Special Needs Students and Transitions to Postsecondary Education

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for the Higher Education Quality Council of Ontario

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Introduction

The education of students with Special Needs (SN) has been well researched at the school level (K-12) and a growing number of studies have been conducted at the postsecondary education (PSE) level. However, there is little research on transitions of SN students between the two systems. Inclusive policies at both the school and postsecondary level are designed to encourage students with SN to continue with their education. However, relatively few do so. Some students with SN fail to complete their schooling and drop. Others graduate from high school but decide against enrolling in a college or university program. While some of these students may prefer direct entry to the labour market others have postsecondary aspirations for which they are not adequately prepared or supported. The social goal of inclusive education is to accommodate the aspirations of all students, including those designated as SN. The existing research on college and university access suggests that students with SN who aspire to PSE face significant barriers. How effectively they meet these challenges requires a better understanding of the basis for their post-high school pathway choices.

Socio-demographic factors like gender, ethnicity, and socio-economic status have long been recognized as influencing access to PSE, whether or not the individual is a student with special needs. Whatever their background, high school students who aspire to PSE must meet the academic entrance requirements of the institution (college or university) and, at the same time, develop the self-confidence and dispositions to study that are needed to succeed in a postsecondary program. Acquiring the necessary capabilities can be especially challenging for at-risk students – those with low levels of achievement and those with special needs. Many, nevertheless, display the resilience needed to plan for, invest in, and realize their PSE aspirations.

Schools play a key role in developing these resilient qualities in adolescents. Inclusive policies that emphasize students' "strengths" rather than "deficits" have led to greater integration into mainstream classrooms. Learning in integrated settings is assumed to enhance opportunities for school engagement that complement and contribute to key student beliefs and behaviours – specifically, their sense of personal competence, dependability, and capacity for self-regulation. In this study, we examine the individual and situational correlates of PSE transitions made by students with SN while taking into account the broader social backgrounds of the individuals involved.

We employ Toronto District School Board (TDSB) data to conduct an empirical case study of transitions for students with SN. The data set used incorporates several administrative files with the Fall 2006 TDSB Student Census, a survey that collects a wide range of information on student interests, attitudes, and behaviours.

At graduation, students in the database chose (or make choices that led to) one of five post-high school pathways. Some individuals opted for PSE – either university or college. Some graduated and applied to a PSE institution but then decided not to confirm this choice. Other graduates entered directly into the workforce. The remaining group either dropped out or remained in school. The TDSB data contain detailed information on the antecedents and correlates of pathway decisions that can be profiled and examined for evidence of comparative

advantage or disadvantage with respect to other groups – e.g. non-SN students in general or non-SN low achievers. This information can also be used in modelling pathway choice to determine which background factors play a role in students' transitions. The following objectives directed our analysis of the TDSB data:

1. Compare profiles of students with and without SN designations across a range of personal, family, and school characteristics, which shape individual PSE aspirations as well as enable their realization.

2. Model the relationship between TDSB students' personal characteristics and their actual post-high school pathway decisions taking into account social background as well as family and school characteristics.

3. Perform further, exploratory analyses of the school performance of 'at-risk' students in the TDSB – i.e. those with an SN designation and a group of low-achieving students who did not receive any form of special education support.

In addition to the analysis of TDSB data we convened a panel of experts who used these empirical findings as a reference and point of departure in their examination of PSE transition policies and practices for SN students in Ontario's education system. The panel also discussed promising policies and practices that pointed toward a future of greater equity and effectiveness.

Background

Postsecondary Participation of Special Needs Students

The broader social context within which policies relating to special needs are positioned and critiqued is undergoing considerable change as social equity becomes a priority and previously marginalized groups assert their claims to equal educational opportunity (Kirby, 2009). This has led to institutional and legislative reforms designed to improve accessibility to higher education and training for students with SN (Mackenzie, 2009; OECD, 2003).

Recent analyses of PSE institutions in Europe and the U.S. indicate an increase in the number of students with SN in the PSE population, suggesting improved access (Artiles, 2003; OECD, 2008). However, relatively few high school students with SN actually gain admission to a college or a university and even fewer complete their programs (Ferguson, 2008; Shaw, Madaus, & Bannerjee, 2009, Pumfrey, 2008; Newman, Wagner, Cameto, Knokey, & Shaver, 2010). Canadian data indicate a similar pattern of limited access (McCloskey, Figura, Narraway, & Vukovic, 2011; OECD, 2003). Of those SN students who do graduate and pursue PSE, the majority enrol in community college programs (Finnie, Childs & Wismer, 2011).

Recent Toronto District School Board (TDSB) reports show that only a small proportion of students with a SN designation are in a position to transition successfully to either an Ontario university or college. For example, preliminary analyses of the 2003 Grade 9 Cohort indicate that approximately 53 per cent of SN students graduate and approximately 31 per cent of those

confirm acceptance of an offer of admission to a PSE institution. These results are substantially below those of TDSB students without SN (Brown, 2010a).

PSE access is also differentiated by exceptionality. Within the SN category, more students with Learning Disabilities graduate and pursue PSE than students identified as having Developmental Disabilities or Behaviour Disorders (Finnie et al, 2011; Brown & Parekh, 2010).

Special Education Practices – The Move to Inclusion

Many critics of the disjuncture between legislated accessibility and actual PSE participation point to inadequate support at universities and colleges (Duquette, 2000; Reed, Lund-Lucas & O'Rourke, 2003). Others describe shortcomings in the academic preparation of students with SN in the K-12 system. (LDAC, 2007; Ontario Ministry of Education, 2009; Philpott et al, 2008).

In Canadian schools, identification and instruction of students with special needs is conducted somewhat differently across provincial jurisdictions. In Ontario, students are designated as SN based on an Identification Placement and Review Committee (IPRC) procedure involving diagnostic assessments, usually administered by a school psychologist. A standard classification consists of five categories: behaviour, communication, intellectual, physical disability, and multiple exceptionalities (Ontario Ministry of Education, 2009). Currently, students in Grades K-12 with diagnosed exceptionalities comprise some 11 to 12 per cent of the student population[1] (Finnie, Childs & Wismer, 2011). The school performance of others, although not formally assessed, nevertheless places them at risk of failure and these individuals are also categorized as SN students whose progress is monitored with an individualized educational plan (IEP). Others receive special education interventions but are neither identified as exceptional nor linked to an IEP. Current estimates of the number of students receiving some form of special education in Ontario number approximately 300,000 or 15 per cent of the student population (Bennett, 2011).

The integration by SN students into the mainstream classroom is a primary goal of those who advocate for greater equality of opportunity through more 'inclusive education' practices. Calls to more fully integrate students have led to heated debates with those who see a role for continuing instruction for some students in separated (congregated) classes (Lupart, 2000; Whitley, Lupart, & Beran, 2007; McLaughlin, 2010). Others see a need for both in a continuum of support services to vulnerable or at-risk children and youth (Ferguson, 2008). The evolving view of SN provision as embodying a responsive and more inclusive curriculum – appropriately applied to all individual differences – also directs attention to a human-rights perspective and the broader understanding of 'diversity' in classrooms (Schonert-Reichl, 2000; Schonert-Reichl & LeRose, 2008; Rioux & Pinto, 2010).

A move away from separated (congregated) classrooms toward greater integration represents a fundamentally different theoretical and practical perspective on student adaptation to school and learning. (Wong, 2011) reviews recent conceptual and empirical work in positive psychology,

[1] In their estimates, Finnie et al (2011) identified students with exceptionalities based on parents' reports of a 'disability.'

noting the emphasis in clinical work on supporting individual strengths and establishing psychological well-being. This general direction is seen also in special education practice where Morrison, Brown, D'Incau, O'Farrell, and Furlong (2006); Kitano and Lewis (2005); and others describe changes in assessment from a deficit/impairment focus toward a 'strengths-based' accounting – involving procedures which identify individual attributes associated with achievement and positive social adjustment.

Much of the discussion on the future direction of special education under inclusion involves two questions: 'How extensive is integration?' and 'What are the benefits to both SN and non-SN students?'

In Ontario, supplemental services and supports are delivered in both mainstream and special education programs. Special education services are offered within a regular classroom setting, through partial withdrawal, or within congregated special education classrooms. The Toronto District School Board (TDSB) offers the complete range of placement options within the elementary panel. Placement options, however, become more limited once students reach secondary school. While over 80 per cent of students identified as having Special Needs in the elementary panel are taught within congregated self-contained classes, only 38 per cent of these students are enrolled in congregated special education classes in Grade 9 (Brown & Parekh, 2010).
The issue of efficacy involves making a determination of the costs and benefits of integrating SN students into mainstream classrooms. Social and academic returns are often assumed but not always found (Zigmond, Kloo & Volonino, 2009). Assessments of the effects of inclusion on SN students have been conducted with individuals who varied widely in age, exceptionality, and in the outcomes measured. Inclusion appears to benefit younger children both academically and in their relations with peers (Holahan & Costenbader, 2000). Results with older students are less obvious. Goodman, Hazelkorn, Bucholz, Duffy, and Kitta (2011) examined the effects of inclusion on the high school graduation rates on a large sample of U.S. students with 'mild disabilities' (n=67,749). In their analysis, inclusion was defined to mean the amount of time spent in general education classrooms. They found that, despite a 62 per cent increase in the rate of inclusion, graduation rates remained unchanged. Webster and Carter (2007: 210) reviewed 36 studies of social development in inclusive settings across elementary and high school grades and found highly variable results. A recent quantitative review of the literature by the Canadian Council on Learning found only small cognitive advantages to integration (CCL, 2009a).

Other studies have examined the impact of integration on students without special needs who are enrolled in integrated classrooms. Cognitive effects appear to be negatively affected in some large sample studies while in others achievement does not appear to be adversely affected (Salend & Duhaney, 1999). Social development and peer relations appear to be generally positive in U.S. research (Kalambouka, Farrell, Dyson, & Kaplan , 2007). Similarly, Farrell, Dyson, Polat, Hutchenson, and Gallannaugh (2007) in the UK and Bunch and Valeo (2004) in Canada found positive peer relations among students with and without exceptionalities.

Research, then, suggests that inclusion is associated with cognitive gains for students with SN although this is qualified by age, and type of exceptionality or learning need. Social benefits of inclusion are more apparent; and applicable to both SN and non-SN students. Overall, however, the results are mixed. To some extent these variable findings reflect design shortcomings (Test, Mazzotti, Mustian, Fowler, Kortering, & Kohler, 2009). Webster and Carter (2007: 210), for example, reviewed 36 studies of social development in inclusive settings and found the research was: "patchy at best, limited in context, and non-linear in its development."

Emerging from these critiques of current special education practices is a shift in attitude and emphasis among practitioners. While many still attend to individual 'deficits' and attempt to remediate school failure or alter perceived inadequacies, others display a greater concern for the development of personal capabilities – irrespective of disability or diagnostic label (Philpott, 2007). Changes in the operation and practice of special education in schools are, however, informed by research that addresses more fundamental questions of academic vulnerability and resilience among children and youth.

Academic Vulnerability and Resilience

Vulnerable or 'at-risk' children and youth have been a focus of educational research for many years (Crocker, 2000; Volpe, 2000 Willms, 2002; Strong-Boag, 2009. The main concern of these studies is the relatively poor K-12 school outcomes of these students – low achievement, disengagement, and dropout – leading to restricted opportunities for further learning in the PSE system or in the workplace (e.g. apprenticeships).

As previously indicated, students at risk of academic failure have been viewed from a deficit perspective – that is, poor achievement was attributed to a physical, cognitive, or behavioural impairment or limitation that could be corrected through remediation. The deficit model also located risk factors in the child's environment. Those growing up in poverty, in neighbourhoods that lacked adequate cultural or leisure facilities, or in disrupted families were assumed to be at greater risk. However, evidence that at-risk children could succeed in school and thrive in their families and communities led to the conclusion that some children were 'resilient' – that is, capable of adaptability in the face of personal stress, trauma, or marked social disadvantage (Luthar, Ciccetti & Becker, 2000).

Resilience is variously described (and employed) in research as well as in practice but can be defined as: "… a process of, or a capacity for, or the outcome of successful adaptation despite challenging and threatening circumstances" (Garmezy & Masten, 1991). This is a very broad definition capturing, as Schonert-Reichl and LeRose (2008) note, the elements of most current definitions: 1) the characteristics of the individual, 2) the nature of the context, 3) the risk factors – i.e., the presence of adversity, and 4) the counteracting, protective, and compensatory factors.

Resilience, then, is an adaptive process in which the individual draws on resources and displays competence despite adversity. Individuals nevertheless differ in their capacity to identify and make use of resources – their own or those made available by supportive others. Promoting resilience in children and youth involves mobilizing resources that act as protective factors in conditions of stress and adversity (Ungar, 2009; Schonert-Reichl & LeRose, 2008). While social

change is often beyond the reach of schools, change at the classroom level can be effected by providing social-emotional supports such as caring relationships with adults and effective peer relationships that promote students' academic performance and developmental autonomy (Doll, Jones, Osborn, Dooley, & Turner, 2011).

The conceptual and empirical base for the efficacy of the resilience perspective is found in an extensive research literature. This work comprises literature reviews (Waxman, Gray & Padron, 2003; Condly, 2006; Luthar, 2006; and Compas & Reesland, 2009); special journal issues (*Psychology in the Schools*, 2011, Volume 48, Issue 7; *Child Development*, 2000, Volume 71, Issue 3); and government and agency conference proceedings (Crocker, 2000; CCL - The Learning Partnership, 2008). A consistent theme of this research is the importance given to identifying potentially protective factors and examining the mechanisms that mediate adaptive responses under stress or adversity. This is conducted within a resilience model that combines systems and developmental perspectives.

Environmental protective factors are distributed across a system of different levels and domains that comprise the child's world – e.g. family, school, and neighbourhood; and their effects are felt through complex, inter-related social networks comprising parents, peers, teachers and other significant adults (Margalit, 2003). For example, self-regulation (of e.g. homework) is an asset or strength in children that is fostered by parenting practices designed to encourage adolescent autonomy and responsibility. In turn, parenting styles that support autonomy and control in children are related to parents' level of education. Of course, while children are subjects of socialization they also are agents in their own development. For example, adolescents are capable of making decisions around studying; or attending or being absent from class (Clausen, 1991).

The developmental tasks of adolescence are different from those encountered in early childhood. As adolescents expand their interests and activities beyond the family and the school they encounter a wider array of risk and protective factors. School nevertheless remains a focal point of the adolescent's world and the transition to high school marks considerable change in the school environment. Not only does the curriculum increase in cognitive complexity but so too do the demands for self-regulation in studying. Adapting to the social demands of the high school and its curriculum also makes unique demands on adolescents, especially those with special needs (Schonert-Reichl & LeRose, 2008).

