because it singles me out and I get made fun of. But I do use it on my own time." Her

mother said, ƒ[the demonstration school] geared up to rely on assistive technology, and those supports were non-existent in high school.„

One reason students experienced difficulty with the transition was because they received less support. Kristine€s mother said, ƒShe didn€t get as much attention as she should have.„ Sasha said, ƒHaving less one-on-one, that€s difficult to adjust to.„ Her mother felt teachers provided varying levels of support: ƒI found her first semester teachers very cooperative, on-the-ball, and she kept very involved with them. Second semester teachers were much more laid back, I don€t know if they even read her IEP [individual education plan].„ Daniel€s father said, ƒHe doesn€t have study hall, doesn€t have a counsellor helping him every night, so there have been some growing pains about getting work done.„ Derrick also found it ƒchallenging that the teacher wasn€t over his shoulder going, ˆNow [Derrick] you have to have this done by this time€ because he was used to the support.„

Students reported they had difficulty adjusting to high school because of the way material was presented. Rhys€ teachers ƒtaught way too fast. If you missed a day you missed a whole part of the subject.„ John and Nigel had difficulty with their school assignments because ƒThere€s not a lot of help and they€re hard, not easier ones.„ Nigel€s mother said, ƒHe finds it frustrating because he€s not getting it as quickly as everybody else.„

Some students felt the transition to high school was a positive experience because of the friends they made. Derrick ƒdidn€t know anyone going to [high school] because [the demonstration school] is spread out over Ontario.„ However, he was successful in making new friends as his mother said, ƒHe seems to have got a few friends, they all hang out at lunch.„ Some students had friends who helped with the transition: ƒI had a lot of

friends I knew before I went to [the demonstration school]. I started hanging out with them so I could have ground with other people.„ (Frank). Jamie said, ƒI had a lot of friends helping me, my older sister told me some advice, so it was good.„ Other students found the transition difficult as they needed to develop a new peer group. Ava€s father noted that ƒ[Ava] missed the friends she had at [the demonstration school].„ Rhys went to the demonstration school for Grades 9 and 10 and had difficulty transitioning in Grade 11: ƒIt took a while ˆcause I didn€t know anyone, two years in it people are going to know each other„.

Participants felt the transition was successful because of the skills students acquired: ƒYou learn a lot at [the demonstration school]. They teach you how to succeed in class.„ (Daniel). Daniel felt the transition was positive because the demonstration school ƒgave me more social skills and helped my academics.„ Ava and her father said, ƒfrom an academic standpoint it was definitely positive,You get a lot of skills [at the demonstration school], so you know how to deal with things.„

Ten students and nine parents discussed strategies students used to deal with difficulties in high school. Six participants mentioned students would ask for help. Ava€s strategies consisted of ƒasking other people, seeing what they€re doing, asking the teacher what I€m supposed to do, and then just trying.„ Nigel had ƒno problems asking questions„ and did a good job identifying where he had misunderstandings. Similarly, Sasha would ƒask teachers to repeat what they said and ask questions to try to understand it. I also record the lessons, I got a digital recorder.„

Students reviewed their work on a daily basis: ƒWe go through it every day and make sure we get it.„ (Nigel). Similarly, Darren€s strategy consisted of ƒgoing over it and keeping up in school, The computers enable me to study, read my notes easier and

better understand.„ The demonstration school taught Derrick to complete extra work to boost his grades: ƒI didn€t have a very good mark so I got work to do on my computer.„

Students sought remedial help at high school. Derrick ƒspent a few lunch hours getting extra help, He learned that at [the demonstration school].„ Similarly, Ava said, ƒIf you want extra help you ask him at lunch time.„ Not all students were willing to ask for help outside of class. Nigel€s mother said, ƒIt€s disappointing because they have things at school he€s not taking advantage of, He doesn€t want to do it because no one else is doing it.„

Students employed self-advocacy skills they learned at the demonstration school. Kristine€s classmates were ƒdisruptive in class„ and ƒwere not respectful of other people trying to learn„ Her mother noted that she often told her peers ƒˆYou€re distracting me. Stop it. I need to focus.€ , She has gone to the teachers. She stands up for herself.„ Students also advocated for their use of assistive technology: ƒWhen we have a problem we always tell our resource teacher and she emails the [tech support] for us right away.„ (Kristine). Mike€s mother noted that he advocated for the technology as he ƒkept telling the other students to use their computer: ˆYou can€t stop using your computer. It€s a thing, it helps you out.€„

Perceptions of High School and Changes in School Support

The text which follows provides an overview of participants€ perceptions of their or their child€s high school. Data from the PALS (Roeser, Midgley, & Urdan, 1996) is used to examine the perceived level of support at the demonstration school and at high school. The quantitative data is used to highlight significant differences in perceived level of school support, and the qualitative data is used to examine why these changes in perceived level of support may occur.

Ten students and eleven parents reported that they or their child had an enjoyable high school experience. Jamie€s mother said, ƒBefore she went to [the demonstration school] she was totally turned off education and learning and growing. [Now] she€s engaged with the learning process and planning for higher education.„ Darren€s mother noted that he now has ƒconfidence he can get things done on his own, He€s much more relaxed because he knows he can do it with no problems.„ Students enjoyed high school because of the friendships they developed: ƒI have a lot of close friends there„ (Jamie) and ƒI€m really enjoying it ˆcause I get to hang out with friends and make new friends.„ (Frank). Although Kristine ƒstill wishes she was back at [the demonstration school]„, the majority of students and parents said, ƒHe likes school, he comes home happy.„ This was a marked improvement as students did not enjoy attending their elementary schools.

Four students liked their high schools more than the demonstration school because they could live at home: ƒI like that I€m still in my hometown.„ (Darren and Kristine) and ƒI€m at home and near the people I know.„ (Nigel). John said, ƒbeing close to your family is the best part.„ Daniel and Rhys preferred their high schools because they could see their friends, ƒhave more freedom„ and ƒgo home at the end of the day„.

Five students found their high schools harder than the demonstration school: ƒIt doesn€t come to him and it€s a real struggle.„ (Daniel's father). Rhys lamented that his teachers ƒmove too fast and you don€t know what€s going on.„ Sasha didn€t like ƒnot being able to go after school for extra help, You can€t depend on teachers to help because they have a whole other class.„ Ava said, ƒThere€s not as much resource as [the demonstration school], but there are places to go for help. Some teachers will stay if you ask them for help.„ Derrick obtained little feedback from his teachers and found it

difficult ƒ not knowing your marks, it€s nerve racking because they give it to you at the end„

Ten students and eight parents thought their or their child€s high school was supportive of their learning needs. Parents felt there was good communication. Frank€s mother said ƒ Any phone calls I make they€re ready to jump right on.„ Kristine€s mother felt she had ƒ a good resource teacher that helps her a lot. I€ve had conversations with her - how to help [Kristine] out and what [Kristine] needs.„ Student€s learning needs were supported in the resource room: ƒ the staff there is always willing to help me out with the technology„ (Darren). Mike€s teachers said, ƒ Stay for the first 20 minutes of teaching and then you can come down [to the resource room] and they can help you out.„ He felt supported because ƒ If I have a problem they€ll let me go to the resource room and ask questions.„

Five students and four parents provided explanations for why high school was not supportive of their or their child€s learning needs. Participants felt there was a lack of understanding of learning disabilities within the school system: ƒ teachers don€t know what to do ˆ cause they weren€t taught„ (Ava€s father). What Kristine found most difficult was ƒ Dealing with students who think kids with IEP3 [individual education plans] are stupid and retarded.„ Jamie€s mother said, ƒ There is tolerance for severe disabilities but when you€re in the middle ground, the invisible [disability], there€s zero tolerance.„ Some high school teachers were unfamiliar with student€s individual education plans: ƒ We had to inform one of the teachers that she has a learning disability. It€s all there but they don€t look at her background.„ (Ava€s father). Darren noted that his teachers were only familiar with his individual education plan ƒ because I€ve made them aware of it.„

Kristine stressed the importance of speaking with her teachers: ƒIt€s better to talk to them about it ˆcause if you don€t they don€t know how to help you.„

Participants agreed the demonstration school was more supportive of students€ learning needs and described the differences between the two schools. The demonstration school differed from Sasha€s high school in terms of ƒTeacher support, counselling support, directional support, social support, everything you can think of.„ Darren€s mother said, ƒAt [the demonstration school] they€re very learning and child oriented. At high school if you get it you get it,if you don€t ˆOh well.„ Derrick€s mother echoed these sentiments saying, ƒ[The demonstration school] has a lot more support and one on one compared to high school. High school relies on him. He€s got to be the one to do it and push himself.„ At the demonstration school, ƒfor homework there would always be a teacher or counsellor there. Now if you have homework you go to study hall. You have to vouch for yourself.„ Daniel noted that the demonstration school ƒteaches you how to vouch for yourself, I€ve gotten a lot of compliments from resource and guidance that I am one of the only grade nines that will vouch for themselves.„

High school provided a less structured work environment. Frank€s mother noted that ƒThe difference in structure is probably the biggest thing. [Frank] works very well under structure.„ Similarly, Kristine felt the main difference was ƒbeing on a schedule„ Her mother said, ƒIf she would have stayed on the schedule she probably would be doing a lot better.„ Mike€s mother said, ƒIt€s up to him to decide what he€s going to do, He€s organizing himself and his time and so far so good.„

Paired samples *t*-tests were conducted with data from the PALS (Roeser, Midgley, & Urdan, 1996) in order to determine if there was a significant difference between the support at the demonstration school and at high school. Comparisons were made with

data from the School Relationship subscale, the School Goal subscale (which is comprised of the School Ability Goal structure and the School Task Goal structure), and the Relatedness subscale. Because multiple comparisons were made, a Bonferroni correction was used to control for the risk of a type 1 error. As there were three distinct subscales, and four separate comparisons, the original p value of .05 was divided by 4, which resulted in a new p value of .013.

The School Relationship subscale on the PALS (Roeser, Midgley, & Urdan, 1996) assesses teacher–student relationships. Students responded to the following statements: In this school, teachers and students really like one another; In this school, teachers treat students with respect; and In this school, students feel like they belong. Students felt teacher–student relationships were significantly more positive at the demonstration school ($M = 4.53$, $SD = .53$) than at high school ($M = 3.79$, $SD = .89$), $t(11) = 3.59$, $p < .013$ ($d = 1.01$).

Five students noted they preferred the demonstration school because "The connection with other kids and teachers was better." (Ava). Sasha and Derrick felt the demonstration school was like family, you knew everybody, You could go to anybody for help." The two schools also differed in terms of encouragement. Jamie felt the demonstration school teachers "really push you to do work, use technology, and always be active. Whereas at our school it's, 'Do whatever you want; doesn't matter as long as we don't have you for a second year.'" Her mother said, "There's nobody to motivate [Jamie] other than [Jamie]. The encouragement is not there."

The School Goal subscale on the PALS (Roeser, Midgley, & Urdan) is comprised of the School Ability Goal structure and the School Task Goal structure. The School Ability Goal structure assesses whether relative ability is a rewarded marker of success in

school. It includes questions such as: In this school, only a few kids get praised for their school work; This school has given up on some of its students; and In this school, special privileges are given to students who get the highest grades. Students felt the demonstration school was less likely to only acknowledge their top achieving students (M = 1.53, SD = .60) than their current high schools (M = 2.58, SD = .81), $t(10) = -5.13$, $p < .013$ ($d = -1.48$).

The School Task Goal structure on the PALS (Roeser, Midgley, & Urdan, 1996) assesses whether the school emphasizes effort and understanding. It includes questions such as: In this school, teachers believe all students can learn; In this school, teachers think how much you learn is more important than test scores or grades; and Trying hard counts a lot in this school. Students perceived a higher emphasis on effort and understanding at the demonstration school (M = 4.35, SD = .56) than at high school (M = 3.94, SD = .72), $t(11) = 2.96$, $p = .013$ ($d = .64$). In alignment with the survey data, eight students reported that they preferred their demonstration school teachers because "It seemed like they cared more, They gave us one-on-one time and showed us how to do it, [At high school], if you don't get it right they just take it up so you don't learn that much." (Kristine). Sasha preferred her demonstration school teachers because "they will repeat their answer and explain it until you get it. You go to other teachers and they get frustrated with you." The demonstration school teachers altered their pace of instruction to meet student's learning needs: "They have more time to explain things the way you need it so you understand it. Now they explain it to the whole class and don't have time to reteach it." (Darren).

Four students felt there were good teachers at both schools. Rhys described his demonstration school teachers saying, "If you needed help they would help you. Even if

you didn€t say it, they could see you€re struggling and they would do it for the whole class, My school is the exact same way. There are some amazing teachers.„ He preferred some teachers because ƒ They knew what they were doing, they knew the subjects, It seems like you know them on a personal basis.„

Eight students felt their high school teachers cared about them: ƒ They want you to pass and will go out of their way to make sure you have a good mark.„ (Daniel). Similarly, Frank said, ƒ If you€re not passing a class they will ask you to stay behind to see if there is anything you can do to up your mark.„ Darren and John knew their teachers cared about them because ƒ Days I€m not there they€ve got the notes sitting on the desk waiting for me.„ and ƒ They know when I have difficulty and they help me with that.„

The School Relationship subscale from the PALS (Roeser, Midgley, & Urdan, 1996) indicated that students felt the demonstration school teachers (M = 4.53; SD = .53), were more likely to care about their students than high school teachers (M = 3.79; SD = .89; with 5 being the highest score). In alignment with the survey data, six students felt their demonstration school teachers cared about them more than their high school teachers because ƒ They want you to succeed in everything you do. [Whereas at high school], they want you to get it done so they can move on.„ (Derrick). Sasha said, ƒ When I go to try to fi out what we€re doing it doesn€t seem like they care ˆcause they€re trying to help somebody else or they€re trying to plan for their next lesson.„ Kristine said, ƒ If we miss a day they€ll go on and forget that we missed it. Whereas at [the demonstration school], they gave us the time and helped us get caught up.„

The Relatedness subscale from the PALS (Roeser, Midgley, & Urdan) assesses school belonging. Students responded to the following statements: I feel like I belong in this school; I feel like I am successful in this school; and I feel like I matter in this school.

No significant differences were found between the degree to which students perceived that they belonged at the demonstration school (M = 4.56, SD = .73) and at high school (M = 4.12, SD = .69), $t(11) = 1.67$, $p > .013$. Students were likely to "feel like I belong" at the demonstration school and at high school. Interview data indicated that ten students felt their high school teachers made them feel like they belonged. Darren felt like he belonged because "They welcome everyone and treat everyone the same." Sasha said, "They don't treat me differently because I have a computer or because I have a learning disability." Rhys and Frank appreciated that their teachers "don't centre you out, they treat you the same as everyone else," and "won't stop in the middle of class to ask 'Did you get that?' or 'Do you need your laptop?'".

The school culture made students feel like they belonged: "[teachers] treat me nice and they make me feel good about myself." (Mike). Kristine knew she belonged because her teachers "know what we're going through and they're always there. They talk to students about how they treat us but we're still the same as everybody else." Ava appreciated that her teachers "ask me questions about how I'm doing and if there's anything I need." Rhys and Nigel felt important because they developed rapport with their teachers: "I would stay after class and talk with them and joke around." , "He brings everybody in and doesn't put them down." Similarly, John felt important because his teachers and peers listened to him.

Half of the student participants (six) reported that they felt important at high school. Students perceived themselves as important members of their school community because they helped others: "In some classes I have better marks than other people so they ask me for help" (Frank). Daniel felt important because of his involvement with extracurricular activities: "I feel important since I'm on the football team." Four students

didn€t feel important at high school: ƒMost of [my teachers] don€t care. As long as they get their pay cheque they€re fine.„ (Jamie). Students also felt unimportant because ƒThere is so many kids that [teachers] don€t recognize anything.„ (Derrick).

In alignment with data from the School Task Goal structure of the PALS (Ames, Midgley, & Urdan, 1996), 11 students reported that their high school teachers ƒrecognize everyone. They try to help students get higher grades.„ (Jamie). Frank€s teacher did ensure all students participated in class: ƒthey€ll give you the same time as someone who always has the right answer.„ Ava and Kristine€s teachers ƒrecognize who participates and who tries„ Similarly, John€s teachers ƒrecognize all students for what they do, whether they get the best grades or try hard in class.„ Daniel said, ƒWe have some 90€s students and they€re appreciated, but I had a test that I got an 80 on and the teacher was really happy. She knows I work hard.„

The Relatedness subscale of the PALS (Ames, Midgley, & Urdan, 1996), indicated that students felt successful in high school (M = 4.12; SD = .69; with 5 being the highest score). All students reported that they felt successful in high school because of the grades they received. Darren, Mikael, and John said, ƒI€ve been doing very well in my classes„ and ƒI€m getting really good grades.„ Similarly, Sasha said, ƒWhen I get tests back and it€s a good mark I know I€ve been successful.„ Frank ƒexpected this semester to be really hard ˆcause it was all academic courses, like English, history, and science, but they€ve actually been really easy, My marks have been going really well.„ Ava could complete grade level work: ƒBefore teachers would give me easier work while they taught the rest of the class. But [at the demonstration school], they got you caught up.„ Daniel and Jamie were pleased that, ƒAll my grades are in the seventies.„ because ƒbefore

I went to [the demonstration school] it was Ds and Es.„ Similarly, Derrick said, ƒI€ve seen other kids do work and they were happy they had 50 [percent] and I had an 85.„

Examining the Impact of Assistive Technology

In order to determine if there was a difference in the potential impact of assistive technology in both school environments, paired samples *t* tests were conducted with the Competence, Adaptability, and Self-esteem subscales from the PIADS (Day & Jutai, 1996). Because multiple comparisons were made, a Bonferroni correction was used to control for the risk of a type 1 error. As three comparisons were made, the original *p* value of .05 was divided by 3 which resulted in a new *p* value of .017.

There was no significant difference in the degree to which students were impacted by assistive technology at the demonstration school and at high school. With potential scores ranging from -3 to +3, the use of assistive technology had a positive impact on students€ Competence, Adaptability and Self-esteem in both school environments (scores ranged from 1.32 to 1.82). The Competence subscale focuses on whether assistive technology impacts students€ independence, efficiency, productivity, and performance. Assistive technology did not have a stronger impact on students€ Competence at the demonstration school ($M = 1.82$, $SD = .87$) than at high school ($M = 1.42$, $SD = 1.28$), $t(11) = 1.28$, $p > .017$. The Adaptability subscale focuses on whether technology impacts students€ well-being and ability to participate in school tasks. Assistive technology did not have a stronger impact on students€ Adaptability at the demonstration school ($M = 1.60$, $SD = .93$) than at high school ($M = 1.33$, $SD = 1.21$), $t(11) = .65$, $p > .017$. The Self-esteem subscale focuses on whether technology impacts students€ happiness, self confidence, and self-esteem. Assistive technology did not have a stronger impac

students€ Self-esteem at the demonstration school (M =1.51, SD = .88) than at high school (M = 1.32, SD = 1.08), $t(11) = .71$, $p > .017$.

Responses to the Competence subscale from the PIADS (Day & Jutai, 1996) highlighted the benefit of assistive technology in regards to students€ competence, capability, and performance. Darren and Derrick continued to use their technology in high school because ƒit helps me learn and it€s easier to do the work„, ƒHe knows he can€t do as well without it„ and because ƒHe€s not a stupid kid that has no goals. He wants to be places and doesn€t care what people think.„ Kristine€s mother felt she would ƒcontinue to use [assistive technology] throughout her life because [the demonstration school] taught her well.„

Being knowledgeable about assistive technology was one thing students liked most about high school. Sasha€s mother said, ƒShe€s really enjoying the fact that she is knowledgeable about her technology, She felt confident that she was asked to do some presentations and the teachers were like, ˆI didn€t even know that technology existed.€„ Similarly, Mike felt important because ƒI help other kids who don€t use the technology that much and teach them how to use it properly.„

Students used their computers less in high school because they could complete work independently: ƒMy use of technology lowered in high school ˆcause I€ve been able to do bookwork with a pencil instead of a computer.„ (Frank). Other students used their technology consistently: ƒTo have learned how to do these things on the computer and to be able to express herself with Dragon and Kurzweil, I don€t know what she€d do without it.„ (Sasha€s mother). Darren recognized the value of assistive technology: ƒHe€s gone back and helped at his public school, to help kids with it„ Mike also trained other

students on the technology: ƒComing from [the demonstration school] he€s kind of an expert so he helped them a little bit. That was good for his self-esteem.„

Six students and seven parents said assistive technology was used at high school and at home. Technology use varied from ƒevery day„ (Derrick and Mike) to ƒas much as I possibly can„ (Sasha). Kurzweil and Dragon Naturally Speaking were most commonly used, followed by WordQ and word processors. Kristine would ƒalways use my technology to help me read„ and Frank always used his technology ƒfor note taking in class and writing assignments„

Assistive technology was used to complete ƒ100% of homework (Derrick and Frank), to ƒthe vast majority„ (Sasha and Darren), to ƒat least half„ (Kristine and Mike). Mike ƒlugs it home every night and does his work on it„ Darren€s mother said, ƒIf he gets caught on a section to be read [he€ll use Kurzweil]. It€s always on the table when he€s doing homework, A paragraph would take him forever, so yes Dragon is great.„ Technology use was task specific as Sasha and Derrick only needed it for longer writing assignments.

