

**AN EXPLORATION OF SCHOOL-RELATED FACTORS ASSOCIATED WITH
SCHOOL COMPLETION FOR CHILDREN AND YOUTH WITH
BEHAVIOUR DISORDERS AND MENTAL ILLNESSES IN BC**

by

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Abstract

This exploratory study investigated a range of factors that might predict whether students with behaviour disorders and mental illnesses would or would not successfully complete high school. The data for this study, extracted from the BC Ministry of Education database, included all students born between 1991 and 1994 who were enrolled in BC public and independent schools identified with behaviour disorders and mental illness ($N = 16,498$). A descriptive, quantitative analysis was conducted to identify associations between a range of variables - (a) demographic information, (b) school engagement factors, (c) Foundations Skills Assessment (FSA) performance, and (d) special needs designations - and completing or failing to complete high school. Logistic regression analyses identified the predictive probability of factors associated with graduation or failure to graduate. Secondary analyses were conducted for two sub-populations of students with behaviour disorders and mental illnesses, Aboriginal students and English Language Learners, to determine if similar differences existed between students who complete high school and those who do not. The study found evidence that students with behaviour disorders and mental illnesses in British Columbia have the poorest school completion rates in comparison to any other group of typical or special needs students in the province. Attendance at non-standard schools, grade repetition, multiple school changes, and early departure from school were significant predictors of the failure to complete secondary school. Students of Aboriginal ancestry were grossly overrepresented among students with behaviour disorders and mental illnesses and at a significant disadvantage with respect to high school completion in comparison to all other peers.

Lay Summary

This dissertation explored characteristics of students with behaviour disorders and mental illness that predicted high school graduation. The study used records from the BC Ministry of Education and included data for more than 16,000 students born between 1991 and 1994, who were enrolled in BC schools and were identified with behaviour disorders and mental illness. The analysis found that, for students with behaviour disorders and mental illness, enrolling in non-standard schools, repeating grades, frequently changing schools, leaving school early, and being of Aboriginal status were strongly related to their failure to complete high school. This study sheds light on the critical problem of dropouts among students with behaviour disorders and mental illness and provides suggestions for special education policy and practice in British Columbia.

Preface

This dissertation is original, unpublished, intellectual work of the author, Jennifer Tong, under the advisement of research co-supervisors, Dr. William McKee and Dr. Charles Ungerleider. The data for this research were extracted from the BC Ministry of Education database through Edudata Canada. This project was reviewed and approved by the University of British Columbia's Research Ethics Board (BREB). The original UBC BREB Certificate of Approval number pertaining to this study is: H13-01189.

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List of Acronyms

ASPD	Antisocial Personality Disorder
ELL	English Language Learner
ESL	English as a Second Language
FSA	Foundation Skills Assessment
FTE	Full Time Equivalent
HRSDC	Human Resources and Skills Development Canada
MHECCU	Mental Health Evaluation & Community Consultation Unit
NLSCY	National Longitudinal Survey of Children and Youth
NLTS2	National Longitudinal Transition Study – 2
PAC	Percent Accuracy in Classification
SEELS	Special Education Elementary Longitudinal Study
VIF	Variable Inflation Factor

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Dedication

This dissertation is dedicated to the two most important men in my life - my Dad and my husband.

To my Dad who taught me the importance and value of hard work. Thank you, Dad. I wouldn't have finished this without you.

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Chapter 1: Introduction

Today, Canada's public schools enroll students with characteristics that, if possessed by their grandparents, might have precluded them from attending school. Over the past 60 years, Canadian society has become increasingly accepting of difference. Current philosophies and attitudes have provided greater acceptance for the enrollment of students with special needs in public schools and in turn, have influenced educational policy and the roles and responsibilities of teachers and service providers for students with special needs. There is heightened awareness and concern to ensure that *all* students, regardless of their abilities or disabilities, have access to a meaningful education. This includes students with behaviour disorders and mental illnesses.

Many students with behaviour disorders and mental illnesses are enrolled in general education classrooms and receive additional supports and services to learn and function in the school environment yet they do not graduate in the same proportion as their peers. A great number of students with behaviour disorders and mental illnesses drop out of school and even those who stay do not always meet the requirements for graduation. In a review of data from the National Longitudinal Transition Study-2, Bradley, Doolittle, and Bartolotta (2008) found that students with behaviour disorders and mental illnesses have the lowest high school completion rate of all disability categories. Quinn and Poirier (2004) calculated a much higher dropout rate, stating that adolescents with behaviour disorders and mental illnesses are five times more likely to drop out of school than general education students. These findings provide evidence that students with behaviour disorders and mental illnesses are at high risk of not completing school.

Despite the reality that students with behaviour disorders and mental illnesses are not successfully graduating from high school, our knowledge is limited regarding the educational pathways and trajectories of these students, and the institutional factors that facilitate or hinder their graduation. Factors such as the impact of early identification, special needs categorization, student mobility, grade retention, academic achievement and their association with graduation need to be examined to determine with what degree of accuracy they can predict whether students with behaviour disorders and mental illnesses will, or will not, successfully complete high school. If reliable predictors can be established, schools could anticipate which students with behavior disorders and mental illnesses are likely not to graduate early in their educational careers, thus giving schools an opportunity to provide appropriate interventions and alter the educational trajectories of these students. The knowledge of educational trajectories of students with behaviour disorders and mental illnesses from culturally and linguistically diverse groups also warrants investigation to determine if the predictors are the same for these sub-groups of students. Identification of predictive factors will hopefully lead to more positive educational trajectories and an increase in the number of students with behavior disorders and mental illnesses who graduate from high school.

This chapter provides the background information on students with behaviour disorders and mental illnesses as well as the educational context for this research. The chapter begins with a brief overview of school completion and dropout in North America. This is followed by the educational definition and identification of this group of students. The characteristics of students with behaviour disorders and mental illnesses are described. Related to school completion is a description of the prevalence rate of high school dropouts

and the challenges associated with the statistics on dropout rates in the United States and Canada. The school completion rates in British Columbia are also explored. This chapter then describes the special education policy context in British Columbia as it relates to students with behaviour disorders and mental illnesses. Finally, the purpose of the study is described including the research questions, the importance of the study to the field of education, and the definition of terms.

Background Information

Students with behaviour disorders and mental illnesses are often considered the most challenging students for teachers to address (Gresham, 2005, 2007; Kauffman & Landrum, 2009; Sabornie, Cullinan, Osborne, & Brock, 2005; Winzer, 2005). They experience high rates of problem behaviour and less academic success compared to their same-age peers (Landrum, Tankersley, & Kauffman, 2003; Reid, Gonzalez, Nordess, Trout, & Epstein, 2004). They experience the poorest educational, behavioural, social and long-term adult outcomes among any disability group (Bradley et al, 2008; Wagner, Kutash, Duchnowski, Epstein, & Sumi, 2005). The consistently poor outcomes across these domains are of great concern to those who study and work with this population of students.

Much of the recent growing body of literature that examines long term outcomes of students with behaviour disorders and mental illnesses comes from longitudinal studies that have been conducted in the United States such as the Special Education Elementary Longitudinal Study (SEELS) and the National Longitudinal Transition Study-2 (NLTS2). The samples for these studies were drawn to generalize to all children and youth with disabilities in the United States, including students with behaviour disorders and mental illnesses. SEELS consisted of students who were 6 to 12 years of age when the study began

while NLTS2 consisted of students who were 13 to 16 when the study began. Bradley, Henderson, and Monfore (2004) summarized the data from SEELS and NLTS2 to describe students with behaviour disorders and mental illnesses¹ from a national perspective, focusing on a variety of areas including the overall outcomes for this population of students. They compared outcomes for students with behaviour disorders and mental illnesses to youths in other disability categories using the data generated from SEELS and NLTS2 and found that academically and socially, secondary students with behaviour disorders and mental illnesses did more poorly than their peers with other disabilities. Wagner et al. (2006) also used the nationally representative data from SEELS and NLTS2 to describe the experiences of students with behaviour disorders and mental illnesses enrolled in general education classrooms and how their experiences differed for students at the elementary, middle and high school grade levels. They noted low academic performance among students with behaviour disorders and mental illnesses despite differences at the elementary, middle and high school levels, especially in mathematics where the average percentile ranking declined across school levels. Bradley et al. (2008) expanded on the growing body of literature by conducting a systematic review of the data from SEELS and NLTS2 and provided a comprehensive description of the issues pertinent to students with behavior disorders and mental illnesses including the outcomes of this population of students at various stages of life and within different contexts. They found students with behaviour disorders and mental

¹ A variety of terminology is used when referring to students with behaviour disorders and mental illnesses. Even research studies that draw data from the SEELS and the NLTS2 appear to be inconsistent in their use of terminology. Both emotional/behaviour disorders (EBD) and emotional disorders (ED) is used in federal language in the United States and are used in different studies when referring to this population of students. For the purpose of this proposal, the terminology ‘students with behaviour disorders and mental illnesses’ will be used throughout the paper.

illnesses consistently received lower academic grades than other students with disabilities and also had the lowest high school completion rate of all disability categories, with only 56% completing high school. They noted that, as students with behaviour disorders and mental illnesses progress through the school system, their behavioural, social and academic deficits become increasingly resistant to intervention, reducing the likelihood of high school completion. This study along with the two cited above (Bradley et al., 2004; Wagner et al., 2006), although different in their focus, clearly demonstrate the persistence of poor outcomes for this population of students. Other researchers from the United States have drawn similar conclusions to Bradley et al. and Wagner et al. on the poor educational outcomes of students with behaviour disorders and mental illnesses. Landrum, Katsiyannis, and Archwamety (2004) conducted an exploratory analysis to examine placement and exit patterns of students with behaviour disorders and mental illnesses across the United States over a ten-year period from 1988 to 1998. They found students with behaviour disorders and mental illnesses age 14 and older who exited school were most likely to do so by dropping out, while graduation with a diploma was the most common means of leaving school for students with other disabilities.

Together, the research that has been conducted in the United States has offered some useful insights into the educational outcomes of students with behaviour disorders and mental illnesses, albeit rather disheartening. The research has provided broad observations to inform educators, researchers and policymakers on the educational outcomes of students with behaviour disorders and mental illnesses and a basis for future investigations despite any criticism about the accuracy of data due to the variability among statewide policies across the United States in the awarding of certificates of high school completion.