The systems and developmental dimensions of the resilience framework underscore the importance of context in determining the relevance of protective factors. They also qualify the meaning given risk factors. Depending on their cultural and social backgrounds, the subjective perceptions of individuals dealing with a risk factor can vary widely. Donahue and Pearl (2003), for example, note that loneliness may be interpreted quite differently by children whose cultural background leads them to expect social support from extended family members rather than classmates. Similarly, constraints attributed to disabilities (or activity limitations of various sorts) are often interpreted quite differently by support service providers and the recipients of those services (Sweet, Anisef, Stone, & Adamuti-Trache, 2011).

Early applications of a resilience framework to the study of learning or developmental disabilities can be found in the work of Werner (1993); Gerber, Ginsburg and Reiff (1992); and Raskind, Goldberg, Higgins, and Herman ((2003) who followed the progress of individuals with learning disabilities from childhood to adulthood. Many of the children in their studies faced difficulties with academic tasks and, additionally, suffered poor social relations and loneliness. These descriptive studies nevertheless identified a common set of distinguishing attributes, which functioned as protective factors: goal setting, persistence, self-awareness, and social support. These were all, to some degree, associated with positive life outcomes, including educational attainment.

More recently, Wong (2003) and Wong and Donahue (2002) employed the resilience construct to identify protective social and emotional factors and then described how they operate in the lives of school-age children and youth with learning disabilities. Relevant factors included parental support, self-understanding, communication, and social perceptions. Others have since enlarged and broadened the range of risk and protective factors that have relevance to the general field of special education (Goldberg, Higgins, Raskind, & Herman, K, 2003; Bryan, 2003; Webster & Carter, 2007). However, in commenting on the search for protective factors in special needs populations, Margalit (2003), and Compas and Reesland (2009) noted how research has yet to demonstrate that the presence of a learning disability introduces a unique relation between commonly accepted risk factors and negative outcomes such as school failure. And to the extent identified protective factors are equally beneficial both to students at risk and not at-risk – the development of effective interventions will likely proceed within a general resilience model rather than some framework uniquely applied to particular learning disabilities or other special education need (Sameroff, 1999).[2]

The trend in this research, then, is increasingly toward promoting strengths rather than reducing risks in the schooling of children and youth. This involves greater attention to finding effective ways of developing students' personal assets such as their dispositions to persevere in their studies, to associate effort with academic improvement, and to view themselves as skillful and competent across academic and social domains (Wright & Masten, 2006; Sesma, Mannes, & Scales, 2006).

Preparing At-Risk Students for PSE

Gladieux and Swail (2000) describe the successful PSE student as one who not only has a strong academic background but also possesses the socio-emotional attributes needed to persist and succeed in postsecondary study. Other researchers have similarly stressed the need to develop both cognitive and affective attributes in order to successfully participate in PSE (Cote & Levine, 2000). Preparation for PSE, then, requires development of a range of intellectual skills, strategies, and dispositions that underlie academic achievement (Sweet & Anisef, 2005). These prerequisites for PSE access (and success) apply equally to students with and without disabilities (Holmes, 2005).

[2] Sameroff (1999) refers to protective factors that are beneficial regardless of at-risk status (high or low) as 'promotive' factors. See also Morrison et al (2006) who describe similar factors as possessing 'protective possibilities.'

The Ontario Learning Opportunities Fund (McCloskey et al, 2011) recently published results of a demonstration project that established learning disabilities transitions centres at 13 postsecondary institutions in Ontario. The report included results from a longitudinal study on the PSE transitions of 42 students with learning disabilities. A descriptive account of their transition experiences highlighted the necessity of careful planning and preparation for PSE while in high school and the need for coordination between home and school in a planning process that actively involved the student. Of particular interest was the importance assigned to school programs that taught students academic learning strategies and self-advocacy skills in course choice. Additionally, important principles involved in preparing students for PSE included the concept of engagement which was seen as essential in the pursuit of the stated goal of greater student resiliency.

Developing Assets/Capabilities

Recognizing the value of positive self-perceptions to achievement and the pursuit of postsecondary education, educators at the high school level have constructed transition programs designed to develop positive attitudes and dispositions through modelling and mentoring methods as well as direct instruction. These programs are generally aimed at fostering in students with special needs a sense of 'self-determination' characterized by autonomous responses and a sense of personal competence (Wehmeyer, Abery, Mithaug, & Stancliffe, 2003). Program goals are quite varied and include coping strategies such as the ability to set goals, take action toward these goals, and self-assess progress (Trainor, 2008). Other programs explicitly instruct students in skills of choosing, decision-making, and self-advocacy (Algozzine, Browder, Karvonen, Test, & Wood, 2001; Test et al, 2009).

While self-determination programs are directed toward strengthening students' general preparedness to transition from high school, for those with PSE aspirations, their more immediate goal is to support access to the academic curriculum (Lee, Whemeyer, Palmer, Soukup, & Little , 2008). There is evidence that developing students capabilities with these transition curricula leads to greater resilience among at-risk youth when they are confronted with the challenges of preparing for and accessing college or university (Grigal, Hart, & Migliore, 2011; Morningstar, Frey, Noonan, Ng, Clavenna-Deane, Graves, Kellems, McCall, Pearson, Wade, & Williams-Diehm, 2010). However, results are somewhat qualified by researchers who question the methodologies employed (Flexer, Daviso III, Baer, Queen, & Meindl , 2011); and other critics point to an inherent cultural bias in the self-determination construct (Smith & Routel, 2010).

Providing Engagement Opportunities

A more general approach to developing students' capacity for resilience is one which encourages greater school engagement (Fredricks, Blumenfeld, & Paris, 2004; Willms, Friesen, & Milton, 2009). School engagement is variously defined but a basic model distinguishes academic engagement and social engagement (Norris, Pignall & Lipps, 2003). Academic engagement is displayed both inside and outside the classroom – for example, by attending to explanations given by teachers or by consistently initiating and completing homework

assignments. Social engagement involves positive relations with peers and teachers, participation in extra-curricular activities, and identification with the school and its values – that is, developing a sense of 'school belonging' (Appleton, Christenson, & Furlong, 2008). Both academic and social engagement contribute to successful transitions through their antecedent and supportive relationship with education achievement, a key pre-requisite to PSE access (Finnie, Frenette, Sweetman, & Usher, 2010). At the same time, social engagement has value quite apart from its association with achievement as it is essential to the development of social interaction skills and the formation of civic responsibility (Audas & Willms, 2001). Schools offer opportunities for academic and social engagement and students at the high school level may or may not become engaged. To the extent engagement possibilities available in schools are taken up by students, they represent protective factors with the potential to promote greater resilience.

Both academic and social engagement are recognized in the special education literature as protective factors for at-risk students. Working within a resilience framework that is seen to benefit all students, Morrison et al (2006: 20) state: "Fostering school engagement is one strategy for taking students from risk status and enhancing their resilience." Morrison et al (2006) also see engagement as consistent with the notion of strengths-based assessment in special education. As the field moves towards inclusion and conceptualizes student adaptation as more than a 'response to impairment' or 'deficit reduction' there is opportunity to include assessment practices leading to interventions built on student strengths. They note, however, that research in this area is limited (see also Jimerson, Sharkey, Nyborg, & Furlong, 2004).

PSE Transitions of SN Students

A review of the relevant literature reveals that research on the transition of students with SN is frequently qualitative in nature and directed toward developing dispositions and skills in individuals with an identified disability condition (Mackenzie, 2009; Cobb & Alwell, 2009; Wehmeyer et al, 2003).

Empirical work in the U.S. has been summarized by Test et al (2009) who reviewed several studies to identify predictors of selected post-high school outcomes, including PSE. With respect to PSE transitions, Test et al (2009) found several significant predictors – inclusion in the general curriculum, social skills, peer support, self-advocacy, and transition planning support. Alverson, Naranjo, Yamamoto, and Unruh (2010) critiqued the methodology of similar transition studies over several decades and concluded that design problems, variable definition differences, and inadequate sampling limited the veracity and reliability of many findings reported in the literature.

Perhaps the most comprehensive U.S. transition project was the National Longitudinal Transition Study (NLTS and NLTS-2 series) which surveyed youth with disabilities after they had left school. Newman, Wagner, Cameto, Knockey, & Shaver (2010) employed these data to compare PSE enrolment rates of youth with and without SN in 1990 and 2005. While the survey provided information on the PSE status of these individuals – such as course choice and completion rates – it did not contain detailed information on the characteristics of respondents nor did it describe the relationship between PSE participation and their preparatory high school experiences.

There exist similar qualitative studies in Canada (Mackenzie, 2009; Lupart, McKeough, & Porath, 2009) and various (quantitative) government reports that track enrolment and completion rates of students with SN status through the university and college systems. The PACFOLD report (LDAC, 2007), for example, draws on several surveys to compile prevalence statistics on students identified as having learning disabilities at various levels of the education system(s).

An exception to this largely descriptive research is Thiessen's (2008) study which used survey data to model the post-high school transitions of low-achieving, 'at-risk' students. His analysis was based on a nationally representative survey that contained a variety of personal and contextual variables. However, we are not aware of any study in Canada that attempts to model the transitions of students with SN using both administrative records and survey data and which describes their individual characteristics, subjective perceptions, and personal situations. In order to frame such a study, we turn to the general empirical literature on school to PSE transitions.

A General Model of PSE Transitions

Previous survey research on PSE transitions in Canada has examined many of the antecedents and correlates of both PSE aspirations and participation. These included cross-sectional studies of factors involved in the formation of educational aspirations by adolescents who varied widely in their school achievement and motivation for learning. For example, Adamuti-Trache and Sweet (2009) have employed data drawn from a national survey – the School Achievement Improvement Program (SAIP) – to examine the formation of 13 and 16 year-olds' educational plans. Sweet and Anisef (2005) summarized research based on analyses of the Survey of Approaches to Educational Planning (SAEP). This collection of studies focused on the tensions between family structures and processes in adolescents' formation of PSE aspirations. Others have used regional survey data to construct longitudinal analyses that include the high school to PSE transition (Anisef, Axelrod, Baichman-Anisef, James, & Turrittin, 2000; Andres & Wyn, 2010). In describing the antecedents of PSE attendance, these studies highlighted the importance of personal agency and initiative in mediating the effects of social structures such as gender, race, and socio-economic position.

More recent research has employed the nationally representative Youth in Transition Survey, Form A (YITS-A). The YITS is a longitudinal survey that provides detailed information on the characteristics and school experiences of youth as they prepare for and transition to PSE or the labour market (Motte, Qiu, Zhang & Bussiere, 2008). Studies that specifically examined transitions include the work of Looker and Thiessen (2008), Thiessen (2007), Finnie, Mueller, Sweetman, and Usher (2008), and Finnie, Frennette, Mueller & Sweetman (2010).

Thiessen (2008) introduced the concept of resilience in analysing the PSE transitions of 'at-risk' youth. Respondents were drawn from the YITS-A data and were limited to those who had low scores on the PISA reading test, administered when they were 15 years of age. Although no special needs designation was included in the analysis those in the sample were considered at-risk of poor school achievement and attainment. Attainment was defined in terms of three

different post-high school pathways differentiating students who: dropped out, graduated, or graduated and enrolled in a PSE program. Those enrolling in PSE presumably exhibited more resilience than those who graduated or dropped out. In predicting pathway choice, antecedent variables included a range of individual differences and behaviours such as PSE aspirations, achievement, and measures of both academic and social engagement. Social supports included peer relations and teacher support. Socio-demographic and social structural variables such as parental income, gender, and ethnicity were used as statistical controls.

Thiessen's results indicate general support for a resilience approach:

> "[The findings show] quite unequivocally that resilience as measured here represents enabling factors that, to a surprisingly high extent, operate in addition to the socio-demographic factors that previous research has documented to be…related to educational attainment (p.54).

However, not all protective factors performed as expected. Of particular interest were the relationships between engagement variables and pathway choice in the regression. Academic engagement, indicated by a measure that included homework time, was statistically significant and basic indicators of social engagement such as peer relations were positively related to PSE choice. However, participation in extra-curricular activities and a measure of individual initiative were not significant.[3] Thiessen's study is important as an example of a large-sample, secondary-analysis of PSE transitions for at-risk youth performed within a resilience framework. The sometimes inconsistent results do, however, illustrate the complexities of using survey data in this way and for this purpose (Baker, 2008).

Finnie et al (2008; 2010) summarized results from a series of studies using YITS data that assessed the effect on PSE participation of various social, economic, and individual difference factors. In these analyses, several factors emerged as important influences on the decision to pursue a college diploma or university degree. These can be organized as: demographic characteristics, individual dispositions and commitments, and school performance, including engagement and performance. All operate either to facilitate or hinder progress in school and, in this sense, complement or parallel the range of risk and protective factors considered by Thiessen (2008).

In line with previous research, students' family background influences educational plans and attainments. This includes family income although parents' level of education exerts a greater influence on children's future education. Nevertheless, family income can limit the ability of some individuals to meet rising tuition fee levels and other costs of PSE attendance. Family structure (single or two-parent households) also plays a part although the effect of female-headed households is confounded with low-income effects. Basic demographic differences also

[3] Peck, Roeser, Zarrett, and Eccles(2008) found the pattern of extra-curricular activity rather than the amount of activity is important in promoting educational achievement (and PSE enrolment). The distinction between pattern and amount may help explain Thiessen's (2008) non-significant result.

are associated with school performance and PSE participation. Significant differences in university enrolments were noted for ethnicity and immigrant status factors.

Several of the YITS studies examined the role of students' attitudes, dispositions, and school behaviours in mediating the relationship between socio-demographic variables and PSE participation. In predicting PSE attendance, the inclusion of school grades and PISA scores also reduced the significance of student background and family socio-economic factors, particularly parental income and education. Students' view of 'self' in relation to school underlies their motivation to learn. Positive attitudes toward school and strongly held aspirations for PSE further shape students' sense of commitment to their schooling. In these studies, what Thiessen (2008) refers to as 'individual enabling factors' – a sense of personal competence and the ability to be self-regulating in relation to schoolwork (homework completion, regular attendance), were directly related to achievement and attainment.