Six students and five parents felt they or their child used assistive technology less than they anticipated. Five students felt technology was not relevant to their courses. Daniel, John, and Ava said, ƒThis term I don€t have too many classes that I need it.„ and ƒI only get homework in math and science. Math you can€t do on computers and science it€s more sheet work again.„ Ava and Rhys also said, ƒIf I had more literary courses my technology would be more beneficial.„ Parents provided similar responses for Daniel, Nigel, and Ava€s parents said, ƒIt€s just because of the subjects.„

Task requirements prevented students from using assistive technology. Nigel found it difficult because ƒI was trying to do board notes [take notes from the

blackboard], it was drawings, and I couldn€t do it.„ Ava and Rhys said, ƒit€s mainly sheet work„ which they could do by hand. Dahi and John didn€t need to use technology because ƒI haven€t had too much homework this term because they€re pretty laid back classes and I get it done in school.„ However, John, Nigel, and Rhys said, ƒI use the technology to complete large assignments and it really helps me out there.„ Rhys was unable to use his technology at home: ƒIf they could get it so that I had Dragon at home it would be a lot easier.„

Difficulty using assistive technology in high school.

The PIADS (Day & Jutai, 1996) survey data indicated that assistive technology made students feel moderately embarrassed at high school. Ava was resistant to use her technology because ƒIt€s weird seeing a kid talk to a computer.„ Similarly, Nigel€s mother said, ƒIf he was in a class where everybody had one in front of them he wouldn€t have a problem using it.„ While Ava and Nigel were resistant to use their technology, students such as Derrick enjoyed showing it off: ƒhe likes to share it with people, He€s not embarrassed at all.„

Some parents wished their child received additional technology training in high school: ƒIt would be nice to have something in the system that would keep developing her use.„ (Jamie€s mother). Nigel felt his high school was unsupportive as they did not train him to use his laptop: ƒOn a laptop there are different things and they never showed us how.„ In addition, Kristine€s mother wished there was a process to update the technology: ƒIt needs to be updated when there€s updated versions.„

High school teachers were unfamiliar with the use of assistive technology: ƒDragon, Kurzweil, WordQ, they don€t have a clue what that is.„ (Derrick). Derrick preferred his demonstration school teachers because they understood his

accommodations: ƒYou don€t have to coach them through [the technology] and what you€re doing.„ Frank and Kristie€s parents felt the demonstration school was ƒvery aware of which tools were available to him and all the teachers understood those tools„; however, in high school ƒNot as many people know the technology and the hardware€s not somebody there in case you have a problem.„

Participants were frustrated with how technology was implemented in high school: ƒYou have to be on them continuously, to go in and say, ˆWhere is [her technology] and why is it not happening?€ (Ava€s father). Teachers were not supportive of the technology as it took much time to get Darren€s notes or exams downloaded to the computer and ƒThey don€t acknowledge that I need to read a chapter or a book on Kurzweil.„ (Sasha). Assistive technology was an accommodation on Sasha€s individual education plan; however, her parents ƒget frustrated when we hear she€s having a test and she has to input it into Kurzweil, They should hand her the memory stick and say, ˆGo write your test€.

Students discussed difficulties they encountered when using assistive technology: ƒI like to go down to the resource room and use [my laptop] but I miss what is happening in the classroom.„ (Darren). Ava was disappointed her Dragon voice files were not transferred to her new computer: ƒIt needs to be trained and that would take a lot of time.„ She was also unable to use Kurzweil because of the scanner—ƒit€s not working„. Rhys also experienced difficulties with Kurzweil: ƒunless you scan your work perfectly it€s all wonky.„ He didn€t like uploading his notes to Kurzweil because the ƒmajority of times I scan it, fill it out, print it off, and never look at it again„.

Jamie€s mother felt she had difficulty using her technology because of ƒthe barriers that are there—the changes in software, the location, the technology, it€s not

accessible to her, and I don't think there's technical support," Jamie said, "They took my laptop, swiped everything off of it, put their own system on it and said, 'Anyone in the school can use it.'" She didn't use her laptop because "It's not just mine, everyone can take it. Teachers, other students who have IEP's [individual education plans], they can sign it out, take it, and use it anywhere." Her mother wished the high school would "take the funding that's assigned to each student and let them use their technology. The funding follows the student not the school."

Examining Changes in Self-concept

The current study followed students as they started their residency at the demonstration school (Time 1; September 2007), nearly completed the first year of the program (Time 2; May 2008), nearly completed the demonstration school program (Time 3; June 2009), and were attending their local high schools (Time 4 and 5; January and June 2010). Using the SPPC (Renick & Harter, 1988), students' self-perception data was collected at four points in time (Time 1, 2, 3, and 5). Surveys and interviews were also used to assess students' perceptions of the school environment, the impact of assistive technology, and students' motivation and engagement based on students' experiences at the demonstration school and their current high schools (Time 4 and 5). In presenting the results I discuss the quantitative findings amongst the qualitative results thus providing a holistic depiction of the results.

A one-way repeated measures analysis of variance (ANOVA) was conducted with data from the SPPC (Renick & Harter, 1988) in order to determine if there was a change in academic self-concept and global self-esteem from when students started their residency at the demonstration school (Time 1), had completed the first year of the program (Time 2), had completed the demonstration school program (Time 3), and were

attending their local high schools (Time 5). One-way repeated measures ANOVAs were conducted with the following subscales: General Intellectual Ability, Reading Competence, Writing Competence, Spelling Competence, Math Competence, and Global Self-worth. All of the academic self-concept subscales demonstrated a significant difference in scores over time.

When making post-hoc tests on repeated measures ANOVAs, paired-t tests and a Bonferroni correction should be used (Howell, 2013). Howell noted that t-tests should be used as they effectively control for the familywise error rate and they compare well against Tukey's test in terms of power. Based on Howell's (2013) recommendation, paired-samples t-tests were used to determine where changes in self-concept occurred. As five separate constructs were examined, a Bonferroni adjustment was employed reducing the p value to .01.

General Intellectual Ability differed significantly, Wilks' Lambda = .33, $F(3, 9) = 6.10$, $p < .01$, partial eta squared = .67. Students' perceived General Intellectual Ability increased significantly during their first year of attendance at the demonstration school (see Table 2). When students transitioned into high school their perceived General Intellectual Ability remained higher than when they entered into the demonstration school.

Reading Competence differed significantly, Wilks' Lambda = .28, $F(3, 9) = 7.80$, $p < .01$, partial eta squared = .72. Students' perceived Reading Competence increased significantly while they were attending the demonstration school (see Table 3). When students transitioned into high school their perceived Reading Competence decreased significantly. However, students' perceived Reading Competence in high school was not significantly different from when students first entered into the demonstration school.

Writing Competence differed significantly, Wilks' Lambda = .26, $F(3, 9) = 8.71$, $p < .01$, partial eta squared = .74. Students' perceived Writing Competence increased significantly while they were attending the demonstration school (see Table 4). When students transitioned into high school their perceived Writing Competence decreased significantly. However, students' perceived Writing Competence in high school was not significantly different from when students first entered into the demonstration school.

Spelling Competence differed significantly, Wilks' Lambda = .13, $F(3, 9) = 20.05$, $p < .01$, partial eta squared = .87. Students' perceived Spelling Competence increased significantly during their first and second year of attendance at the demonstration school (see Table 5). There was no significant difference between students' perceived Spelling Competence at the demonstration school and at high school.

Math Competence differed significantly, Wilks' Lambda = .46, $F(3, 9) = 4.58$, $p < .05$, partial eta squared = .61. Students' perceived Math Competence increased significantly during their first year of attendance at the demonstration school (see Table 6). There was no significant difference between students' perceived Math Competence at the demonstration school and at high school.

Global Self-Worth did not differ significantly, Wilks' Lambda = .78, $F(3, 9) = 1.11$, $p > .05$. The following tables highlight the t-test results for the comparisons made from when participants started their residency at the demonstration school (Time 1), were near to completing the first year of the program (Time 2), were near to completing the demonstration school program (Time 3), and were attending their local high schools (Time 5).

Table 2- General Intellectual Ability (SPED; Renick & Harter, 1988)

Time	Time	t(11)	Sig.	Cohen€s d
1 (M=2.34; SD=.75)	2 (M=3.03; SD=.50)	-3.556	.005*	-1.08
	3 (M=2.94; SD=.60)	-4.288	.001*	-0.88
	5 (M=3.02; SD=.63)	-3.098	.010*	-0.98
2 (M=3.03; SD=.50)	3 (M=2.94; SD=.60)	.517	.62	0.16
	5 (M=3.02; SD=.63)	.087	.93	0.02
3 (M=2.94; SD=.60)	5 (M=3.02; SD=.63)	-.528	.61	-0.13

Time 1• Start of demonstration school

Time 2• End of first year at demonstration school

Time 3• End of demonstration school program

Time 5• End of second semester in high school

Table 3- Reading Competence (SPPC; Renick & Harter, 1988)

Time	Time	t(11)	Sig.	Cohen€s d
1 (M=2.32; SD=.63)	2 (M=2.79; SD=.47)	-2.457	.032	-0.85
	3 (M=3.29; S=.66)	-4.668	.001*	-1.50
	5 (M=2.77; SD=.82)	-1.847	.092	-0.62
2 (M=2.79; SD=.47)	3 (M=3.29; SD=.66)	-2.211	.049	-0.87
	5 (M=2.77; SD=.82)	.077	.940	0.03
3 (M=3.29; SD=.66)	5 (M=2.77; SD=.82)	3.173	.009*	0.70

Time 1• Start of demonstration school

Time 2• End of first year at demonstration school

Time 3• End of demonstration school program

Time 5• End of second semester in high school

Table 4- Writing Competence (SPPC-LD; Renick & Harter, 1988)

Time	Time	t(11)	Sig.	Cohen€s d
1 (M=2.09; SD=.75)	2 (M=2.59; SD=.60)	-2.288	.043	-0.74
	3 (M=3.48; SD=.52)	-5.323	.000*	-2.15
	5 (M=2.85; SD=.80)	-2.773	.018	-0.98
2 (M=2.59; SD=.60)	3 (M=3.48; SD=.52)	-4.419	.001*	-1.59
	5 (M=2.85; SD=.80)	-1.393	.191	-0.38
3(M=3.48; SD=.52)	5 (M=2.85; SD=.80)	3.153	.009*	0.93

Time 1• Start of demonstration school

Time 2• End of first year at demonstration school

Time 3• End of demonstration school program

Time 5• End of second semester in high school

Table 5- Spelling Competence (SPPC-LD; Renick & Harter, 1988)

Time	Time	t(11)	Sig.	Cohen's d
1 (M=1.96; SD=.58)	2 (M=2.55; SD=.62)	-5.125	.000*	-0.98
	3 (M= 2.94; SD=.70)	-5.501	.000*	-1.52
	5 (M=2.50; SD=.99)	-2.008	.070	-0.67
2 (M=2.55; SD=.62)	3 (M=2.94; SD=.70)	-1.683	.120	-0.59
	5 (M=2.50; SD=.99)	.177	.863	0.06
3 (M=2.94; SD=.70)	5 (M=2.50; SD=.99)	1.762	.106	0.51

- Time 1 • Start of demonstration school
- Time 2 • End of first year at demonstration school
- Time 3 • End of demonstration school program
- Time 5 • End of second semester in high school

Table 6- Math Competence (SPP-LD; Renick & Harter, 1988)

Time	Time	t(11)	Sig.	Cohen€s d
1 (M=2.33; SD=.87)	2 (M=2.94; SD=.84)	-2.912	.014*	-0.71
	3 (M=2.92; SD=.78)	-2.847	.016	-0.69
	5 (M=2.54; SD=.97)	-.753	.467	-0.23
2 (M=2.94; SD=.84)	3 (M=2.92; SD=.78)	.091	.929	0.02
	5 (M=2.54; SD=.97)	1.202	.254	0.44
3(M=2.92; SD=.78)	5 (M=2.54; SD=.97)	2.367	.037	0.43

Time 1• Start of demonstration school

Time 2• End of first year at demonstration school

Time 3• End of demonstration school program

Time 5• End of second semester in high school

During their first year attending the demonstration school, from September 2007 (Time 1) to May 2008 (Time 2), with the exception of Reading and Writing Competence, students demonstrated a significant increase in all of the academic self-concept domains. With the exception of Math Competence, which demonstrated a moderate to large effect size, all of the academic self-concept domains presented large effect sizes indicating these differences would likely be strong and consistent if the survey were to be repeated (Cohen, 1988).

Paired-samples *t*-tests were also conducted with the SDPP-LD (Renick & Harter, 1988) data from when students began the demonstration school program in September 2007 (Time 1) and completed the program in June 2009 (Time 3). With the exception of Math Competence, students demonstrated a significant increase in all of the academic self-concept domains. All of the effect size calculations were large indicating that over the two year period in which students attended the demonstration school, marked improvements were made in their academic self-perceptions.

Paired samples *t*-tests were conducted with subscales from the SDPP-LD (Renick & Harter, 1988) in order to determine if there was a change in self-concept from when students were near to completing the demonstration school program in June 2009 (Time 3) to when they were well situated in high school in June 2010 (Time 5). With the exception of Reading and Writing Competence, students did not demonstrate a significant decrease in academic self-concept domains. Reading Competence demonstrated a moderate to large effect size and Writing Competence demonstrated a large effect size, indicating that students perceived a marked decrease in reading and writing abilities when they transitioned into high school. Table 7 provides a visual representation of the SDPP-LD subscale comparison means.

Table 7• Bar Graph Representing Subscale Means from the LSPP

(Renick and Harter, 1988)

Note: The arrows represent significant differences, $p < .01$.

Seven students and ten parents commented that their or their child's self-esteem increased as a result of attending the demonstration school. Participants' comments stood in contrast to data from the SPPC which did not demonstrate differences in Global Self-worth. This discrepancy can be attributed to the fact that individuals may not understand the differences associated with the theoretical constructs of self-concept and self-esteem and may use the terms interchangeably or primarily rely on the term self-esteem in colloquial conversations. Daniel felt his self-esteem "boosted up a lot 'cause I like going to school now and I didn't before." Similarly, Kristine's mother noted her self-esteem increased because "She doesn't come home miserable from school saying, 'not going back more.'" Participants noted that student's self-esteem increased because of their improved academic abilities: "he used to say, 'I'm stupid, I can't do those problems.' He doesn't say that anymore." (Daniel's father). Nigel's mother felt his self-esteem improved because "He knows he can be successful if he's given the proper tools, instructions, and knows what's expected. He knows to ask, 'What is it you specifically want on this?' They gave him that box of tools and he uses them." Students felt their self-esteem improved because of the strategies they learned: "the [demonstration school] teachers showed me it's okay to ask the teacher for help, everybody does it and it's nothing to be ashamed," (Jeffrank). Darren said, "Before I'd get frustrated and need sports to get me through the day. But now, being at [the demonstration school], learning different technology, different ways, it's easy."

Participants reported that social skills training had a positive impact on students' self-esteem. Nigel felt his self-esteem increased "because I had social skills and know what to do in a situation." The social skills training helped students make friends. Ava

said, ƒI have more self-esteem. Making new friends and talking to new kids is easier than it was.„ Similarly, Kristine said, ƒI am more interactive with kids now, Now my friends understand my learning disability.„ Mike€s mother noted that in the past ƒ[Mike] didn€t know how to debate his opinion so he€d get angry. But now [the demonstration school] has given him the tools to say, ˆThis is what I believe.€ He can express himself verbally. That€s really helped him.„ Derrick€s mother said, ƒHis self-esteem is a lot better since he€s been to [the demonstration school] because they taught him skills, they taught him he could accomplish anything he tries, so now he believes that. He believes in himself.„

Data from the SPP-LD (Renick & Harter, 1988) indicated that students€ Global Self-worth did not significantly change when they started attending the demonstration school (Time 1; M = 3.23; SD = .56), to when they had completed the first year of the program (Time 2; M = 3.37; SD = .52), to when they had completed the program in its entirety (Time 3; M = 3.47; SD = .66). Renick and Harter (1988) note that on the SPP-LD, scores below 2 represent low self-worth. Students€ mean Global Self-worth scores were not low to begin with, and as a result, one would not expect these scores to increase. The quantitative data differed from the qualitative data for only two students and one parent felt their or their child€s self-esteem did not change. These individuals felt their or their child€s self-esteem did not change because ƒHe€s always had good self-esteem.„ (Darren€s mother).

Eight students and six parents commented that their or their child€s self-esteem continued to increase in high school. Participants felt students€ self-esteem continued to increase because they were able to complete grade level work. Frank€s mother said, ƒ[Frank€s] proven he can do [the work] in high school rather than [the demonstration

school] where everything€s geared towards their success. He€s aware that the teaching style and commitment was exceptional.„ Jamie felt her self-esteem continued to improve because ƒI can do the work. Before I went to [the demonstration school] I thought I couldn€t do the work, I was dumb, everyone thought that, and there was no point in doing the work.„ John also said his self-esteem increased because ƒI can do very well and [the work is] surprisingly easy.„

The social skills training from the demonstration school continued to have a positive impact on student€s self-esteem ƒBecause people can look at you in a rude way and you can shrug it off. From school skills [we learned], ˆThey must not be very smart because they€re trying to judge you for what you look like.€„ (Derrick). Nigel€s mother felt the social skills training continued to boost his self-esteem because ƒHe has that ability to make new friends.„ Rhys and Mike€s self-esteem also continued to increase because ƒI made new friends, I talked to new people.„

Responses to the SPPC (Renick & Harter, 1988) indicated that students€ Global Self-worth did not significantly increase at the demonstration school or when they transitioned into high school. Students€ mean Global Self-worth scores were as follows: when students began the demonstration school program (Time 1; M = 3.23; SD = .56), completed the first year of the program (Time 2; M = 3.37; SD = .52), completed the demonstration school program (Time 3; M = 3.47; SD = .66), and were attending high school (Time 4; M = 3.50; SD = .41). Students€ Global Self-worth scores were high to begin with (4 was the highest score), and as a result, this scale may not be sensitive enough to pick up on subtle changes in global self-perceptions. Two students and five parents reported that their or their child€s self-esteem did not differ at high school from when they were at the demonstration school. Ava€s father felt his daughter€s self

ƒ increased before she attended high school, She wouldn€t have survived or even got to high school if she hadn€t gone to [the demonstration school].„ Similarly, Kristine€s mother said, ƒ She got the self-esteem from [the demonstration school], When she brings that laptop home you should see her!„ Jamie€s mother reported that her self-esteem increased at the demonstration school because ƒ they proved she has the intelligence, she can learn, she just has different learning needs.„

Two students and one parent reported that their or their child€s self-esteem decreased in high school. Nigel€s self-esteem decreased because he had a different social comparison group: ƒ everybody was the same at [the demonstration school], they had a learning disability.„ Other participants noted their self-esteem decreased because of the bullying in high school: ƒ It€s decreased because of the students putting us down.„ (Kristine). Sasha€s mother felt that the demonstration school ƒ [Sasha] got more feedback and more direction so it boosted up her self-esteem, Now you€re in a mainstream school, the kids look at you like you€re a freak if you do something wrong.„

Confidence.

Ten students and all twelve parents reported that their or their child€s confidence increased at the demonstration school. Students had more confidence because they could complete work independently: ƒ I have less need to rely on others to complete the task.„ (Frank). Darren€s mother felt that in the past ƒ [Darren] wouldn€t have started anything on his own. Whereas now it€s been a week since I€ve looked at it and it€s all done.„ Students€ confidence increased because they could complete grade level work: ƒ She has her technologies in place and understands the process to do assignments. It comes a lot easier for her.„ (Sasha€s mother). John reported that his confidence increased ƒ because I know I can do anything I am given. I am more confident in my work.„

The demonstration school support helped boost students€ confidence. Mike€s mother felt his confidence increased because the demonstration school ƒshowed him his positive attributes and told him he was worth something. They gave him the individual attention he needed.„ John€s mother felt his confidence increased because ƒHe realized he€s not the only one and he can cope with his disability.„ The demonstration school taught students to believe in themselves: ƒ[Jamie] came out of [the demonstration school] knowing that she was intelligent, she just had one barrier where her brain wasn€t reading signals. So she€s more confident.„ (Jamie€s mother). Jamie described her increased confidence saying, ƒI previously thought I was going to fail high school. Now I think I am at least going to go to college.„ Similarly, Sasha€s mother said, ƒShe understands her capabilities now. Before she didn€t think she had any, They all walk away believing they can do anything they set their minds to.„ Nigel said, ƒIf there are people around you that believe in you, then you believe in yourself.„ Derrick€s mother noted that he now ƒhas confidence in himself; he now has the abilities and the tools. Without [the demonstration school], I don€t know how well he would have done.„

The social skills programming at the demonstration school ƒtaught [students] different skills to deal with people in order to help their self-confidence and self-esteem„ (Derrick). Furthermore, participants reported that their confidence increased because of ƒThe social skills with the counsellors and interacting with other kids.„ (Kristine). Ava knew her confidence increased because ƒI didn€t have many friends at my old school but at [the demonstration school] everyone was your friend that made me feel normal.„ Students reported that they benefited from the social skills training at the demonstration school because ƒI don€t have fear of talking with people. I don€t worry what people think about me.„ (Frank). Mike€s confidence continued to increase ƒbecause talking

new friends.„ Derrick€s mother noted that in the past ƒ[Derrick] wouldn€t talk to other students, They may be passing notes, and not being able to read the note or write one back, it was easier not to have friends. Now he€s either on the computer or the phone.„

All students and eight parents felt their or their child€s confidence continued to increase in high school. Student€s confidence increased because they could complete grade level work: ƒI can complete major assignments and get a great mark on it.„ (Kristine). Ava€s father said, ƒShe is always the first one done... She works pretty independently.„ Ava said, ƒAcademically, it€s made me more self-confident, Whatever it is, I€ve done it, I can do it.„ Mike€s mother felt his confidence increased because ƒHe€s doing his work on his own, When he was at his other school he never thought he could do it.„

Sasha€s mother felt her confidence was ƒmuch higher than before she went to [the demonstration school]. She didn€t have any confidence in her abilities... Now it€s a world of difference.„ Similarly, Jamie said, ƒBefore [the demonstration school], I thought everyone thought I was dumb because I used a computer and had a learning disability. Now that I€m at [high school], I don€t care what anyone thinks.„ Jamie€s mother felt her confidence increased because the demonstration school ƒproved she was intelligent, showed her that other people who were functioning at a high level have disabilities and that she can develop strategies to compensate.„ Jamie€s mother did not think her daughter€s confidence continued to increase in high school; however, she was happy she maintained her increased confidence levels from the demonstration school.