The literature in Canada that examines the outcomes of students with behaviour disorders and mental illnesses is limited, partially due to the fact that education is a provincial/territorial responsibility. Each province and territory is independently responsible for defining, identifying and providing services to students with special needs, including those with behaviour disorders and mental illnesses. There are similarities among the various policies, procedures and guidelines across jurisdictions in Canada, but they are not the same. For example, there is variation in the language used to categorize this population of students. In British Columbia, the category is titled “Behavioural Needs or Mental Illness” and within this category, students can be identified in one of two ways, “Students Requiring Moderate Behaviour Support or Students with Mental Illness” or “Students Requiring Intensive Behaviour Intervention or Students with Serious Mental Illness” (BC Ministry of Education, 2011). Alberta Education also identifies two categories of students with behaviour disorders and mental illnesses using the terminology “Emotional/Behavioural Disability” and “Severe Emotional/Behavioural Disability” (Alberta Education, 2011). Further, British Columbia does not formally categorize students with mild behaviour disorders and mental illnesses whereas Alberta Education includes students identified with mild behaviour disorders and mental illnesses in the “Emotional/Behavioural Disability” category. Given such differences across jurisdictions in Canada, it would be difficult to compare information across the provinces and territories or aggregate provincial/territorial data to make broad generalizations about this population of students.

The research on students with behaviour disorders and mental illnesses is extremely limited in British Columbia. The literature search did not uncover any published studies in British Columbia on students with behaviour disorders and mental illnesses specific to

kindergarten to Grade 12 education and only one dissertation that focused on a specific suburban British Columbia school district (Lane, 2011). Yet, reports from the annual kindergarten to Grade 12 student-level data that are collected by the BC Ministry of Education are consistent with research from the United States indicating poor educational outcomes for students with behaviour disorders and mental illnesses. The six-year completion and Grade 12 graduation rates for students identified with behaviour disorders and mental illnesses in British Columbia are consistently lower than the general population and lower than all other disability groups. According to the 2008-2009 BC Ministry of Education data, 32% of the students identified with behaviour disabilities and mental illnesses graduated from high school within a six-year time frame compared to 79% when all students with and without disabilities were included. The six-year school completion rate for students identified in other special needs categories included students with sensory disabilities (60%), students with learning disabilities (59%) and students who are gifted (100%). The average six-year completion rate for all students with special needs was 63%, almost twice that of the students with behaviour disorders and mental illnesses (BC Ministry of Education, 2012a). The educational outcomes of students with behaviour disorders and mental illnesses, as defined by high school completion, are discouraging to say the least.

Cost of not completing high school.

When students do not complete high school there are widespread implications that affect both the individual and society (Blackorby, Edgar, & Kortering, 1991; Christle, Jolivet, & Nelson, 2007; Martin, Tobin, & Sugai, 2002). Students who drop out of school are less likely to be engaged in school, work or preparation for work (Wagner, Newman, Cameto, Garza, & Levine, 2005). They are less likely to enroll in post-secondary education.

They have fewer options for employment and when they are employed, they usually have low-skilled and low paying positions. They are more likely to be engaged in higher rates of substance abuse and criminal activity, experience more mental health problems, and become dependent on government programs and other forms of public assistance (Rumberger, 1995). From a societal perspective, students who do not complete high school bring in less tax revenue while costing the general public more to provide supports through social services, health care, and the criminal justice system (Kortering & Christenson, 2009).

Students with behaviour disorders and mental illnesses who do not complete high school experience a similar pattern of negative outcomes to their nondisabled peers who drop out of school but the outcomes are significantly magnified. Wagner, Newman et al. (2005) examined a subset of data from the National Longitudinal Transition Study-2 (NLTS2) on the experiences and achievements of youth with disabilities during their secondary school years and transition into adulthood. Among their findings, they found that youth with emotional disturbances were most likely to leave school without finishing and had the highest dropout rate of any disability category. These students were not engaged in their communities in a meaningful way (i.e., work or school) and were most likely to live away from home including “other” arrangements such as criminal justice or mental health facilities, under legal guardianship, in foster care, or on the street. Fifty-eight percent of the youth had been arrested at least once and 43% had been on probation or parole. These results were not significantly different from the results for the same youth two years earlier when they were still in high school.

Given the long term impact of high school on post-secondary education, career opportunities and future earnings as well as overall quality of life, poor graduation rates of

students with behaviour disorders and mental illnesses are a cause for great concern.

Educators, researchers and policy makers must address the critical issue of school completion especially for students with behaviour disorders and mental illnesses. Ignoring the issue is nothing short of failure of the education system to address the educational needs of this population of students. Preventing dropout and promoting school completion for students with behaviour disorders and mental illnesses must be a priority given the long term negative consequences associated with the alternative.

Characteristics of Students with Behaviour Disorders and Mental Illnesses

Students with behaviour disorders and mental illnesses.

Students with behaviour disorders and mental illnesses are most noted for their behavioural and social characteristics. They demonstrate a broad range of distinguishing features that are associated with their behaviour problems that vary greatly in their type and intensity (Cullinan, Evans, Epstein, & Ryser, 2003; Déry, Toupin, Pauzé, & Verlaan, 2004). Behavioural excesses such as physical or verbal aggression or non-compliant behaviours at one extreme and social withdrawal at the other evince the range of possible behaviours, ranging from relatively mild to clinically significant. These students typically experience academic failure. They are generally unpopular with their peers and if they are popular, it is due to inappropriate social behaviour. Their social network usually consists of others who have similar behaviours.

The majority of children and youth identified with behaviour disorders and mental illnesses are typically male (Kauffman & Landrum, 2009; Trout, Nordess, Pierce, & Epstein, 2003; Reid et al., 2004; Wagner, Kutash et al., 2005). Based on data from the Special Education Elementary Longitudinal Study (SEELS), Wagner, Kutash et al. (2005) reported

that boys comprised 80% of the sample of students with behaviour disorders and mental illnesses at the elementary and middle school level while they comprised 76% of the sample at the secondary school level. Lane, Carter, Pierson, and Glaeser (2006) investigated a small sample of 45 high school students and found that male students were twice as likely to be identified with behaviour disorders and mental illnesses as females. Déry et al. (2004) examined the prevalence rates of a sample of elementary students from two school boards in Quebec receiving special education services for behavioural difficulties and found 80% of the sample was male and only 20% was female. In a Canadian study, Whitley, Lupart, and Beran (2009) examined the demographic characteristics related to students with behaviour disorders and mental illnesses. In a weighted sample of 4,257 elementary and middle school students from the National Longitudinal Survey of Children and Youth (NLSCY), the researchers found a significant difference where 75% of the students with behaviour disorders and mental illnesses in the sample were male and 25% were female. The research provides strong evidence that males are identified with behaviour disorders and mental illnesses at a much higher rate than females.

There is little research evidence on the behaviour characteristics of females with behaviour disorders and mental illnesses or on gender differences between males and females. Reid et al. (2004) revealed in their meta-analysis that 30% of the studies did not provide information on the gender of participants, a serious omission in the data. In a review of the literature, Trout et al. (2003) found that very few studies assess the academic status of girls separately from boys. However, one study by Cullinan et al. (2003) surveyed teachers on the characteristics of behaviour disorders and mental illnesses and found significant differences among elementary school males and females, with girls receiving higher ratings

than boys on questions pertaining to relationship problems and physical symptoms or fears. They found no gender differences with regard to inappropriate behaviour. Although girls represent a much smaller proportion of behaviour disorders and mental illnesses than boys, behaviour problems clearly exist and research that includes gender differences warrants attention.

There is not a single behaviour that is common to all students who manifest behavioural problems (Kauffman & Hallahan, 2005). The only commonality among students with behaviour disorders and mental illnesses is that their emotional and/or behavioural difficulties are chronic and extend far beyond what one would consider acceptable according to social standards. Deficits in behavioural, social and academic domains interfere with both social relationships and other educational experiences and are incompatible with the day-to-day functioning of schools, places where children and youth spend most of their waking hours (Cullinan et al., 2003; Cullinan & Sabournie, 2004; Landrum et al., 2003).

Aboriginal students.

High rates of behaviour disorders and mental illness and low graduation rates among Aboriginal students are causes for great concern in British Columbia. The BC Ministry of Education (2012c) defines Aboriginal students as those who have self-identified as being of Aboriginal ancestry (First Nations: status and non-status; Metis, and Inuit). From 2003-2004 to 2010-2011, approximately 11% of the student population identified itself as Aboriginal (BC Ministry of Education, 2012b). Of these students, public school districts in British Columbia reported 6% as meeting the criteria for the categorical designation of behavioural

needs or mental illness² compared to 2% of the Non-Aboriginal population in 2010-2011 (BC Ministry of Education, 2012c). Aboriginal students identified with behavioural needs or mental illness also constitute a higher percentage than any other Aboriginal group with special needs (sensory disabilities 0%, learning disabilities 5%) with the exception of students who are gifted. School districts also reported that 54% of the Aboriginal student population completed high school with a Certificate of Graduation (Dogwood Diploma) within six years of entering Grade 8 compared to 83% of Non-Aboriginal students (BC Ministry of Education, 2012c). Despite the available data, what is not known is the graduation rate of Aboriginal students with behaviour disorders and mental illnesses. This would be useful information for administrators and policy makers as supports and services are developed for the Aboriginal population in BC.

English language learners.

There is a paucity of research that explores the racial/ethnic diversity among students with behaviour disorders and mental illnesses. Trout et al. (2003) conducted a comprehensive literature review on the academic status of students with behaviour disorders and mental illnesses and found that only 34% of the data sets reported students' race/ethnicity and only three data sets analyzed the academic status of racial/ethnic groups separately. Trout and her colleagues noted that without the ability to analyze students' academic status by race/ethnicity, it remains unclear whether such differences exist among students with behaviour disorders and mental illnesses.

² In British Columbia, school districts use categorical designations to identify students with special needs. The categorical designation for students with behaviour disorders or mental health issues is referred to as 'Behavioural Needs or Mental Illness.'