A consistent finding in all the YITS studies was the critical importance of academic achievement to PSE participation. This applied to both college and university pathways but is most important to the university option. Differences in achievement measures were noted. Some were made at the beginning of high school, other self-report measures assessed performance in individual subjects (e.g. math) and aggregate assessments were made in Grade 12. The latter tended to be better predictors of PSE participation. The role of student school engagement in promoting achievement was also noted in several of the YITS studies. This involved academic engagement, most often measured as time spent on homework; and social engagement, assessed as perceptions of the school as a comfortable space for learning, social relations with peers and teachers, and involvement in extra-curricular activities.

Summary

The PSE opportunities for students with SN appear to be constrained in that relatively few successfully transition to university or college. While many students prefer the workplace as a site of learning to a PSE institution, it is important that those who are interested and capable of higher education not be blocked by personal circumstance or institutional policies and practices.

Challenges associated with learning affect individuals differently; and students' capacity in this respect is shaped not only by their personal characteristics and acquired competence but also by their social situations. Within a resilience framework, SN students' attributes are recognized as strengths or assets to be supported. The educator's task is to help students identify and make use of available resources in realizing their goals and aspirations, including PSE participation. The complementary research task is to determine how PSE participation is furthered by students' personal dispositions and actions in mobilizing resources found in home and school while acknowledging that social structures operate to limit (or enable) individual initiatives.

Our research design does not directly address the 'inclusion' debate's concern with the placement of SN students in integrated classrooms. However we do examine important academic and social aspects of SN students' preparation for PSE transitions within the context of the existing organization of special needs assessment and provision. We also recognize the

importance of social structures like gender, ethnicity, and family socio-economic status (SES) in the academic preparation of SN students and take these into account (statistically) in analysing the relationship between student attributes and their eventual PSE pathways.

Method

Data Source

The main data source is the TDSB Student Census completed by Grades 7-12 students in Fall 2006 (Yau & O'Reilly, 2007; Brown & Sinay, 2008). Information from the 2006 Student Census has also been merged with the Secondary Success Indicator dataset. Applications to Ontario postsecondary institutions go through the Ontario University Applications Centre (OUAC) and the Ontario College Applications Centre (OCAS). Students normally apply in spring of a given year and then attend postsecondary starting in September. The TDSB receives information on those students who accept (confirm) an offer of admission. For each applications cycle (e.g. the 2007 applications cycle), information on applications and confirmations are sent to the TDSB using a standardized format. The information is then linked to the Secondary Success Indicator dataset – a file on all students in the regular school year. As of October 31, 2006 there were 19,081 17-year-old students enrolled. These students are age-appropriate for the Grade 12 Year – the most frequent age for students to apply directly to postsecondary institutions from high school. Students will also apply when they are older and these applications are included – up to October 31, 2009. The database also contains information that identifies those students who dropped out and (by definition) those who graduated but did not elect to pursue a PSE path up to the year 2009.

Sample and Variables

The sample is a subset of the TDSB's 17-year-old student population that includes those who completed an extended form of the TDSB Student Census (N=7,019). In addition to data on student, school and family characteristics, this survey collected data on students' academic and social engagement in school.

The TDSB's 2006 Student Census employed a matrix-sampling method in which two forms (Forms A and B) were designed: the section on demographics for both forms was identical, but each form had its own set of contextual questions with a few common items. Every second student was randomly assigned to complete one of the two forms. In this way, alternate students within the same class would complete Form A, while the other half would complete Form B (Yau & O'Reilly, 2007). The antecedents and correlates of post-high school (PHS) pathways selected for use in the analysis consist of the constructs and indicators shown in the Table 1. These are arranged to be conceptually consistent with the analytic models developed by Finnie et al (2008; 2010) and Thiessen (2008).

Table 1: Analysis Model and Variable Sets

<table>
<tr><th>SCHOOL & NEIGHBOURHOOD CHARACTERISTICS</th><th>STUDENT CHARACTERISTICS</th><th>SCHOOL ENGAGEMENT</th><th>POST HIGH SCHOOL PATHWAYS</th></tr>
<tr><td>School SES

Neighbourhood income measure (median income)</td><td>SN Status</td><td rowspan="5">ACADEMIC
Homework Time

SOCIAL
<u>School climate</u>: Enjoy school, Attractive and welcoming place
<u>Instructional</u>: Teacher/staff expectations and support
<u>Social interactions</u>: Being accepted, Get along with other students</td><td rowspan="5">• University confirmed
• College confirmed
• PSE application
• High school completion
• Dropout out or at risk</td></tr>
<tr><td></td><td>Gender, Race, Immigrant generational status</td></tr>
<tr><td>FAMILY CHARACTERISTICS</td><td rowspan="3"><u>Achievement</u>
Math Ach Grade 9
Grades 11-12 average mark</td></tr>
<tr><td>Parents’ Education

Family structure: single/both parents</td></tr>
<tr><td></td><td>Self-Rated Progress in school</td></tr>
<tr><td></td><td></td><td>Absenteeism in Grade 9</td></tr>
</table>

Special Needs Status (Distributions): The TDSB data contain information that differentiates students with and without SN (Table 2). Students who have been formally identified as having a disability through the IPRC process will have been assigned an exceptionality category. Some of these students were integrated in mainstream classes while others were enrolled in congregated classes. The IEP category comprises students who are identified by teachers as needing assistance. Assistance can be provided through Special Education or by a teacher within the school. Guidance on specific accommodations and modifications are outlined within the student’s IEP. Students identified as having a Gifted exceptionality can also receive SN programming or support. For purposes of this analysis, students identified (formally or informally) as Gifted are incorporated within the ‘Students without SN’ category while the SN category includes students who have been formally or informally identified as having a non-gifted SN.[4]

[4] There are 14 Exceptionalities according to the Ministry of Education but Learning Disability, Gifted, and Mild Intellectual Disability comprise the majority of exceptionalities.

Table 2: Base Sample – Instructional Classification (N=7019)			
Study groups	**TDSB classification**	**N**	**%**
Students without SN	TDSB students without SN	6,152	87.6
N=6312 (89.9%)	IPRC Gifted – Regular/Integrated	51	0.7
	IPRC Gifted – Congregated	109	1.6
Students with SN	Non-gifted exceptionalities – Regular /integrated	322	4.6
N=707 (10.1%)	IEP – Not selected	81	1.2
	Non-identified – Special needs	171	2.4
	Non-gifted exceptionalities – Congregated	133	1.9

Special Needs Status – a Proviso: The Special Needs designations employed in this analysis show the officially-assigned SN status from central student records at the time students completed the TDSB Student Census. It is known from other research that this status will change somewhat over time.

Detailed information on students with Special Needs was collected by the Research Department of the TDSB starting in 2006. Earlier records of these students are not available. However, the TDSB did look at the younger cohort of Grade 8 students who filled out the 2006 Student Census and followed them until the beginning of Grade 12 (Fall 2010); this provides us with information regarding changes in SN status. Generally, if students did not have a Special Needs designation in Grade 8, few (3 per cent) acquired this designation by Grade 12. Of the small number who did acquire an SN designation in high school, two thirds acquired only an Individual Education Plan (IEP) while one third were diagnosed through the IPRC process as having an exceptionality (Brown, 2011, internal TDSB analysis). This is consistent with an earlier analysis indicating that both the IEP and the IPRC process operated in the elementary panel and comparatively few IEP's or exceptionalities were assigned in high school (Brown and Parekh, 2010).

Of students who had an exceptionality in Grade 8, the vast majority (94 per cent) retained their SN status and most retained an active exceptionality. The most important change in these students was the type of classes in which they enrolled. While the majority of students with non-gifted exceptionalities in Grade 8 attended full-time (congregated) Special Education classes, most of the same students were attending regular classes in Grade 12.

The greatest shift between Grade 8 and Grade 12 was in IEP status. Around a third of the students with an IEP designation in Grade 8 no longer had it in Grade 12. Also, students coming into the TDSB after Grade 8 (which may account for up to a fifth of Grade 12 students) were rarely given an IEP designation.

These changes accounted for many of the differences in the Grade 12 sample available for this analysis, compared to the full TDSB distribution of Special Needs. Specifically,

- a smaller proportion of students with SN in the sample than is found in the full sample because some elementary students with SN left the TDSB, while others entered the TDSB at the secondary level without being identified as SN.

- the proportion of congregated students with SN is much lower in the sample, since most students with exceptionalities change from congregated to regular classes over their secondary school careers;

- although the proportion of students in all categories of students with SN are somewhat lower in the sample compared to the full TDSB distribution, the proportion of students with an IEP is even lower in the sample, since IEP students are the most likely group to drop their SN designation while in secondary school.

Pathways (Distributions): Post-high school pathways describe students' destinations by 2009 (up to three years after Grade 12 enrolment). For the purpose of this study we define a 5-category variable which is based on information on applications to PSE institutions and confirmations received by TDSB, as well as data that identify those students who dropped out and those who graduated but did not elect to pursue a PSE path up to the year 2009. Table 3 shows that over three-quarters of students in the base sample applied to PSE institutions, and 50 per cent of students confirmed university acceptance. While 9.4 per cent graduated from high school but did not apply, 15.2 per cent were still in the TDSB or dropped out, or had no information available.

Table 3: Base Sample – PHS Pathways (N=7,019)

	TDSB classification	N	%
PHS pathways	Confirmed university acceptance	3,556	50.7
	Confirmed college acceptance	1,082	15.4
	Applied to PSE but did not confirm	653	9.3
	Graduated but did not apply to PSE	658	9.4
	Dropped out; Still in TDSB; Missing	1,070	15.2

The predictor variables are organized in four sets:

School and neighbourhood characteristics: This set comprises a Learning Opportunities Index (LOI) that describes school ranks showing socio-economic 'challenge' of students in the school and the SES of the communities supporting students' growth and development.

The Learning Opportunities Index – The LOI is an index calculated every two years by the Research Department of the TDSB. The Index measures socio-economic challenge faced by the students of each school. The 2009 LOI was calculated using two years of student information (2007-08 and 2008-09). The LOI looked at information from where the student

lived, rather than looking at the neighbourhood of the school, since so many students live outside the immediate neighbourhood of the school. Six digit postal code information for each student was matched to: median income (based on income tax returns); percentage of families whose income is below the Low Income Measure (both the low income measure and family income come from income tax return information); proportion of families receiving social assistance (from income tax returns); proportion of adults with low education (calculated by matching postal code information with the Dissemination Area (DA) information from the 2006 Student Census); proportion of adults with a university degree (calculated by matching postal code information with the Dissemination Area information from the 2006 Student Census); and proportion of lone-parent families versus families with children living at home (calculated by matching postal code information with the Dissemination Area information from the 2006 Student Census). Schools were grouped into five categories, from low challenge to high challenge.

Median Income – For each student, the six digit postal code was matched to the median family income of the Dissemination Area (DA) of the 2001 Census.

Family characteristics: This set includes two indicators of family material and non-material resources – parental education and family structure that describe parental presence at home.

Student Characteristics: In addition to the design variable (SN status), the Student Characteristics include specific socio-demographic factors: gender, race and immigrant generational status. Students' achievement is described by their Grade 9 Math marks and by the average overall marks received in Grades 11-12. Students' view of school and their own learning are illustrated by indicators of their dependability (i.e., absenteeism), and perceived competence, expressed by rating their progress at school. Tracking or streaming variables are almost always included in educational attainment studies because of their strong association with post-high school destinations (Taylor & Krahn, 2009). However, in this analysis we did not include the TDSB track variable ('Program of Study'). Preliminary analysis indicated a very high correlation with the SN variable which resulted in an inability to model the effects of SN status – the basic design variable in the study.[5]

School Engagement: This set comprises indicators of academic engagement (i.e., time spent on homework) and social engagement including variables that indicate how students position

[5] Brown (2006; 2010a, 2010b) outlines some of the difficulties in using a tracking variable in conjunction with the SN designation. The close association between these variables stems largely from their shared association with students' early achievement. Nearly all SN designations are made in the elementary grades and track 'Program of Study' assignment is made in Grade 9 (with a few middle school exceptions being made in Grade 8). Both are decided primarily on the basis of achievement in key subject areas – principally reading and math, although track assignment is additionally intended to reflect the students curricular (and eventual occupational) interests. There are policy complications surrounding use of the tracking concept. Ontario no longer has a formal streaming process. Consequently, there is no agreed upon means of operationalizing a track variable. Finally, there are practical reasons involving student mobility and immigrant youth. A significant number of students enter the TDSB after Grade 9 and the basis for their assignment to a Program of Study cannot be compared to those who attended elementary school in the TDSB.

themselves with respect to school in general and instruction in particular, and how they perceive adult and peer social interactions at school. All constructs, except the social engagement indicators, are based on single-item variables. The social engagement constructs are obtained by aggregating 12 survey questions into three factors as suggested by running a Principal Component Analysis. These factors indicate student perceptions of School Climate (three items), Instructional Support (six items) and Social Interactions (three items, more details available in Appendix 1). Cronbach's Alpha coefficients are 0.730 (School Climate), 0.817 (Instructional Support) and 0.766 (Social interactions), which indicate relatively high scale reliability for the three composite scores.

Results

Analysis

First we describe certain characteristics of students with and without special needs in the research sample. Next, we model post-high school pathway directions by taking into account the variables presented in the Conceptual Model. Finally, we examine groups of students who are 'at risk' with respect to postsecondary participation, including students with SN.

Descriptive Profiles

In this section, we construct profiles of youth with and without SN by using the TDSB instructional classification groups (see Table 2). We first show post-high school pathways (Table 4a), socio-demographic profiles (Table 4b) as well as achievement and engagement profiles (Table 4c). These indicators span the period from high school entry to the point at which students leave the school system and enter the PSE system or the workplace. We compare percentages of specific categories or means of selected indicators for students with or without SN.

Pathways: Table 4a shows the Pathway percentages for groups with and without SN. By 2009, three years after the modal Grade 12 graduation year, only a relatively small percentage of students with SN had confirmed university acceptance – specifically, only 18.2 per cent of the students with SN confirmed university acceptance compared to 58.1 per cent of students without SN. In contrast, more students with SN had confirmed college (23.9 per cent) or applied to PSE but had not confirmed enrolment (13.1 per cent). Over 20 per cent of the students with SN graduated from high school but did not apply to PSE (21.4 per cent). Somewhat more dropped out, were still enrolled in the TDSB, or had missing information (23.5 per cent). These descriptive statistics reinforce reports of generally difficult PSE transitions found in the literature on adolescents identified as having a disability or SN. Students with SN confirm acceptance of college programs in relatively large numbers. However, when compared to graduates without SN, their participation in university is very much less.