Three parents felt their or their child€s confidence decreased in high school: ƒIt decreased because he felt normal at [the demonstration school]. He felt like everybody else. Now it€s a daily reminder that he has this learning disability.„ (Nigel's mother).

Sasha€s mother said, ƒSocially she€s more insecure than she was at [the demonstration school], Being dropped into this school of two thousand kids, of course she€s feeling lonely and not making friends.„

Examining Changes in Motivation

Paired-samples *t*-tests were conducted with data from the MES (Martin, 2009) in order to determine if there was a significant difference between students€ motivation and engagement at the demonstration school and high school. The MES is composed of three Motivation Booster Thoughts (i.e., Self-belief, Learning Focus, and Valuing), three Motivation Booster Behaviours (i.e., Persistence, Task Management, and Planning), three Motivation Mufflers (i.e., Uncertain Control, Failure Avoidance, and Anxiety), and two Motivation Guzzlers (i.e., Disengagement and Self-sabotage). Multiple comparisons were made, and as a result, a Bonferroni correction was used to control for the risk of a type I error. As there were four separate constructs, the *p* value of .05 was divided by 4, which resulted in a new *p* value of .013. There was no difference in motivation and engagement Global Booster Thoughts, Global Booster Behaviours, Global Mufflers, and Global Guzzlers at the demonstration school and at high school. The means, standard deviations, as well as the results of the comparisons are presented in Table 8.

Table 8• Motivation and Engagement Subscale Comparisons with MES Data (Martin, 2009)

Subscale	Demonstration School	High School	t(11)	Sig.
Self-belief	(M=83.1; SD=14.3)	(M=90.2; SD=9.5)	-2.24	.05
Learning Focus	(M=84.9; SD=13.6)	(M=85.2; SD=13.1)	-0.25	.81
Valuing	(M=84.3; SD=16.9)	(M=86.1; SD=10.8)	-0.53	.60
Persistence	(M=82.8; SD=14.4)	(M=80.4; SD=13.8)	0.53	.61
Task Management	(M=78.1; SD=19.1)	(M=84.3; SD=13.0)	-1.45	.17
Planning	(M=73.0; SD=16.4)	(M=75.1; SD=17.5)	-0.39	.70
Uncertain Control	(M=46.3; SD=16.5)	(M=48.0; SD=18.2)	-0.30	.72
Failure Avoidance	(M=41.4; SD=24.8)	(M=52.7; SD=31.1)	-1.55	.15
Anxiety	(M=51.2; SD=18.7)	(M=55.4; SD=20.7)	-0.61	.55
Disengagement	(M=23.5; SD=8.4)	(M=26.8; SD=10.3)	-1.15	.28
Self-sabotage	(M=32.57; SD=17.7)	(M=32.5; SD=15.9)	-0.02	.99

Global Booster Thoughts is comprised of Self-belief, Learning Focus, and Valuing.

Global Booster Behaviours is comprised of Persistence, Task Management, and Planning.

Global Mufflers is comprised of Uncertain Control, Failure Avoidance, and Anxiety.

Global Guzzlers is comprised of Disengagement and Self-sabotage.

Data from the MES (Martin, 2009) indicated that students demonstrated a ˆgood level€ of academic self-beliefs. Students€ responses earned them a ˆB grade€ on the Self belief subscale as they responded positively to comments such as: If I don€t give up, I believe I can do difficult schoolwork. Students€ responses also earned them a ˆB grade€ on the Disengagement subscale as they responded negatively to comments such as: I don€t really care about school anymore. Survey data indicated that there were no significant differences between students€ motivation and engagement at the demonstration school and at high school. When interviewed, ten students and nine parents reported that their or their child€s motivation to complete academic tasks increased at the demonstration school. Darren and Kristine were ƒMore motivated because we know we can get it done.„ and Frank was more motivated ƒBecause I know I can finish my work. I don€t have to worry about it, get butterflies, or see a counselor.„

Parents judged that their child€s motivation increased at the demonstration school because they were setting goals and working towards achieving their goals: ƒHe€s setting his own goals now and trying to do better. If he hadn€t been at [the demonstration school] that wouldn€t be happening.„ (Nigel€s mother) or Sasha€s mother felt she now ƒhas loads of motivation in school. She has a distinctive plan for her future and knows what she needs to do to accomplish it.„ Similarly, Jamie€s mother noted that she is now talking about post-secondary. ƒShe was looking at occupations based on ability, now she€s looking at career paths based on her interests.„

One student and two parents felt their or their child€s motivation did not change as a result of attending the demonstration school. Rhys and Declan€s mothers said, ƒI don€t think it€s changed„ and ƒHe€s always had good motivation in school.„ Three parents felt

their child€s perceptions of completing school work did not change: ƒIf he didn€t have to do it he wouldn€t. I€ve never heard him say he enjoys it.„(Frank€s mother). Eight parents noted that as a result of attending the demonstration school, their child now enjoys completing school work. Derrick€s mother noted that before he went to the demonstration school ƒ[Derrick] was trying to hide that he couldn€t do [his homework], Now he comes in the door and does it, He enjoys it now, He€s motivated, Now that he can do it school is such an important thing.„ Students enjoyed doing school work because they ƒcan complete it and it€s not as hard„ (Jamie). Mike€s mother said, ƒYou used to argue with him and he wouldn€t do it. He said he didn€t understand it and never would. He€s come to realize there are different ways to learn. If you don€t learn one way, try a different way.„ Eva's father noted that she previously ƒfelt she couldn€t do [the work]. But having been to [the demonstration school], she came back with better abilities, confidence, and attitude.„

Although data from the MES (Martin, 2009) did not demonstrate statistically significant differences, during the interviews eight students and seven parents reported that their or their child€s motivation to complete academic tasks continued to increase in high school: ƒI€m more motivated. I want to do it. Before [the demonstration school] I didn€t care.„ (Derrick). Daniel felt his motivation increased because he was successful in completing grade level work: ƒ[the demonstration school] teaches you how to do everything, I€m more motivated now because I€m in classes with my friends and I€m doing the same work as them.„

Procrastination was not a problem in either school environment as students received a ˆB grade€ on the Self-Sabotage subscale of the MES (Martin, 2009). Students responded negatively to statements such as: I sometimes put assignments and study off

until the last moment so I have an excuse if I don€t do so well. Students demonstrated good study skills as they received a ˆB grade€ on the Planning and Task Management subscales of the MES. Students demonstrated good Planning as they responded positively to comments such as: Before I start an assignment, I plan out how I am going to do it; and I usually stick to a study timetable or study plan. Students also demonstrated good Task Management as they responded positively to comments such as: When I study, I usually study in places where I can concentrate and at times when I can concentrate best. Students were motivated because of the skills they learned. Jasmine another noted that she used to have ƒa fear of failure; procrastinating was a big issue. Now she gets it done, That€s something they taught her at [the demonstration school].„ Similarly, Sasha was unlikely to procrastinate because ƒI€ve learned how to separate my homework and do one at a time.„ Ava was also thankful for the skills she acquired because ƒAdvocating for myself is a big help.„

Responses to the MES (Martin, 2009) indicated that students demonstrated positive self-beliefs in regards to their academic abilities. Students received a ˆB grade€ on the Self-belief subscale as they felt they could do well in their school work. Survey data was exemplified by comments from participants such as Mike who noted that he was ƒMore motivated to complete my school work because I know I can get it done right and the technology can help me.„ Erika was also ƒmore motivated to complete my school work because it has become easier. I know the answers.„ Similarly, Darren was ƒmore motivated because I want to do well in school, Now I can do it and before I couldn€t.„

The MES (Martin, 2009) survey responses indicated there were no significant difference in students€ academic Self-beliefs (M = 83.12; SD = 14.31 versus M = 90.24; SD = 9.50) and Disengagement (M = 23.53; SD = 8.37 versus M = 26.82; SD = 10.28) at

the demonstration school and at high school. This survey data was supported by one student and three parents who felt their or their child€s motivation did not change in high school: ƒShe€s still motivated when it comes to her academics.„ (Sandra). Rhys€ mother said, ƒI don€t think [his motivation] will change, He€s got great grades, he€s on the honour roll and that€s what€s important.„

Contrary to the lack of significant differences on the subscale comparisons performed on the MES (Martin, 2009), two students and two parents felt their or their child€s motivation decreased in high school because there are not the same checks and balances„ as there was at the demonstration school (Daniel). Nigel noted, ƒThere are other people who aren€t working, so I€m looking pretty good because I€m coming [to class].„ Darren was less motivated ƒbecause half of the class doesn€t hand in their work.„ His motivation went ƒdown because at [the demonstration school] there was a lot expected of you. [Teachers] gave you the feeling of self-worth; whereas here, teachers aren€t the same.„

Persistence.

Students received a ˆB grade€ on the Persistence subscale of the MES (Martin, 2009) as they responded affirmatively to statements such as: I€ll keep working at difficult schoolwork until I think I€ve worked it out. During the interviews, participants reported all students were likely to persist at academic tasks at the demonstration school. Sandra persisted because her coaches ƒmotivated us to finish [our homework] and not give up.„ Students valued the encouragement they received and employed similar strategies to motivate themselves: ƒI would keep trying at it until I got it. I encouraged myself to get it done.„ (Mike). Derrick appreciated that his teachers ƒwouldn€t let me stop, Now I have to coach myself.„

Students were motivated to persist at their work: “[Jamie] was known at [the demonstration school] for working at it until I got it because I didn’t like falling behind.” Similarly, John was motivated to “keep trying until I figured it out [because] I wanted to be independent and I couldn’t do that if I gave up.” Ava said, “Why just give in assignments when I have a chance to do better and make a better life?”

Nine students and six parents judged that their or their child’s persistence increased at the demonstration school because they were confident in their abilities. Ava and John were likely to persist “because now I can accomplish the work.” Frank said, “I’ve grown in my knowledge and confidence in finishing my school work. Now I could do it, that made me more likely to keep trying.” Nigel’s mother said her son now “knows if he perseveres he can do it. Before he had never done anything or met anybody’s expectations so he didn’t think he could do it.” Similarly, Darwen was “more likely to try to find the right answer ‘cause I knew I would get it and would need it for the future.”

The demonstration school provided Sasha with skills which enabled her to persist at academic tasks. Her mother noted that “she’s looking at the steps and breaking them down. It seems easier for her.” Derrick’s mother felt his persistence increased because “He kept asking other people that might help him, Whereas before it would have been, ‘I don’t know how to do it so we won’t do that.’” Similarly, Mike’s mother said, “Now he’s more likely to see if he can understand it or ask for help to advocate for himself.”

One student and four parents felt their or their child’s persistence did not change at the demonstration school. Rhys always had strong motivation: “Before if I had an assignment I would complete it to the best I could and at [the demonstration school] I did

the same thing.„ Kristine€s mother said, ƒIf she likes the subject she€ll jump into it. If she doesn€t she still has to be pushed to do it.„

All students persisted in high school because ƒ[the demonstration school] teaches you how to do it„ Darren said, ƒI always tried hard but I didn€t have the skills to present it. Now I€ve learned ways to do it well.„ Students learned to ask for help as needed. Darren was ƒmore likely to keep trying and if it€s really difficult for me I would talk to the teacher„. Similarly, Frank was ƒmore likely to keep trying until I figure it out, but I will ask a teacher to explain it just in case I miss something„ Sasha said, ƒI€d be more likely to figure it out because I€ve learned how to ask for help so I can understand it.„ Kristine would ƒKeep trying because that€s what they taught us at [the demonstration school]- don€t give up, take a break if you don€t get it, and then try again.„

Seven students and five parents judged their or their child€s persistence at academic tasks continued to increase in high school because they were capable of doing the work: ƒShe knows she can do it now. [The demonstration school] taught her that sense of accomplishment.„ (Jamie€s mother), or Ava now ƒcompletes all of the homework, even before the time allotted„ and Frank was ƒmore likely to do my work because I know what the teachers are talking about„ Mike ƒwon€t rush through it ^cause he wants to get a good mark„ He was ƒmore likely to keep trying at it [because] I believe in myself and I know I can get it done„.

Student€ persistence was higher in high school than in elementary school. In discussing elementary school Derrick said, ƒIf I had homework I would take it home, I could shrug it off and be like, ^That€s fine, give me a zero. It€s just like the last one.€„ His mother said, ƒHe did anything he could to hide what he couldn€t do, He fell through the cracks because nobody really knew.„ However, he will ƒstay up as late as I have

to„ and ƒdo it as many times as had to, to be able to finish„it. His mother was happy he ƒstill wants to do his work. He€s thriving to do better all the time.„

Three students and six parents noted they or their child continued to demonstrate a high level of persistence in high school. Sasha and Darren€s mother said, ƒShe€s just as persistent.„ and ƒIt€s always been, he wants to get it done.„ In contrast, two students and one parent felt their or their child€s persistence decreased in high school. Jamie was less likely to persist ƒˆcause most of my teachers I don€t like and they don€t like me.„ Nigel was less likely to persist because there was little structure in high school: ƒyou don€t have a routine.„ Daniel€s father felt he was also less likely to persist because ƒHe can slip through. There€s not the same scrutiny as [the demonstration school].„

Valued learning.

The MES (Martin, 2009) survey data indicated that students valued learning at the demonstration school and at high school. Students received a ˆB grade€ on the Valuing subscale as they responded positively to statements such as: It is important to understand what I am taught at school. In alignment with the quantitative data, 11 students reported it was more important to understand their work than get it done: ƒThe point of schooling is to learn so there is no point in getting stuff done without understanding it.„ (Ava). Darren also felt it was more important to ƒunderstand it than get it done ˆcause if you don€t understand it you lose that lesson.„ Daniel felt it was more important ƒto understand so that I can know it in the future.„ Similarly, Rhys felt it was ƒmore important to understand the assignment because if you understand you can apply it to other aspects of your life[…].„

All students reported that they valued learning because of its impact on their future life outcomes: ƒIf I don€t get high marks I might not go to college and get a good job.„ (Mike) and ƒIt predicts what kind of career I will get.„ (Johnasha). Sa€s business

class was useful because ƒI will be able to use it when I apply for a job or even in a job.„ Nigel said, ƒMath, you need to learn how to count money, and science, if you€re at a factory you need to understand what chemicals are doing, so it€s important.„ Frank said, ƒBeing capable of finishing my work, I get the feeling I won€t end up in some dead end job. I can actually work up and up in the community.„

Nine students continued to feel it was more important to understand their assignments than to get them done. Daniel knew it was important to ƒunderstand the assignment so you can remember it.„ Similarly, Jamie said, ƒIf I understand it, it will stick with me for a long time.„ Darren knew it was important ƒTo learn it and understand it because you€ll need it in the future.„ Nine students also discussed how learning benefited their future life outcomes: ƒI may come to a point in the future where I would need the information.„ (Sasha). Students felt what they learned in high school would impact their future employment: ƒMost of the work I do will benefit me because without it I wouldn€t be able to get my diploma or a good job.„ (Frank) and ƒI want to keep all the options open, so I€m paying attention at school.„ (Daniel). Similarly, Derrick said, ƒSchool is your life; if you don€t do good, you€re not going to do good.„

Self-efficacy.

Data from the PALS (Roeser, Midgley, & Urdan, 1996) indicated that with respect to the demonstration school, students strongly agreed with statements such as: I can do the hardest school work if I try, with a mean Self-Belief subscale score of 4.43 (SD = .57; with 5 being the highest score). Interview data was in alignment with the survey data as 11 students and 11 parents commented that their or their child€s Self-Efficacy increased at the demonstration school. Sasha€s mother noted that she didn€t believe she could complete her work at elementary school, ƒNow she believes everything€s attainable,

She€s been given the tools to do it, with them teaching her kinaesthetically, as well as through her technologies.„ Sasha said, ƒI believe I can complete an academic assignment, I want to make sure I do the best I can like they taught me at [the demonstration school].„ Similarly, ƒ[Kristine] never felt she could complete anything until [the demonstration school].„ Her mother felt her efficacy increased because ƒShe sees that she can do it. It might take her a bit longer but she can do it and she knows it.„

Participants reported that the demonstration school increased student confidence which resulted in improved efficacy for work completion. John€s mother noted that in the past ƒ[John] didn€t have any confidence because it was hard for him to read and study, You now know how to study. You can do it, you can finish it.„ Darren felt his efficacy increased because ƒThey€ve built my self-confidence up. Even though I am at school I feel a lot better.„ Mike also said his efficacy increased because ƒI feel a lot better. I feel more confident doing my work.„ Frank now ƒbelieves he can and that he€s not stupid.„ He has ƒmore confidence in my school work and feel I am capable of completing it.„ Jamie€s mother noted that she had ƒzero confidence she could complete anything before she went to [the demonstration school]. Now she knows she can do it and if she can€t she knows there€s a way to find out.„ Jamie said, ƒBefore I went to [the demonstration school] I thought I was just going to finish high school, now I am getting some of the highest marks.„

Students enjoyed attending school because of their improved academic competencies and academic self-beliefs. Ava said, ƒBefore I went to [the demonstration school] I thought I was the worst in the world, [The demonstration school] gave me the tools and showed me I can do it.„ Heather said, ƒBefore she didn€t want to go to school, [Now] she has the attitude that she€s going to try.„ Similarly, Kristine€s mother

said, ƒBefore she hated school. We fought for hours and said, ˆOkay, we don€t need to do homework.€ Now she will come home and do homework. She€s doing well.„ Jamie€s mother also noted that previously, ƒThere would be avoidance, illness, [her school work] would not have been done. Now she tackles it.„ Daniel€s efficacy increased because ƒHe€s much more positive about going to school. He knows he can do it.„

All students and ten parents felt they or their child had high efficacy for work completion at the demonstration school. ƒAt the regular public school system it was, ˆWe know you can€t do it so we€ll give you a level you can do, even though it€s way below what you should be doing.€„ Derrick€s efficacy increased at the demonstration school because ƒIt was expected you can do this and you will learn how to do it.„ Similarly, Sasha said, ƒI know what teachers expect now, So I do a good job on my homework.„ Assistive technology enabled Darren and Mike to have high efficacy for work completion. Derrick€s mother said, ƒWithout the technology [Derrick] wouldn€t be doing as well as he is, and without the way teachers taught him to believe in himself and expected him to do it, [his self-efficacy] wouldn€t have been there.„

The strategies taught at the demonstration school helped students develop high efficacy for work completion: ƒHer teachers are impressed she€s able to complete tasks on time, They€ve learned how to manage their time and to spread time amongst their projects.„ (Sasha€s mother). Derrick€s mother noted that he no longer procrastinates over his school work: ƒHe doesn€t leave it till the end. The assignment is handed out, he gets working on it, it€s done, He now believes he€ll do a fantastic job on his homework.„ Mike€s mother felt the demonstration school taught him to believe in himself: ƒHis teachers kept telling him he had the ability, He understood it and could do it.„

Paired-samples t-tests were conducted with data from the PALS (Roeser, Midgley, & Urdan, 1996) in order to determine if there was a significant difference between students' efficacy at the demonstration school and at high school. The Self-Beliefs subscale assesses students' perceptions of their competency in completing school work and includes questions such as: I am certain I can master the skills taught in school this year; If I have enough time, I can do a good job on all my school work; and Even if the work in school is hard, I can learn it. There was no difference in students' efficacy at the demonstration school (M = 4.43, SD = .57), and at high school (M = 4.20, SD = .58), $t(11) = 1.39$, $p > .05$. In the interviews, all parents reported that their child's efficacy increased or stayed the same in high school. Derrick's mother judged that his efficacy continued to increase because "even without the extra one-on-one he's still able to do it and he's been getting good marks. He believes he can do anything now." Sasha's mother said "[Sasha] knows she can complete things. That's not waivered much at all." Frank's mother also felt his efficacy remained high because "He has no doubt he will have it done well."