There are currently no data on the prevalence of students with behaviour disorders and mental illnesses among English Language Learners³ (ELL) in British Columbia. However, what is known is that in the 2011-2012 school year, 10.9% of the student population was reported to be English Language Learners, a .06 percent increase since 2007-2008 (BC Ministry of Education, 2012b). There are no additional data that identify the number of ELL students in British Columbia who have any type of special needs. Given the substantial number of students reported to be ELL in British Columbia, it stands to reason that there would be students with behaviour disorders and mental illness among this population of students. This would be worth investigating to address the educational needs of this unique and diverse population of students.

High School Dropouts

Dropout rates have been widespread issues both in Canada and the United States for more than the past two decades. Although the dropout rate in Canada⁴ has been steadily declining since 1990-1991 to a low of 8.5% in 2009-2010 (Human Resources and Skills Development Canada, 2012), the number of students who are dropping out before completing their high school education is still a major concern. In the United States, the current rate of not completing high school averages at about 14% of all youth 18 years and older (National Center for Education Statistics, 1999).

³ ELL is defined by the BC Ministry of Education as students whose primary language is something other than English and who require additional services in order to meet the learning outcomes in the curriculum.

⁴ Dropout rates for Canada are based on data from the Statistics Canada Labour Force Survey (LFS). The dropout rate is calculated as the percentage of those aged 20 to 24 who are not attending school and who have not graduated from high school (HRSDC, 2012).

Dropping out before completing their high school education has serious implications for both the individual and society. Students who do not complete high school are unlikely to go on to college. They have the minimum skills required for consistent employment. Research has demonstrated that students who drop out of school experience higher rates of unemployment, underemployment, and incarceration and often experience more health problems (Blackorby & Wagner, 1996; Bradley et al., 2008; Martin et al., 2002; Wagner, 1995). However, the consequences of dropping out are not confined to the individual. Families and the wider community are also affected by broader negative outcomes such as forgone national income, forgone tax revenues for the support of government services, increased demand for social services, and increased crime and antisocial behaviour (Hayes, Nelson, Tabin, Pearson, & Worthy, 2002).

Students with disabilities are at greater risk for dropping out of school than students without disabilities. The US Department of Education (2011) reported that the percentage of individuals 16 through 24 years old with disabilities in 2009 who dropped out of school was about twice as large (15.5%) as the rate for their peers without disabilities (7.8%). These data confirm a report from the National Longitudinal Transition Study (NLTS) of Special Education in the United States that stated the dropout rate for students with disabilities is approximately twice that of general education students (Blackorby & Wagner, 1996).

Students with behaviour disorders and mental illnesses and students with learning disabilities are consistently found to have the highest dropout incidence among special education students and students in general (Osher, Morrison, & Bailey, 2003; Reschly & Christensen, 2006). Although one cannot directly compare US data with Canadian data due to different definitions and data collection methods, Canadian statistics on dropouts have

followed a similar pattern to the United States. Human Resources and Skills Development Canada (HRSDC) indicated that youths aged 15 to 19 with disabilities have a more difficult time staying in school than those without disabilities (HRSDC, 2012). Based on Canadian statistics from 2006, the high school dropout rate for youths with disabilities was 14.2% compared to 9.7% for those without disabilities (HRSDC, 2012).

The dropout rate and lack of school completion weigh heavily at the provincial level because education is the responsibility of each province and territory in Canada. Despite the BC government's efforts to promote an inclusive education system with policies and procedures to support the integration of all students, dropout rates for students with behaviour disorders and mental illnesses are high. In 2008-2009, the BC Ministry of Education reported that the proportion of students who graduated with a British Columbia Certificate of Graduation within six years from the time they had enrolled in Grade 8 was 79%. The six-year high school completion rate for students with special needs was 63% while the six-year high school completion rate for students with behaviour disorders and mental illnesses was 33% (BC Ministry of Education, 2012b). Although the graduation rate for students with behaviour disabilities and mental illnesses has been slowly increasing (8% between 2006-2007 and 2010-2011), it is lower than any group of students with special needs as well as those without special needs.

We know relatively more about the characteristics of students with behaviour disorders and mental illnesses who drop out of school than we do about the students with behaviour disorders and mental illnesses who manage to stay in school and graduate. However, from an educator's perspective, research is needed to learn more about students with behaviour disorders and mental illnesses who stay in school and the variables that are

associated with their educational engagement. Such information would allow educators, administrators, and policy makers to take a proactive approach and address the needs of students with behaviour disorders and mental illnesses to keep the students in school through to graduation.

Special Education Policy Context in BC

Definition of behaviour disorders and mental illnesses in BC.

Each province or territory in Canada has its own set of policies, procedures and guidelines and describes children and youth with behaviour disorders and mental illnesses using its own criteria. The definition for students with behaviour disorders and mental illnesses in British Columbia is delineated in *Special Education Services, A Manual of Policies, Procedures and Guidelines* (BC Ministry of Education, 2011). In British Columbia, students with behaviour disorders and mental illnesses are defined as those “whose behaviours reflect dysfunctional interactions between the student and one or more elements of the environment, including the classroom, school, family, peers and community” (BC Ministry of Education, 2011, p. 55).

The BC Ministry of Education categorizes students with behaviour disorders and mental illnesses based on the degree of behaviour support that is required and identifies two categories of students: 1) Students Requiring Moderate Behaviour Support or Students with Mental Illness (Category R) and 2) Students Requiring Intensive Behaviour Intervention or Students with Serious Mental Illness (Category H) (BC Ministry of Education, 2011). Students who fall into these categories must meet the following Ministry criteria:

1) Students requiring moderate behaviour support or students with mental illness

Students who require Moderate Behaviour Support demonstrate one or more of the following:

- behaviours such as aggression (of a physical, emotional or sexual nature) and/or hyperactivity;
- behaviours related to social problems such as delinquency, substance abuse, child abuse or neglect.

Students with mental illness are students who have been diagnosed by a qualified mental health clinician as having a mental health disorder. Students with mental illness demonstrate one or more of the following:

- negative or undesirable internalized psychological states such as anxiety, stress-related disorders, and depression;
- behaviours related to disabling conditions, such as thought disorders or neurological or physiological conditions.

To be identified in the category of Moderate Behaviour Support or Mental Illness, students must also meet the following criteria:

- the frequency or severity of the behaviours or negative internalized states have a very disruptive effect on the classroom learning environment, social relations or personal adjustment; and
- they demonstrate the above behaviour(s) or conditions over an extended period of time, in more than one setting and with more than one person (teachers, peers); and
- they have not responded to support provided through normal school discipline and classroom management strategies.

2) Students requiring intensive behaviour intervention or students with serious mental illness

Students Requiring Intensive Behaviour Intervention are eligible to be reported in this special education funding category if they exhibit:

- antisocial, extremely disruptive behaviour in most environments (for example, classroom, school, family, and the community); and
- behaviours are consistent/persistent over time.

Students with Serious Mental Illness eligible to be reported in this special education funding category are those with:

- serious mental health conditions which have been diagnosed by a qualified mental health clinician (psychologist with appropriate training, psychiatrist, or physician); and
- serious mental illnesses which manifest themselves in profound withdrawal or other negative internalizing behaviours; and
- These students often have histories of profound problems, and present as very vulnerable, fragile students who are seriously ‘at risk’ in classroom and other environments without extensive support.

In addition to meeting one of the conditions above, to be eligible for special education funding, these behaviour disorders and or illnesses must be:

- serious enough to be known to school and school district personnel and other community agencies and to warrant intensive interventions by other community agencies/service providers beyond the school; and
- a serious risk to the student or others, and/or with behaviours or conditions that significantly interfere with the student’s academic progress and that of other students; and
- beyond the normal capacity of the school to educate, provided “normal capacity” is seen to include the typical special education support/interventions such as school-based counselling, moderate behaviour supports, the use of alternative settings, and other means in the school environment.

(BC Ministry of Education, 2011. p. 55-56)

Problems with the Ministry definition.

Constructing a definition that encompasses all students with behaviour disorders and mental illnesses is a challenging task due to the heterogeneous nature of the disability. If the definition is too specific, it may exclude students who should be in this category. If the definition is too vague, it becomes subjective. This subjectivity is one of the problems with the BC definition. The BC Ministry of Education definition attempts to distinguish students who require ‘moderate behaviour support’ (Category R), a high incidence category, from those who require ‘intensive behaviour intervention’ (Category H), a low incidence category. Despite the attempt to categorize students with behavioural challenges into two broad categories based on severity of need, this delineation is unclear. For example, the definition identifies behaviours such as aggression, disruptive behaviour, anxiety and depression with qualifiers such as “extremely,” “serious” or “profound” to emphasize the severity of the behaviour. However, how one judges the degree of severity is subjective. There is no reliable and consistent method to distinguish students who meet the criteria in one category or the other. That is, there is no quantitative measure to define or determine when the type and severity of the behaviour constitutes a Category R designation or a Category H designation. Both categories also require the student to have demonstrated the behavioural condition “over an extended period of time.” The condition of time is also ambiguous. What would one consider an adequate period of time to regard the behaviour in question as ‘pervasive’? Does the time vary depending on the severity of the behaviour? The answers to these questions can vary significantly.

The subjectivity of the definition creates inconsistencies among those responsible for identifying students in a behaviour category. Local flexibility permitted by many school boards influences which students are identified with behaviour disorders and mental illnesses

(Dwort & Maich, 2007). A subtle difference in interpretation of the definition of provincial policy can significantly increase or decrease the number of students identified with behaviour challenges. The inconsistency is evident when a student can be labeled or categorized with a behaviour disorder or mental illness in one jurisdiction and lose the designation simply by moving from one school district to another. As much as schools and school districts strive to follow Ministry policy and guidelines, they struggle with the classification of students with behavior disorders and mental illnesses on a regular basis (Personal communication with members of BC CASE⁵).