Table 4a: Descriptive Profiles – Post High School Pathways			
Characteristics	**Categories**	**Students without SN (%)**	**Students with SN (%)**
PHS pathways (***)	Confirmed university acceptance	58.1	18.2
	Confirmed college acceptance	14.2	23.9
	Applied to PSE but did not confirm	9.3	13.1
	Graduated but did not apply to PSE	7.7	21.4
	Dropped out; Still in TDSB; Missing	10.8	23.5

Significance of chi-square tests: * p<0.1; ** p<0.05; *** p<0.001

Social Structures: Table 4b shows several significant differences in the distribution by socio-demographic variables across the two groups. Females are significantly less likely to be classified as students with SN: they represent only one-third of students identified as having SN and half of students without an SN designation. The group with SN contains significantly higher proportions of White and Black students, and lower proportions of Asian students. For instance, 49.2 per cent and 15.2 per cent of the students with SN are White and Black, respectively while these percentages are 33.3 per cent and 7.9 per cent among the group of students without SN. First generation immigrants (i.e., born outside Canada) are half as likely to be students identified as having SN in contrast to third generation (i.e., born in Canada and with both parents born in Canada) who are about twice as likely to be classified as students with SN.

Family characteristics are also associated with SN. For instance, the proportion of students with university educated parents is 53.5 per cent among students without SN and 36.7 per cent among students identified as having SN. Similarly, students coming from lone-parent families are slightly more likely to be classified as having special needs. Students identified as having SN are enrolled in schools with higher levels of socio-economic challenge. The differences in neighbourhood median income are not statistically significant.

Achievement, Self-Perceptions, and School Engagement: Table 4c includes several indicators of high school academic achievement and PHS pathways. Grade 9 Math average marks indicate the academic achievement during the first year of high school. Data clearly show that the highest proportions of students identified as having SN are found in achievement Levels 0 to 2 (below 70 per cent) while students without an SN are more likely to achieve at higher levels (above 70 per cent). Only 12 per cent of students identified as having SN are among the highest achievers while 20 per cent of students identified as having SN do not pass the Grade 9 Math course. Even more pronounced differences are observed for Grades 11-12 achievement levels. Only 6.6 per cent of students identified as having SN are among the highest achievers while 20.1 per cent of students identified as having SN have an achievement level below the pass grade.

Table 4b: Descriptive profiles – socio-demographic factors			
Characteristics	**Categories**	**Students without SN (%)**	**Students with SN (%)**
Gender (***)	Male	48.9	65.9
	Female	51.1	34.1
Race (***)	White	33.3	49.2
	E Asian	23.3	7.4
	S Asian	21.0	13.4
	SE Asian	3.2	1.7
	Middle Eastern	4.2	3.0
	Latin American	1.5	1.9
	Black	7.9	15.2
	Mixed/Other	5.6	8.1
Immigrant generational status (***)	First generation	46.1	22.9
	Second generation	36.4	44.3
	Third or higher generation	17.5	32.8
Parental education (***)	University	53.5	36.7
	College	15.6	20.3
	High school	17.5	20.1
	Don't know	13.4	22.9
Family structure (**)	Both parents	76.3	70.3
	Father only	2.3	4.0
	Mother only	17.3	22.0
	Other	4.2	3.8
School SES (***)	Average rank (scale 1-5)	2.41	2.81
Neighbourhood (ns)	Average Median family income ($)	58600	59600

Significance of statistical tests (chi-square for categorical variables and ANOVA for continuous variables):
* p<0.1; ** p<0.05; *** p<0.001

Students' self-ratings of their progress in school indicates that 10.4 per cent and 37.5 per cent of students with SN acknowledge having difficulty in school, and 37.5 per cent are making Fair to Average progress, as compared to 5.6 per cent and 28.0 per cent of students without an SN. While two-thirds of students without an SN believe they have made good or excellent progress in school, only half of students identified as having SN rate their progress in a similar manner. Academic engagement is also lower for students identified as having SN who spend on average 6-10 hours doing homework as compared to the students without an SN who spend 11-15 hours. Students identified as having SN are also more likely to be absent in school in Grade 9: on average they miss 5.7 per cent of school days as compared to students without an SN who miss 3.7 per cent. Finally, some differences are noticeable along the social engagement dimensions. Overall, students without an SN show higher levels of social engagement with respect to the school environment (i.e., enjoying school, believing that school is an attractive

and welcoming place) and social interactions (i.e., getting along with other students, being accepted by students and adults). There are no differences in the way students with or without SN perceive instructional support.

Table 4c: Descriptive profiles – achievement and engagement factors

Characteristics	Categories	Students without SN (% and means)	Students with SN (% and means)
Grade 9 Math average mark (***)	Level 4 (80+)	35.3	12.1
	Level 3 (70-79)	21.1	15.0
	Level 2 (60-69)	17.2	22.9
	Level 1 (50-59)	16.4	29.9
	Level 0 (<50)	10.0	20.1
Grades 11-12 average mark (***)	Level 4 (80+)	30.4	6.6
	Level 3 (70-79)	29.5	23.3
	Level 2 (60-69)	21.0	29.5
	Level 1(50-59)	10.8	20.8
	Level 0 (<50)	8.3	19.7
Rate school progress (***)	Having difficulty	5.6	10.4
	Fair/Average	28.0	37.5
	Good	49.4	39.6
	Excellent	17.0	12.5
Absenteeism Grade 9 (***)	Scale (0-100)	3.70	5.71
Academic engagement (HW time) (***)	Scale (1-7)	3.09	2.19
Social engagement	Scales (1-5)		
School climate (***)		3.42	3.26
Instructional support (ns)		3.78	3.78
Social relations (***)		4.07	3.92

Significance of chi-square tests and ANOVA tests: * p<0.1; ** p<0.05; *** p<0.001

Regression

The outcome variable in this study is a 5-category variable that describes PHS pathways: Dropout (including those still in the TDSB or missing information), High school graduation (never applied to PSE), High school graduation (applied to PSE but did not confirm acceptance); College (confirmed); University (confirmed). While our primary interest is in identifying opportunities for a successful transition to PSE, the factors associated with the alternative, non-PSE paths are, from an equity perspective, equally important and informative. In this section, we examine the antecedents and correlates of all pathway decisions. Specifically, we examine the relative effects on PHS pathways of student, family and school characteristics by employing a multinomial logistic regression model to predict pathway choice. The explanatory variables in the regression model include student characteristics (i.e., socio-demographic, family background and achievement), school and neighbourhood characteristics, as well as student

level information that describe measures of academic and social engagement, dependability and self-concept of ability.

Table 5 contains descriptive statistics (proportions and means) of the sample used for modeling PHS pathways – we note that the model is based on 5,944 valid cases for which data are available for all variables.[6]

Table 5: Descriptive statistics of variables used in the model (N=5944)

Variable name	Categories	Percent/Mean
PHS pathways	Confirmed university acceptance	54.6
	Confirmed college acceptance	15.1
	Applied to PSE but did not confirm	9.6
	Graduated but did not apply to PSE	8.9
	Dropped out/Still in TDSB/Missing	11.9
SN status	No SN	91.1
	SN	8.9
Gender	Male	50.4
	Female	49.6
Race	White	34.8
	E Asian	21.9
	S Asian	20.3
	SE Asian	3.1
	Middle Eastern	4.1
	Latin American	1.5
	Black	8.5
	Mixed/Other	5.8
Immigrant generational status	First generation	44.0
	Second generation	37.1
	Third generation (or higher)	18.8
Average Grade 9 Math mark	Continuous (0-100)	68.75
Average Grades 11-12 mark	Continuous (0-100)	69.89
Home Work time	Scale (1-7)	3.01
Absenteeism Grade 9	Continuous (percentage of school days missed)	3.88

[6] Due to missing survey data, the regression sample employed is reduced from the base sample to N=5,944 of whom 8.9 per cent are identified as having SN. Appendix 2 contrasts several socio-demographic and achievement characteristics of the regression sample and the TDSB student population (that includes the regression sample). Although school achievement levels are higher for the research sample and the PHS pathways are shifted somewhat toward the university option, the socio-demographic profile of the research sample is generally representative of the entire TDSB Grade 12 cohort.

Rate own progress in school	Having difficulty	6.0
	Fair/Average	28.9
	Good	48.6
	Excellent	16.6
Social engagement		
School climate	Scale (1-5)	3.41
Instructional support	Scale (1-5)	3.78
Social relations	Scale (1-5)	4.06
Parental education	University	52.0
	College	16.0
	High school	17.7
	Don't know	14.3
Family structure	Both parents	75.7
	Father only	2.4
	Mother only	17.7
	Other	4.2
Neighbourhood SES	Median family income (15,000-110,000 $)	58,690
School SES (ranks)	Scale (1-5)	2.44

Table 6 contains the results of the multinomial logistic regression used to predict the likelihood of PHS pathway choices (University, College, Applied but not confirmed, high school graduation), setting 'Dropout' as the reference category. The model includes student socio-demographic, family, school and neighbourhood factors, as well as achievement and academic and social engagement factors. The results for the individual variables reflect their relationship to pathway choice when all other variables are held constant (at their average values).

Results are expressed in terms of odds ratios that indicate how many times greater is the likelihood of the event compared to the likelihood of the non-event when each PHS pathway is compared with the reference group. For instance, the first row in Table 6 shows the odds ratios for each PHS pathway – with respect to the Dropout category – when students identified as having SN are compared to students without SN status (reference category). The odds of students identified as having SN confirming university acceptance relative to Dropping out is significantly lower than for students without SN status (i.e., odds ratio of .379). However, students identified as having SN are as likely as students without an SN status to graduate from high school but not apply to PSE (odds ratio of 1.284), to have confirmed college acceptance (1.064), or to apply to PSE without being confirmed (1.040).

Table 6: Multinomial regression – PHS pathways[a]				
Variables Reference categories & Levels	**Odds ratios**			
	University confirmed	**College confirmed**	**Applied but not confirmed**	**HS graduates**
SN status (Students without SN =ref)				
SN	.379***	1.064	1.040	1.284
Gender (Male=ref)	1.282**	1.301**	1.582**	.758**
Race (White=ref)				
E Asian	2.869***	1.219	1.185	.580**
S Asian	2.707***	1.318	1.538*	.498**
SE Asian	1.635	1.577	1.052	.456*
Middle Eastern	1.054	.902	.653	.580*
Latin American	.348**	.551	.485	.436**
Black	1.093	.959	.939	.703
Mixed/Other	.849	.841	.907	.684
Immigration generational status (Third gen=ref)				
First generation	.785	1.192	.980	.858
Second generation	1.386*	1.590**	1.403	1.097
Average Grade 9 Math mark	1.012**	.995	1.011**	.999
Average Grades 11-12 mark	1.204***	1.095***	1.111***	1.094***
Home work time	1.260***	1.073*	1.168***	.991
Absenteeism Grade 9	.926***	.932***	.961**	.983*
Rating own progress in school (Excellent=ref)				
Good	2.010**	2.278**	1.346	1.398
Fair/Average	1.452	1.997**	1.027	1.090
Having difficulty	1.393	1.810**	.853	1.017
Social engagement				
School climate	.837*	.863	.889	.950
Instructional support	.793**	.878	.842	.891
Social relations	1.736***	1.277**	1.474***	1.125
Parental education (University=ref)				
College	.854	1.356*	.793	1.279
High school	.577**	1.041	.502***	1.311
Don't know	.624**	1.111	.678*	1.621**
Family structure (Both parents=ref)				
Father only	.713	.880	.855	1.020

Mother only	.744*	.629**	.881	.972
Other	.329***	.563**	.734	.906
Neighbourhood SES	1.005	1.001	1.010**	1.002
School SES	.743***	.902**	.736***	1.069

* p<0.1; ** p<0.05; *** p<0.001
[a] Reference category = Dropout

Control Variables

Student socio-demographic characteristics: Table 6 also shows that gender is a significant explanatory variable of PHS pathways. Female students are more likely than male students to have confirmed university or college acceptance, and to have applied to PSE., while male students are more likely to graduate from high school but not apply to PSE. Among racial groups, the most likely to apply and confirm acceptance to a PSE institution are the Asian students. In particular, East and South Asian students are almost 3 times as likely as White students to have confirmed university acceptance. The least likely to confirm at the university level are Latin American students. Immigrant generational status has a modest effect on PHS pathways. While differences between first and third generation are not significant, second generation immigrant students are more likely than others to have confirmed university or college.

Family background: Parental education effects are consistent with the literature. Students with non-university educated parents (especially high school education) are less likely to be found in the 'university confirmed' or in the 'applied but not confirmed' pathway (which may share characteristics with those in the university confirmed pool). Students coming from families where parents are college graduates were more likely found in the 'college confirmed' pathway. As shown in Table 5, a significant percentage of Grade 12 students were unaware of their parent's level of education: these students proved less likely to pursue PSE although they did graduate from high school. Finally, family structure has an impact on PHS pathways. As shown in Table 5, over three quarters of students come from two-parent families, about 18 per cent from mother-only families and very few from families with father-only or other arrangements. Table 6 shows that students coming from two-parent families were the most likely to have confirmed PSE.

School and neighbourhood characteristics: There is very little effect of neighbourhood SES on PHS pathways. However, Table 6 shows that students coming from schools with higher levels of socio-economic challenge were less likely to apply to PSE or confirm the university option.

Student Variables

Achievement: In general, achievement is a strong predictor of PSE participation. This is particularly true when examining Grades 11-12 achievement, which had the most significant impact on the 'university confirmed' pathway – for each additional point added to the average mark, the odds ratio increased by a factor of 1.204. Table 6 results suggest that the school

performance of students in the 'applied but not confirmed' pathway are more similar to the 'university confirmed' pathway individuals than those in the 'college confirmed' pathway (i.e., higher odds ratios for both Grade 9 math and Grades 11-12 achievement).

Academic and social engagement: In the regression model, academic engagement is measured by the number of hours per week students spend doing homework. Table 6 shows that the effect of homework time is most obvious for the 'university confirmed' pathway followed by the 'applied but not confirmed' pathway. For example, when homework time increases by one level (relative to the reference level of 0-5 hrs. per week on homework), the odds ratio for 'university confirmed' increases by a factor of 1.260.

The three dimensions of social engagement show modest effects on PHS pathways. Perhaps the most interesting is the rather broad and positive effect of the Social Relations component on increasing the likelihood of more than a single pathway – e.g. 'University confirmed,' 'College confirmed' and 'applied but not confirmed' pathways.

Absenteeism: Absenteeism provides a measure of student's general commitment to their schooling. For the purpose of this study, the proportion of days missed in Grade 9 was employed as an indicator of absenteeism. Table 6 shows that absenteeism decreased the likelihood of pursuing PSE or even graduating from high school as compared to dropping out of school (or delaying graduation).