Responses to the PALS (Roeser, Midgley, & Urdan, 1996) indicated that students had high efficacy in high school, with a mean Self-Beliefs subscale score of 4.20 (SD = .58; with 5 being the highest score). The quantitative data was in alignment with the qualitative data as 11 students and 11 parents felt that their child continued to have high efficacy for completing academic tasks in high school: "I know I've done it before and I can get a good mark for it." (Kristine). Students attributed their high efficacy to their school successes: "He knows what success is. Now he knows, 'If I put the work and effort into it I can do a good job.'" (Nigel's mother). Student's heightened efficacy persisted because of their use of assistive technology. Derrick was confident he could do

his school work ƒ Because of my technology, I think I could do anything on it. Whatever€s on the page I could read it, I could find the definitions for it...„ Mike was also ƒ likely to believe I can do a good job on [my school work] because the technology helps me a lot.„

In elementary school, Jamie would ƒ think I wouldn€t be able to do [the school work] and then I wouldn€t do it because I wouldn€t want to get in trouble€ by the teacher.„ Jamie€s mother felt her self-efficacy continued to thrive in high school ƒ because [the demonstration school] proved to her that she could, whereas the traditional education approach taught her that she couldn€t.„ Similarly, Ava€s father said the demonstration school ƒ showed [Ava] she can do the work and now she knows she can do it.„

Academic abilities.

Ten students and ten parents reported that their or their child€s view of themselves as a student increased at the demonstration school: ƒ I used to think I wasn€t smart enough to do the work. Since going to [the demonstration school] I know I am smart and I can be one of the top students in my class.„ (Sasha). Daniel said, ƒ Before you moved along with everyone else knowing that you€re not really passing. Now I feel right up there with my friends. I know I can do it.„ John reported that his academic abilities increased because ƒ I can do anything anyone else gets.„ Similarly, Derrick€s mother said, ƒ He knows he€s doing the same work as other kids and he can do it.„ Derrick judged that his abilities improved because ƒ There€s harder work and I€m getting good grades, so it€s showing I have succeeded.„ Frank said, ƒ I feel more intelligent because of improvements in my reading, math, and science. They have all raised grade levels.„

Students reported that their perceived academic abilities increased because they recognized they were capable of learning. Nigel€s mother noted that he previously didn€t ƒ think of himself as a student because he wasn€t learning and he wasn€t involved. Once

he realized teachers will work with me and I can do this, he wanted to do it.„ Similarly, Frank€s mother said in the past ƒhe wasn€t too sure if he could be a student, he now knows that he can learn.„ Since attending the demonstration school, Sasha ƒsees herself as a good student and a competent student„ and ƒ[Jamie] now understands that if she works hard at something she can achieve it.„

One student and two parents reported their or their child€s self-perceptions stayed the same at the demonstration school. ƒHe€s always felt good about himself. He does feel better because now he can do it on his own, but he isn€t bothered by anybody that says anything about his computer or wearing headphones to read a book.„ (Sam's mother)

Six students and five parents felt their or their child€s view of themselves as a student continued to increase in high school because ƒI can do it and I can get it right in a short amount of time.„ (Derrick) and because ƒI€ve been doing very well in my grades.„ (Mike). Mike€s mother noted that ƒ[Mike] feels smarter because he is doing well. He sees the class average and that€s his goal: not to fall below the average.„ Sasha said, ƒI feel smarter for going into my current school and being able to ask questions and understand, I learned how to do the work myself and I remember those skills [the demonstration school] taught me.„

Participants reported that one reason student€s academic self-perceptions continued to increase was because of their understanding of assistive technology. Derrick helped other students ƒlearn the technology... He knows he needs it and he€s going to use it.„ Similarly, Mike€s mother said, ƒHe€s always trying to help the other kids and tell them how to use their technology, It makes him feel smarter because he has his computer and he can keep up with them.„ Mike felt ƒmore intelligent because I know how to use the computer and fix problems that teachers in resource might not know how to

fix.„ Darren€s perceptions continued to increase because of the work he could do with the technology. His mother said ƒIf he had to write it out it would probably take him six months because of his small motor skills, But if he can get a Dragon file going it€s much simpler.„

Four students and five parents felt their or their child€s academic self-perceptions remained the same in high school. Jamie€s mother felt her academic self-beliefs increased at the demonstration school and remained steady ever since: ƒWhen we got to [the demonstration school] she was two and a half years behind. There€s nothing built into the system to show her that that wasn€t lack of intelligence. [The demonstration school] informed her that she€s an intelligent being.„ Kristine€s mother noted that the demonstration school taught her that ƒ‚This may be a disability, but you don€t have to make it a disability.€ Their motto is ‚believe€ and she believes she can do it.„ Ava€s father felt her perceived academic abilities also remained strong in high school because ƒHer attitude is more of a can-do attitude, [The demonstration school] instilled the belief that it can be done.„

The new social comparison group caused Nigel€s academic self-perceptions to decrease in high school. He felt ƒI€m not as smart because I don€t do as good as everybody else.„ His mother felt the demonstration school ƒbuilds your confidence because you€re doing as well as everybody else, This year he€s seeing that difference, but at least he had time at [the demonstration school] to figure out he can be successful.„

Discussion

The text which follows evaluates and interprets participant€s survey and interview data in order to provide practical strategies to support transitions from segregated classes for students with learning disabilities into inclusive classrooms, as well as strategies to

make schools more supportive for these students. In the process of doing so, connections between the current study and other research will be highlighted. The importance of the findings and the generalizability of the results will also be discussed.

Impact of the Demonstration School

Prior to attending the demonstration school, student's learning difficulties prevented them from having a positive school experience, for although they attended classes their learning needs were not being met which caused them to slide through the cracks. Some students received pull-out instruction. However, students felt the remediation was demeaning and reflective of their teachers' low expectations for them. This finding alerts us to the importance of putting much consideration into the rationale for programming used in remedial instruction and the perceived benefits of instruction for the individual child. It is also important to speak with students in order to understand their perceptions of receiving pull-out programming. Participants reported that students internalized the negative comments they received from teachers and this negatively impacted their self-concept. This finding is in alignment with researchers such as Vaughn, Elbaum, and Boardman (2001) who report that the classroom teacher's attitude toward the inclusion of students with learning disabilities is likely to affect students' self-concept in that setting. Students reported that prior to attending the demonstration school they perceived themselves as incapable of completing academic tasks and this diminished the effort they exerted on school tasks. Had these students not been accepted into the demonstration school, their anticipated academic outcomes would be bleak.

The small class sizes allowed the expert teachers at the demonstration school to better understand each student's strengths and weaknesses and to guide their instruction accordingly. In addition, students appreciated the one-on-one support they received.

While teachers cannot control class sizes, they can consider how small group instruction can be utilized within the school day and how centre activities can be used to allow time for individual instruction. Participants reported that students benefited from the relationships they developed with their teachers and counsellors. Students felt their demonstration school teachers really cared about their individual well-being, genuinely wanted them to succeed, and would go out of their way to ensure they were successful. Students reported that they could develop a strong relationship with their teachers as they understood their learning disabilities. In order to meet the learning needs of all students, demonstration school teachers created individual learning profiles which were used to guide instruction. This practice was perceived as extremely beneficial by participants in this study.

Students felt like they belonged at the demonstration school. Some students „never belonged at any other school‟, but felt they were destined to go to the demonstration school to experience academic and social success. Students felt important because the demonstration school staff took the time to get to know them on a personal basis. Due to the salience of teacher-student relationships in teaching (Katz, 2012), one cannot overlook the importance of starting the day with a friendly smile at the entrance to your classroom and an accompanying inquiry about the weekend, or utilizing other strategies to facilitate positive teacher-student relationships.

Demonstration school teachers recognized the achievements of their top students and highest scoring athletes; however, students also appreciated that they equally valued the effort extended on academic tasks and recognized the contributions of all team players and fans on the sidelines. It is important to provide opportunities where all students, including those who are not the top scoring athletes, have an equal opportunity to

participate (Specht & Young, 2011). It is also important to recognize those students who attend sporting events and help build school morale.

Students enjoyed attending classes with peers who also had learning disabilities. Students liked knowing that other students also experienced learning difficulties because it made them feel comfortable asking for help. Participants reported that students' confidence improved because they were functioning at the level of their peers and did not require pull-out remedial instruction. Students noted that they enjoyed not having to explain their learning disability to their classmates because they already knew what it was like to experience learning difficulties. Students in this study enjoyed interacting with other students with learning disabilities, and as a result, schools should consider the feasibility of developing a mentorship program for students with learning disabilities. The program would provide the opportunity for individuals to meet on a regular basis to share stories, experiences, and knowledge, and to have fun with other individuals who have learning disabilities, and to learn how they have persevered and become successful. Meta-analyses have demonstrated that mentoring relationships for youth are associated with more favourable outcomes (DuBois, Holloway, Valentine, & Cooper, 2002; Eby, Allen, Evans, Ng, & DuBois, 2008). While little research exists on the role of mentoring relationships among youth with learning disabilities, Ahrens, DuBois, Lozano, and Richardson (2010) reported that naturally acquired mentoring relationships experienced during adolescence contribute to improved educational outcomes, including the increased likelihood of graduating from high school and improved self-esteem among youth with learning disabilities as they transition into adulthood.

Participants judged the demonstration school was supportive of students' learning needs. Students attributed their academic success to the universal design

differentiated instruction embedded within classroom instruction as students appreciated that demonstration teachers had at least two different ways to teach skills. Students also appreciated that the demonstration school teachers presented information in ways which were relevant and meaningful to their daily lives as it helped them to value the instruction they received.

Participants reported that the demonstration school met the needs of its students because teachers could interpret psychoeducational assessments and would guide their instruction accordingly. Students appreciated that their demonstration school teachers taught them how to cope with their learning disabilities, express their learning needs to other educators, and communicate with their peers about their learning difficulties. Students should be provided with an overview of their psychoeducational assessment and how their learning disability impacts learning, and they should be taught how to relay this information to their teachers and peers. Students should also be informed that their learning disability does not imply that they are not intelligent as they have skills and talents in various domains.

All students were successful at the demonstration school. Students' grades were previously just over passing, and now they take pride in announcing that they understand what is going on, and are able to pull off 80's. The majority of students entered the demonstration school with a Grade 1, 2, or 3 reading level and left with the ability to read at their standard grade level. The demonstration school placed a strong emphasis on literacy. Teachers understood the importance of teaching phonemic awareness at an age in which students are typically reading to learn, and used computer programs such as Academy of READING to supplement their reading intervention program. Students made significant improvements in their reading abilities and felt

successful because they could read independently and complete their homework. Participants judged that these gains in reading contributed to improvements in students' academic self-concept.

Students benefited from the academic and social strategies taught at the demonstration school. Students learned how to create and stick to a schedule and this structured routine carried into their current study habits as they now "come home from school and do their homework first." Genetic and neurobiological factors contribute to learning disabilities (Learning Disability Association of Canada, 2002; Shaywitz & Shaywitz, 2009), and as a result, students with learning disabilities may have other family members who also experience reading or organizational difficulties. One cannot assume that students have role models who teach them how to use an agenda, plan their time effectively, and study in an environment which is conducive to learning, and as a result, these strategies need to be explicitly taught. The demonstration school taught students how to speak to teachers about the accommodations outlined in their individual education plans. Students need to be taught to advocate for their learning needs because their teachers may not be skilled in using assessment reports to develop individual education plan goals to guide their instruction. Students benefited from the advocacy training they received, and participants reported that as a result of attending the demonstration school, students now feel confident initiating conversations, interacting with their peers, and applying the social concepts they learned. Students especially appreciated their new social skills because they "experienced how make new friends."

Participants reported that the demonstration school positively impacted students' self-concept, ability to do schoolwork, and socialize. As per their motto, which is "Believe", the demonstration school helped students to "learn the tools they need to

learn,‟ and this enabled them to ƒstart believing in themselves.‟ Due to improvements in students€™ self-concept, academic achievement, and social skills, participants agreed that ƒit€™s the best thing she ever did‟ and ƒit changed the trajectory of their lives.‟

Impact of assistive technology.

Interview and survey data indicated that students were positively impacted by the use of assistive technology at the demonstration sites. Students attributed their positive experience to teacher competency levels because ƒteachers knew what they were doing,‟ and ƒweren€™t just learning it for themselves.‟ Students benefited from receiving training on assistive technology within their specific area instruction as it enabled them to apply the various functions of the technology to their school work. Students who have learning disabilities, or difficulties handwriting, or students who are English language learners, or students who are unmotivated by technology may benefit from the use of technology to support instruction. General educators need to become familiar with assistive and instructional technology so that they can embed this technology within their instruction to meet the needs of these students (Chmiliar, 2007; Chmiliar & Cheung, 2007; McGhie-Richmond, Specht, Young, & Katz, 2011).

Participants felt assistive technology allowed students to compensate for their reading and writing difficulties and complete academic tasks they would otherwise be unable to complete. Participants reported that when embedded within quality instruction, assistive technology helped students overcome their poor reading comprehension, processing speeds, grammar, spelling, organizational skills, and handwriting difficulties. Parents reported assistive technology helped their child to successfully complete grade level work. Participants also felt assistive technology had a strong impact on students€™ academic achievement, with some participants commenting that ƒthe tool has

transformed her academic life.„ Edyburn (2009) notes that much remains to be done to improve the quality of special education technology research. However, if future studies were longitudinal in nature and students were provided with sufficient training to make them proficient in their use of assistive technology, similar findings to those presented in this study may ensue.

Students appreciated that assistive technology increased independence, made it easier to complete academic tasks, and helped work completion. This finding was supported by the literature as researchers (Bryant, Bryant, & Raskind, 1998; MacArthur, Ferretti, Okolo, & Cavalier, 2001; Mull & Sitlington, 2003) have demonstrated that assistive technology can reduce students€ dependence on others to perform tasks such as reading, writing, and organizing their work. Students felt good knowing that they can ƒdo anything as long as they have the technology to do it.„ In addition, participants commented that assistive technology helped boost students€ confidence and self-concept. Students felt better about themselves because with assistive technology they were able to successfully complete grade level work. Due to their increased competencies, confidence, and self-concept, students noted that they now enjoy attending school.

The majority of participants felt assistive technology improved students€ motivation because they could produce higher quality school work. However, a quarter of participants felt assistive technology made students less motivated because ƒit€s a hassle„. It can take a long time to get the technology running, and as a result, some students were not motivated to use the technology for short answer questions. Students left the demonstration school with improved reading abilities. Some students were reading at grade level and no longer used Kurzweil on a regular basis, but used it for reading science

or history texts with more challenging vocabulary. Students benefited from becoming proficient in their use of assistive technology as they were able to cater the technology to their unique learning needs. This finding is consistent with other research which notes that for technology use to be successful there must be a person technology fit (Specht, Howell, & Young, 2007).

Participants noted that technology can be frustrating because it takes a long time to train Dragon Naturally Speaking. In addition, some students were hesitant to use their assistive technology because "it makes you feel different." Despite these issues, students in this study reported that they were positively impacted by their use of assistive technology. Students with and without disabilities can benefit from the use of assistive technology as students with learning disabilities or organizational difficulties can benefit from the use of Inspiration to brainstorm and structure their writing. Providing all students with access to the technology may help reduce the stigma surrounding its use and reinforce the notion that all students, including those with learning disabilities, belong in the inclusive classroom. Despite the issues associated with getting the technology up and running, and the stigma surrounding its use, some participants preferred using the technology because it enabled them to complete grade-level work without the assistance of their peers or other educators.

Impact on self-esteem, self-concept, and confidence.

The SPPC-LD data (Renick & Harter, 1988) indicated that while attending the demonstration school, students' perceived General Intellectual Ability increased significantly, as did their perceived Reading, Writing, and Spelling Competencies. With the exception of perceived Reading and Writing Competencies, academic self-concept scores did not change when students transitioned into high school. While students'

perceived General Intellectual Ability increased during their first year at the demonstration school, significant changes were not found in students' Global Self-worth.

On the SPPC, Global Self-worth scores above 3.00 are considered to reflect high self-esteem (Renick & Harter, 1988). The students in this study did not have low Global Self-worth scores (mean subscale scores were 3.23, 3.37, 3.47, 3.5), and as a result, one would not expect increases to occur. These findings are consistent with the research literature, for despite the common expectation that children with learning disabilities' lower self-perceptions of academic competence should lead to lower Global Self-worth, research has not shown this to be the case (Chapman, Bear, & Juvonen, 1992). While students with learning disabilities may have unfavorable perceptions of their academic competence, studies show that these students maintain positive feelings of global self-worth (Bear, Minke, Griffin, & Deemer, 1998; Klooma & Cosden, 1994).

When students entered the demonstration school, their mean Global Self-worth scores (M = 3.23) did not differ from the predicted Global Self-worth scores of their normally achieving peers (M = 3.26; Renick & Harter, 1988), and as a result, one would not expect to see statistically significant improvements in self-esteem. During the interviews, seven students and ten parents commented that their or their child's self esteem increased as a result of attending the demonstration school. One explanation for this discrepancy between quantitative and qualitative data surrounds the fact that students' Global Self-worth scores were high to begin with, and as a result, the SPPC (Renick & Harter, 1988) may not be sensitive enough to pick up on subtle changes in global self-perceptions. Participants commented that their or their child's self-esteem improved because they were able to successfully complete grade level work. This discrepancy in results may also be attributed to the possibility that participants used the

term self-esteem to account for their or their child's improvements in academic self-concept.

Eighty percent of students with learning disabilities experience difficulty reading (Lerner & Johns, 2012). A quantitative meta-analysis indicated that systematic phonics instruction helps students learn to read (Ehri, Nunes, Stahl, & Willows, 2001). Academy of READING was designed to foster phonemic awareness, phonics, fluency, vocabulary, and comprehension, and is used by the demonstration school to provide individualized reading instruction. This program is one component of the demonstration school's reading remediation program. The demonstration school ensured its students learned how to read and equipped them with academic strategies, and as a result, students reported that they now enjoy attending school as they feel academically successful.

Strategy instruction focuses on topics such as how to determine when you do not understand what you are reading, how to remember what you have already learned, and how to take notes and plan before writing. Strategy instruction is beneficial for students with learning disabilities, for after six months of classroom-based strategy instruction, 201 students with learning disabilities reported more consistent use of strategies in completing their schoolwork, and perceived themselves as struggling less in reading, writing, and spelling (Meltzer, Katzir, Miller, Reddy, & Roditi, 2004). In addition, teachers perceived students with learning disabilities as more strategic, and perceived that they applied more effort to their schoolwork after receiving strategy instruction (Meltzer et al., 2004). Swanson, Hoskyn, and Lee (1999) reported that knowledge about learning strategies, including which strategies to use in different situations, can help make students more effective, purposeful, and independent learners. In conducting meta-analysis on 227 studies on instructional strategies for students with learning disabilities, Swanson, Hoskyn

and Lee (1999) found the most effective instructional strategies combined direct instruction and strategy instruction. The findings of this meta-analysis are in alignment with the current study as participants reported that through the use of direct reading instruction and strategy instruction the demonstration school meets the needs of its students.

Some, though not all, students with learning disabilities experience social difficulties which can negatively impact their inclusion in the regular classroom (Vaughn, Elbaum, & Boardman, 2001). In their meta-analysis of 152 studies, Kavale and Forness (1996) found that approximately 80% of students with learning disabilities reported deficiencies in their non-verbal communication and social problem solving, and approximately 75% of students with learning disabilities received lower social skills ratings when compared to their peers without learning disabilities. Participants reported that students felt better about themselves because of the social skills training they received. This instruction helped students to navigate social situations and verbally express themselves, which resulted in successful peer interactions and the maintenance of new friendships. Cognitive processing difficulties can affect how individuals view and interpret social situations and may cause students with learning disabilities to experience difficulty understanding social cues. Students with learning disabilities may be socially out of step from their classmates and may be ridiculed or ostracized for their difference (Lavoie, 2005). Lavoie suggests strategies teachers can employ to facilitate behaviours that result in greater inclusion and notes that errors in social judgement are teachable moments which should be addressed as they occur throughout the school day. In addition, negative peer interactions can be addressed in class meetings as discussed by Van Ness and Strong (2010). In the past, social skills interventions have been minimally effective in

changing students€ behaviours; however, the short time span of the interventions may not be sufficient to see improvements in behaviour (Vaughn, Elbaum, & Boardman, 2001).

Although Global Self-worth scores did not differ, two students and one parent commented that their or their child€s self-esteem decreased in high school because of the new social comparison group. Students enjoyed attending the demonstration school because every student had a learning disability and understood what their peers were going through, but at high school „the kids look at you like you are a freak if you do something wrong.„

According to Harter (1990), different school environments provide different social comparison groups and social comparison processes play an important role in the formation of students€ perceived academic competence. In a classic case provided by Renick and Harter (1988), students with learning disabilities who attended a private school, which was specifically structured to meet their academic and social needs, perceived themselves to be more competent and adequate than students with learning disabilities in the public school. Students with learning disabilities perceived themselves as becoming less academically competent when they compared themselves with normally achieving students in their regular education classes (Renick & Harter, 1989). However, when they compared their abilities with their peers with learning disabilities in their resource room, they maintained high perceptions of their own academic competence. Research demonstrates that low self-concept is associated with high ability environments, whereas high self-concept is reported in low-ability settings; Smith and Nagle (1995) refer to this phenomenon as the frog pond effect. While the frog pond effect would predict that students€ self-concept would diminish after transitioning into high school, it is

hypothesized that students€™ self-concept remained intact because of the academic and social skills they acquired at the demonstration school.