The identification process of students with behaviour disorders and mental illnesses is complex and challenging. In addition to the difficulties educators face to interpret the Ministry definition for behaviour disorders and mental illnesses, there are a number of other criteria that require the judgment and ultimately the formal diagnosis by mental health professionals including psychologists, psychiatrists and physicians. The interpretation of the definition of students with behaviour challenges directly affects the prevalence of this population in British Columbia. School districts are highly motivated to categorize students with behaviour disorders for Students Requiring Intensive Behaviour Intervention due to the supplementary funding the school district receives, the magnitude of which can be in the hundreds of thousands of dollars. There is no supplementary funding provided to school districts for students who are categorized as Students Requiring Moderate Behaviour Support (Category R). The supplementary funding, in turn, affects decisions that are made by those who are responsible for the support and services provided to these students. Thus, the interpretation of the current educational definition of students with behaviour disorders and

⁵ British Columbia Council of Administrators of Special Education.

mental illnesses has important implications for educational practitioners and the students they serve.

Prevalence of students with behaviour disorders and mental illnesses in BC.

In British Columbia, the BC Ministry of Education engages in student-level data collection every September and February. By law, all Boards of Education are responsible for collecting and submitting student data to the Ministry of Education (School and Student Data Collection Order, M152/89). One use of the data is to produce an annual “How are we doing?” report that monitors the progress of students identified by school districts. Based on the 2009-2010 school year report, 14,151 public school students or 2.4% of the population were identified with behaviour disorders and mental illnesses. This included students identified in both categories – Students Requiring Intensive Behaviour Intervention or Students with Serious Mental Illness (Category H) and Students Requiring Moderate Behaviour Support or Students with Mental Illness (Category R) (Table 1.1). The prevalence rate of this population of students was higher than all other special needs categories with the exception of students with learning disabilities (3.1%). The prevalence rate of other special needs categories included students with sensory disabilities (0.3%), students with mild to profound intellectual disabilities (0.8%), students with physical disabilities or chronic health impairments (1.2%) and students with autism spectrum disorder (0.9%) (BC Ministry of Education, 2010).

Table 1.1. *Headcount of Students Identified in the Behaviour Disorders and Mental Illness Categories*

School Year	Category H (Intensive/Serious)	Category R (Moderate)	Total
2005/2006	7477 (1.2%)	9355 (1.6%)	16832 (2.8%)
2006/2007	7270 (1.2%)	8299 (1.4%)	15569 (2.6%)
2007/2008	7096 (1.2%)	7134 (1.2%)	14230 (2.4%)
2008/2009	7325 (1.3%)	6878 (1.2%)	14203 (2.5%)
2009/2010	7519 (1.3%)	6632 (1.1%)	14151 (2.4%)

Although the reported number of students with behaviour disabilities can fluctuate from year to year, overall, the number of students with behaviour disabilities from kindergarten to Grade 12 decreased by 16% between 2005/2006 and 2009/2010. Upon further analysis, it appears there was almost a 30% decrease in the number of students identified in Category R while the number of students in Category H was relatively stable with an increase of approximately 0.5%. One can speculate that the changes in prevalence between Category H and Category R had much to do with supplemental special education funding that was provided to school districts for each student identified in Category H but not in Category R. By moving students from Category R to Category H, school districts receive more supplemental funding to provide the necessary services and support. By moving students from Category R out of the behaviour designation, the students may become less of a priority from a policy perspective. Similar trends in the categorization of students have been observed in Alberta (Wishart & Jahnukainen, 2010).

Under-identification.

Research indicates that the expected prevalence rate of students with behaviour disorders and mental illnesses in BC is likely to be grossly underestimated. Students

identified in the Students Requiring Intensive Behaviour Intervention or Students with Serious Mental Illness category (Category H) are those most in need of intensive interventions and according to the BC Ministry of Education, are expected to be less than one percent (1%) of the student population in BC (BC Ministry of Education, 2011). This is less than the 2009-2010 prevalence rate of 1.3%. With the addition of students identified in the Students Requiring Moderate Behaviour Support or Students with Mental Illness category (Category R), the 2009-2010 prevalence rate was 2.4%. Kauffman and Landrum (2009) suggest that 3% to 6% is a reasonable estimate of the student population who are in need of special education due to behaviour disorders and mental illnesses. Forness, Freeman, Paparella, Kauffman, and Walker (2011) estimate that 12% of school-age children or youth have an emotional or behavior disorder with at least moderate impairment. These estimates are significantly higher than the prevalence rates in British Columbia. Waddell and Shepherd (2002) from the Mental Health Evaluation & Community Consultation Unit (MHECCU) at the University of British Columbia (UBC) conducted a literature review on the prevalence of children and youth with behaviour disorders and mental illnesses. Based on six studies that met the criteria for inclusion in the review, the researchers found an average overall community prevalence rate of 15% for behaviour disorders and mental illnesses in children and youth. Based on their prevalence rate of 15%, Waddell and Shepherd estimated that approximately 140,500⁶ children and youth experience behaviour disorders and mental illnesses causing significant distress and impairing their functioning at home, at school, with peers or in the community. This figure is far from the BC Ministry of Education reported number of 14,151 students with behaviour disorders and mental illnesses in 2009/2010.

⁶ This number is based on a population estimate of 936,500 children and youth in BC (MCFD, 2002).

Based on these statistics, it would lead one to believe that many of the children and youth with behaviour disorders and mental illnesses are not identified in British Columbia and, as a result, their needs are not being met. However, it is important to recognize that not all these children and youth meet the Ministry of Education criteria for behaviour disorders and mental illnesses. Nonetheless, this discrepancy is consistent with Siperstein, Wiley, and Forness (2011), who noted that “children identified in the behaviour disorders and mental illnesses category of special education are arguably only a small fraction of those with emotional or behavioral disorders who actually need school intervention...” (p.181).

Ministry of Education policy framework.

Over the past three decades the philosophy of education in British Columbia has evolved from an era of segregation of individuals with disabilities to one of acceptance and inclusion. This shift in philosophy has resulted in significant changes to special education policy and practice, and plays a critical role in determining how students with disabilities in British Columbia are educated.

British Columbia has a Special Education Policy Framework that was revised following an extensive Special Education Review in 1999 to assess the policies and practices affecting students with special needs. The policy framework is published in the document, *Special Education Services: A Manual of Policies, Procedures and Guidelines* (2011), a resource for educators to support the delivery of special education services. This manual is the foundation for the delivery of special education programs and services, and outlines policies, procedures and guidelines for special education in BC. The manual begins with the Special Education Policy and the policy on Inclusion, the two policies that lay the philosophical groundwork for the delivery of education for students with special needs.

Section E. of the manual is dedicated to Special Needs Categories, and a separate section specifically addresses students with behavioural needs or mental illness. This section of the dissertation examines these policies and the influence they have on students with behaviour disorders and mental illnesses in British Columbia.

Special Education Policy.

The Special Education Policy presents the overriding philosophical belief about how students with special needs in British Columbia should be educated. It states that “all students should have equitable access to learning, opportunities for achievement and the pursuit of excellence in all aspects of their educational programs” (BC Ministry of Education, 2011, p.1). This policy stems from the single federal law that impacts the education of students with special needs, the 1982 *Canadian Charter of Rights and Freedoms* (Constitution Act, 1982). The Charter states that “every individual is equal before and under the law and has the right to the equal protection and equal benefit of the law without discrimination and, in particular, without discrimination based on race, national or ethnic origin, colour, religion, sex, age or mental or physical disability” (Constitution Act, 1982, s 15).

The Special Education Policy has significantly affected the roles and responsibilities of teachers and other service providers for students with special needs. There are two key concepts that should be highlighted. First is the notion of “all students” which includes students with behaviour disorders and mental illnesses despite the academic, behavioural and social challenges they bring into the classroom. This presents a number of challenges for teachers because students with behaviour disorders and mental illnesses are considered to have the most difficult to address needs (Gresham, 2005, 2007; Kauffman & Landrum, 2009;

Sabornie et al., 2005; Winzer, 2005). Behavioural excesses such as aggressive or non-compliant behaviours and social withdrawal are behaviours far from typical and are incompatible with the day-to-day functioning of school. These behaviours, and the need for teachers to address them, disrupt classroom instruction and impose a tremendous demand on teachers' time, energy and patience. Often teachers are not equipped to manage such students, yet they are responsible for these students. Second, students have a right to "equitable access" to a meaningful education. Teachers are responsible for providing students necessary accommodations so they can participate in classroom instruction. However, there are occasions when students are unable to take part. Teachers are then responsible to provide alternative ways for students to access learning, despite the limited background they may have in educating students with challenging behaviours. School boards, but ultimately teachers, are also obliged to consult with parents to ensure students are provided with reasonable and appropriate access to education (BC Ministry of Education, 2011). However, access to education does not automatically ensure school completion for students with disabilities.

Policy on inclusion.

The policy of inclusion is central to special education in British Columbia. The focus is on placing students with disabilities in the general education classroom with their peers while accommodating their individual needs. The *Special Education Services: Manual of Policies, Procedures and Guidelines* describes the policy of inclusion as follows:

British Columbia promotes an inclusive education system in which students with special needs are fully participating members of a community of learners. Inclusion describes the principle that all students are entitled to equitable access to learning,

achievement and the pursuit of excellence in all aspects of their educational programs. The practice of inclusion is not necessarily synonymous with full integration in regular classrooms, and goes beyond placement to include meaningful participation and the promotion of interaction with others (BC Ministry of Education, 2011, p. 2).

Inclusion suggests that students with special needs should be integrated in an environment with other students who do not have special needs. However, the landscape of the typical classroom has changed significantly over the past three decades and has become more and more heterogeneous. Cultural and linguistic diversity as well as a broad range of abilities and disabilities have become the norm in any classroom. Included in this diverse population are students with behaviour disorders and mental illnesses.

The BC Ministry of Education puts emphasis on placing students with special needs, including students with behaviour disorders and mental illnesses, in neighbourhood schools within their community, in classrooms with same age and grade peers. However, it is important to recognize that inclusion is not just about placement. Inclusion requires meaningful participation. Students are expected to learn, play, cooperate, share, and generally engage in school activities with their peers.