Self-concept of ability: Self-concept of ability is an indicator of perceived academic competence and was measured in this study by students' self-report of their progress in school, ranging from having difficulty to reporting excellent progress. Table 6 shows that, when adjusting for all factors, students who perceive their progress in school as 'good' are the most likely to confirm university or college, to apply for PSE or graduate from high school. This may be a statistical artefact given the strong and positive relationship between the objective measure of achievement (Grades 11-12 marks) and PSE confirmations but it seems unlikely. Possible substantive reasons are discussed in the Summary section.

PHS Pathways Probabilities

Table 4b shows a clear discrepancy between the PHS pathways of students with or without SN. However, the results are based on observed frequencies obtained through descriptive analysis and do not take into account the influence of other (control) variables. The SN status relationship to PHS pathways is more accurately expressed by conducting a multivariate analysis that discounts the effect of the other variables. In Table 7, the unadjusted probabilities of PHS pathway occurrence (i.e., Table 4a results) are contrasted with the predicted probabilities obtained from the coefficients of the multinomial regression model and the means of the sample.

The predicted probabilities of PHS pathways for each SN designation are obtained after setting all other variables in the model to their average values. Although the SN status discrepancy is reduced when we control for all factors in this way (e.g., the probability of 'university confirmed'

increases from .182 to .344), differences in PHS pathways are still pronounced between students with and students without a SN designation.

Table 7 shows that differences in predicted probabilities of PSE participation are large for the 'university confirmed' pathway: a probability of .600 for students without SN and .344 for students with SN. Meanwhile, students with SN are more likely than students without SN to receive college confirmation (.293) or to have applied but not be confirmed for PSE (.209). The likelihood of their applying to and confirming the university option is about half that of students without SN. When controlling for covariates, one-third of students with SN are predicted to confirm university, and another approximately one-third are predicted to confirm college.

Table 7: PHS pathways probabilities by SN status

Probability type	Student SN status	University	College	Applied (not confirmed)	HS graduation	Dropout
Unadjusted (bivariate analysis)	Without SN	.581	.142	.093	.077	.108
	With SN	.182	.239	.131	.214	.235
Predicted (multinomial regression model)	Without SN	.600	.182	.132	.059	.027
	With SN	.344	.293	.209	.114	.041

Achievement and At-Risk Status

In this section, we expand the 'at risk' notion by first asking whether other groups of students with similarly low rates of university confirmation are present among students without SN status. The Profile Analysis (see Table 4c) showed that 'university confirmed' students are drawn from the highest achievers (Level 3 and 4) in Grade 9 Math (about 56 per cent) and Grades 11-12 aggregated marks (about 60 per cent). To examine pathway confirmations using adjusted results we constructed predicted probabilities derived from the multinomial logistic regression. Since Grade 9 and Grade 11-12 achievement variables used in the model are continuous, the predicted probabilities are calculated for specific values of the average marks (e.g., every 10 points between 30 and 100).

Table 8 shows that the predicted probabilities do not exhibit large variation by Grade 9 Math average marks – for instance, when varying the mark from 100 to 30, the probability of university confirmation varies between .654 to .459 which suggests that failure in Grade 9 Math does not provide enough evidence of 'at risk' condition in terms of university confirmation. Even when students fail the course (i.e., obtain a mark slightly below 50), there is a significant likelihood of university confirmation.

However, the predicted probabilities show more pronounced variation when Grades 11-12 average marks are considered. The chance of being confirmed for university is lower than .5 as soon as the average mark drops below 70. In addition, we notice that at an average mark of 60, the probabilities for university confirmation and college confirmation become comparable and quite similar to the values shown in Table 7 for students with SN. It appears that, regardless of their SN status, students who obtain in Grades 11-12 an average mark below 60 (i.e., Level 0 and 1 in Table 4c), should be also considered 'at risk' with respect to PSE participation, especially at the university level.

Table 8: Predicted probabilities of PHS pathways by achievement level						
Achievement indicator	**Mark**	**University**	**College**	**Applied (not confirmed)**	**HS graduation**	**Dropout**
Grade 9 Math mark	100	.654	.125	.152	.048	.022
	90	.631	.144	.148	.052	.024
	80	.697	.165	.144	.057	.026
	70	.581	.189	.140	.062	.028
	60	.552	.215	.135	.068	.030
	50	.523	.243	.130	.073	.032
	40	.491	.273	.123	.078	.034
	30	.459	.304	.117	.083	.036
Grades 11-12 mark	100	.955	.018	.020	.006	.001
	90	.897	.045	.043	.014	.001
	80	.779	.100	.083	.032	.006
	70	.580	.191	.139	.063	.028
	60	.336	.285	.180	.095	.104
	50	.141	.308	.169	.103	.279
	40	.042	.236	.113	.080	.530
	30	.009	.135	.056	.046	.753

We next examine students who can be considered at-risk of not proceeding to PSE by comparing achievement, engagement and self-perceptions of the following groups: Low achieving students without SN (i.e., Level 0 and 1, Grades 11-12 marks); Students with SN - IPRC Non-gifted – Mainstream classes; Students with SN - Other include IEP/Not selected & Non-identified/Special needs, Mainstream classes; Students with SN - IPRC Non-gifted – Special Education classes. The constructed sample comprising these students is shown in Table 9.

Table 9: 'At-Risk' Constructed Sample (N=1989)		
Group	**N [a]**	**%**
Students with SN -IPRC Congregated	133	6.7
Students with SN -IPRC Integrated	322	16.2
Students SN -Other groups	252	12.7
Low Achieving students without SN	1,282	64.5

[a] Total counts are slightly lower for some entries due to missing data.

Socio-demographic differences: Table 10 shows detailed profiles of the at risk students. Overall, male students are more likely to be at risk; and among at-risk students, males are more likely to be placed in special education (congregated) classes. There are some interesting patterns among the racial groups. For instance, White students are more likely to be classified as SN, but they are less largely represented among Low achieving students (without a SN

designation). East Asian students are less likely to be at risk; and if they are at risk, they are likely to be in the Low achieving or SN-Other groups. South Asian students are proportionally represented among low achieving and SN-Special classes groups. The most 'at-risk' racial group are Black students. While they represent 8.5 per cent of the TDSB sample, they are more than twice as much represented among 'at risk' students, especially in the Low achieving and SN-Special classes groups. The impact of immigrant status is also significant in the distribution of students across the 'at risk' categories. The Low achieving students group has a quite similar distribution with the whole sample. However, the second and third immigrant generations are the most likely to be identified as SN students. While for the third or higher generation, students who are identified as SN are more likely to be in integrated classes, for the second generation, they are over-represented in congregated classes.

Table 10 also shows the extent to which family background as well as school and neighbourhood SES are associated with students identified as being 'at-risk.' Students whose parents are university educated are significantly less likely to be at-risk in any of the four categories; when they are at risk, they are the least likely to be SN students in Special Education classes. SN students in congregated classes have a higher proportion of students who did not report the level of education of their parents. This group also has an over-representation of students coming from lone parent families or 'other' family arrangement. This is a similar family composition to that of the Low achieving students. Also, SN students in special classes are enrolled in schools with a high SES challenge and live in neighbourhoods with low median family income. Neighbourhood conditions offer fewer advantages for Low achieving students while less favourable SES conditions obtain for both Low achieving students without special needs and for SN students in congregated classes.

For these students, we examine how their placement in mainstream or special education programs is associated with academic achievement, self-perceptions and school engagement. Table 11 shows indicators of academic achievement and engagement for the four at-risk groups. Sample size limitations preclude the use of adjusted estimates. We therefore employ descriptive statistics to explore differences in the school performance of various at-risk groups. Although students in congregated programs performed better in Grade 9 Math compared to all other at-risk groups, they remain slightly behind the other SN students in Grades 11-12. However, they perform better than low-achieving students without SN. We should note that students with SN have relatively low achievement levels during high school – around 60 per cent, which corresponds to Level 1-2 performance (as compared to about 70 per cent for all TDSB students). Low-achieving students without SN show achievement outcomes significantly below the students with SN in Grade 9 Math as well as Grades 11-12. The time spent on homework is higher for the students in mainstream classes as compared to students in congregated programs. Overall, at-risk students spend about 6-10 hours on homework. Absenteeism is relatively high for students with SN in congregated classes but also for Low achieving students without SN; in general, at risk students are less present in school compared to all TDSB students. However, self-concept of ability is higher for the students with SN in congregated classes, about 22 per cent of them rating their progress in school as 'excellent' which is significantly higher that the corresponding percentages among at risk students in mainstream classes. The last row in Table 11 shows that students with SN in congregated

classes have more positive attitudes with respect to school, instruction, and social relations compared to at-risk students in mainstream classes.

Table 10: Socio-demographic characteristics by 'at risk' group (N=1,989)					
		At Risk			
		Low Achieving (N=1,282) [a]	SN-IPRC Integrated (N=322) [a]	SN-Other groups (N=252) [a]	SN-IPRC Congregated (N=133) [a]
Gender (**)	Male	60.8	69.9	62.3	72.9
	Female	39.2	30.1	37.7	27.1
Race (***)	White	28.5	47.2	45.2	39.8
	E Asian	11.9	6.8	10.3	3.8
	S Asian	20.7	13.0	11.5	18.8
	SE Asian	2.4	.6	1.6	3.0
	Middle Eastern	6.2	3.4	3.6	3.8
	Latin American	3.0	1.6	2.0	3.8
	Black	19.7	17.4	16.7	19.5
	Mixed/Other	7.5	9.9	9.1	7.5
Immigrant generational status (***)					
	First generation	44.9	19.6	27.0	28.6
	Second generation	40.1	46.0	43.7	50.4
	Third or higher generation	15.0	34.5	29.4	21.1
Parental education (***)					
	University	32.4	33.6	40.4	21.4
	College	20.5	20.6	19.6	14.5
	High school	24.1	24.6	15.0	18.8
	Don't know	23.0	21.3	25.0	45.3
Family structure (**)					
	Both parents	61.2	69.1	67.5	62.9
	Father only	3.4	2.9	4.9	6.5
	Mother only	25.9	23.1	23.5	23.4
	Other	9.6	4.9	4.1	7.3
School SES (***) (scale 1-5)		2.95	3.02	2.53	3.83
Median family income (***)		$50,960	$57,990	$60,530	$48,830

[a] Total counts are slightly lower for some categories due to missing data.
Significance of statistical tests (chi-square for categorical variables and ANOVA for continuous variables):
* p<0.1; ** p<0.05; *** p<0.001

Table 11: Achievement and school engagement by 'at risk' group (N=1989)				
	At Risk [a]			
	Low Achieving	SN-IPRC Integrated	SN-Other groups	SN-IPRC Congregated
Average Grade 9 Math mark (***)	52.95	57.33	56.64	62.27
Average Grades 11-12 mark (***)	47.49	60.77	59.61	58.54
Academic engagement – HW time (scale 1-7)	2.27	2.24	2.24	1.89
Absenteeism Grade 9 (*)	6.62	5.37	5.87	6.63
Rate school progress (***) (column %)				
Having difficulty	14.8	7.9	14.0	9.0
Fair/Average	45.1	39.3	40.5	30.3
Good	35.4	41.0	37.2	38.5
Excellent	4.7	11.8	8.3	22.1
Social engagement (scale 1-5)				
School climate (**)	3.28	3.13	3.28	3.43
Instructional support (***)	3.63	3.70	3.73	3.98
Social relations	3.88	3.86	3.89	3.93

[a] Total counts are slightly lower for some entries due to missing data.
Significance of statistical tests (chi-square for categorical variables and ANOVA for continuous variables):
* p<0.1; ** p<0.05; *** p<0.001

Summary

The resilience approach emphasizes development of students' personal strengths or capabilities. In this respect, it is consistent with the move away from a deficit model and toward greater inclusion. More specifically, it assigns a different meaning to the relationship between students and their environment. Much research is directed toward identifying barriers to student achievement or attainment. Rather than simply cataloguing these risk factors and seeking means to reduce their effects, the resilience framework attempts to identify protective factors – resources in the family, school and community that can be mobilized to build students' academic skills and positive dispositions toward learning.

Profile

Our analysis first compared profiles of the context, student demographic characteristics, as well as student self-perceptions and school engagement factors for students with special needs and those without special needs. When compared with students who did not have a SN designation, the profile for students with SN was characterised by several factors, which represent potential barriers to PSE participation.

Context: Family and School

The home and neighbourhood contexts of the students in the study were measured by variables that described their parents' level of education, an indicator of family structure and by a neighbourhood measure of family income. Students' school environment was described by a composite measure of socio-economic status.

In the TDSB sample, distinct differences were seen in the parental education levels of student groups with and without SN. The proportion of parents with a university education among students without SN status was 54 per cent while that of students with SN was 37 per cent. Parental education is generally recognised as a significant predictor of school achievement and PSE participation, especially enrolment in a university program (Drolet, 2005). The explanation often given for this consistently strong association is that highly educated parents possess a fund of cultural capital they make available to their children. This transmission of resources is accompanied by a set of values and dispositions (*habitus*) that allow the effective utilization of family and community resources as well as those available through the social networks within which their parents are positioned (Lareau, 2003). The socio-economic status of the neighbourhood exerts an influence on children's school attitudes. This occurs largely through the influence of peers. Neighbourhood median incomes also give us an indication of the economic position of the individual respondents' family. However, in this sample, there are no statistically significant income differences.

Resources are generally greater in two-parent families. Single-parent households are typically headed by women whose incomes tend to be lower. However, here too, there are no significant differences.

When children enter high school they are exposed to a larger and more diverse set of classmates than encountered in their neighbourhood elementary school. To the extent peers influence the formation of attitudes towards school achievement, a higher SES student body would confer advantage on its members. In our sample, the SES composition of individual schools appears to favour those students without a SN designation. Average SES values were significantly higher among schools attended by students without an SN designation. This is consistent with previous research on school composition effects and the achievement of students with disabilities (Friesen, Hickey & Krauth, 2009).

Student Demographic Characteristics

Considered by itself, race (or ethnicity) indicates that White students comprise nearly half the population with SN (49 per cent). However, this preponderance of a particular group may be an artefact of the high levels of immigration into the TDSB secondary school system. Most SN designations are made at the elementary level, and these students tend to retain that designation throughout high school (Brown, 2010a).