Students€™ confidence increased at the demonstration school because they learned how to believe in themselves, complete grade level work, and cope with their learning disability. The social skills instruction also contributed to students€™ elevated confidence. Students€™ academic and social skills transferred with them into high school, and as a result, the majority of participants felt students€™ confidence continued to increase in this new school environment. However, as would be expected based on the theory of the frog pond effect (Smith & Naggle, 1995), a few participants felt that their or their child€™s confidence levels decreased in high school due to the new social comparison group.

Impact on motivation.

Students commented that their motivation to complete academic tasks increased at the demonstration school because they knew they could complete the work and be happy with the assessment outcome. Due to their increased academic achievement, students reported they were no longer embarrassed of their school work. The demonstration school taught students the importance of goal setting, and participants reported that students now set their own academic goals and work towards achieving those goals. Students also developed new career aspiration and goals for their post-secondary education, and parents commented that these goals were reflective of their child€™s increased academic competencies and self-beliefs.

Data from the MES (Martin, 2009) indicated there was no difference in students€™ motivation and engagement at the demonstration school and at high school. The picture that emerged was one in which students maintained their high levels of motivation from the demonstration school for a number of reasons. Participants reported that students

motivation remained high because they were in the same classes as their learning disabled peers and were able to complete the same work. Students remained motivated because of the skills they learned at the demonstration school. Participants judged that students no longer procrastinated over their school work because the demonstration school taught them how to break tasks down into manageable chunks. Participants felt students' heightened motivation persisted because they were able to advocate for themselves and complete their school work with the use of assistive technology. Students noted that they remained motivated to complete academic tasks because "now I can do it and before I couldn't."

Students commented that their persistence increased at the demonstration school because they became confident in their ability to complete school work. All students were likely to persist at the demonstration school because their courses and teachers motivated them to finish their work and they were taught the strategies and skills to do so. Students valued the encouragement they received and learned to employ similar strategies to motivate themselves. Data from the MES (Martin, 2009) indicated that students' persistence levels did not decrease upon transitioning into high school. All students continued to persist at their work in high school because the demonstration school taught them not to give up, take a break if they need it but then try again. Participants also reported that students were more likely to persist at their work because the demonstration school taught them how to appropriately ask for help by identifying concepts they understood and areas where further clarification was necessary. Strategies such as taking a break and then trying again, or utilizing appropriate ways to ask for help, need to be explicitly taught as students with learning disabilities can be described as strategy disabled and can benefit from direct instruction in this regards (for a review outlining the

benefit of strategy instruction to support reading comprehension see Solis et al., 2012; research on the benefits of strategy instruction for students with learning disabilities see Meltzer, Katzir, Miller, Reddy, & Roditi, 2004; for practical suggestions for implementing strategy instruction see Winebrenner, 2002).

Educators need to discuss the importance of various academic skills and how they relate to future employment (Katz, 2012). Teachers at the demonstration school connected the academic curriculum to students' current and future life experiences which helped them to value the material taught in school. Students commented that their persistence remained strong in high school because the demonstration school taught them to value their academic accomplishments and they acknowledged how their accomplishments benefited their future life outcomes.

Impact on self-efficacy and academic achievement.

Participants commented that students' self-efficacy increased at the demonstration school because they learned to "believe in themselves," and their academic abilities. Participants also felt students' self-efficacy increased because their successful academic experiences reaffirmed that they're "not stupid." Students didn't want to go to elementary school, but since attending the demonstration school "they know they can do it," and were "much more positive about going to school." Students had high efficacy at the demonstration school and participants attributed this to teachers' expectations that all students would learn to complete grade level work. Participants also attributed students' high efficacy to the strategies they learned at the demonstration school, as they were taught how to prioritize their school work and how to ask for help when necessary. Students need to be taught that it is appropriate to ask for help as it is an effective way to clarify misunderstandings and obtain necessary supports. In addition, by providing

choice, teaching learning strategies, and utilizing self-evaluations, teachers can help students to experience positive self-efficacy for completing challenging academic tasks (Walker, 2003).

Participants judged that students' efficacy for work completion increased at the demonstration school, and transitioned with them to high school, as the PALS (Roeser, Midgley, & Urdan, 1996) data indicated that there was no significant difference in students' efficacy at the demonstration school and at high school. Participants commented that students' efficacy remained high because they learned to believe in themselves. Students were confident in their ability to complete academic tasks with the use of assistive technology and students reported that they enjoyed being able to complete their work without the assistance of a teacher or educational assistant. School boards need to consider how educational assistants are assigned to work in the classroom (Giangreco, 2010), as educational assistants may further separate students with learning disabilities from their peers, foster unnecessary dependence on an adult, cause feelings of stigmatization, and may limit access to competent instruction (Giangreco, Yuan, McKenzie, Cameron, & Fialka, 2005).

Students' view of themselves as learners improved at the demonstration school because they could successfully complete grade level work and had the marks to prove it. For the first time, students recognized they were capable of learning and perceived themselves as competent learners. Students maintained an academic standing at or above the class average and attributed their increased grade point average to the academic and self-advocacy skills they acquired at the demonstration school

Students' academic self-perceptions also continued to increase because of their understanding of assistive technology. Students enjoyed being knowledgeable about the

technology and took pride in being able to teach their peers and other teachers how to use it. Students with exceptionalities are more likely to be assigned socially undesirable roles (i.e., the loner, challenged learner, and class clown; Specht, Young, Kertoy, Servais, Spencer, Puskarich, & Pompeo, 2010). Educational systems should provide all children with equal opportunity to engage in the same variety of roles, but this is often not the case. The students in this study excelled in their knowledge of assistive technology. Similar to the findings of Raskind & Higgins (1998), by teaching others how to use the technology, students were perceived as a helper and had the opportunity to participate in more socially desirable roles.

Transition to High School

The majority of participants felt the transition to high school was a positive experience, but reported that teachers played a role in determining the success of the transition. Findings from this study suggest that a positive transition can be facilitated through communication between the two schools and being able to meet teachers at the new school before the school year begins. The transition also went smoothly when high schools supported students in their use of assistive technology and students received sufficient support and attention. Students reported that they experienced a difficult transition when teachers were not familiar with their individual education plans, and when their teachers taught way too fast, and did not differentiate their instruction. These findings highlight the importance of implementing assessment for learning, as educators need to consider what individual students do and do not know and use this information to guide their instruction (Ontario Ministry of Education, 2011).

Advocacy skills emerged as one factor which contributed to a successful high school transition. Participants reported students were able to advocate for their learning

needs because the demonstration school taught them how to identify areas in which they had misunderstandings, use appropriate strategies to ask for help, let their high school peers know when they were distracting them from learning, and advocate for their use of assistive technology. In order to support a successful school transition, advocacy skills need to be explicitly taught. Brunelle-Prudencio (2001) demonstrated that students with learning disabilities can acquire self-advocacy skills as the Grade 7, 8 and 9 students in her study benefited from a knowledge and communication skills program which focused on an understanding of one's learning disability, learning style, available resources, required accommodations, and ability to succeed, as well as one's ability to communicate through the use of verbal and non-verbal skills. The demonstration school also developed metacognitive awareness as students were taught to identify how they learn best and which environments support learning. It is important to develop metacognitive awareness as this understanding can help facilitate self-regulated learning, and self-regulated learners are more likely to be successful because they control their learning environment (Winne & Perry, 2000).

Perceived support in high school.

One reason students enjoyed high school was because they lived at home and were close to the people they knew. This comment cannot be overlooked as all students should have the right to access an equitable education in schools within their communities in which they live. The interview data portrayed a positive high school experience. Students reported that they enjoyed high school because of the friendships they developed. Students were likely to acquire new friendships because of the social skills and confidence they acquired at the demonstration school. Only two students experienced difficulties building new friendships in high school; however, these deviances in the

interview data could be attributed to students' continued shyness and preference for spending time with peers in the resource room.

Another reason students enjoyed high school was because they could complete academic tasks with little difficulty. However, this was not the case for all students as some students lamented that their teachers' pace of instruction was too fast, and that teachers provided students with little feedback on their school work, and were not available for after school help. Students received the majority of their support from their resource teachers; they were encouraged to stay in their general education classes for the first 20 minutes of instruction and then they could receive additional support in the resource room. Students appreciated being able to receive support in the resource room; however, they noted this was problematic as they missed out on valuable instruction when they were out of the classroom. Students' high schools did not significantly differ from their elementary schools as there was minimal in-class support and some teachers took little ownership for the instruction of students with exceptionalities in their classrooms. What changed was the student. After being taught a variety of learning strategies, study skills, self-advocacy techniques, and how to independently use their technology, students had less difficulty learning and were more likely to succeed in a learning environment which was ill-equipped to meet the needs of students with learning disabilities.

Participants reported high schools were not supportive of their or their child's needs when there was a lack of knowledge surrounding learning disabilities. The interview data suggests that teachers should be required to obtain professional development surrounding the nature and characteristics of learning disabilities, as well as strategies to meet their learning needs. Participants lamented that some high school teachers were unfamiliar with students' individual education plans, and as a result,

students needed to inform teachers of their learning disabilities. The demonstration school assisted in this regards as students learned how to advocate for themselves and express how their high school teachers could accommodate their learning needs.

Participants felt there was tolerance for severe physical or cognitive disabilities "but when you're in the middle grounds, the invisible disability, there is no tolerance." Students also felt their peers needed to better understand individuals with learning disabilities because they "think kids with individual education plans are 'stupid' and 'retarded'." School staff and students need to be taught to respect diversity (see Katz, 2012), so that the gifts that each learner brings to the classroom can be recognized.

Participants agreed that the demonstration school was more supportive in regards to "teacher support, counselling support, directional support, social support, and everything you can think of." Participants felt the demonstration school was very learning and child-oriented as teachers taught them how to do their work. However, they felt their high schools were curriculum driven because teachers continued with their instruction even though the content wasn't understood by the entire class. When students with learning disabilities transition into the workforce or post-secondary education they may choose to disclose their disability and how their employer or instructors can accommodate them. These advocacy skills can be learned within a school setting (see Reiff, 2007). The demonstration school equipped students with the necessary skills to advocate for themselves as resource teachers told them they were "amongst the few grade nine students that would vouch for themselves."

Data from the PALS (Roeser, Midgley, & Urdan, 1996) indicated that students felt their demonstration school teachers were more likely than their high school teachers to care about their students. Students felt the demonstration school teachers wanted

them to succeed in everything they did but felt their high school teachers wanted students to complete their work so they could move on to the next unit of study. Katz (2012) discusses the importance of teacher-student relationships in supporting learning. The demonstration school was noted to have strong teacher-student relationships and this is one factor which appears to have contributed to the success of its students. This finding is supported by the resilience literature which highlights the importance of positive and supportive teacher-student relationships as protective factors in children's lives (Roorda, Koomen, Split, & Oort, 2011). Students experienced academic success in high school and their self-concept and school motivation continued to remain high. Participants reported that students' increased self-beliefs, and the academic and social skills they acquired at the demonstration school, were factors which contributed to students' positive high school experiences.

School cultures can help foster a sense of belonging. Students noted that they felt like they belonged when they weren't treated differently because they use a computer or have a learning disability. Students felt important because they developed rapport with their teachers and their teachers and peers listened to them. Students appreciated that high school teachers asked them how they were doing and if there were any additional supports they needed. Students also felt like important members of their school communities when they were involved in extracurricular school activities and were able to help other students complete academic tasks. Students with learning disabilities may have a variety of strengths in academic and non-academic domains. It is important to provide students with the opportunity to build on their strengths as a means to protect and enhance their global self-esteem. Role acquisition may also be fundamental to the development of positive self-worth (Marks & MacDermid, 1996). Research from a

longitudinal investigation of school role participation highlights the need for additional support for secondary school participation, as well as the importance of ensuring that all students, including those with disabilities, have the opportunity to participate in various roles, including the role of helping others (Specht & Young, 2010).

Students reported that they experienced a positive transition when their high school teachers gave all students the opportunity to participate in class and recognized those who participated and tried to succeed. Students appreciated that their high school teachers recognized their individual accomplishments and noted that they felt successful because of the grades they received. Students expected their academic courses to be quite challenging, but were pleased that they received 70s and 80s in these courses because the demonstration school "got you caught up."

Issues surrounding assistive technology use.

Some students used their assistive technology less in high school because they could successfully complete the tasks without the use of technology. Students also used their computers less than anticipated because of restrictive task requirements, such as in-class worksheets, and because the technology was not relevant to the courses in which they were enrolled. The demonstration school helped students become self-regulated learners. Students were taught how to identify their learning strengths and weaknesses, as well as learning strategies that worked best for them. As students developed learning strategies, and their reading abilities improved, they became less reliant on their technology and choose to only use it when necessary. Some students used assistive technology primarily to complete essay based assignments and other students consistently used their technology because they judged it had a positive impact on their academic

achievement. Students continued to recognize the value of the technology and took pride in training other students and teachers to use it.

Participants wished high school teachers were more knowledgeable about assistive technology. Participants reported that students needed to advocate for accommodations listed in their individual education plans as their high school teachers did not acknowledge that they needed to use their technology to read or that they needed to have their course notes and exams put into Kurzweil. Pre-service special education courses may only provide a brief overview of learning disabilities and provide minimal, if any, exposure to assistive technology (McGhie-Richmond, Specht, Young, & Katz, 2011). Additional training is necessary for teachers to feel confident in their ability to support students' use of assistive technology (Bryant, Erin, Lock, Allan, & Resta, 1998; Chmiliar & Cheung, 2007; Nelson, 2006). As general educators may not be familiar with the functions of assistive technology, or know how to effectively implement the technology within the curriculum, students with learning disabilities need to be taught how to advocate for their use of technology.

Participants reported students experienced difficulties with the transition to high school when their use of assistive technology was not supported. It took more than a month for some students to have their technology installed and other students experienced instances when they could not access their technology for accommodations listed in their individual education plans. Students also experienced difficulties due to where their assistive technology was located and their inability to take their technology home to assist with homework completion or use their technology for extracurricular activities. In order to ensure that assistive technology is implemented effectively, the setting, environment, tasks, and tools need to be taken into consideration (Zabala, 2005). Educators must

consider the environment in which the child completes academic tasks and the tasks that are required for the student to be able to learn and be an active participant in the learning process.

Strategies to Make Schools More Supportive

The following strategies emerged out of the student and parent interview transcripts and the supporting research literature. These strategies can be conceptualized into two general areas, namely, strategies for promoting positive self-beliefs and quality instruction. When reading the suggested strategies, it is important to remember that 12 parents and 12 students who attended one demonstration school were the participants in this study, and as a result, one must take caution when making generalizations from this study. In addition, this study was exploratory in nature and employed a non-experimental research design, and as a result, one cannot assume that the sole implementation of any of the following suggestions would result in significant changes to student outcomes. Rather, these suggestions are based on participants' interpretation of strategies that supported their success, and caution should be taken when considering how these strategies may be used to make schools more supportive for other students with learning disabilities.

Promote positive self-beliefs.

Support self-concept. As demonstrated by students in this study, students with learning disabilities may receive negative feedback in regards to their academic achievement and this can contribute to decrements in their self-concept. This finding is supported by the research literature. For example, Zeleke (2004a) reported that students with mathematics disabilities rated themselves more negatively than their high achieving peers on mathematics, academic, and general self-concept subscales. Hughes and

Dawson€s (1995) study of 47 adults with dyslexia revealed that a typical pattern of failure at school led to long-lasting negative feelings of self-worth and perceptions of low personal intelligence. Similary, Bear, Minke, and Manning€s (2002) analysis of 61 studies of self-concept demonstrated that children with learning disabilities perceived their academic ability less favourably than their peers without learning disabilities, and Zeleke€s (2004b) meta-analysis found that 89% of studies revealed that students with learning disabilities demonstrated significantly lower academic self-concept scores than their peers without learning disabilities.

It is important for students to maintain positive self-perceptions and high efficacy in regards to their ability to complete academic tasks. In this study, various aspects emerged as critical to students€ self-concept. Namely, teachers need to create an atmosphere of belonging in their classrooms, develop rapport with each of their students, provide students with encouragement when needed, and provide opportunities for participation in which all students can be successful.

Teachers have the ability to promote feelings of security within their classroom. As role models to their students, teachers need to address each student with respect. Teachers need to recognize when each student is acting appropriately and completing academic tasks. By acknowledging the success of weaker students, teachers demonstrate that all students have strengths and can be successful. Teacher encouragement should also surround participation in extracurricular activities, or other domains in which the student experience success, so that students who struggle academically can feel like they are valued members of their school community. It is especially important to encourage students to participate in school based activities as higher levels of participation has been linked to a number of positive outcomes including greater academic achievement, fewer

behavioural problems, lower rates of school dropout, and increased involvement in social activities during early adulthood (Bartko & Eccles, 2003; Darling, Caldwell, & Smith, 2005; Fredericks, Alfeld, Liro, Hruda, Eccles, Patrick, & Ryan, 2002; Simeonsson, Carlson, Huntington, Strutz McMillen, & Brent, 2001). While teachers need to spend much time encouraging their students, positive memos should also be sent home to parents so they can help to reinforce their child€™s efforts in the inclusive classroom.

Foster knowledge of learning disabilities. All members of the school community including administrators, educators, support staff, and students need to have an understanding of the nature and characteristics of learning disabilities and other less common exceptionalities. Teachers should be encouraged to obtain professional development in regards to effective teaching practices to remediate reading difficulties and meet the needs students with learning disabilities in their classes. School boards should consider how they can better advertise and promote the professional development opportunities that they offer. Information could be distributed through emails and information posters placed within staff rooms.

Participants reported that the demonstration school was supportive of students€™ learning needs because teachers understood learning disabilities. Students benefited because the demonstration school taught them how to cope with their learning disability and how to inform educators and peers of their learning difficulties and necessary accommodations. As noted by their high school teachers, former demonstration school students could successfully ƒvouch for themselves„.

Students enjoyed attending the demonstration school because they did not have to explain their learning disability to their classmates. However, in high school students felt their peers thought ƒkids with individual education plans are ˆstupid€ and ˆretarded€„ and

would „look at you like you€re a freak if you do something wrong.„ Katz (2012) reports that students in inclusive classes can and should be taught to value diversity and to work with peers who learn differently. In elementary school, children€s literature can be used to assist students in comprehending interpersonal difference and understanding what it might feel like to have difficulty learning. Units of instruction have also proven effective. Implemented with 218 students in Grades 4 to 7 and their teachers, a Respecting Diversity unit demonstrated a significant increase in students€ self-respect, awareness of other, and respect for others (Katz, 2011). This unit plan is recommended as a tool to facilitate an understanding of and respect for diverse learners found within inclusive classrooms.

Develop rapport with students. Students felt important because their demonstration school teachers took the time to get to know them on a personal basis. Students appreciated that their high school teachers asked how they were doing or if they required additional supports for learning, and judged that teacher rapport made them feel like they belonged and were important members of their school community. Teachers should take the opportunity to informally chat with their students at recess, lunch hour, or when they see their students in the halls. These opportunities should be used to discuss topics of interest to the child and can be used to develop a relationship of trust and mutual understanding. When teachers take the time to get to know their students and form positive teacher-student relationships, students will be more likely to put forth the effort to meet their teacher€s academic expectations. This is supported by the work of Muller (2001) who found that at-risk students put forth more effort when teachers care about students.

Research has demonstrated that teacher-student relationships can promote a positive school experience. A meta-analysis by Cornelius-White (2007) demonstrated that positive teacher-student relationships had an above average degree of association with positive student outcomes. In addition, a separate meta-analytic review (Roorda, Koomen, Spilt, & Oort, 2011) found that the association between teacher-student relationships and engagement and achievement was substantial. Affective teacher-student relationships remain important, or more influential, for older students, children who were academically at risk, children from disadvantaged economic backgrounds, and children with learning disabilities (Roorda et al., 2011).

Promote academic and social competencies. Teachers can promote academic competencies and social acceptance by encouraging students with and without disabilities to assist their peers on tasks in which they are competent. Students in this study felt like important members of their school community because they were able to help other students complete academic tasks and train others to use assistive technology. Students need to be reminded that each individual has unique learning strengths, that it is appropriate to seek support in areas in which you experience difficulty, and that it is equally beneficial to provide support in areas in which you exhibit expertise as teaching others helps to solidify one's understanding of the subject matter.

Teachers need to be cognisant of how the classroom seating plan can be organized to facilitate positive interactions with students who experience obstacles to participation (for more information see Katz, 2012). Peer support can be more subtle when seating is strategically planned. A "buddy system" can be used to instill confidence in students with exceptionalities (Nesbit & Mason, 2010). Students with and without disabilities are likely to help their peers and may benefit from their role as a peer tutor.

Provide quality instruction.

Provide effective instruction. Participants reported that students benefited from effective instruction and appreciated that their teachers presented information in ways which were relevant and practical to their daily lives. Utilizing a combination of direct instruction, classroom discussions, reading materials, and instructional technology provides students with multiple means to acquire information. Students should also have input in regards to their selected assessment modality so that they can choose utilize their strengths to demonstrate what they know (Ontario Ministry of Education, 2005).