Meaningful participation is a challenge for students with behaviour disorders and mental illnesses. The nature of their disability can manifest itself in negative ways, often due to their lack of social or behavioural skills that ultimately prevents them, and sometimes their peers, from participating in classroom activities. For example, it is not uncommon for students with behaviour disorders and mental illnesses to have difficulty following classroom rules, relating appropriately to peers and adults, and keeping up with a regular school

curriculum. They can be disruptive in the classroom and consume teacher time and attention. Peers tend to avoid students with behaviour challenges and choose not to engage in activities with them. This creates an additional challenge for the classroom teacher to include a student who either cannot or will not participate in classroom activities. Thus, having a student with behaviour disorders or mental illnesses can make it especially difficult to abide by the policy on inclusion. However, with appropriate support and interventions, and time and patience on the part of the teacher, students with challenging behaviours can be integrated in the general education classroom.

The policy manual encourages teachers, in consultation with parents, to support the behaviour and mental health needs of students with behaviour disorders and mental illnesses at the classroom level, recognizing that the classroom teacher may need to seek assistance from other school or district support services (BC Ministry of Education, 2011). In many cases, the assistance required is beyond the scope of the school or school district and may need to involve the family physician, child and youth mental health services and/or other community agencies. By definition, students requiring intensive behaviour intervention or students with serious mental illness require “access to coordinated school/community interventions, which are based on inter-service/agency assessment processes that are required to manage, educate, and maintain the students in school and in their community” (BC Ministry of Education, 2011, p. 56). This creates additional responsibilities for the teachers who are often responsible for coordinating the multi-disciplinary teams to support these students.

The BC Ministry of Education recognizes that, although the general education classroom is the optimal learning environment in most cases, a continuum of placements or

services is necessary to meet the needs of some students with the intent to re-integrate them into the general education classroom. The policy on inclusion acknowledges that educating students with special needs “does not preclude the appropriate use of resource rooms, self-contained classes, community-based programs, or specialized settings” but only when “the school board has made all reasonable efforts to integrate the students...” (BC Ministry of Education, 2011, pp. 2-3).

Despite current philosophical beliefs and educational policy, inclusion of students with disabilities into general education classrooms does not have a substantive research base. The available empirical research that examines inclusion as a treatment variable for students with disabilities is not convincing, and for students with behavioral disorders, is practically nonexistent (Heath et al., 2004; Simpson, 2004; Tankersley, Landrum, & Cook, 2004). Professionals, parents and policy makers have not viewed the policy of inclusion as an empirical or scientific issue. Rather, inclusion and the decisions surrounding whether or not students with behaviour disorders and mental illnesses should be educated in general education settings has been adopted and pursued based on social policy considerations. Inclusion has progressed because it is recognized as a core constitutional right (Canadian Charter of Rights and Freedoms, 1982) and not due to empirical outcomes associated with inclusion as a treatment variable. Thus, it begs the question: “Does the policy of inclusion benefit students with behaviour disorders and mental illnesses?”

Local policies.

In addition to provincial special education policies, school districts have local policies to determine how financial, human and material resources are distributed and used within the school district provided they keep within the boundaries of provincial policies. Local special

education policies vary from school district to school district, sometimes depending on how provincial policy is interpreted, resulting in differences in the supports and services that are offered. For example, researchers have acknowledged the possibility of differences in eligibility criteria for access to special education services (Nelson, Babyak, Gonzalez, & Benner, 2003). In addition, the demographics can vary from one school district to another resulting in differences in the supports and services that are available to meet the needs of the local school district. For example, some school districts in rural areas have difficulty finding specialists (i.e., pediatricians, psychologists, etc.) to assist with assessments and help plan interventions.

Need for further research.

Despite the efforts on the part of the BC Ministry of Education and local school districts to address the challenges of supporting students with behaviour disorders and mental illness, the data on school completion rates continue to demonstrate poor educational outcomes for this population of students (BC Ministry of Education, 2012a). Clarification of special education policy, an increase in supplemental funding, opportunities for professional development in school-wide positive behaviour supports and associated evidence-based practices have all been efforts to address the issue, yet little has changed. Reports indicate that, between 2006-2007 and 2010-2011, the six-year Dogwood completion rate for students with behaviour disabilities increased by 8%. Yet, the school completion rate for this group of students was only 39%, significantly lower than students with sensory disabilities (73%) and students with learning disabilities (65%) (BC Ministry of Education, 2012a). Schools and school districts continue to face significant challenges in educating students with behaviour disorders and mental illness. Students with behaviour disorders and mental illness continue to

experience poor academic, behavioural and social outcomes and drop out of school. This is of grave concern to families, educators, and policy makers and underscores the need to further understand this very complex population of students.

It is a general belief that dropping out is the culmination of a long pattern of poor school adjustment. Academic, behavioural and social challenges begin in the earlier years and gradually lead to leaving school. There is an urgent need to identify the various influences on dropping out and addressing their long term, cumulative effects. Many of the studies devoted to students who do not complete high school have been with the general population of students. There is a paucity of studies that examine the educational trajectories of students with behaviour disorders and mental illnesses, and no such study that examines factors that may be predictors of school outcomes for students with behaviour disorders and mental illnesses has been conducted in British Columbia. Thus a retrospective study to examine student data from the time students enter the school system and throughout their educational career seems warranted. Descriptive research of this type can assist schools and school districts in understanding the patterns of behaviour that affect high school completion for students with behaviour disorders and mental illnesses and provide a basis for developing proactive prevention and intervention practices before a long history of poor academic, social and behavioural patterns is established.

Although school dropout is an important policy issue and has generated a considerable amount of research, little attention has been paid to research on those who stay in school and even less attention to those who manage to complete high school. Not all students with behaviour disorders and mental illnesses drop out of school. There is a percentage of students who stay in school and successfully graduate. What distinguishes

students with behaviour disorders and mental illnesses who graduate from those who drop out of school? Can these individuals be identified by a specific factor or combination of factors?

Provincial data are needed to inform provincial policy and practice. Each province is responsible for its own educational policies, procedures and guidelines that reflect the norms, values, beliefs and expectations that determine how students with behaviour disorders and mental illnesses are identified, classified and instructed (Dwort & Maich, 2007).

Statement of the problem.

The educational outcome of students with behaviour disorders and mental illnesses in British Columbia, defined by the six-year high school graduation rates, continues to be significantly lower than the general population and worse than any disability group in the province (BC Ministry of Education, 2012a). Graduation rates for this population of students have not improved despite the BC Special Education framework that provides policies, procedures and guidelines delineating how to respond to students with behaviour disorders and mental illnesses, and the financial support provided by the Ministry of Education. Yet, there is a small percentage of students with behaviour disorders and mental illnesses who successfully graduate from high school each year within the given six-year time frame.

The purpose of this study was to explore whether there are common identifiable factors or combinations of factors that can distinguish students with behaviour disorders and mental illnesses who successfully complete high school from those who do not. Early identification, school enrollment, special needs categorization, student mobility, and academic achievement were explored to look for links between early factors in the educational careers of students with behaviour disorders and mental illnesses and high school

graduation. The intent of this investigation was to add to the knowledge base of the critical issue of dropouts among students with behaviour disorders and mental illnesses and offer some direction to improve the educational outcomes and graduation rates of this population of students.

This research examined the educational trajectories of four cohorts of students categorically identified in British Columbia with behaviour disorders and mental illnesses using data that have been collected annually by the BC Ministry of Education. In addition, this research examined the Aboriginal student sub-population and the English Language Learner sub-population that are of specific interest in British Columbia, as each of these sub-groups makes up over 10% of the student population. It is hoped that this research informs special education policy and practice in British Columbia both at the provincial and local levels and serves to help increase the graduation rates of students with behavior disorders and mental illnesses.

Research Questions

The purpose of this study was to conduct an exploratory analysis of data collected by the BC Ministry of Education to examine the profiles of students with behaviour disorders and mental illnesses who graduate from high school and look for common variables that may serve as predictors that can determine which students with behaviour disorders and mental illnesses will likely graduate from high school and those who will not. Specifically, this research examined the following questions:

- 1) Is there a factor or combination of factors that can distinguish students with behaviour disorders and mental illnesses who complete high school from those who do not?

- 2) If a factor or combination of factors can be identified, are they the same factors and do these factors have the same or different degree of predictability for students with Aboriginal or ELL status and students with non-Aboriginal or non-ELL status?
- 3) Is there a relationship between the age at which students are first identified and reported with a categorical designation and whether they will graduate from high school?

The study explored the demographic variables, school enrollment variables and measures of academic success in an effort to identify any common elements related to positive educational outcomes ultimately defined by the successful completion of high school. The entire population of students with behaviour disorders and mental illnesses in BC across the four cohorts was examined. This allowed for disaggregation of the data while maintaining a large enough sample size to examine two specific sub-groups, students with Aboriginal status and students with English Language Learner status, and the variables that influence the academic trajectories and successful high school completion for each of these groups.

Importance of the Study

Increasing the graduation rates for students with behaviour disorders and mental illnesses needs to be a priority in British Columbia. The prevalence of students with behaviour disorders and mental illnesses who do not graduate and the seriousness of its consequences to the individual as well as to society are evident and clearly support the need for ways to address this issue. As indicated earlier, there is little research devoted to Canadian students and no research specific to British Columbia that examines factors that may be predictors of high school graduation for students with behaviour disorders and mental

illnesses. If it is possible to identify factors or combinations of factors that are associated with high school graduation over which schools may exert influence, the limited financial and human resources available to schools can be better directed to improve the educational trajectories of these students and increase the likelihood of graduation. The broader goal is to contribute to existing literature on students with behaviour disorders and mental illnesses and influence special education policy and practice in British Columbia to increase the overall graduation rates for this population of students.

Scope of the Study

This exploratory analysis of data collected by the BC Ministry of Education provided important empirical evidence to further the understanding of educational trajectories of students with behaviour disorders and mental illnesses in British Columbia. The central outcome that was investigated was school completion defined as graduation within six years of beginning Grade 8. The study was a retrospective analysis of four cohorts of students who were enrolled in the British Columbia school system between 1995-1996 and 2011-2012. The study examined their educational trajectories from kindergarten or the point at which they entered the school system to Grade 12 or until they left school. This study adds to the empirical knowledge base and provides critical information to examine the gap between the poor graduation rates achieved by students with behaviour disorders and mental illnesses and that of the rest of the student population in British Columbia. This research is the only known investigation conducted in British Columbia that examines factors that influence the educational trajectories of students with behaviour disorders and mental illnesses.