The TDSB is notable for its ethnic diversity and the very high proportion of first and second generation immigrant students. Yau and O'Reilly (2007) report that immigrant students now represent 80 per cent of the TDSB student population; and many among the first-generation

immigrant children do not speak English fluently, which compounds and extends the normal adjustment period.

In our analysis, first-generation immigrant students have proportionately fewer SN designations than the third-generation or non-immigrant population (23 per cent versus 33 per cent). This may reflect generally higher levels of achievement among immigrant youth. Immigrant families tend to stress the importance of academic achievement and this influences their children's interest in learning and study behaviour. Nevertheless, there exists considerable variation in achievement among immigrant groups which suggests a greater number of individuals require SN instruction than are indicated in these results (Sweet, Anisef & Walters, 2010). This possible omission may be explained, in part, by the fact that many immigrant youth arrive in Canada as adolescents and therefore enter the high school system where SN identification and diagnosis services are much less available than in elementary schools.

Of perhaps greater concern is the high proportion of second-generation students with SN. These are students who are born in Canada and so can be assumed to be competent in English and enter a Canadian (if not TDSB) school in the primary grades (Kindergarten or Grade 1). Nevertheless, some 44 per cent of this group receives SN instruction.

Gender has been a consistent marker of learning difficulty in school. Proportionally more boys than girls are found in special education classes (Winzer, 2006; Wong, 2003). This is the case in the TDSB sample where 66 per cent of students with SN are boys.

Achievement

Although PSE transitions are affected by many (intersecting) factors, student achievement is an essential requirement for PSE participation. Students' overall grades are especially strong predictors of PSE participation – more predictive than early grades or grades in specific subjects (Finnie et al, 2010).

In the TDSB, the pattern of (average) marks for students with SN in Grades 11-12 was quite different from the group of students without SN status. Among the group with SN status, there were twice as many students with marks below 60 per cent as found in the group of students without SN and only 7 per cent of students with SN achieved marks above 80 per cent (level 4) as compared to 30 per cent of the group of students without SN. Achievement among students with SN in Grade 9 (Math 9 marks) did, however, improve somewhat by Grade 12 – the proportion of students demonstrating low- achievement dropped from 50 per cent to 40 per cent. Overall, however, early achievement appears to set the pattern for the high school years.

Student Self-perceptions and Commitment

Educational researchers interested in improving achievement in school settings have, for many years, studied the qualities of successful learners. The results of these enquiries suggest that underlying successful learning is a sense of personal competence, a set of self-regulating skills, and the ability to relate to others. Moreover, possession of these dispositions and skills confers

a measure of resilience in the face of academic challenges – which all students encounter but which at-risk youth face to a much greater degree (Wehmeyer et al, 2003; Wong, 2003).

Given the critical role assigned to personal assets in making successful transitions to PSE, we compared students with and without SN on a range of self-report variables that assessed their attitudes toward school, dependability and commitment (absenteeism), willingness to invest in their learning (i.e., how much time they spent on homework), and their success in establishing positive social relations in the school.

Students' perceptions of their academic progress involve a self-appraisal that is typically made in relation to peers (Eccles, Midgley, Wigfield, Buchanan, Reuman, Flanagan, & MacIver, 1993). When made about accomplishments in personally and socially meaningful domains like school, positive self-appraisals reinforce students' sense of competence and autonomy (Deci & Ryan, 1985). Students with SN in the TDSB sample tended to rate their progress much less favourably than did the regular program students. Nearly half the group of students with SN rated themselves as 'having difficulty' or performing at only a 'fair/average' level. While this negative assessment is certainly higher than students without SN, some one-third of the SN group nevertheless rated their performance at a level similar to that of students without SN.

Absenteeism is considered a general indicator of commitment to one's schooling. The rate of absenteeism – as measured on scale of 0-100 – among students with SN in the TDSB was significantly higher than among Regular program students (5.71 versus 3.70). However, these values may or may not be enough to hinder learning over the course of a year.

Engagement

The literature on special education or, more generally, on curriculum and instruction for at-risk students suggests an effective means of improving the learning skills and dispositions that underlie resilient responses may be found in promoting greater academic and social engagement (Cooper, Robinson, & Patall, 2006; Fredricks et al, 2004). In this study we obtained measures of engagement that included students' homework time, and their perceptions of school climate, teacher support and social (peer) relations. To the extent that engagement facilitates achievement and supports further learning, an important question is whether at-risk students differ significantly from their mainstream peers in terms of these school engagement indicators. Our results indicate that the academic engagement (homework time) of students with SN is significantly less than that of the students without SN. A comparison of the social engagement measures between students with and without SN also indicated significant differences. These were found in the School Climate scale where students with SN perceived school to be less welcoming or a less suitable place to learn. School climate fosters identification with the school and, by extension, its values. Similarly, students with SN had less positive social relations. While this scale made reference to adults in the school, the principal referents were students' peers and the quality of their interactions. Overall, students in the defined groups perceive their teachers to be supportive, encouraging and effective. From a professional and equity perspective, this would seem an especially positive finding.

Pathways

The post-high school pathways of students with and without SN were compared. It should be acknowledged that students with SN in this comparison were not disaggregated by diagnostic category (or otherwise) and, consequently, there is considerable variability within the SN group. Nevertheless, the post-high school pathways of the TDSB students in our sample generally conformed to those reported in the literature. When compared to graduates without SN a higher proportion of students with SN dropped out or went directly to the workforce. Only 18 per cent of students with SN confirmed university acceptance while 58 per cent of students without SN did so. However, 24 per cent of students with SN pursued community college while only 14 per cent of students without SN followed this path.

Transition Model

To account for differences in respondents' pathway decisions we regressed the pathway variable on measures and indicators that reflected the main elements of a general transitions model (Finnie et al, 2008; 2010).

Our results indicated, first, that when all other variables in the model were held constant (at average values) the predicted probabilities for university confirmations among students with SN were nearly twice as great as the actual confirmations (.34 versus .18). In contrast, there was little difference in the predicted probabilities and actual confirmations for those students with SN who pursued college (.24 versus .29).

We also examined the relative effects of each of the control variables in predicting PSE choice when the SN variable (and all others) are held constant. A brief overview of these results will give some indication of how individual differences and variation in home and school contexts account for the pathway differences of students, irrespective of SN status.

In general, these effects conform to those reported in the general literature on PSE transitions. For example, girls are more likely than boys to confirm a PSE pathway. So too are individuals from specific ethnic groups (East and South Asian). And higher neighbourhood income is associated with a greater likelihood of confirming a PSE pathway. Also, family structure (two-parents) and higher levels of family SES are associated with a greater likelihood of confirming PSE. An important qualification to the SES effect is the distinction between income and parents' education. Income (albeit a neighbourhood measure) is not associated with pathway choice while parents' level of education is strongly linked to their children's university or college confirmations. Specifically, students who confirm university pathways are more likely to have university-educated parents and those who confirm college are more likely to have college-educated parents. This apparent inter-generational transfer of occupational preference is of some import to the current debate on vocational versus academic post-high school education (Rosenbaum, 2001).

The immigrant variable appears somewhat anomalous in that only the second-generation is more likely to confirm the university pathway. This runs counter to the literature on 'immigrant optimism,' which portrays immigrant parents' as strongly encouraging their children to attend

university (Louie, 2001). However, the first-generation immigrant population in the TDSB is highly diverse. There are significant differences in cultural and socio-economic background among first-generation families and not all value higher education. Many see greater opportunities from direct entry to the workforce. Previous research on PSE pathways using TDSB data indicates the range of post-high school pathway choice among first-generation youth (Sweet, Anisef, Brown, Phythian & Walters, 2010).

Students' self-ratings of their progress in school suggests that those who view their performance as 'good' rather than 'excellent' are more likely to confirm the university pathway. This result may be a statistical artefact and in any event is counter-intuitive as objective measures of academic performance (marks) are highly and positively correlated with PSE pathway choice. However, modest appraisals of academic performance (relative to that of peers) may reflect a realistic assessment of achievement. That is, students may adjust their estimates of relative competence in the current environment of grade inflation; and they may recalibrate their estimates even further in relation to the more competitive process of PSE access (Cote & Allahar, 2011; Bibby, 2009).

As expected from the literature and the profile comparison with the TDSB data, student achievement was a strong predictor of PSE confirmations. Also anticipated by previous research, student academic engagement was important – specifically, social relations are associated with PSE interest and confirmation. Of interest is the relationship between positive social relations (with peers) across all pathway choices. Audas and Willms (2001) argue that social engagement not only supports academic engagement but is itself of value as an outcome of schooling. The particularly strong relationship between this indicator of social engagement and PSE choice offers support to the argument of those interested in developing social relatedness as an aspect of resilience in students with SN status' transitions from high school (Furlong & Christenson, 2008; Niemiec & Ryan, 2009).

At Risk Students – Follow-up Analysis

While all students face challenges in preparing for PSE, some are at greater risk of school disengagement, academic failure and, consequently, fewer opportunities for further education. These include not only students with SN but also those in the mainstream curriculum who are low achievers. In examining at-risk students' relationship to learning – as evidenced by their achievement and especially by their level of school engagement – it is important to distinguish the conditions under which they receive instruction. In this study we distinguished three SN instructional conditions based on diagnostic protocols and classroom instructional formats. Some students with SN have undergone the IPRC diagnostic process and been assigned to either a congregated or integrated classroom. It should be noted that congregated students also spend some of their instructional time in integrated classrooms. Other students with SN have received only an IEP and receive all their instruction in a regular classroom. To these we added low-achieving students who were enrolled in mainstream classes. Here, 'low achievement' corresponds to Levels 0 and 1 on the overall mark distribution for Grades 11-12.

The socio-demographic profile constructed for these groups reveals that low achieving students come from relatively low-income families in which, however, the proportion of parents with a university or college education is comparable to the SN groups.

Many students in the low-achieving group are immigrants who arrive after Grade 9 and, because SN assessment is less frequent at the high school level, they are less likely to have a SN designation and accompanying support. However, many are struggling academically. Given the ethnic backgrounds of the immigrant population, low achievement may be attributed to unfamiliarity with the English language. In any event, determining whether newcomer youth would benefit most from language instruction or SN support requires appropriate assessment upon arrival.

Although the study uses observational and not experimental data, some indication of schooling effects on engagement may be inferred from a comparison across groups. The SN groups have for the most part been receiving some form of SN support and instruction since elementary school (Brown, 2011, internal TDSB analysis); and the Grade 9 Math marks indicate that the low achievers have been performing consistently at a somewhat lower level since high school entry. Appropriately qualified, a comparison can be made that indicates whether or not resilience is more in evidence among students with SN support than among low achieving students enrolled in the mainstream curriculum. The results of this cross-tabulation indicate that although there are no significant differences in academic engagement (homework time) there are some important differences in social engagement that suggest students derived distinct benefits from their experience in SN programs.

Delimitations

The study advances previous research on PSE transitions for SN students by modelling the effects of a range of individual differences and contexts on their post-high school pathways. The study was, however, constrained by the following factors.

1. The analysis is essentially a case study that describes Toronto's SN system. While that system may be representative of the Province as a whole there are undoubtedly differences across school districts that may be important in the preparation of students with SN (and low achieving students) for the transition to PSE. The TDSB is unique also in the ethnic composition of its student body and in the degree of mobility among many of its immigrant families.

2. The study examined students in their final years of high school (Grades 11 and 12). Since SN services are initiated for most students in the elementary grades, those who enter the system at the high school level (often immigrant youth) are not always (or even often) identified.

3. For purposes of this study, SN status at Grade 11 or 12 was employed. Given that SN programming is initiated in the elementary grades, some students will have transferred out of the SN program. Consequently, some of those respondents categorized as being in mainstream or regular classes will have previously received SN instruction. Brown

(2011, internal TDSB analysis), however, indicates this affects a very small number among the IPRC classes and about one-third of the elementary IEP students. The latter are, however, relatively few in number and not necessarily low achievers in high school.

4. Because the Student Census employed a matrix sampling design, the initial sample of TDSB students was reduced to those who completed a particular form of the questionnaire. This reduced not only the available sample but also the range of variables that could be included in the analysis.

5. In secondary analyses variables are selected based on theoretical or practical reasons. Given the close relationship between track assignment and post-high school pathways in the literature, we would like to have included a measure of students' track assignment in our pathways model. We did not do so, however, as the track and SN variables were too highly correlated to run the model (see also footnote 4).

Policy Critique: Expert Panel

An expert panel, comprising representatives of the Ministry of Education, School Boards and the academic community met to discuss the report in relation to needed changes to current special education policies and practices. Their discussion is summarized in Appendix 3. While the panel discussion was wide-ranging, several issues raised by the Panel did bear on the PSE transition topic. Three of the more salient topics are highlighted below with accompanying reference to the recently released Ministry policy document 'Special Education Update' (Ontario Ministry of Education, 2011) and to relevant research literature as applied to both the K-12 and PSE systems.

1. The panel indicated a need to reconcile the different meanings given 'special needs' at the K-12 and PSE level. In the K-12 system, SN students are often described in terms of specific exceptionalities like 'learning disability,' 'developmental disability,' 'mild intellectual disability,' and `behavioural,' etc. At the PSE level, diagnostic categories are not essential in obtaining accommodations that facilitate classroom learning or test-taking. Depending on the disability, differences in definitional requirements can lead to gaps in support services for the individual transitioning from high school to PSE (Alcorn MacKay, 2010). Differences in emphasis are also seen between the two systems. Panel members from the PSE sector reported that mental health issues like anxiety and depression were far more prevalent and concerning than learning disabilities. Improved alignment between the K-12 and PSE sectors in the relative importance assigned disabilities that affect student learning was identified as a policy need. In the particular case of mental health, better alignment may be facilitated by the Minister of Education's Advisory Council on Special education (MACSE) assigning mental health issues as a new priority in schools. More concretely, the Ministry of Health has provided funding for a 3-year 'Child and Youth Mental Health Strategy'. One facet of this program would be directed toward building "… awareness and capacity within the school system to support students and families" (Ontario Ministry of Education, 2011, p.9).

2. The Student Support Leadership initiative (SSLI), which attempts to coordinate education, health and youth services agencies may complement the mental health initiative. Better coordination is accomplished through formation of local Clusters of these different agencies. One of the Cluster goals includes promotion of students' well-being. Developing the psychological well-being of youth represents a proactive attempt to promote positive outcomes and invokes a resilience perspective: "Clusters will be asked to invite representatives such as public Health, and Parks and Recreation so that protective factors for students are enhanced in school and community environments" (Ontario Ministry of Education, 2011, p.13).

3. Transition planning was identified as an important issue by the panel. Panel members raised two issues related to PSE planning approaches that facilitate successful transitions: advocacy and streaming or track assignment.