Maintain high expectations. Previous academic records can limit a teacher€s expectations for their students. Demonstration school teachers expected students would be able to complete grade level work and participants reported that these expectations for success helped students become confident in their abilities. Carol Ann Tomlinson (2008) advises that effective differentiation involves respectful tasks which portray the message that everyone will be studying the most important ideas and thinking and problem solving at a high level, and this task will be so interesting that it will be hard to disregard it. Students need to be provided with tasks which they can complete with an appropriate level of difficulty, for as demonstrated in this study, remedial instruction which is below a student€s ability level can be interpreted as a reflection of teacher€s low expectation for their learning.

Be available for support. The Learning Disability Association of Canada (2012) estimates that one in ten Canadians has a learning disability, and as a result, teachers are likely to have students with learning disabilities in their classroom. In order to help students grasp the course material, teachers should be available for extra assistance at recess, lunch hour, or after school. In high school students received the majority of their

support from resource teachers. Additional support should be made available within the inclusive classroom. Teachers should circle around the classroom to identify and assist students who are having difficulty completing academic tasks. Students reported that they benefited from the weekly reporting system provided by the demonstration school and felt high school teachers should also provide students with detailed feedback on their school work so they know how to improve.

Provide a structured learning environment. The demonstration school provided a structured work environment and taught students how to create and stick to a schedule. Participants reported that this structured routine persisted in student€™s study habits in high school. Teachers need to strive to create a predictable and stable classroom environment and ensure that their students develop and maintain routines for homework completion (Mather & Goldstein, 2001).

Teach learning strategies. Students benefited from the metacognitive awareness they developed at the demonstration school. Students with learning disabilities may not be familiar with effective learning strategies, and as a result, teachers should model strategy use and teach these skills through direct instruction (Mather & Goldstein, 2001; Meltzer, Katzir, Miller, Reddy, & Roditi, 2004). Students were likely to persist at their school work because their demonstration school teachers motivated them to finish their work and taught them similar strategies to motivate themselves. Student€™s academic and social skills transitioned with them to high school as students continued to review their school work on a daily basis and sought out remedial assistance as needed. Due to their familiarity with various learning strategies, students continued to feel confident about their abilities in high school.

Teach self-advocacy skills. Teachers need to help their students understand the importance of advocating for themselves, and teach them effective strategies for doing so, as the research literature suggests that one of the fundamental factors to success is the ability to self-advocate (e.g., Aune, 1991; Brinckerhoff, 1993; Hastings, et al., 2001; Janiga & Costenbader, 2002; Lock & Layton, 2001; Lynch & Gussel, 1996; Merchant & Gajar, 1997; Skinner & Lindstrom, 2003). Despite the importance of self-advocacy skills, Merchant and Gajar's (1997) review of the literature found that self-advocacy skills are not taught in high school or at the post-secondary level. As demonstrated by Brunello Prudencio's (2001) doctoral research, self-advocacy skills can be taught through programs which develop one's verbal and non-verbal skills, as well as an understanding of one's learning disability, and the available resources, services, supports, and accommodations which are needed to succeed.

For students with learning disabilities, the foundation for self-advocacy is based on having a thorough understanding of one's learning disability, its associated strengths and weaknesses, impact on learning, and compensatory strategies. Participants reported that former demonstration school students were amongst the few Grade 9 students who could advocate for themselves. Students were able to advocate for themselves because the demonstration school taught them how to speak about their learning disability, how their technology helps them learn, and how teachers could accommodate their learning needs. Students also demonstrated their advocacy skills as they informed teachers when they were distracting them from learning.

Teach social skills. In a meta-analytic review of 152 studies investigating social skills deficits among students with learning disabilities, Kavale and Forness (1996) found that approximately 75% of students with learning disabilities received lower social skills

ratings than their peers without learning disabilities. This finding was supported by a meta-analysis conducted by Nowicki (2003) which demonstrated that children with learning disabilities are at greater risk for social difficulties than average to above average achieving students. This is problematic as students with learning disabilities who exhibit poor social skills are more likely to be neglected or rejected by their classmates than students without learning disabilities (Bryan, 1997; Haager, Watson, & Willows, 1995; Vaughn, Elbaum, & Schumm, 1996). Social skills programming may help students develop new friendships, and the skills learned in this programming may generalize to new environments (Helper, 1997). As a result, administrators should consider the feasibility of implementing social skills programming within their schools (Walker, & Nabuzokab, 2007)

Social skills instruction is designed to teach students how to navigate new social situations, verbally express themselves, and use appropriate body language. The average duration for social skills instruction is 30 hours or less, which may be insufficient to ameliorate social problems (Kavale & Mostert, 2004; Vaughn, Elbaum, & Boardman, 2001). During their two years of attendance at the demonstration school, students received social skills instruction from their residence counsellors as part of the evening programming. Participants reported that the social skills training at the demonstration school helped students feel more confident initiating conversations and interacting with peers, and helped students to control impulsive behaviour by utilizing a self-talk to remind themselves to think before speaking or acting. Participants also reported that this training allowed students to successfully interact with their peers and maintain new friendships. Some students were especially appreciative of their newly acquired social skills because it enabled them to experience friendships for the first time.

Support participation. Teachers need to ensure that all students have the opportunity to participate in classroom activities. Teachers should not rely on high achieving students to respond to questions because they know they will have the correct answer. Instead, all students should feel comfortable demonstrating their knowledge. Students should be taught that they do not need to have the correct answer to respond, that providing an incorrect response is not *f* bad„ and what is most important is that they try their best.

Interviews with participants highlighted the benefit of having teachers who recognize students who participate and try to succeed. Students reported that they felt important at the demonstration school because teachers rewarded ability and recognized the achievement of all students. Demonstration school teachers recognized the achievements of their top students but equally valued the effort all students exerted on academic tasks. Students felt they were important members of the school communities when they were involved with extracurricular activities and appreciated that their demonstration school teachers equally recognized the contributions of the highest scoring athletes, team players, and fans on the sidelines. Educators should promote participation in academic and social activities as higher levels of school participation have been linked to a number of positive outcomes, including greater academic achievement, lower rates of school dropout, and increased involvement in social activities during early adulthood (Simeonsson, Carlson, Huntington, Strutz McMillen, & Brent, 2001).

Support the use of assistive technology. Students reported that they were positively impacted by the use of assistive technology as it assisted them in completing grade-level work and acted as a scaffold enabling students to complete academic tasks they would otherwise be unable to complete. Participants reported that when provided

alongside effective instruction, assistive technology had to compensate for students' weaknesses in the areas of reading fluency, reading comprehension, grammar, spelling, organizational skills, and handwriting abilities. These findings are consistent with a research study which demonstrated that Kurzweil improved academic self-perceptions and the functional task performance of high school students with learning disabilities, as demonstrated by students' ability to fill out the educational information and work experience sections of a job application form (Chiang & Jacobs, 2009), and the research which demonstrates that WordQ enhances spelling accuracy (Evmenova, Graff, Marci Kinas, & Behrmann, 2010), and written productivity (Tam, Archer, Mays, & Skidmore, 2005). In addition, outlining programs and concept mapping software can help with planning, and word processing, spell check, word prediction, and speech recognition can offer support for transcription and revision, when provided in conjunction with effective strategy instruction (MacArthur, 2009). While assistive technology has the potential to support the needs of struggling learners, MacArthur (2009) cautions that technology by itself has little impact on learning; in order for students to take advantage of the capabilities of the technology, technology must be embedded within quality instruction.

Participants felt assistive technology had a positive impact upon students' self-perceptions and motivation because they could produce higher quality work without the assistance of other educators. Students were confident because they could complete their work with technology and they took pride in teaching their peers and teachers to use it. Students attributed their successful assistive technology experience to the competency of the demonstration school teachers. Students benefited from the assistive technology training at the demonstration school because technology instruction was embedded within subject area instruction and students learned how to use the technology to support

homework completion. It is important for assistive technology use to be embedded within class instruction as students may not consider the various ways technology can support task completion.

Students wished they received additional technology training in high school and that their high school teachers were more knowledgeable about the technology. These findings are consistent with the research literature, as there appears to be serious shortcomings in the amount of assistive technology training pre-service teachers receive. In Chmiliar's study (2007), the majority of teachers reported that they had no opportunity for pre-service training in the area of assistive technology and were unskilled or needed support. Nelson (2006) recommends that all educators who support an individual student should be knowledgeable about that child's assistive technology and be able to embed the use of the technology within instruction.

Participants reported that students experienced difficulty due to the location of their assistive technology and their inability to use the technology for extracurricular activities and homework completion. To promote effective use of technology, educators should employ the SETT Framework (Zabala, 2005), by taking the setting, environment, task, and tools into consideration when making assistive technology related decisions. When recommending the use of assistive technology, one must consider how assistive technology training can be provided in order for students, parents, and teachers to become competent with the technology, as well as environmental factors that will continue to support the child in using technology (Specht, Howell, & Young, 2007).

Implications for Transitions, Inclusive Schools, and Assistive Technology

There is little empirical research examining the transition from middle school to high school for the general education population (Akos & Galassi, 2004). However, the

available research demonstrates that transition from elementary to secondary school is commonly associated with dips in academic achievement and self-esteem, and increased social anxiety (Alspaugh, 1998; Eccles et al., 1993). Student-teacher relationships are critical to educational success; however, upon transitioning into high school, student teacher relationships become less positive, personal, supportive, and caring (Eccles et al., 1993). This is unfortunate, for according to Barber and Olsen (2004), the perceived change in student-teacher relationships and student support in high school significantly explained changes in students' levels of academic, personal, and inter-personal functioning achievement.

The inclusive classroom is one of the available placement options for students with exceptionalities. Students with learning disabilities may receive educational services in segregated classes; however, with the exception of the current study, research has yet to examine factors that support students with learning disabilities' transition from segregated learning environments into inclusive classrooms. In order to support the transition from middle school to high school, Anderson, Jacobs, Schramm, and Splittgerber (2000) suggest the implementation of individualized transition plans, planning teams across schools, student driven goals and problems assessments, and ongoing evaluation of the transition process. Students who are struggling academically may require additional support with the transition and may benefit from being taught study skills, and being provided with academic tutors, time management classes, and further discussion of academic expectations (Demo, Heumet, Goalen, & Rudduck, 2000).

The demonstration school strove to highlight the abilities of students with learning disabilities and supported their unique learning needs through a challenging and enriching program. Embedded within effective instruction, the use of assistive technology helped

students gain access to grade level curriculum, and through the provision of a stable and nurturing learning environment, the school was responsive to the needs of the whole child. Participants reported that students benefited from their attendance at the demonstration school; however, students preferred to live with their family and within their community.

Due to financial constraints, components of the demonstration school, such as the small class sizes and residential programming, cannot be replicated within neighbourhood schools. However, this study highlights specific components of the demonstration school which can be implemented in inclusive classrooms. Providing additional support on assistive technology, as well as extended opportunities to develop students' learning strategies, self-advocacy, and social skills, may help students with learning disabilities have their learning needs met within their community schools.

Assistive technology can be of assistance to individuals who struggle with writing (MacArthur, 2009), as the technology can minimize students' learning difficulties by supporting their areas of strength (Behrmann & Marci Kinas, 2002). Assistive software can help to circumvent difficulties with decoding so that students can complete subject area work without struggling to read. When employed by a supportive teacher, assistive technology may help students obtain success in reading and writing (Fasting & Halaas Lyster, 2005), and when embedded within effective strategy instruction, assistive technology provides the means for students to complete organized and well written assignments that are reflective of their knowledge and skills (MacArthur, 2009).

Provisions surrounding special education in Ontario were introduced by the Education Amendment Act of 1980 (Bill 82) which states that it is the responsibility of school boards to provide (or to purchase from another board) special education programs

and special education services for their exceptional students" (paragraph 7 of subsection 170(1)). Funding for equipment for students with special needs is provided by The Ontario Ministry of Education. The Special Equipment Amount (SEA) was developed to provide financial assistance to conduct needs assessments, identify appropriate technology resources, and to provide assistive technology services. This funding enables staff and students to obtain training on the computers and software programs. Upon obtaining the technology, it becomes the school board's responsibility to ensure that the equipment is functioning properly, that it is meeting the student's needs, and that the equipment is replaced as required (Ontario Ministry of Education, 2007). The Ontario Ministry of Education has developed mandates to support assistive technology training and service initiatives, and as a result, one can hope that current educators will see the benefits of assistive technology that were outlined in this study.

Individualized education plans have increasingly recommended the use of assistive technology to aid the written expression of students with learning disabilities (Behrmann & Marci Kinas, 2002; Lewis, 1998). When recommended by a qualified professional, the SEA Per Pupil Amount is used to purchase computer software and computing related devices, as well as fund training and technician costs for SEA equipment. Although recent regulations have included technology mandates and funding to support a variety of technology training and service initiatives, assistive technology is often not utilized to its full potential because the issues surrounding assistive technology service delivery are complex and involve much more than the basic operation of the technology (QIAT, 2000). This study addresses some of the complexities of assistive technology service delivery, identifies some previously unknown benefits of the technology, and provides strategies to assist educators in further supporting its use.

Teachers' knowledge of assistive technology impacts the way students approach its use. Teachers frequently report a lack of knowledge and skills in supporting assistive technology and this is largely a result of inadequate pre-service training (Chmiliar & Cheung, 2007). Pre-service teachers may only be provided with a textbook definition of assistive technology, and as a result, they cannot be expected to successfully utilize technology to meet the needs of their students (Ashton, 2005). Edyburn (2000) laments that there is a critical shortage of in-service personnel trained in the use of assistive technology, and as a result, there is a critical need to incorporate technology-into pre service training for teachers and educational assistants. Expert support needs to be available during the acquisition of the assistive technology, during the training of staff and students, and for follow-up evaluations of student progress. This initial training and continued support for students and their instructors is crucial to ensuring that technology can be used as intended to meet student educational goals (Blackhurst, 2005; Edyburn, 2000).

Assistive technology programs continue to be offered based on the advice of the Ontario Software Acquisition Program Advisory Committee, and one can hope that educators will become familiar with these programs and gravitate towards their use. However, one should not be too optimistic as Edyburn (2000) laments that the gap between the potential of assistive technology and current practices has long been a source of frustration for parents and policymakers. Providing students with assistive technology does not result in improvements in achievement; the potential of the technology will only be seen if teachers have sufficient training to know how to integrate the use of technology within the curriculum and there is sufficient technical support.

Strengths and Limitations of the Current Study

This study is novel in that it is the first investigation of the experiences of students with learning disabilities as they transition from a provincial demonstration school and reintegrate into their local inclusive classrooms. Nineteen students recently graduated from one provincial demonstration school and transitioned into their neighbourhood schools; 12 of these students consented to participate in this study. Therefore generalizations cannot be made from the data due to the small sample size and the fact that participants attended one demonstration school. Because this study was exploratory in nature, and employed a non-experimental research design, one cannot infer that the use of assistive technology or any other component of the demonstration school solely contributed to gains in academic self-concept and self-reported gains in school motivation and achievement.

The demonstration school provided small class sizes which promoted stronger teacher-student relationships, individualized instruction, and academic success. In addition, the school provided a supportive learning environment where students were taught how to effectively use their assistive technology and in the evenings counselors were available to provide social skill instruction and individualized homework help. Due to the specialized nature of the demonstration school programming, one cannot assume that the findings of this study would generalize to other school settings.

New school environments provide new social comparison groups and new standards of evaluation provoke adolescents to evaluate their competencies (Harter, 1990a). At elementary school there were only a few students with learning disabilities; however, at the demonstration school students realized they were not alone as they were surrounded by peers who also had learning disabilities. This may have impacted student

perceptions of their ability, for according to the frog pond effect, low self-concept is associated with high-ability environments, whereas high self-concept is reported in low-ability settings (Smith & Nagle, 1995). Pressley, Gaskins, Solic, and Collins (2006) investigated how one school produced high achievement in students who previously failed, and reported that many factors, including the use of evidence-based literacy instruction, strategy instruction, conceptually focused content instruction, motivational techniques, well-trained teachers, skilled counselors, and small class sizes, jointly promoted academic achievement. When reading through the results of this study one must keep in mind that a variety of factors such as smaller class sizes, effective remedial instruction that brought basic academic skills within age ranges, strategy instruction, social skills instruction, and a new social comparison group are likely to have jointly contributed to increases in confidence levels, academic self-perceptions, school motivation, and perceived academic abilities.

Participants reported that assistive technology had a positive impact on their or their child€s academic achievement. However, as all participants came from the same school one cannot assume that similar findings would occur in other school settings. The students in this study were selected to attend the demonstration school because they had very weak academic achievement, particularly in reading, with mostly grade equivalents of 1 to 3 on standardized tests (demonstration school website). As elementary school students€ learning disabilities prevented them from experiencing academic success; however, they had great learning potential, and as a result, one would expect that the use of assistive technology would have a positive impact on their academic achievement. The demonstration school was known for its superb implementation of assistive technology because the educators understood the technology and provided students with the most up

to-date training on the technology. Other students with learning disabilities may be provided with adequate training on the use of assistive technology; however, similar findings may not ensue as the technology was only one component which helped students become successful at the demonstration school.

Future research.

Due to the high costs associated with maintaining demonstration schools, only a few students with learning disabilities are able to benefit from these programs. Despite the equity issues which surround determining which students have the opportunity to benefit from the demonstration schools, little research has been conducted on these programs. Participants in this study reported that the strategies and supports provided by the demonstration school resulted in improvements in students' self-concept, school motivation, and academic achievement, and these heightened beliefs, motivation levels, and achievement outcomes transitioned with students into their neighbourhood schools. Future research should investigate the effectiveness of demonstration schools in order to determine whether the benefits of these programs compensate for removing students from their families, the communities in which they live, and the inclusive general education classroom. Additional longitudinal research is needed in order to better understand how former demonstration school students continue to fare in high school and in future employment or post-secondary educational settings. Students who were recommended to attend the demonstration school, but declined to attend because of the residential component, could act as a control group. This comparison group would enable researchers to better understand the degree to which attending a provincial demonstration school impacts future educational outcomes and career aspirations.

Only a few researchers are conducting systematic, well-designed research that can lead to confident conclusions on how the use of assistive technology affects learning (Gersten & Edyburn, 2007; MacArthur, Ferretti, Okolo, & Cavalier, 2001). In addition, little research has been conducted on the use of assistive technology in inclusive schools (Ashton, 2005), and there has been limited research on the impact of assistive technology on academic self-concept and school motivation. The demonstration school provided an ideal environment for assistive technology use as teachers were familiar with these programs and knew how to facilitate their use within the general education curriculum. Participants reported that when used in a supportive school environment, assistive technology can have a positive impact on academic self-concept and school motivation. In order to make informed decisions about the selection and use of assistive technology, additional research should investigate strategies to better support students in their use of assistive technology in the general education classroom.

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Appendix A- Consent to be Contacted for Future Research

A Longitudinal Investigation of the Impact of Assistive Technology on Self-Concept, Motivation, and Academic Achievement

What is the Purpose of This Study?

We would like to invite you to continue participating in our research study looking at the impact of assistive technology on self-concept, motivation and academic achievement. We are interested in looking at the way in which assistive technology may continue to impact students as they make the transition from the Amethyst School back into their local schools, and we would like your help in doing so. We are contacting you to ask permission to invite you to participate in future studies. By agreeing to be contacted, you are in no way obligated to participate once you hear more about future studies.

Who are the Investigators?

Jacqueline Specht, PhD	Faculty of Education University of Western Ontario	519-661-2111 ext [redacted] [redacted]ca
Gabrielle Young, MEd.	PhD Student University of Western Ontario	519-661-2111 ext [redacted] [redacted]m

What Have We Done and What Do We Plan To Do?

All first year students attending the Amethyst School during the 2007-2008 academic year were invited to participate in this study.

In September 2007 and in May 2008, participants completed a survey that questions how you feel about yourself in areas related to school and friends. This survey took approximately 30 minutes to complete and was completed at the Amethyst School, during a period of the regular academic school day.

In June 2009, participants will complete the same survey and an additional survey that questions how you feel the computer helps you at school. The completion of these two surveys will take approximately 45 minutes. Students and their parents have consented to this process.

During the 2009-2010 school year, we want to investigate how students from Amethyst view their transition back to their neighbourhood schools. If you are interested in being contacted for future research studies, please complete the attached form and have your child return it to their Amethyst School teacher. As stated above, this agreement to be contacted does not mean that you will have to participate in future research. You can hear about the study and decide at that time.

Any Questions?

If you have any questions about this study, please contact Jacqueline Specht at 519-661-2111 ext. [redacted] or Gabrielle Young at [redacted]m

A Longitudinal Investigation of the Impact of Assistive Technology on Self-Concept, Motivation, and Academic Achievement

CONSENT TO BE CONTACTED FOR FUTURE RESEARCH

By signing this form, you will allow the investigators contact you in the future to ask if you would like to continue your participation in this research study. You have no obligation to actually participate in the study.