Definition of Terms

Although there are many commonalities, there is no universally accepted terminology and definition of students who chronically display deviant behaviours that are inconsistent with current societal standards. Official terminology and definitions vary from jurisdiction to jurisdiction, especially in Canada, where each province and territory has its own educational policy. For the purposes of this dissertation, ‘students with behaviour disorders and mental illnesses’ will be used to refer to students in British Columbia who meet the BC Ministry of Education criteria for students requiring moderate behaviour support or students with mental illness (Category R) and students requiring intensive behaviour intervention or students with serious mental illness (Category H).

Organization of the Dissertation

The current chapter provided background information and an overview of the characteristics of students with behaviour disorders and mental illnesses as well as high school dropouts. It also described the special education policy context in British Columbia. The statement of the problem with regard to students with behaviour disorders and mental illnesses and the research questions for this study were also introduced.

Chapter 2 provides a theoretical framework to help understand the existing knowledge and information associated with the educational trajectories of students with behaviour disorders and mental illnesses. It also reviews the literature relevant to high school graduation and non-completion of students with behaviour disorders and mental illnesses and the associated factors that were investigated in this study.

Chapter 3 describes the methodology used in the study. The chapter includes a description of the students and the dependent and independent variables under investigation.

The procedures used to construct the single, multi-level data set and analyze the data are described. Chapter 4 reports the findings of the data analysis and Chapter 5 discusses the findings as well as educational and policy implications, limitations of the study, and considerations for future research.

Chapter 2: Literature Review

Current North American society recognizes the importance and value of a formal education. High school graduation represents an important milestone that signifies a transition to something better – better jobs, better education, and a better quality of life. The failure to graduate from high school is associated with negative life outcomes, reducing an individual's chances of becoming a productive adult and having a successful future (Belfield & Levin, 2007). Lack of school completion has been a concern in North America for decades and numerous studies have been conducted throughout the years in an attempt to gain a better understanding of why some students graduate while others do not (Rumberger & Lim, 2008).

Data throughout North America have revealed a noticeable negative association with high school completion for students with mild or moderate disabilities. The US Department of Education, Office of Special Education's Annual Report (2006) showed a persistent school completion gap between general education students and peers with high incidence conditions such as specific learning disabilities, mental retardation, behaviour or emotional disabilities, or other health impairments. There is limited data on the dropout rates of youths and young adults with disabilities in Canada and only a few studies have examined dropout trends and determinants (Raymond, 2008). However, provincial Ministries of Education have reported data similar to the United States indicating graduation rates of students with high and low incidence disabilities are significantly lower than the general population of students (e.g., BC Ministry of Education, 2010; Alberta Education, 2011). Further, provincial data have consistently demonstrated that students with behaviour disorders and mental illnesses have the lowest graduation rate of any group of students with special needs (BC Ministry of

Education, 2010). Despite the evidence of an observed and significant problem with school completion for this population of students, there is a paucity of research that seeks to understand or explain why such a large number of students with behaviour disorders or mental illnesses fails to complete high school.

The construct of engagement (or disengagement) has been proposed as a way to understand why students stay in or drop out of school. The concept of dropping out of school implies it is a specific event but it is better conceptualized as a gradual process of disengagement that occurs over a number of years (Alexander, Entwisle, & Horsey, 1997; Christle, Jolivette, & Nelson, 2007; Finn, 1989; Finn & Zimmer, 2012; Kortering & Christenson, 2009; Reschly & Christenson, 2006). The process of student disengagement can begin as early as when students enter school and over the course of several years students gradually become more and more disinterested and unmotivated until they eventually withdraw or drop out (Alexander et al., 1997). This exploratory investigation draws upon the theory of engagement (Finn, 1989) to guide the investigation of the educational careers of students with behaviour disorders or mental illnesses in an attempt to identify whether specific student-level or school-level factors or combination of factors can distinguish students who complete high school from those who do not.

This research asserts: (1) students' educational engagement in school can be an indicator or predictor of successful high school completion; (2) students with behaviour disorders or mental illnesses who are identified early in their educational career and whose needs are addressed have different educational trajectories than those who are identified later in their educational career; and (3) there are differences in the educational trajectories of

different sub-populations of students based on gender, Aboriginal status and English language proficiency.

This chapter begins with a description of the theory of student engagement to provide a framework for investigating the educational trajectories of students with behaviour disorders and mental illnesses who complete high school and those who do not. The review then looks at the taxonomy of student engagement to provide a structure to investigate relevant student engagement factors related to the educational outcomes of students. Research describing the student-level and school-level critical engagement factors related to students with behaviour disorders and mental illnesses is reviewed. Research describing gender, cultural and racial differences is also reviewed in terms of unique educational trajectories such sub-populations may present.

Student Engagement

Student engagement is a way to understand how students respond at school and how their needs can be addressed in order to improve their educational outcomes. Research has demonstrated that there is a strong positive relationship between student engagement and student performance across gender, ethnicity and socioeconomic status (Finn, 1989; Finn & Rock, 1997; Finn & Voelkl, 1993; Reschly & Christenson, 2006). Students who are engaged in their learning participate in classroom and school activities and have a sense of belonging. Conversely, a lack of student engagement negatively affects student achievement. These students are not actively engaged, do not participate in classroom and school activities, and often exhibit inappropriate or counterproductive behaviours (Finn & Zimmer, 2012). The levels of engagement may serve to explain why some high risk students are academically successful while others are not. Following this line of reasoning, levels of engagement may

also serve to explain why some high risk students graduate from high school while others drop out early.

Student engagement is defined by the attitudes and behaviours that a student exhibits towards school and learning (Finn & Voelkl, 1993; Finn & Zimmer, 2012; Jimerson, Campos, & Greif, 2003). Attitude refers to the student's positive or negative emotional response to or feelings about something or someone, and these attitudes are often reflected in a person's behaviour. Behaviour refers to the manner in which a student conducts himself or herself. In relation to classroom instruction, Marks (2000) described student engagement as "a psychological process, specifically, the attention, interest, investment, and effort students expend in the work of learning" (p. 154-155). Described in this way, Marks also addressed the attitude and behavioural components of student engagement.

The engagement/disengagement perspective is a useful way to look at and understand the limited academic achievement and high dropout rates of students with behaviour disorders and mental illnesses in this study. Finn and Zimmer (2012) drew attention to four specific reasons why engagement is relevant to educators:

- Engagement behaviours are easily understood by practitioners as being essential to learning.
- Engagement behaviours can be seen in parallel forms in early and later years.
- Remaining engaged – persistence – is itself an important outcome of schooling.
- Engagement behaviours are responsive to teachers' and schools' practices, allowing for the possibility of improving achievement and attainment for students experiencing difficulties along the way (p. 99).

Student engagement is an important construct and is touted as essential for learning. It is a promising approach to address the low school completion rates of students with behaviour disorders and mental illnesses. This approach provides a sound rationale from an educational perspective that addresses what *can* be done. That is, it provides directions for policy and practice. Korterling and Christenson (2009) definitively claim that “[t]he most important concept for understanding intervention efforts to increase school completion rates is *student engagement*” (p.7). The following section will describe the theory of engagement in further detail.

Theoretical Framework

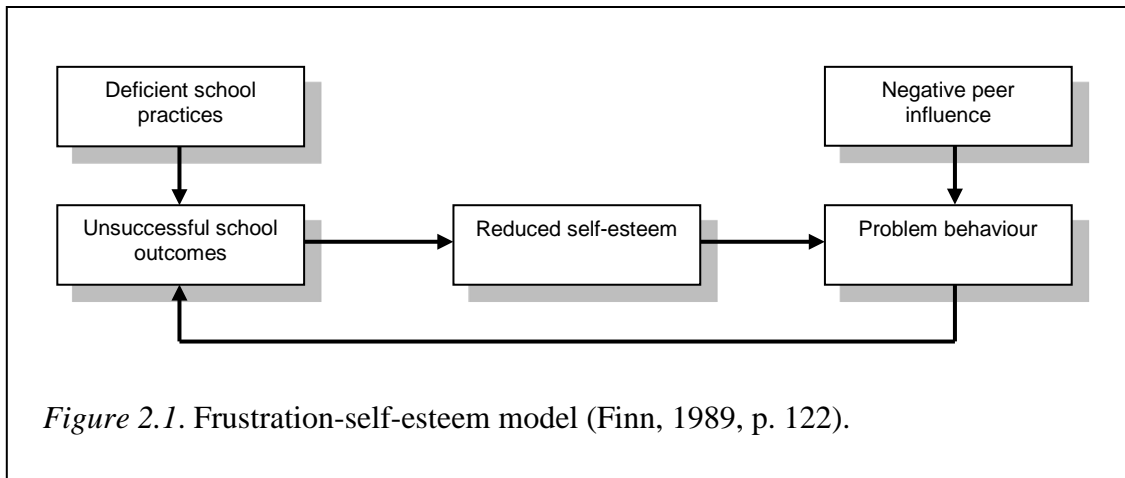
Theory of student engagement.

The theory of student engagement has developed over the past two decades and has attracted increasing attention as a way to understand and explain students’ lack of motivation and achievement and subsequent dropping out of school. In a seminal article on school dropout and completion, Finn (1989) described two models, the frustration-self-esteem model of student engagement and the participation-identification model of student engagement, to explain the phenomenon of dropping out of school. Each model approaches student engagement from a different perspective but both models predict that children and youth who lack self-esteem or engagement are more likely to drop out of school. Finn theorized that school completion and dropout are the result of long-term ongoing processes of engagement or disengagement with school. Both models are described in the context of a developmental process rather than a specific event that occurs at one point in time late in a student’s elementary to high school career. This section describes and compares the frustration-self-esteem model of student engagement with the participation-identification

model of student engagement and provides a rationale to support the participation-identification model of student engagement as the framework for this study.

Frustration-self-esteem model.