4. In addition to ensuring student achievement and the development of essential attitudes and dispositions toward learning, schools increasingly are being encouraged to foster self-awareness and self-advocacy in students with SN. In the U.S., transition preparation that involves teaching self-advocacy skills is required by federal legislation and has generated an extensive literature on the various approaches and their effectiveness in improving transition outcomes (Trainor, Lindstrom, Simon-Burroughs, Martin & McCray-Sorrells, 2008). In Ontario, some Boards have responded to this need (Roebuck & Coultes-MacLeod, 2010). The Ministry of Education has included transition planning (including post-high school transitions) as a priority in their 2011 Special Education Update. However, beyond encouraging Boards to continue with existing transition planning activities – that may or may not include self-advocacy development – this issue has yet to be addressed in any systematic way (McCloskey et al, 2011). Nevertheless, the Ministry's Summer Transitions Program that assists students with learning disabilities in transitioning to PSE and the work of the Regional Assessment Centres in counselling youth on PSE planning matters represent important policy initiatives.

5. Panellists remarked on the discrepancy between college and university enrolments among graduates with SN and some attributed this to streaming practices in schools. Panellists noted that elementary school achievement was a common factor in both SN designations and (high school) track assignment. If elementary students with SN have low levels of achievement at high school entry they are more likely to be assigned (rather than choose) a non-academic track – where course selection immediately limits future access to PSE. Panellists also pointed to other factors. Some suggested that teachers' and parents' expectations for students' academic performance are too low and that these views influence the direction of PSE aspirations. Others took a somewhat different stance and noted that, despite the public's generally negative views on vocational work, many students (irrespective of SN designation) may be interested in technology and trades careers and, consequently, aspire to a college-level or apprentice training program. In fact, there is funding available to colleges through the Support for Apprentices with Disabilities fund for improving accommodations for registered apprentices, including youth enrolled in the Ontario Youth Apprenticeship Program (OYAP).

6. Although the discussions concerned the K-16 trajectories of students with SN, issues of course selection and access to valued PSE programs are the concerns of all students and are being addressed in much of the PSE participation research literature mentioned in the report. Successful PSE transitions by students with SN also involve general human rights matters as expressed in legislation like the Accessibility for Ontarians with Disabilities Act (AODA). Specifically, the standards in the AODA concerning 'transportation' and 'information and communication' are designed to ensure campus accessibility and the improved availability of course materials and information (Martin Prosperity Institute, 2010). It should be noted that quite apart from existing or planned legislation, PSE institutions are responding with targeted funding from the Ministry although perhaps not on the scale implied by the AODA legislation. For example, the Accessibility Fund for Students with Disabilities assists colleges and universities in running learning assistance centres that offer a wide range of support services. And the Print Alternate Learning Materials program helps provide alternative media for students through a Resource Services library.

7. Panellists also noted the large proportion of immigrant children and youth in the TDSB and other regions for whom English was not a first language. They raised the issue of language learning opportunities and the special education assignment of newcomer youth. Since many immigrant students aspire to PSE, it is important that their academic capabilities not be confounded with unfamiliarity with the English language. While over-representation of English as a Second Language (ESL) immigrant children in special education classes is a major policy issue in the U.S. (Artiles, 2003; Lesaux, 2006), less is known about the extent of or basis for inappropriate assignment of ESL students in Canada. Certainly, distinguishing language and special education needs requires appropriate assessment tools and resources (Odo, 2010). Most research and literature reviews have been directed toward determining best practices in supporting ESL students – with or without special education needs (CCL, 2009b; Gunderson, 2007). At the present time, the Ministry is developing a resource document to assist teachers in supporting ELL/ESL students with special needs (Ontario Ministry of Education, 2011, p.8).

Concluding Statement and Future Research

Making a successful transition to PSE represents only one of the many challenges facing students with special needs. The panellists reminded us of these in relation to shortcomings in support services at all levels of the educational system. They also, however, pointed to current and anticipated changes to service provision. Special education in Ontario and elsewhere is under intense scrutiny as calls for greater equity push schools toward more inclusive policies and practices. As a consequence, special needs identification and support practices are becoming less reliant on a 'deficit' approach and instead are emphasizing individual 'strengths.' Related support practices have also changed from reducing risk factors to mobilizing protective factors that enhance children's capabilities, including a positive sense of self, and a voice in deciding their own educational futures. The concept of resilience underlies practices of strength-

based assessment and support for special needs. It is also consistent with the broader goals of equity and inclusion. Our analysis, conducted within a resilience framework, provides an initial exploration of the post-high school pathways of youth with SN in Ontario. Many questions remain unexamined and in need of further research. Suggested research directions and priorities include the following:

1. The conceptual framework adopted for this analysis involved the use of resilience concepts in profiling and modelling SN students' post-high school pathways. The results from this study may be added to those summarized by Finnie et al (2008; 2010) in contributing to the task of constructing a more informed and flexible PSE participation model. Further application of resilience concepts to the study of SN students' high school transitions and their choice of PSE pathways might usefully examine questions related to protective factors that affect their preparation for PSE. A basic issue that needs to be addressed is whether protective factors (especially those located in schools) are equally supportive of different groups of students – that is, the extent to which they are 'promotive' in their effects (Sameroff, 1999; Morrison et al, 2006). A related question, initially raised by the work of Thiessen (2008), asks whether the identified protective factors are associated with different outcomes: do some factors predict university enrolment while others predict college enrolment?

2. Many schools are attempting to strengthen the relationship between achievement and school engagement (academic and social). We employed only a limited number of indicators to assess engagement. However, both academic and social engagement are complex constructs and involve a great many of the activities found in high school transitions programs (Wehmeyer et al, 2003). An evaluation of a wider range engagement activities would be useful in determining their potential to improve both achievement and self-regulation skills. In particular, an examination of extra-curricular program effects on school performance would indicate the role played by the participation dimension of the engagement construct (Audas & Willms, 2001).

3. SN curricular and instructional formats vary across the elementary, secondary and PSE levels. Here we might ask if the individualized instruction provided in most SN classes is not only appropriately supportive but also possesses the curricular continuity needed to adequately prepare students for further education, whether in the PSE system or the workplace. With respect to the latter, very little is known of the opportunities available to students with SN in the apprenticeship system in Ontario. Although research exists on the principles and practices of the Youth Apprenticeship Program, determining how relevant it is to students with SN requires more research. For example, it would be helpful to trace the evolution of PSE aspirations among students with SN as they invest in either (or both) an academic or vocational future (Taylor & Watt-Malcolm, 2007).

4. It may be useful to incorporate individual identities into any calculation of PSE aspirations. Many people who are diagnosed with a disability do not consider their condition to be 'disabling' (Sweet et al, 2011). Brown (2011, Internal TDSB Analysis) has shown that the difference in students' self-assessments of their SN does not accord with their actual placement in these classes. SN students examined in this analysis were

asked whether or not they had a disability. Approximately 6 per cent said they did, including learning, sight, mental health, and hearing. However, slightly over half (52 per cent) of these, according to official records, were considered to be students without SN while of those students with official SN status, only a quarter (27 per cent) considered themselves to have a disability.

5. We found that a higher proportion of second-generation immigrant youth were categorized as having SN. However, this difference was not supported in the regression analysis. What factors that might account for improvement in the estimates of the second-generation's achievement? It is likely a combination of factors. For example, the continuing low-income among particular ethnic groups of immigrant families may disadvantage their children's schooling. Or it may be that (English) language remains a barrier and SN instruction is to some degree being substituted for ESL instruction. It would be important, then, to examine differences in low achievement and adjustment across immigrant generations.

6. We need to better understand the higher levels of participation of students with special needs in community colleges in contrast with their lower participation in universities. Is it that college programs are more closely associated with students' interests or expectations of success; or does course selection in high school limit them to college entry? Are the colleges better equipped to respond to students with special needs and are the students, then, better served by the programs offered to them by the colleges?

7. Improved linkages between Ontario colleges and universities have developed in recent years. It would be useful to examine the extent and success of college-to- university transfers among SN students.

8. Our findings point to important variations across settings in which students with special needs receive support and instruction. Some students with SN are placed in integrated programs and others are assigned to congregated Special Education programs (with some time spent in integrated classrooms, at least for most). Further research is needed that compares differences in settings, consistency in student and teacher expectations and which, additionally, examines their joint impact on future educational and career choices among students with special needs.

9. Our research focused on students who transitioned directly from high school to PSE. Future research might examine the more complex transition pathways of those who return to education after some years in the workforce.

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Appendix 1

The Student Census portion of the TDSB data set employed a matrix (item-person) sampling procedure which necessitates psychometric adjustment of some of the survey variables. Variables were recoded accordingly before including them in scales.

Appendix 1. List of variables and constructs		
#	**Construct**	**Derived variables/Coding**
1	PHS Pathway	5-category variable → University confirmed; College confirmed; Applied PSE; HS graduates, did not apply; Dropped out/Still TDSB/Missing info
2	Groups (SN status)	2-category variable: Students without SN; Students with SN 3 Diagnostics for SN-IPRC students → LD; MID; Other
3	Student - Demographics Gender Race Immigrant generational status	 2-category variable → Male; Female 8-category variable → White; E Asian; S Asian; SE Asian; Black; Middle Eastern; Latin American; Other/Mixed/Missing 3-category variable → First generation: Born outside Canada; Second: Born in Canada & at least one parent born outside Canada Third and higher: Born in Canada & both parents born in Canada
4	Student- Academic achievement Average Grade 9 Math mark Average G11-12 mark	 Continuous or Levels 0-4 Continuous or Levels 0-4
5	Academic engagement HW time	 Number of hours HW per week: Ordinal 7-category variable → 1=0-5hrs; 2=6-10; 3=11-15; 4=16-20; 5=21-25; 6=26-35; 7=36+ hrs.
6	Dependability Absenteeism in Grade 9 (# days)	 Continuous
7	Self-concept of ability (rating own progress in school)	Scale 1-4 (Having difficulty to Excellent)
8	Student social engagement 1.School climate (Identification) 2. Instructional support (teacher) 3.Social interactions (Peer Adult Relations)	Composite scores, scale 1-5 (Never to All the time) 1.Cronbach's alpha= 0.730; 3 items → I enjoy school; My school is a friendly and welcoming place; My school building is an attractive and great place to learn 2. Cronbach's alpha= 0.817; 6 items → My teachers expect me to succeed in school; I am satisfied with the ways my teachers teach me; I feel supported and encouraged by my teachers; I feel comfortable discussing a problem with my teachers; My school's staff respect my background (e.g. cultural, racial, religious); Extra help is available at this school when I need it 3. Cronbach's alpha= 0.766; 3 items → I get along well with other students in my school; I feel accepted by students in my school; I feel accepted by adults in my school
9	Family – SES Parents' education	 3-category variable → University; College; High school
10	Family Structure	4-category variable → Both parents; Father only; Mother only; Other
11	School – SES (Challenge levels)	Ordinal variable, scale 1 to 5 (Lowest to Highest)
12	Neighbourhood measure (median family income)	Continuous

Appendix 2

Appendix 2. Research sample vs. TDSB					
Variable	**Categories**	**Research sample (N=5,944)**		**TDSB (N=19,081)**	
		N	%	N	%
PHS pathways	Confirmed university acceptance	3244	54.6	8614	45.1
	Confirmed college acceptance	895	15.1	2872	15.1
	Applied to PSE but did not confirm	570	9.6	1724	9.0
	Graduated but did not apply to PSE	528	8.9	1928	10.1
	Dropped out; Still in TDSB; Missing	707	11.9	3943	20.7
SN status [a]	Students without SN	5416	91.1	16816	88.1
	Students with SN	528	8.9	2262	11.9
Gender	Male	2997	50.4	9897	51.9
	Female	2947	49.6	9184	48.1
Average Grade 9 Math mark [a]	Level 0	648	10.9	2807	14.9
	Level 1	1046	17.6	3781	20.1
	Level 2	1053	17.7	3412	18.1
	Level 3	1222	20.6	3613	19.2
	Level 4	1975	33.2	5192	27.6
Average Grades 11-12 mark [a]	Level 0	551	9.3	2555	13.9
	Level 1	695	11.7	2578	14.0
	Level 2	1294	21.8	4111	22.3
	Level 3	1723	29.0	4839	26.3
	Level 4	1681	28.3	4311	23.4
School ranks [a]	1=Lowest challenge	1654	27.8	4874	25.6
	2	1654	27.8	4758	25.0
	3	1455	24.5	4753	25.0
	4	711	12.0	2667	14.0
	5=Highest challenge	470	7.9	1985	10.4
Neighbourhood SES *	Median family income (average)	$58,690		$57,900	

[a] A few missing cases for the TDSB student population: total counts are less than 19,981 and percentages correspond to valid cases only.
[b] Parents' birthplace is not known for the entire sample.

Appendix 3

Workshop Themes

(1) What is the Definition of "Special Needs"? Who are we discussing?

One of the first issues discussed during the course of the workshop was the meaning of 'special needs'. What conditions and criteria are or should be included in a definition of SN? How is SN diagnosed and how easily is SN diagnosed? Are there aspects of student behavior currently absent from our definition of SN?

Participants felt that school boards generally identified SN for the purpose of providing programming while in postsecondary institutions such as universities and community colleges students must qualify as having a disability. A representative of the postsecondary sector stated that an understanding of the transition of students from secondary schools to PSE would require that certain categories be removed from SN:

> *"So all the behavioral categories should be removed from SN, the gifted category should be removed from SN, the mild intellectual disability – we don't recognize in colleges, so that should be removed. All the ASD kids in specialized classrooms should be removed".*

Participants pointed out that the SN process is often difficult to define and diagnosis is also a challenge. There appeared to be no real difference in achievement between students who have been IPRC'd as students with SN and students who only had an IEP. One participant addressed the issue of mental health and its lack of recognition as an important barrier for some students in successfully transitioning to PSE by claiming that:

> *"Mental health actually falls under behaviour and that is completely unrecognized as a group of students that we're dealing with. At university, they're the ones coming up with the most difficulty succeeding. It's not the students with learning disabilities, it's the students with depression, it's the students with anxiety, it's the students with eating disorders…it's those students who aren't succeeding and how do you accommodate for those students in post-secondary".*

Part of the discussion relating to the definition and identification of students with SN concerned the relationship of SN programming or classification and the perception by students as to whether they see themselves as having a disability. Analysis of TDSB data reveals that there is not a particularly strong relationship between the self-perception of disability by secondary students and their classification as students with special needs. The majority of students who self-identified as having a disability (including Mental Health) were not considered to be students with SN. The majority of students who have been identified as having SN did not self-identify as having a disability.