_____
Name of Student

_____ _____
Student's Signature Date

_____
Printed Name of Parent/Guardian

_____ _____
Parent/Guardian's Signature Date

_____ _____
Home Telephone Preferred Contact Time

_____
Alternate Telephone

_____
E-mail Address

Home Address: _____

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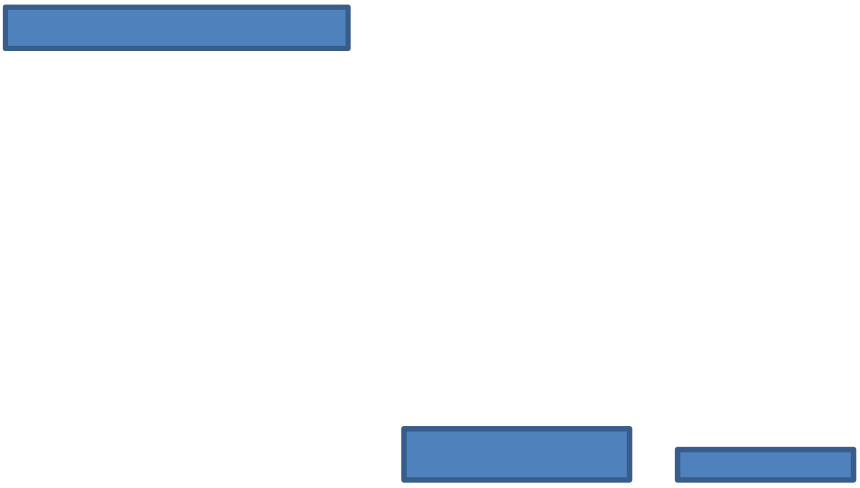

Appendix C• Letter of Information

The Impact of Assistive Technology on Self-Concept and Motivation Across School Transitions

Letter of Information

What is the Purpose of the Study?

We are conducting research to understand how students from a demonstration school view their transition back to their local schools. We would like to invite you to participate in this study.

The aims of this study are (a) to better understand academic self-concept and school motivation of students when they have recently transitioned from the demonstration school to their local schools; and (b) to determine the degree to which students may continue to use the assistive technology and how they are engaged and performing in school.

Who are the Investigators?

Jacqueline Specht, PhD	Associate Professor University of Western Ontario	519-661-2111 ext [redacted] [redacted]ca
Gabrielle Young, MEd.	Doctoral Candidate University of Western Ontario	519-661-2111 ext [redacted] [redacted]n

Who is Eligible to Participate and What Will Happen in This Study?

Students who recently attended a demonstration school and who have since transitioned to their local schools will be invited to participate in this study. The parents of these students will also be asked to participate.

In September 2007, May 2008 and May 2009, students completed a survey which assessed how they feel about themselves in areas related to school and friends. We will use this information to assess changes in self-esteem over time.

In January 2010 and June 2010, students and their parents will be asked interview questions which focus on students€ transition from the demonstration school back to their local school, as well as the way in which students€ may continue to be influenced by the use of assistive technology.

Upon completing the interviews, students will also be asked to complete surveys. Surveys will be used to determine if there are changes to their academic self-concept and scho

motivation; to understand their perceived level of support in their previous as well as their current school environment; and to find out how the assistive technology may impact them.

Interviews will be conducted on an individual basis, will be audio recorded, and will take approximately 30 minutes to complete. Student surveys will take 30 to 40 minutes to complete. Interviews and surveys will take place at a time which is convenient to you. They can take place at your home, at your local library, or at another location which you may prefer. Interviews will be transcribed into written format with identifying names removed.

You will be also be provided with an overview of the research findings. You will be able to comment on the degree to which you feel these researchers are providing an accurate portrayal of your/your child€s use of assistive technology and your child€s transition to their local school. This may require an additional 30 minutes of your time.

In appreciation for your assistance with the study, students will be provided with a $20 gift certificate.

Your research records and audiotapes of interviews will be stored in a locked cabinet at the Faculty of Education. These materials will be destroyed 7 years after the publication of the research. When the results of the study are published, your name will not be used and no information that discloses your identity will be released.

There are no known risks to participating in this research. Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions, or withdraw from the study at any time.

If you are already participating in another study at this time, please inform the investigators right away to determine if it is appropriate for you to participate in this study.

Questions

If you have any questions about this study, please contact Jacqueline Specht at 661-519 2111 ext. [redacted] or Gabrielle Young at [redacted]@[redacted]. If you have any questions about your rights as a research participant, you may contact the Director, Office of Research Ethics, The University of Western Ontario at [redacted] or e-mail [redacted]@uwo.ca

This letter is yours to keep for future reference.

If you agree to participate, please complete the attached consent form.

The Impact of Assistive Technology on Self-Concept and Motivation Across School Transitions

Gabrielle Young, Doctoral Candidate
Dr. Jacqueline Specht, Associate Professor

Consent Form

I have read the letter of information, have had the nature of the study explained to me and I agree to participate in the study. All questions have been answered to my satisfaction.

_____
Name of Student

_____
Student's Signature Date

_____
Printed Name of Parent/Guardian

_____ _____
Parent/Guardian's Signature Date

_____
Name of Person Obtaining Informed Consent:

_____
Signature of Person Obtaining Informed Consent:

_____
Date:

Appendix D• Interview Questions

Semi-Structured Interview Questions
(Parent € Interview One)

Background Information

- Can you provide me with information surrounding the formal diagnosis of your child€s learning disability? (i.e., does your child have difficulty with reading, written activities, the organizational process surrounding writing etc.).

- What led you to apply to the demonstration school?

Assistive Technology

- Did your child use assistive technology prior to attending the demonstration school?

- Before attending the demonstration school and before your child had access to the use of assistive technology, what was school like for your child?

- Are there school subjects or academic tasks your child would have difficulty completing without the use of assistive technology? Please explain.

    - If you answered yes to the above question: Does your child continue to have difficulty with these tasks now that he/she has the opportunity to use assistive technology to complete school assignments?

- Are there academic tasks that your child can complete with the use of technology that he/she could not complete before?

    - If you answered yes to the above question: How does this make him/her feel about himself/herself?

- How did your child describe the use of assistive technology at the demonstration school?
    - Probe: Was it a positive or negative experience? Did he/she find the technology to be useful, time efficient, frustrating etc.

Demonstration School Support

- Do you think that your child enjoyed attending the demonstration school? Why or why not?

- What do you think your child enjoyed most about attending the demonstration school? What did he/she enjoy the least?

- Were there specific factors that made the demonstration school different from other schools?

- If so, what might these factors be? (i.e., smaller class sizes, all students have learning disabilities, the school offers social skills programs in the evenings etc)

- Do you think that these factors were beneficial to your child? Why or why not?

- Do you think that the demonstration school provided a supportive learning environment for your child? Why or why not.

Self-efficacy

- Has your child€s school related beliefs/behaviours changed since attending the demonstration school?
  - Probe: Is your child more or less likely to believe that they can complete academic tasks?

- Provided that he/she has enough time to complete the assignment, is your child likely or unlikely to believe that they can do a good job on their homework given by the demonstration school?
  - Probe: Why might this be the case?

Self-Concept

- Do you think your child€s level of self-confidence has increased or decreased since attending the demonstration school?

  - If it has changed, why do you think this happened?

- Do you think your child€s view of him/herself as a student changed since attending the demonstration school? (i.e., Does he/she feel that he/she is more or less intelligent?).

  - If it has changed, why do you think this happened?

- Do you think your child€s level of self-esteem changed since attending the demonstration school?

  - If it has changed, why do you think this happened?

School Motivation

- Do you think that your child enjoys completing school work more or less since he/she has attended the demonstration school? Why might this be the case?

- Do you think that your child is more or less likely to persist at his/her homework since attending the demonstration school? Please explain.

- Do you think that your child€s level of school motivation has changed since attending the demonstration school?

  - If it has changed, why do you think this happened?

Concluding Questions/Comments

- Do you think that attending the demonstration school made a difference in your child? (i.e., did he/she learn academic strategies, social and personal skills, etc.).

- Is there anything else you would like to tell us about your child€s experience at the demonstration school or your child€s use of assistive technology?

Semi-Structured Interview Questions
(Student Interview One)

Background Information

- How old are you?

- What school do you currently go to?

- What grade are you in?

- What subjects are you currently enrolled in?

Assistive Technology

- When did you first use assistive technology?

- How much training were you provided with on the use of assistive technology?

- Do you like using assistive technology? Why or why not?

- Do you think that the use of assistive technology makes it easier, harder or the same for you to complete your school work? Please explain.

- Do you think that the use of assistive technology makes it faster or slower for you to complete your school work? Please explain.

- Are there academic tasks that you can do with the assistive technology that you could not do before?

    - If you answered yes to the above question, how does this make you feel about yourself?

Demonstration School Support

- While at the demonstration school, you were in a class with fewer students. Was this helpful or not helpful for you? Please explain why or why not.

- While at the demonstration school, the students in your class also had learning disabilities. Did you like or dislike being in a class with students who also had learning disabilities? Why or why not.

- While at the demonstration school, did you receive individualized homework help? If so, was this helpful or not helpful for you?

- Do you think that the demonstration school was a school which was supportive of your learning needs? Please explain why or why not.

- Do you feel that the teachers cared about you at the demonstration school? Why or why not?

- Did the teachers make you feel like you belonged at the demonstration school? Why or why not?

- Did you feel like you were important at the demonstration school? Why or why not?

- Did you feel like you were successful at the demonstration school? Why or why not?

- At the demonstration school, did your teachers recognize students who try hard in class or did they only recognize students who got the best grades? Please provide an example to support your answer.

Self-Efficacy

- Have your school related beliefs increased or decreased since attending the demonstration school?
  - Probe: Are you more or less likely to believe that you can complete an academic tasks?

- Provided that you have enough time to complete the assignment, are you likely or unlikely to believe that you can do a good job on homework given to you by the demonstration school? Why might this be the case?

Self-Concept

- Do you think your level of self-confidence has increased or decreased since attending the demonstration school?
  - If it has changed, why do you think this happened?

- Do you think your view of yourself as a student has changed since attending the demonstration school? (i.e., Do you feel that you are more or less intelligent?)
  - If it has changed, why do you think this happened?

- Do you think your level of self-esteem has changed since attending the demonstration school?
  - If it has changed, why do you think this happened?

School Motivation

- While attending the demonstration school, if you had a school assignment that you were having difficulty completing, were you more likely to keep trying at it until you figured it out, or were you more likely to give up? Why might this have been the case?

- Are you more or less likely to persist at your school work since attending the demonstration school? Why might this be the case?

- Did you ever feel anxious about completing school assignments that the demonstration school provided? Please explain.

- Do you feel it is more important to understand how to complete a school assignment or do you feel it is more important to simply get your school work done? Please explain.

- Do you feel that what you learn at school is important to your future life outcomes? Please explain why or why not.

- Do you think attending the demonstration school made you more or less motivated to complete your school work? Please explain.

Concluding Questions/Comments

- Do you think that attending the demonstration school made a difference for you? (i.e., did you learn academic strategies, social and personal skills, etc.).

- Is there anything else you would like to tell us about your experience at the demonstration school or your use of assistive technology?

Semi-Structured Interview Questions
(Parent €Interview Two)

School Transition

- Please describe the transition to your child€s current school?
  - Probe: Was it a positive experience, a negative experience, a difficult experience etc.

- Were there certain things that took some time for your child to adjust to? Please explain.

- Are there any components of your child€s current school that he/she is experiencing difficulty with?

  - If so, what strategies (if any) is he/she using to deal with these difficult components of his/her school life?

Current School Support

- Is your child enjoying or not enjoying his/her experience at his/her current school? Why might this be the case?

- What do you think your child is enjoying most about attending his/her current school? What is he/she is enjoying the least?

- Do you think that your child€s current school is supportive of his/her learning needs? Why or why not.

Assistive Technology

- Does your child continue to use assistive technology at his/her current school? Please explain why this may be the case.

- Does your child use assistive technology to complete their homework? If so, could you estimate the proportion of their homework that is completed with the use of assistive technology?

- Do you think that using assistive technology makes your child more or less motivated to complete academic tasks? Please explain.

Self-Efficacy

- Has your child€s school related beliefs changed since attending their current school?
  - Probe: Is your child more or less likely to believe that they can complete academic tasks?

- Provided that he/she has enough time to complete the assignment, is your child likely or unlikely to believe that they can do a good job on their homework given by their current school? Why might this be the case?

Self-Concept

- Do you think your child€s level of self-confidence has increased or decreased since attending his/her current school?
    - If it has changed, why do you think this happened?
- Do you think your child€s view of him/herself as a student has changed since attending his/her current school? (i.e., Does he/she feel that they are more or less smart?)
    - If it has changed, why do you think this happened?
- Do you think your child€s level of self-esteem has increased or decreased since attending their current school?
    - If it has changed, why do you think this happened?

School Motivation

- Do you think that your child is more or less likely to persist at academic tasks since attending his/her current school? Please explain.
- Do you think that your child€s level of school motivation has changed since attending his/her current school?
    - If it has changed, why do you think this happened?

Concluding Questions/Comments

- What would you say are the main differences between the demonstration school and your child€s current school?
- Is there anything else that you would like to share about your child€s transition to his/her current school, his/her experience at his/her current school, or his/her experience with the use of assistive technology?

Semi-Structured Interview Questions
(Student – Interview Two)

School Transition

- How did you find the transition to your current school?
  - Probe: Was it a positive experience, a negative experience, a difficult experience etc.

- Were there certain things that took some time to adjust to? Please explain.

- Are there any components of your current school that you are experiencing difficulty with?

  - If so, what strategies (if any) are you using to deal with these difficult components of your school life?

Current School – School Support

- What are your thoughts on attending your current school?
  - Probe: Are you enjoying/not enjoying attending your current school?

- What do you like most about attending your current school? What do you find most challenging?

- How does your current school compare to the demonstration school?
  - Probe: Is it easier or harder? Do you like it more or less? Are the teachers better at your current school or at the demonstration school? etc.

- Do you feel that the teachers care about you at your current school? Why or why not?

- Do the teachers make you feel like you belong at your current school? Why or why not?

- Do you feel like you are important at your current school? Why or why not?

- Do you feel like you are successful at your current school? Why or why not?

- At your current school, does your teacher recognize students who try hard in class or does he/she only recognize students who get the best grades? Can you think of an example to support your answer?

- Do you think that your current school is supportive or not supportive of your learning needs? Please explain.

Assistive Technology

- Do you continue to use assistive technology at your current school? Why or why not?

  - If you continue to use assistive technology, what programs do you currently use?

- Do you use assistive technology to complete your homework?
    - If so, what proportion of your homework is completed with the use of assistive technology?
- Do you think that using assistive technology makes you more or less motivated to complete academic tasks? Please explain.

Self-Efficacy

- Since attending your current school, do you feel that you can accomplish most of the school work that is assigned to you? Why or why not?
- Provided that you have enough time to complete the assignment, are you likely or unlikely to believe that you can do a good job on your homework given by your current school? Why might this be the case?

Self-Concept

- Do you think your level of self-confidence has increased or decreased since attending your current school?
    - If it has changed, why do you think this happened?
- Do you think your view of yourself as a student has changed since attending your current school? (i.e., Do you feel that you are more or less smart?).
    - If it has changed, why do you think this happened?
- Do you think your level of self-esteem has increased or decreased since attending your current school?
    - If it has changed, why do you think this happened?

School Motivation

- Since attending your current school, if you have a school assignment that you have difficulty completing, are you more likely to keep trying at it until you figure it out, or are you more likely to give up? Why might this be the case?
- Are you more or less likely to persist at your school work since attending your current school? Why might this be the case?
- Do you ever feel anxious about completing school assignments? If so, were you more likely to feel anxious about completing school assignments at the demonstration school or at your current school? Please explain.

- Do you feel it is more important to understand how to complete a school assignment or do you feel it is more important to simply get your school work done? Please explain.

- Do you feel that what you learn at school is important to your future life outcomes? Please explain why or why not.

- Since you have been attending your current school, are you more or less motivated to complete your school work? Please explain.

Concluding Questions/Comments

- What would you say are the main differences between the demonstration school and your current school?

- Is there anything else that you would like to share about your transition to your current school, your experience at your current school, or your experience with the use of assistive technology?

Appendix E- Interview Coding Scheme

Code Families	Codes		Corresponding Interview Questions
1. Background Information			Child Interview € Time 1 - How old are you? - What school do you currently go to? - What grade are you in? - What subjects are you currently enrolled in?
	- 1.1 Diagnosis of LD		Parent Interview € Time 1 - Can you provide me with information surrounding th formal diagnosis of your chi€s learning disability? (i.e., does your child have difficulty with reading, written activities, the organizational process surrounding writing etc.).
	- 1.2 Rationale for Demonstration School		Parent Interview € Time 1 - What led you to apply to the demonstration school?

Interview Coding Scheme

2. Assistive Technology	- 2.1 Previous AT Experience	- 2.11 No Prior Experience - 2.12 Prior Experience	Child Interview € Time 1 - When did you first use assistive technology? Parent Interview € Time 1 - Did your child use assistive technology prior to attending the demonstration school?
	- 2.2 Previous AT Training	-	Child Interview € Time 1 - How much training were you provided with on the use of assistive technology?
	- 2.3 Previous School Experience	-	Parent Interview € Time 1 - Before attending the demonstration school and before your child had access to the use of assistive technology, what was school like for your child?
	- 2.4 Perceptions of AT	- 2.41 Like Using AT - 2.42 Not Like Using AT	Child Interview € Time 1 - Do you like using assistive technology? Why or why not?
		- 2.43 Easier - 2.44 Harder - 2.45 Same	Child Interview € Time 1 - Do you think that the use of assistive technology makes it easier, harder, or the same for you to complete your school work? Please explain.
		- 2.46 Faster - 2.47 Slower	Child Interview € Time 1 - Do you think that the use of assistive technology makes it faster or slower for you to complete your school work? Please explain.
		- 2.48 Work Completion - 2.49 Positive Impact on Self-Perceptions - 2.495 Negative Impact on Self-Perceptions	Child Interview € Time 1 - Are there academic tasks that you can do with the assistive technology that you could not do before? - If you answered yes to the above question, how does that make you feel about yourself?
	- 2.5 Impact of AT	- 2.51 Academic Achievement - 2.511 Increase Achievement - 2.512 Decrease Achievement	Parent Interview € Time 1 - Are there school subjects or academic tasks your child would have difficulty completing without the use of assistive technology? Please explain. - If you answered yes to the above question: Does your child continue to have difficulty with these tasks now that he/she has the opportunity to use assistive technology to complete school assignments?
		- 2.52 Self-Perceptions - 2.521 Increase Self-Perceptions - 2.522 Decrease Self-Perceptions	Parent Interview € Time 1 - Are there academic tasks that your child can complete with the use of technology that he/she could not complete before? - If you answered yes to the above question: How does that make him/her feel about himself/herself?
		- 2.53 Positive Experience - 2.54 Negative Experience - 2.55 AT was Useful - 2.56 AT was Time Efficient - 2.57 AT was Frustrating	Parent Interview € Time 1 - How did your child describe the use of assistive technology at the demonstration school? - Probe: Was it a positive or negative experience? Did he/she find the technology to be useful, time efficient, frustrating, etc.
		- 2.58 Task Completion - 2.59 Motivation	
	- 2.6 Current Use	- 2.61 High - 2.62 Low	Child Interview € Time 2 - Do you continue to use assistive technology at your current school? Why or why not?

			- If you continue to use assistive technology, what progra do you currently use? - Do you use assistive technology to complete your homework? - If so, what proportion of your homework is completed wi the use of assistive technology? Parent Interview € Time 2 - Does your child continue to use assistive technology at his/her current school? Please explain why this may be case. - Does your child use assistive technology to complete th homework? If socould you estimate the proportion of the homework that is completed with the use of assistive technology?
	- 2.7 Impact on Motivation	- 2.71 More Motivated - 2.72 Less Motivated	Child Interview € Time 2 - Do you think that using assistive technology makes you more or less motivated to complete academic tasks? Pl explain. Parent Interview € Time 2 - Do you think that using assistive technology makes you child more or less motivated to complete academic task Please explain.

Interview Coding Scheme

3. Transition		- 3.11 Positive Experience - 3.12 Negative Experience - 3.13 Difficult Experience	Child Interview € Time 2 - How did you find the transition to your current school - Probe: Was it a positive experience, a negative experience, a difficult experience etc. Parent Interview € Time 2 - Please describe the transition to your child€s current school? - Probe: Was it a positive experience, a negative experience, a difficult experience etc.
	- 3.2 Adjustment	- 3.21 Difficulties with Adjustment - 3.22 Strategies	Child Interv iew € Time 2 - Were there certain things that took some time to adju to? Please explain. - Are there any components of your current school tha you are experiencing difficulty with? - If so, what strategies (if any) are you using to deal wi these difficultcomponents of your school life? Parent Interview € Time 2 - Were there certain things that took some time for you child to adjust to? Please explain. - Are there any components of your child€s current sch that he/she is experiencing difficulty with? - If so, what strategies (if any) is he/she using to deal w these difficult components of his/her school life?