Finn (1989) described the frustration-self-esteem model as one paradigm that has been used to understand why students drop out of school (Figure 2.1). According to this model, it is hypothesized that poor school performance such as academic difficulties and poor grades lead to a lowered self-esteem due to frustration or embarrassment. The academic difficulties may be exacerbated by ineffective school practices. In an effort to preserve or perhaps boost one's self-esteem, the student engages in alternative behaviours that are viewed by the school as inappropriate or problem behaviour. Often the inappropriate or problem behaviour is supported or reinforced by negative peer influence. If the pattern is not broken, the problem behaviour continues to grow and over time the focus becomes more on the student's behaviour and less on school performance until ultimately the student withdraws or is removed from the school environment. Thus, dropping out of school is a way for the student to cope with the social stigma and poor self-esteem that is associated with failure at school. Using this line of reasoning, the focus is on the inadequate abilities of the student (e.g., learning disability) and the student is often blamed for unsuccessful school outcomes, reduced self-esteem, and increased problem behaviour. In the frustration-self-esteem model, "the youngster's self-view is a central mediator of problem behaviour" (Finn, 1989, p.120). Thus, the burden is on the student to look for alternative activities to feel successful and affect more positive outcomes.



Participation-identification model.

Finn (1989) described a second paradigm, the participation-identification model, as an alternative to the frustration-self-esteem model to explain problem behaviour. In the participation-identification model, Finn focused on a different set of dimensions from the frustration-self-esteem model. He defined engagement in school as having both a behavioural component (participation) and an affective component (identification). This model describes the importance of a student's participation in terms of behaviours a student engages in that involves him/her in the activities of the classroom and school. In the early years, participation can simply be attending class, paying attention to the teacher, following directions and completing assignments. As the student gets older and engages in higher levels of participation, the student may initiate dialogue, spend more time doing class work or homework, and take more initiative for his/her own learning. The student may also become more involved in social or extracurricular activities at the school. These behaviours are examples of participation that lead to positive educational outcomes.

Identification is the affective component and refers to a sense of belonging to the school community and commitment to the school and to learning (Figure 2.2). Identification

is not an isolated event but a state that develops over time with increased participation in the class and at school. In turn, as the student gains a greater sense of identification with the school, he/she is likely to participate more in school activities. Thus, it is a cyclical process.

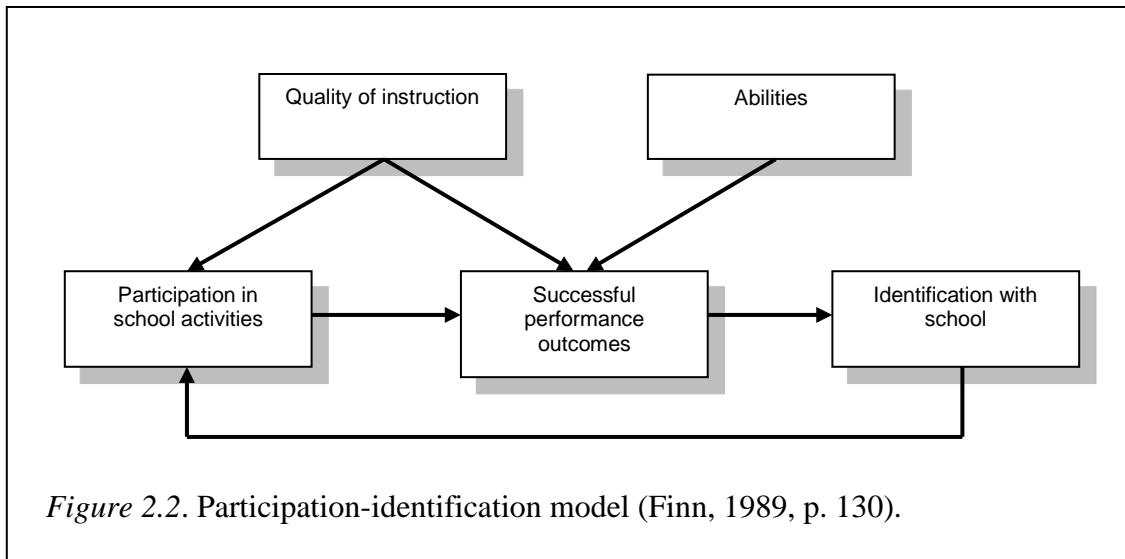


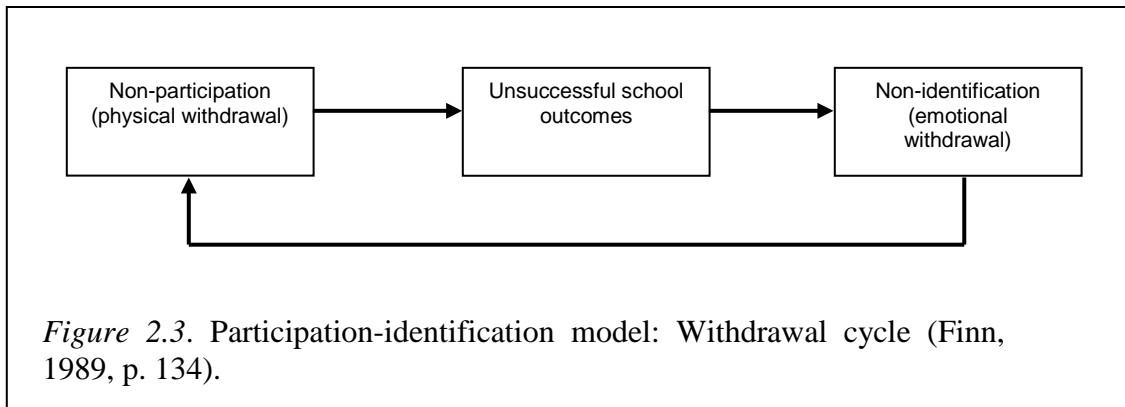
Figure 2.2. Participation-identification model (Finn, 1989, p. 130).

For students who do not identify with the school, there is an inclination not to participate in school-related activities, leading to less successful educational outcomes and then to emotional and physical withdrawal. A negative cyclical process occurs. When the student does not participate or engage in school activities, the likelihood of problem behaviour increases as does the likelihood of the student leaving school before graduation. The basic premise of this model is that participation in school activities, especially in the early grades (Finn, 1989), is essential for positive school outcomes and ultimately school success. This cycle is impacted by the quality of classroom instruction, the school environment, and the student's individual abilities.

Comparison of the two models.

Both models described by Finn (1989), the frustration-self-esteem model and the participation-identification model, are process-oriented approaches that occur over time. They are cyclical in nature and the student's behaviour influences school performance which in turn influences the student's identification with the school. However, while the frustration-self-esteem model focuses on negative behaviours and negative consequences, the participation-identification model begins from the perspective of positive behaviour – participation in school activities.

Finn (1989) elaborated on the model of engagement and described participation-identification from a non-participation perspective to draw a parallel between the two models. He referred to the non-participation perspective of the participation-identification model as the withdrawal cycle (Figure 2.3). Based on this perspective, a lack of participation leads to unsuccessful school outcomes which, in turn, leads to disengagement and eventually withdrawal from school. For some students, the lack of participation may be due to family or work circumstances or other obstacles (e.g., disciplinary measures) which cause an early departure from school. Regardless of the reason for disengagement, it is the cycle of non-participation, unsuccessful experiences, and lack of identification with the school that results in challenges to maintain a student's engagement in school.



Finn (1989) clearly demonstrated that the frustration-self-esteem model and the participation-identification withdrawal cycle identify unsuccessful school outcomes as a precursor to negative behaviour while the participation-identification model identifies successful school outcomes as a precursor to positive behaviour. Both the frustration-self-esteem model and the participation-identification model also identify a behavioural component. In the frustration-self-esteem model the problem behaviour is the act of leaving school while in the participation-identification model a student can engage in varying degrees of non-participation, one of which would be leaving school. Both models also recognize the student's psychological or emotional response to school in the form of self-esteem in the frustration-self-esteem model and identification in the participation-identification model. However, Finn (1989) distinguished between the two models pointing out that self-esteem is an internal psychological judgment – a personal judgment of oneself regarding one's worthiness. In contrast, identification is an external judgment that focuses on the perception of one's sense of belonging and relationship in the context of school.

From an educational perspective, the participation-identification model makes practical and intuitive sense. The frustration-self-esteem model does not identify specific school practices, but rather, it focuses on the deficiencies of the student or school program.

Although the frustration-self-esteem model is useful to identify the problem, it does little to identify the factors that need to be addressed to improve school outcomes. In contrast, the participation-identification model appears to be more constructive by focusing on positive aspects such as participation and quality instruction that can be addressed at the school level. The participation-identification model identifies areas that are amenable to change (i.e., increase participation in school activities) and provides opportunities and direction for intervention.

Rationale to support student engagement.

The participation-identification model demonstrates a clear theoretical relationship between student engagement and school completion. That is, the more a student is engaged or actively participates at school, the greater the likelihood of the student staying and completing school. The perspective of dropping out of or leaving school tends to focus solely on, and equate the problem to, the student, and efforts are made to change the student's behaviour. Interventions are developed with the intent of correcting the student's insufficiencies or deficits and do not ensure that the student will learn or have a productive school experience. The shift to school completion focuses on the acquisition of appropriate positive skills to meet the educational standards of the school environment and the promotion of active participation in learning and in school. Educators are situated in a position where they have some degree of control or influence in fostering student engagement to change the trajectory of the student's school experience. Therefore it seems reasonable to make a conceptual shift in the discourse on improving graduation rates from preventing the negative outcome of dropping out of school to promoting the positive outcome of school completion.