This discussion raised the question: who receives a formal diagnosis and who does not? In fact, there is a dearth of psychologists in the Ontario school system. Given the limited number of

psychologists, what determines whether students will get diagnosed as having SN? Does diagnosis depend on pushy parents? Or is it related to the severity of the impairment? Workshop participants appeared to agree that, in most cases, it's the people with money that can pay for outside (professional) services that are receiving the diagnoses.

Tied to this discussion, one final point was raised – that is, there is now a movement that rejects labeling students altogether. The point was made that there is no legislation that requires students to be assigned a label in order to receive accommodation; students may be identified without this appearing on paper.

(2) Where are students with SN being placed?

Following the discussion of defining SN, questions around placement were raised. Currently in the TDSB, students with SN are placed in either congregated or mainstream classes. Clarification was recommended around the term 'congregated' as it often elicits conceptions of closed, segregated classrooms. According to the TDSB data, the category of 'congregated' included 'partially integrated' as well. In comparison to other boards across the province, it was felt that a larger proportion of students with SN in the TDSB were being placed in congregated classes, particularly up until Grade 8. The observation was made that roughly 30 per cent of students with SN were placed in congregated settings during their elementary years and then placed within the regular stream in Grade 9. Participants felt that placement was highly dependent on identification. One participant made the comment that the majority of students with an LD, Aspergers, or MID are not receiving their education in congregated classes by Grade 8.

(3) Immigration and Identification

The question of whether immigrant students were under-represented within special education was also discussed. One participant felt that first generation immigrant students were less likely to be identified. However, it was suggested that underrepresentation in special education may or may not be to the detriment of students. A participant familiar with TDSB data stated that in terms of region of birth/race data, issues of under/overrepresentation continue to be apparent within TDSB findings even after the removal of students who have recently arrived within the last five years. They also suggested that under/overrepresentation patterns were more obvious when new arrivals were included. Another participant indicated that studies demonstrate a learning curve for immigrant students and their families regarding their familiarity with the Ontario education system. Only after sometime within the system do families begin questioning the relevance of factors such as family, possible learning disabilities, etc. on their child's level of achievement.

(4) Streaming and Choice

The issue of streaming in public education is contentious and workshop participants had a great deal to contribute on this topic. Consensus emerged during the course of the discussion that there are varying levels of support within Toronto's technical, commercial and collegiate schools for student with special needs. Students with SN were often advised to attend schools based

upon available programmatic supports. One participant mentioned that school objectives around SN support were apparent at parent information meetings where strong messages regarding feasible student supports were discussed. She continued by indicating that the disability office for which she works is only infrequently requested to present at secondary school transition meetings for parents. There appeared to be consensus among participants that there is a distinct hierarchy among Toronto schools with transition planning and PSE outcomes often determined by which high schools students' attend. Further discussion established that the choice of which high school to attend is often made at the end of elementary school. This let panel members to hypothesize that rather than students choosing their own pathways, pathways are actually being chosen for them.

> *"Choice is a word that we throw around that really doesn't exist that much…on paper there's choice, but in practice there isn't choice."*

> *"We have to be careful in putting the choice back on students and back on families."*

In contrast, it was felt by one of the researcher's that there comes a time when an individual must make a fundamental choice: do you want to go into vocational or professional work? He asked whether these fundamental choices are confounded by our efforts either to channel choice unduly or cut off opportunities for those presumed to be constrained by social position. He felt these arguments were similar to those we've had with respect to equity issues in relation to social class, gender, race and disability.

> *"How do we move beyond what seems to me to be something like a general statement on 'inclusion'. I would embrace that too, but how do we make it work?..We have to somehow get beyond what I think is a rhetorical stance".*

In response, a panelist offered:

> *"Some of the things that worry me about the particular group of students that you're looking at is not so much the considerations of what their true potential is but the limitations that would be placed on them because of perception."*

The discussion around choice led to further critique of the distinction between vocational and professional work. There is a societal view regarding manual labour and that most parents do not value vocational work or vocational training. One participant stated that few parents were willing to discuss the possibility that their child may be headed for the trades. Some participants suggested that it is imperative that strictures not be imposed upon students; rather students should be provided with the opportunity to discover and funnel themselves into their own areas of interest. It was felt that even with the opportunity to exercise choice, some students would naturally gravitate towards the trades.

(5) Structural Inequity and Agency

Structural inequity was another major issue. Participants acknowledged that, historically, student outcomes were heavily influenced by parental occupation and that currently education

opportunities were highly correlated with neighborhood demographics. The participants felt that classroom demographics have remained static and that this is a current concern for stakeholders. It was felt that teachers, who had already successfully navigated the PSE system, needed to move out of their comfort zones to include students who are significantly different from them.

> *"It's all about conceptions that the current school system links to who is appropriate for university, who is better suited for college, and who would do a great job in the world of work…that's a product of a historical education system that has been founded on middle class, white, euro-centric values".*

Participants also expressed the belief that faculties of education are not adequately preparing teachers in how to adapt their teaching in order to respond to diverse learners, ages, emotional issues, etc. Although new teachers are more aware of issues of equity, they did not always know what to do when students demonstrate difficulty in the classroom. It was suggested that teachers should be required to take courses that teach them how to deal with (remediate) math and language problems in the curriculum along with their general methods courses and practicum experiences.

Participants suggested that teachers' inability to recognize and incorporate student difference could be directly linked to streaming as well as to determining who was taught within a congregated or integrated setting. Participants also felt that it would be important to compare proportions of students with SN in congregated and withdrawal classes by Ontario regions as well as evaluate PSE access by board.

The concerns raised around structural inequity led to a discussion regarding parental agency and advocacy. Although agency is critically important, it was felt that the responsibility should not be put on the child or the parent, particularly for students with SN.

> *"The lens of agency that parents use to look at the structural inequities is a really important point."*

There was some doubt as to whether it was appropriate to expect students with SN to exercise their own agency and self-advocacy regarding their education needs. One participant stated that exercising agency and self-determination requires executive functioning skills that some students with SN do not have nor will develop to the level they need to navigate the school system unsupported. Participants also felt that the onus cannot be solely placed on parents either. It was felt that the school system should be required to ensure support is in place for both students and parents.

> *"I think it needs to be the system itself where agency exists."*

Setting high expectations for all students was given as an example in which agency is embedded within a school system.

> *"Part of the whole issue is what bar do you set for students?"*

It was felt that teachers and schools needed to establish high expectations for all students and the practice of streaming students based upon teachers' preconceptions of ability and potential needed to end. Participants felt that when pathway decisions were left solely to the teachers, unknown discriminatory or prejudicial factors could influence pathway recommendations. Due to recent demographic research, one participant stated that PSE outcomes are not occurring by chance.

> *"If we continue doing things the way we've been doing them for the past 100 years, some people clearly cannot succeed in those environments. Our challenge is to stop doing what we've been doing for the past 100 years that have clearly not worked for a lot of students."*

Some participants raised the question whether it was possible that students were being sent to schools in which they will be more successful. They also questioned whether this could be reflected at the college level as well and whether we are applying a limited definition of student success. However, regarding PSE aspirations, one participant noted that TDSB student census data reveal that both students and their parents express far greater expectations of attending university than were actually realized.

Discussion then centered on the role played by faculties of education. Overall, it was felt by participants that there is considerable work being done within faculties of education. Participants' felt that there is heightened awareness among new teachers regarding issues of equity and student needs. They also expressed the belief that small gains are being made and more attention is being paid to individual student needs. While gains are being made and there are illustrations of best practices in the system, shifting an established culture is still an onerous task.

> *"But we're talking about a culture that has been established over years and years and we all know that the toughest thing to change in any organization is the culture."*

(6) Critique of the Structure of Special Education

It was noted by one of the participants that there could be lasting programming implications for SN students resulting from the board's history of amalgamation. Despite the high proportion of TDSB students in elementary congregated special education classes, participants expressed the belief that many of the issues facing the TDSB regarding special education are duplicated within other Ontario boards.

Provincially, the whole area of special education in Ontario has remained somewhat static. Participants felt that there was little progress being made in the areas of procedures, achievement gaps and EQAO results. Concern was expressed that students, particularly boys, are placed in special education as early as Grade 3 and continue to be educated within congregated settings until Grade 8 despite the added support and intimate classroom setting created by congregated classes. This cradle-to-grave approach was felt to be true for students with learning disabilities and behavior disorders. One participant commented that what is done within special education after students were identified have not been adequately examined.

The issue of identification was also raised as an area of concern. With the exception of the inclusion of autism, resulting from a lawsuit, the process and structure involved in identifying students with special needs remains unaltered since the 1970's and early 80's. There continue to be no exceptionalities for ADHD or for psycho-emotional issues. Although there have been changes to the IEP, the IPRC process has remained static.

- *"What we're dealing with here is a system that reflects the best thinking of 30 years ago."*

The lack of school psychologists was raised as another barrier to adequate identification. It was said that due to the shortage, the major role of school psychologists is largely limited to IQ testing and diagnoses. It was felt that they could not adequately support teacher programming particularly for students with SN.

- *"It's a vicious circle."*

According to one participant, boards are working to resolve these issues. Their goal is to reach ALL students, not just students with SN. Despite the effort being made to move away from the current special education model, it was felt that special education continues to be an entity of its own.

(7) Student Engagement

- *"There is not an open highway to high school".*

Participants were concerned that high schools are not providing equitable support for students with special needs. Participants felt that the practice of congregating students based upon PSE aspiration impacts on student social engagement as well. Previous research from the Alan King report demonstrated the importance of peer relationships in developing PSE pathways. However, it was discussed that if students are attending schools where PSE is not prioritized, their peer relationships with other students can limit their choice of PSE pathways as well as their level of academic engagement.

Even though disengaged students can be identified in the early grades, it was felt that teachers did not always know the signs.

- *"But I don't know if we've done a good job in helping teachers recognize what disengagement looks like. It doesn't look like laziness; it doesn't look like coming in late. Those are all symptoms, but why are they disengaged? When I think of the group of SN students, many of them are well beyond making any decisions about their own future or where they're going because they've switched off sometime way back in elementary school."*

Some participants took issue with social scientists that view disengagement as resulting from factors such as absenteeism, lack of impulse control, and a disregard of obligations. Rather, disengagement may result from a series of negative school experiences that eventually lead to a decrease in student engagement. Participants agreed that disengagement could also stem from bullying, poor relations with teachers, and other school related negative experiences.

Participants felt that more responsibility for student disengagement should be directed towards the schools.

- *"I would argue that every child comes to school wanting to learn in kindergarten. Right? We do something to them along that path that either encourages them or disengages/engages them but they're not just suddenly in grade 6 saying, 'I used to like it, I don't like it anymore'. They're disengaged for a reason.*"

(8) Self-Advocacy and Self-Identification

Participants identified communication and self-advocacy as problems in secondary schools. Stigma confounds self-advocacy and participants felt that stigma was an issue educators needed to address particularly around the IEP.

- *"The IEP becomes an instrument for a kid to be self-advocating, not all kids can do that, but we can at least start the process."*

Ideally, students going on to PSE need to be comfortable discussing their accommodation needs and should be encouraged to attend their own review meetings as early as Grades 5, 6. Students should feel part of the conversation and share the perspective that accommodations are supportive, not punitive. IEP's should also be more easily interpreted.
One participant commented that there were remarkable initiatives being implemented to move students towards self-identification, self-advocacy and transitions as well as the inclusion of parent voices.

- *"One of the goals of this government was that people would engage parents in the processes of leading students down a pathway to further education."*

She spoke of current initiatives focusing on student achievement, literacy, numeracy, learning to 18, pathways beyond the workplace, caring, culture and community as well as mental health. She also mentioned that programs, such as credit recovery, are designed to enhance student opportunities although measurable outcomes remain unclear[7]. Despite the positive approach, there was some doubt expressed as to the impact such program improvement strategies will have on issues of SN and equity. Although best intentions drive these initiatives, the extent to which change has occurred is questionable.

(9) Access and Admissions

Participants discussed issues of access embedded within postsecondary institutions even though participation by students with SN has increased in both sectors (college and university). There has been an overall increase in admissions of full time students with disabilities of 365

[7] Where a student has completed a course within the school year or semester, but has not successfully completed the curriculum expectations to a passing level, the Principal and teaching staff, in consultation with the parents and the student, will determine how to best enable the student to meet the expectations and earn credit for the course.

per cent between 1991-2010 as well as a total university headcount increase of 70.4 per cent; these increases represent not only an overall population increase but also an increase in the proportion of students with disabilities in PSE. Representatives of the Ministry of Training, Colleges and Universities (TCU) discussed how they support PSE institutions through their policies and programs. However, they indicated that it is outside of their mandate to determine how universities and colleges implement these policies and programs. Participants also mentioned that TCU provides students guidance in regards to navigating the campus, disability offices as well as supporting self-identification and advocacy. In regards to SN, it was felt that barriers consisted not only of access and participation but also involved continued support by PSE institutions to ensure sustained engagement, persistence and successful outcomes.

Summary

The participant workshop offered a platform for lively and informative discussion. Throughout the meeting, emergent themes addressed systemic barriers to PSE access and participation as well as a thorough critique of the current special education system. Participants were particularly eager to discuss issues of structural inequity and systemic areas requiring reform. Language specificity and technical questions also arose demonstrating the inconsistency and fluidity of the SN category – specifically, in both areas of student identification and placement. There was some debate around issues of choice and agency. Some participants voiced concern that the way the educational system was organized or structured (e.g. streaming) played a determining role in influencing PSE pathway opportunities among students with special needs. In this context, the appropriateness of placing the burden of self-advocacy and agency solely on students and parents was called into question. However, some participants viewed current and ongoing government/ministry initiatives as positive indications that students with SN were receiving needed support. Participants discussed new initiatives targeting self-advocacy, self-identification, parental inclusion, and transitions that may bring about positive outcomes for students with SN in Ontario.

A critique of the current special education system provided an important basis for much of the discussion. During this critique, participants raised concerns regarding a number of issues including labeling, segregation and the lowering of expectations for students with SN. Reducing the stigma of special education so that students could view tools such as IEP's as supportive as opposed to punitive was also deemed an important initiative. Participants discussed the relationship between student engagement and PSE pathways, suggesting that processes of streaming and the hierarchical structure of secondary schools often compromise the relationship. Lastly, issues around access and postsecondary admissions were discussed, as was the ongoing challenge of structuring long-term support for students that gain access to universities and colleges.