Interview Coding Scheme

4. Demonstration School	- 4.1 Perceptions of Demonstration School	- 4.11 Enjoyed Most - 4.12 Enjoyed Least	Parent Interview € Time 1 - Do you think that your child enjoyed attending the demonstration school? Why or why not? - What do you think your child enjoyed most about attending the demonstration school? What did he/s enjoy the least?
		- 4.13 Different from other Schools - 4.14 Beneficial - 4.15 Not Beneficial	Parent Interview € Time 1 - Where there specific factors that made the demonstration school different from other schools? - If so, what might these factors be? (i.e., smaller cla sizes, all students have learning disabilities, t school offers social skills programs in the evenings etc.) - Do you think that these factors were beneficial to your child? Why or why not?
	- 4.2 Class Size	- 4.21 Helpful - 4.22 Not Helpful	Child Interview € Time 1 - While at the demonstration school, you were in a class with fewer students. Was this helpful or not helpful for you? Please explain why or why not.
	- 4.3 Peers with Learning Disabilities	- 4.31 Like - 4.32 Dislike	Child Interview € Time 1 - While at the demonstration school, the students in your class also had learning disabilities. Did you like or dislike being in a class with students who also ha learning disabilities? Why or why not.
	- 4.4 One-on-One Support	- 4.41 Helpful - 4.42 Not Helpful	Child Interview € Time 1 - While at the demonstration school, did you receive individualized homework help? If so, was this helpf or not helpful for you?
	- 4.5 Support	- 4.51 Supportive - 4.52 Not Supportive	Child Interview € Time 1 - Do you think that the demonstration school was a school which was supportive of your learning needs? Please explain why or why not. Parent Interview € Time 1 - Do you think that the demonstration school provide a supportive learning environment for your child? Why or why not.
	- 4.6 Student / Teacher Relationship	- 4.61 Teachers Cared - 4.62 Teachers Didn€t Care	Child Interview € Time 1 - Do you feel that the teachers cared about you at th demonstration school? Why or why not?
	- 4.7 Belongingness	- 4.71 Students Belonged - 4.72 Students Didn€t Belong - 4.73 Students Felt Important - 4.74 Students Didn€t Feel Important	Child Interview € Time 1 - Did the teachers make you feel like you belonged a the demonstration school? Why or why not? - Did you feel like you were important at the demonstration school? Why or why not?
	- 4.8 Success	- 4.81 Successful - 4.82 Unsuccessful	Child Interview € Time 1 - Did you feel like you were successful at the demonstration school? Why or why not?
	- 4.9 Recognition	- 4.91 Recognized All Students - 4.92 Recognized Few Students	Child Interview € Time 1 - At the demonstration school, did your teacher recognize students who try hard in class or did they only recognize students who got the best grades? Please provide an example to support your answer
	- 4.10 Impact of Demonstration School		Child Interview € Time 1 - Do you think that attending the demonstration school made a difference for you? (i.e., did you learn academic strategies, social and personal skills, etc Parent Interview € Time 1

			- Do you think that attending the demonstration scho made a difference in your child? (i.e., did he/she le academic strategies, social and personal skills, etc
	- 4.11 Concluding Comments		Child Interview € Time 1 - Is there anything else you would like to tell us abou your experience at the demonstration school or you use of assistive technology? Parent Interview € Time 1 - Is there anything else you would like to tell us abou your child€s experience at the demonstration scho your child€s use of assistive technology?

Interview Coding Scheme

5. High School	- 5.1 Perceptions of High School	- 5.11 Enjoying High School - 5.12 Not Enjoying High School	Child Interview € Time 2 - What are your thoughts on attending your current school? - Probe: Are you enjoying/not enjoying attending your current school? Parent Interview € Time 2 - Is your child enjoying or not enjoying his/her experience at his/her current school? Why might this be the case
		- 5.13 Enjoy Most - 5.14 Enjoy Least	Child Interview € Time 2 - What do you like most about attending your current school? What do you find most challenging? Parent Interview € Time 2 - What do you think your child is enjoying most about attending his/her current school? What is he/she is enjoying the least?
		- 5.15 Easier - 5.16 Harder - 5.17 Like it More than Amethyst - 5.18 Like it Less than Amethyst - 5.19 Teachers better at Amethyst - 5.191 Teachers better at High School - 5.192 Same	Child Interview € Time 2 - How does your current school compare to the demonstration school? - Probe: Is it easier or harder? Do you like it more or less? Are the teachers better at your current school or at the demonstration school? etc.
	- 5.2 Student / Teacher Relationship	- 5.21 Teachers Cared - 4.22 Teachers Didn€t Care	Child Interview € Time 2 - Do you feel that the teachers care about you at your current school? Why or why not?
	- 5.3 Belongingness	- 5.31 Students Belonged - 5.32 Students Didn€t Belong - 5.33 Students Felt Important - 5.34 Students Didn€t Feel Important	Child Interview € Time 2 - Do the teachers make you feel like you belong at your current school? Why or why not? - Do you feel like you are important at your current school? Why or why not?
	- 5.4 Success	- 5.41 Successful - 5.42 Unsuccessful	Child Interview € Time 2 - Do you feel like you are successful at your current school? Why or why not?
	- 5.5 Recognition	- 5.51 Recognized All Students (i.e., students who try) - 5.52 Recognized Few Students (i.e., students with the best grades)	Child Interview € Time 2 - At your current school, does your teacher recognize students who try hard in class or does he/she only recognize students who get the best grades? Can you think of an example to support your answer?
	- 5.6 Support	- 5.61 Supportive - 5.62 Unsupportive	Child Interview € Time 2 - Do you think that your current school is supportive or not supportive of your learning needs? Please explain Parent Interview € Time 2 - Do you think that your child€s current school is supportive of his/her learning needs? Why or why not
	- 5.7 Differences		Child Interview € Time 2 - What would you say are the main differences between

	from the Demonstration School		the demonstration school and your current school? Parent Interview € Time 2 - What would you say are the main differences betwee the demonstration school and your child€s current school?
	- 5.8 Concluding Comments		Child Interview € Time 2 - Is there anything else that you would like to share abo your transition to your current school, your experience your current school, or your experience with the use o assistive technology? Parent Interview € Time 2 - Is there anything else that you would like to share abo your child€s transition to his/her current sch his/her experience at his/her current school, or his/her experience with the use of assistive technology?

Interview Coding Scheme

6. Self-Efficacy	- 6.1 Self-Efficacy	- 6.11 Increase - 6.12 Decrease - 6.13 Same	Child Interview – Time 1 - Have your school-related beliefs increased or decreased since attending the demonstration school? - Probe: Are you more or less likely to believe that you can complete an academic tasks? Parent Interview – Time 1 - Has your child's school related beliefs have changed since attending the demonstration school? - Probe: Is your child more or less likely to believe that they can complete academic tasks? Parent Interview – Time 2 - Has your child's school related beliefs changed since attending their current school? - Probe: Is your child more or less likely to believe that they can complete academic tasks?
		- 6.13 High - 6.14 Low	Child Interview – Time 1 - Provided that you have enough time to complete the assignment, are you likely or unlikely to believe that you can do a good job on homework given to you by the demonstration school? Why might this be the case? Parent Interview – Time 1 - Provided that he/she has enough time to complete the assignment, is your child likely or unlikely to believe that they can do a good job on their homework given by the demonstration school? - Probe: Why might this be the case? Child Interview – Time 2 - Since attending your current school, do you feel that you can accomplish most of the school work that is assigned to you? Why or why not? - Provided that you have enough time to complete the assignment, are you likely or unlikely to believe that you can do a good job on your homework given by your current school? Why might this be the case? Parent Interview – Time 2 - Provided that he/she has enough time to complete the assignment, is your child likely or unlikely to believe that they can do a good job on their homework given their current school? Why might this be the case?

Interview Coding Scheme

7. Self-Concept	- 7.1 Self-Confidence	- 7.11 Increase - 7.12 Decrease - 7.13 Same	Child Interview – Time 1 - Do you think your level of self-confidence has increased or decreased since attending the demonstration scho - If it has changed, why do you think this happened? Parent Interview – Time 1 - Do you think your child's level of self-confidence has increased or decreased since attending the demonstr school? - If it has changed, why do you think this happened? Child Interview – Time 2 - Do you think your level of self-confidence has increased or decreased since attending your current school? - If it has changed, why do you think this happened? Parent Interview – Time 2 - Do you think your child's level of self-confidence has increased or decreased since attending his/her curren school? - If it has changed, why do you think this happened?
	- 7.2 Perceived Academic Abilities	- 7.21 Increase - 7.22 Decrease - 7.23 Same	Child Interview – Time 1 - Do you think your view of yourself as a student has changed since attending the demonstration school? (Do you feel that you are more or less intelligent? etc.) - If it has changed, why do you think this happened? Parent Interview – Time 1 - Do you think your child's view of him/herself as a student changed since attending the demonstration school? (i.e., Does he/she feel that he/she is more or intelligent?). - If it has changed, why do you think this happened? Child Interview – Time 2 - Do you think your view of yourself as a student has changed since attending your current school? (i.e., D you feel that you are more or less smart?). - If it has changed, why do you think this happened? Parent Interview – Time 2 - Do you think your child's view of him/herself as a student has changed since attending his/her current school? (i.e., Does he/she feel that they are more or l smart?) - If it has changed, why do you think this happened?
	- 7.3 Self-Esteem	- 7.31 Increase - 7.32 Decrease - 7.33 Same	Child Interview – Time 1 - Do you think your level of self-esteem has changed since attending the demonstration school? - If it has changed, why do you think this happened? Parent Interview – Time 1 - Do you think your child's level of self-esteem changed since attending the demonstration school? - If it has changed, why do you think this happened? Child Interview – Time 2 - Do you think your level of self-esteem has increased or decreased since attending your current school? - If it has changed, why do you think this happened? Parent Interview – Time 2 - Do you think your child's level of self-esteem has increased or decreased since attending their current school? - If it has changed, why do you think this happened?

Interview Coding Scheme

8. Motivation	- 8.1 Enjoyment of School	- 8.11 Enjoys Work More - 8.12 Enjoys Work Less - 8.13 Same	Parent Interview € Time 1 - Do you think that your child enjoys completing schoo work more or less since he/she has attended the demonstration school? Why might this be the case?
	- 8.2 Persistence	- 8.21 Likely to Persist - 8.22 Not Likely to Persist	Child Interview € Time 1 - While attending the demonstration school, if you had school assignment that you were having difficulty completing, were you more likely to keep trying at it until you figured it out, or were you more likely to give up? Why might this have been the case? Child Interview € Time 2 - Since attending your current school, if you have a school assignment that you have difficulty completing, are you more likely to keep trying at it until you figure it out, or are you more likely to give up? Why might this be the case?
		- 8.23 Increase - 8.24 Decrease - 8.25 Same	Child Interview € Time 1 - Are you more or less likely to persist at your school work since attending the demonstration school? Why might this be the case? Parent Interview € Time 1 - Do you think that your child is more or less likely to persist at his/her homework since attending the demonstration school? Please explain. Child Interview € Time 2 - Are you more or less likely to persist at your school work since attending your current school? Why might this be the case? Parent Interview € Time 2 - Do you think that your child is more or less likely to persist at academic tasks since attending his/her current school? Please explain.
	- 8.3 Anxiety (Perceived as a negative emotion, not excitement to complete a task.)	- 8.31 Felt Anxious - 8.32 Didn€t Feel Anxious	Child Interview € Time 1 - Did you ever feel anxious about completing school assignments that the demonstration school provided? Please explain. Child Interview € Time 2 - Do you ever feel anxious about completing school assignments? If so, were you more likely to feel anxious aboutcompleting school assignments at the demonstration school or at your current school? Please explain.
	- 8.4 Value of Learning	- 8.41 High - 8.42 Low	Child Interview € Time 1 - Do you feel it is more important to understand how to complete a school assignment or do you feel it is more important to simply get your school work done? Please explain. - Do you feel that what you learn at school is important for your future life outcomes? Please explain why or why not. Child Interview € Time 2 - Do you feel it is more important to understand how to complete a school assignment or do you feel it is more important to simply get your school work done? Please explain. - Do you feel that what you learn at school is important for your future life outcomes? Please explain why or why not.
	- 8.5 Motivation	- 8.51 Increase - 8.52 Decrease	Child Interview € Time 1 - Do you think attending the demonstration school made you more or less motivated to complete your school work? Please explain. Parent Interview € Time 1 - Do you think that your child€s level of school motivation has changed since attending the

			demonstration school? - If it has changed, why do you think this happened? Child Interview € Time 2 - Since you have been attending your current school, a you more or less motivated to complete your school work? Please explain. Parent Interview € Time 2 - Do you think that your child€s level of school motivation has changed since attending his/her curre school? - If it has changed, why do you think this happened?

Appendix F• Participant Feedback

Participant Feedback € Darren

Feedback received through e-mail submission shown below.

Hello Gabrielle,

I am so sorry that I have taken so long to get back to you. Your study is very needed with all the cut backs. It is very sad that everyone willing to work hard will not have the same opportunities. The report is very good and yes [Darren] uses all the technology he has to work with. When [Darren] came back to , to high school he was very nervous but Mr B. at the school is amazing. He was very impressed with [Darren]. The one guidance counsellor set up a meeting with a lot of teachers in the library at the school where [Darren] was the guest speaker. He spoke of [the demonstration school] and what opportunities it opened up. Most didn't know what [the demonstration school] was. [Darren] returned for grade 10, 11, and 12. He has made the honour roll each year and has got the attention of [the school board]. He would like to be an underwater welder. This year the program with , college in , was offering welding. Everything is free, tuition, books, food, accommodations and transportation. At the end you will have achieved your first level of welding. His marks and the interview were all done by him (we didn't even find out till after). The interviewer was very impressed with [Darren] and he was top of the list. They only allow 12 in the program. He started 2 weeks ago. They have invested about 12-14 thousand in each student. I'm sad he is gone again, but not as bad as the first time (lol). He has great friends, they work on cars and he still works with the race horses. [Darren€s] little filly will start to race soon, later spring. We just never sit still.

I hope this helps, again I am sorry this has taken so long. Please keep helping when learning is made easier it is better for everyone to learn.

Thanks.

[Darren€s mother]

Participant Feedback€ Frank

Participant Feedback€ Mike

Curriculum Vitae

Name:	Gabrielle Dawn Young
Current Employment:	Assistant Professor Memorial University of Newfoundland
Post-secondary Education and Degrees:	Western University London, Ontario, Canada 2007 – 2012 Ph.D. Educational Studies Western University London, Ontario, Canada 2005 - 2007 M.Ed. Educational Psychology and Special Education Brock University St. Catharines, Ontario, Canada 2004 – 2005 B.Ed. Bachelor of Education Brock University St. Catharines, Ontario, Canada 2001 – 2005 B.A. Child and Youth Studies
Honours and Awards:	Ontario Graduate Scholarship 2011 ($15,000 - declined); 2012 ($15,000) Scottish Rite Graduate Student Award 2010 ($10,000); 2009 ($10,000) Jessica Jean Campbell Coulson Research Award 2010 ($1,125) Centre for Inclusive Education Research Award 2010 ($750) Doreen Kronick Scholarship 2008 ($500)

Publications:

Journal Articles

King, G., Specht, J., Bartlett, D., Servais, M., Petersen, P., Brown, H., Young, G., & Stewart, S. (2010). A qualitative study of workplace factors influencing expertise in the delivery of children€s education and mental health services. Journal of Research in Interprofessional Practice and Education, 1(3), 265-283.

- Contributed to the conceptualization of the study design and analysis and interpretation of the data, and critically reviewed the article for intellectual content and provided feedback on the article.

Specht, J., Howell, G., & Young, G. (2007). Students with special education needs and their use of assistive technology during the transition to secondary school. Childhood Education, International Focus Issue (83), 385-389. doi:10.1080/00094056.2007.10522956

- Conducted all interviews with research participants and associated educators; transcribed, summarized, and critically evaluated all of the data; performed literature searches and summarized relevant articles; and assisted in editing the final paper.

Book Chapter

Specht, J., Young, G. (2010). How administrators build schools as inclusive communities. In A. L. Edmunds & R. B. Macmillan (Eds.), Leadership for inclusion: A practical guide (pp. 65-72). Rotterdam: Sense Publishers.

- Performed literature searches, summarized the research included in the chapter, and assisted in editing the final paper.

Government Report

Dolmage, M., Young, G., Stuart, H., Specht, J., & Strickland, J. (2009). Evidence of effective high school inclusion: Research, resources and inspiration. Report prepared for the Ontario Ministry of Education.

- Assisted develop the methodology of the project, facilitated focus groups discussions, coded and transcribed interviews, performed literature searches and contributed to the literature review, and contributed to writing the final report.

Online Publication

Young, G., & Specht, J. (2009). What do students say about the use of assistive technology? Association for Special Education Technology Ontario Hub Newsletter. Retrieved June 26, 2009 from http://asetthehub.wikispaces.com/page+5

Related Work Experience:

Co-Investigator

Specht, J., (PI), Aucoin, A., Aylward, L., Bennett, S., Digiorgio, C., Freeman, J., Gallagher, T., Gregory, K., Hill, A., Hutchinson, N., Katz, J., LeBlanc, M., Loreman, T., Lyons, W., McGhie-Richmond, D., Metsala, J., Mirenda, P., Nowicki, E., Timmons, V., Thompson, S., Vanneau, R., Whitley, J., & Young, G. (2012). Borrowing from architecture: Universal design for inclusion and learning. Social Sciences and Humanities Research Council of Canada (SSHRC) Partnership Grant Letter of Intent. Total funding: $20,000.00.

- Assisted in devising the methodology of the project, and attended regional meetings with partners to solidify involvement with the proposed research, governance structure, and knowledge mobilization.

Specht, J. (PI), Aylward, L., Bennett, S., Digiorgio, C., Gallagher, T., Hutchinson, N., Katz, J., Loreman, T., Lyons, W., McGhie-Richmond, D., Metsala, J., Mirenda, P., Thompson, S., Whitley, J., & Young, G. (2012). Are new teachers ready for the inclusive classroom? Western University Internal Social Sciences and Humanities Research Council of Canada (SSHRC) Grant. Total funding: $4,869.00.

- Assisted in devising the methodology of the project, and collected data from pre service teachers at Memorial University of Newfoundland.

Hill, A. (PI), McGhie-Richmond, D., Specht, J., Inglis, A., Welsford, B., Strickland, J., Blackstien, S., Young, G., Fennel, J., Chuy, M., Haaf, R., & Latham, G. (2010). Educational and assistive technology for all. Social Sciences and Humanities Research Council of Canada (SSHRC) Public Outreach and Workshop Grant. Total funding: $71,466.

- Wrote accessible summaries of the conference keynote, presentations, and poster sessions, and wrote group newsletters for posting on various group websites.

Research Assistant

Specht, J., King, G., Servais, M., & Spencer, T. (2006-2009). School role participation: Perspectives of the child, the parents and the teachers. Social Sciences and Humanities Research Council of Canada (SSHRC). Total funding: $109,563.

- Managed participant recruitment and scheduling of interviews for the duration of this longitudinal study, coded transcribed interviews using the qualitative data analysis software program ATLAS.ti, created the annual report to participants, and prepared conference presentations and presented research findings at conferences.

Dolmage, M. (2008). High school inclusion research project. Ontario Ministry of Education, Special Education Policy and Programs Branch. Total Funding: $90,000.

- Attended steering group meetings to develop the methodology of the project, performed literature searches and contributed to the literature review, facilitated focus groups discussions with teachers and parents across Ontario, coded transcribed interviews using the qualitative data analysis software program ATLAS.ti, contributed to the writing of the final report, and prepared conference presentations and presented findings at conferences.

Specht, J. (2005). Assistive technology and the transition to secondary school. The Dominion of Canada General Insurance Company. Total funding: $25,000.

- Performed literature searches and summarized relevant articles, conducted interviews with research participants and associated educators, transcribed, summarized and critically evaluated the data, and prepared conference presentations and presented research findings at conferences.

Course Developer

Nature and Assessment of Learning Disabilities (EDUC 6755). Memorial University of Newfoundland, St. John€s, NL. September 2012 - April 2013.

- Selected reading materials, developed instructional modules and assessment techniques, and formatted this graduate course for online delivery

Instructor

Nature and Characteristics of Learning Disabilities (ED 3630). Memorial University of Newfoundland, St. John€s, NL. January 2012 - April 2012.

- Provided online instruction for two sections of this special education course (40 students per class), monitored and contributed to the online discussion forum and responded to student queries, and was responsible for all assessment components of the course.

Inclusive Practices for Children with Learning Disabilities (ED 4530). Memorial University of Newfoundland, St. John€s, NL. June 2012 - August 2012.

- Provided instruction to special education degree students in small class settings (40 students per class), and was responsible for all assessment components of the course.

Practicum in Special Education (ED 3650). Memorial University of Newfoundland, St. John€s, NL. June 2012 - August 2012.

- Provided instruction to special education degree students in small class settings (40 students per class), and was responsible for all assessment components of the course.

Educational Psychology and Special Education (EDUC 5005). Western University, London, ON. September 2009 – April 2011.

- Provided instruction to pre-service students in small class settings (30 students per class), assessed both in-class and end-of-term assignments for two seminar sections, and provided two two-hour large group lectures (approximately 400 students attended both lectures).

Teaching Assistant
Childhood Youth and Society (CHYS 2P38). Brock University, St. Catharines, ON. September 2003 – April 2004.

- Led seminars surrounding weekly lecture topics, and analyzed articles and created activities to facilitate group discussion.

Childhood Youth and Society (CHYS 2P38) and Culture and Mental Health of Children and Youth (CHYS 3P09). Brock University, St. Catharines, ON. September 2003 – April 2004.

- Assessed undergraduate essays and evaluated final exams upon the completion of the term.

Related Service Experience:

Vice President of the Board
Learning Disability Association of Ontario – London Region
September 2007 – June 2011.