Despite limited predictive studies on the engagement of students with disabilities and school completion, there is some evidence that differentiates student outcomes for groups of students considered to be at risk based on their level of engagement at school. Sinclair, Christenson, Evelo, and Hurley (1998) conducted an experimental study with ninety-four urban secondary students with learning and emotional/behavioural disabilities over five years to examine the efficacy of a sustained dropout prevention procedure called *check and connect*, that incorporated strategies to monitor and respond to student levels of engagement. The *check* component refers to the assessment of student engagement. The following observable indicators were used to *check*, or measure, student levels of engagement: a) tardiness, b) skipping classes, c) absenteeism, d) behaviour referrals, e) detention, f) suspensions, g) course failures, and h) accrual of credits. The *connect* component refers to the intervention. All students in the treatment group received basic interventions, and additional individualized intensive interventions were given to students exhibiting high risk on any of the indicators. The researchers explored three constructs based on Finn's (1989) theory of engagement: a) participation in school, b) school performance, and c) identification with school. Both measures of participation in school and measures of school performance indicated that students in the treatment group were significantly more likely to be engaged in school and on track to graduate than students in the control group. The study results support the contention that sustained systematic monitoring and intervention that supports student engagement is important for students who are at high risk for poor school performance and dropout. Interestingly, there were no significant differences on measures of identification with school between treatment and control groups. Sinclair, Christenson, and Thurlow (2005) replicated the experimental study conducted by Sinclair et al. (1998) with 144 ninth-grade

urban high school students who had emotional or behavioural disabilities. The results of the study at the end of four years showed that students who participated in the check and connect intervention were more likely to be enrolled in school or have completed high school (61%) than students in the control group (43%). However, among the students in the treatment group who were still enrolled for a 5th year, five times as many completed high school as compared to their peers in the control group (25% vs 6%), and one-third of the 5th year treatment students remained in school, compared to none in the control group. The study supports and extends the earlier study by Sinclair et al. (1998) with evidence that students involved in the check and connect intervention stay in school and are more likely to complete school given alternative program choices and timelines. The small sample size and disproportionate number of African American and male students, although reflective of the school district in which the study was conducted, limits the generalizability of the results to other jurisdictions and warrants additional studies of this nature.

Reschly and Christenson (2006) conducted a series of stepwise logistic regressions to examine student engagement on a sample of parent-identified middle and high school students with learning disabilities ($n = 1,064$) and emotional and behavioural disorders ($n = 338$) and their association of engagement to later school dropout or completion. The results indicated that achievement test scores, socio-economic status and grade retention were significant predictors of dropout among students with and without disabilities. However, when behavioural engagement variables were added, specifically school absences and skipping classes, there was a notable increase in odds of dropping out of school specifically for students with significant learning and emotional and behavioural problems, perhaps signaling the importance of student engagement for students who are placed at the highest

risk for poor school outcomes. Although this study was based on a national probability sample in the United States, a variety of schools (i.e., Bureau of Indian Affairs schools, special education schools, area vocational schools that did not directly enroll students, schools on military bases and public and private schools with ungraded classrooms) as well as specific groups of students (i.e., severe mental disability, limited English proficiency, and physical or emotional problems) were excluded from the data source. It is likely that some of the students who were excluded had severe forms of learning disabilities or emotional/behavioural disorders. The results should be considered with caution as the students with learning disabilities and emotional/behaviour disorders in this study may not be an accurate representation of the population and may in fact have been underrepresented.

Despite limited research specific to students with high incidence disabilities, there appears to be strong empirical evidence that student engagement is a critical construct to help understand and explore the phenomenon of keeping students in school and preventing school dropout. Reschly and Christenson (2006) considered Finn's (1989) participation-identification model "[t]he most influential theory of student engagement" (p. 278). Finn's model allows for the identification and manipulation of engagement variables to promote positive consequences in classroom and school environments. However, engagement variables can be defined in multitudinous ways and can span a number of domains. Researchers have identified and classified engagement variables in a variety of ways to help bring greater understanding to the influence these variables have on engagement. The organizational structures of student engagement will be examined in the next section.

Student Engagement: A Multi-Dimensional Construct

Taxonomy of student engagement.

Since the influential work of Finn (1989), the construct of student engagement has proliferated and the definition of student engagement has become as broad and varied as the number of researchers who have studied this area. Several researchers have expanded on the foundational two-component model of student engagement first introduced by Finn and have suggested models of student engagement with three and four components.

Based on two separate literature reviews, Fredricks, Blumenfeld, and Paris (2004) and Jimerson et al. (2003) both suggested a three-component model of student engagement. Fredricks et al. reviewed 44 articles published between 1981 and 2003 and based on their review, presented a more developmentally-focused perspective. They identified three types of engagement: 1) behavioural engagement, 2) emotional engagement and 3) cognitive engagement. Behavioural engagement is defined by the student's level of participation in both academic and social or extracurricular activities. Emotional engagement is defined by the positive and negative reactions and relationships with teachers, peers, academic work and school in general. Both behavioural engagement and emotional engagement are much like Finn's (1989) participation and identification components. Fredricks et al. delineated a third component, cognitive engagement, defined by the student's thoughtfulness and willingness to expend necessary effort to comprehend ideas or master difficult tasks, although there may be some overlap in definition with Finn's identification component. Each of the three types of engagement defined by Fredricks et al. is thought to incorporate a wide variety of concepts and range on a continuum from simple tasks to the most complex. Likewise, Jimerson et al. reviewed 45 articles published between 1988 and 2004 and identified three types of

engagement but used different terminology and definitions. The behavioural dimension which includes observable actions or performance and the affective dimension, which includes the student's feeling about school, are similar to behavioural engagement and emotional engagement identified by Fredricks et al. The cognitive dimension, although similar in terminology, is characterized differently from Fredricks et al. and includes the student's perceptions and beliefs related to self and school.

More recently, Rumberger and Lim (2008) conducted a review of 203 published studies over the past 25 years on predictors of high school dropout and graduation and identified similar types of student engagement as Fredricks et al. (2004) and Jimerson et al. (2003). However, Rumberger and Lim first classified the factors that predict dropout or graduation into two groups: factors associated with individual characteristics of students and factors associated with institutional characteristics of families, schools and communities. Within the factors associated with individual characteristics, Rumberger and Lim identified four areas: 1) educational performance (e.g., test scores and grades in high school, academic achievement in both middle and elementary school, student mobility in middle and high school, and retention in elementary, middle and high school); 2) behaviours (e.g., active involvement in academic work, participation in sports and extracurricular activities, absenteeism, misbehavior in high school, drug or alcohol use during high school, teenage parenting or pregnancy, criminal behaviour); 3) attitudes (e.g., educational expectations); and 4) background (e.g., age, gender, cultural background). The first three areas have commonalities with the three components identified by Fredricks et al. and Jimerson et al. (2003). Rumberger and Lim also acknowledged the demographics and the student's background experiences as factors linked to dropout and graduation where the others did not.

Other researchers have proposed a four-component model of student engagement. Of particular note is the model proposed by Reschly and Christenson (2006), based on the theoretical work of Finn (1989), Connell and Wellborn (1991), McPartland (1994) and their own work on the *Check and Connect* intervention model (Sinclair, Christenson, Lehr, & Anderson, 2003). Reschly and Christenson suggested a four-component taxonomy of student engagement that includes: 1) academic engagement, 2) behavioural engagement, 3) cognitive engagement, and 4) psychological engagement. Like Rumberger and Lim (2008), Reschly and Christenson distinguished academic engagement from behavioural engagement. In this model, academic engagement is represented by indicators such as time on task, course credits, and homework completion, and is distinguished from behavioural engagement represented by indicators such as attendance, suspension, classroom participation and extracurricular participation. In addition, Reschly and Christenson included a cognitive and psychological component with multiple indicators for each subtype. The cognitive component included indicators such as boredom, perceived relevance of education to future and self-regulation. Lastly, the psychological component included indicators such as relationships with teachers and peers as well as the concept of belonging, as introduced by Finn.

The theoretical and research literature demonstrate the inconsistency and lack of consensus on the components and terminology used across studies and how the various factors can be differently organized and operationalized. However, the one constant across all the conceptualizations is the multidimensionality of student engagement (Appleton, Christenson, & Furlong, 2008). All the models recognize some form of a behavioural component, most also recognize an emotional/psychological component, and fewer include

the academic or cognitive components. Within each of these components are a variety of indicators of engagement that vary significantly among researchers. In a critical review on behavioural, emotional and cognitive engagement, Fredricks et al. (2004) introduced the concept of engagement as a “meta” construct to capture the notion of the different components and the wide variation of indicators or constructs that can be considered within each component. The idea of several components and a broad spectrum of indicators within each component under the single umbrella of engagement is a valuable conceptual framework, as it brings a sense of organization to this multidimensional topic while allowing for the possibility of interaction between the components and among the indicators, thereby creating a richer or deeper characterization of student engagement than what might be possible if examining only a single factor. The challenge becomes determining which indicators of student engagement are the most relevant to students with behaviour disorders and mental illnesses and have the strongest relationship with school completion.

Relationships among school completion, dropout and student engagement.

School completion and dropout are intimately connected and are both related to different degrees of student engagement. In fact, school completion and dropping out can both be thought of as student engagement but at opposite ends of the continuum. This is based on the premise that students who can navigate through academic coursework, demonstrate appropriate school behaviour, and manage the social/emotional aspects of school are more engaged and have a high probability of successfully completing high school. Students who have difficulty in any or all of these areas are more *disengaged* from school and are at greater risk of dropping out of school. Thus, school completion demonstrates a

high degree of student engagement, while dropping out epitomizes a complete lack of student engagement.

The literature on student engagement (Appleton et al., 2008; Finn & Rock, 1997; Finn & Zimmer, 2012) and the literature on dropout (Rumberger & Lim, 2008; Sinclair et al., 1998; Lehr, Hansen, Sinclair, & Christenson, 2003) have both informed the issue of school completion. The following section includes both engagement literature and dropout literature in an attempt to extract potential critical indicators or engagement factors that influence school completion for students with behaviour disorders and mental illnesses. The four areas or components identified by Rumberger and Lim (2008) that predict whether students drop out or graduate from high school provide the organizational structure to examine the research literature on engagement and dropout for students with behavior disorders or mental illnesses: 1) educational performance (i.e., academic achievement, non-promotional school changes and retention), 2) behaviours (i.e., participation and absenteeism), 3) attitudes (i.e., educational expectations), and 4) background (i.e., demographics). The four components delineated by Rumberger and Lim appear to be the most closely aligned to factors that can be addressed from an educational perspective. It should be noted that some of the indicators can justifiably fall under more than one component area and have, in fact, been categorized under different component areas by different researchers. For the purpose of this review, the focus is on the degree to which the factors may be predictors of school completion, and the categorization of a factor under a particular component is simply for organizational purposes.

Critical Engagement Factors of Students with Behaviour Disorders and Mental Illnesses

The paths to high school completion or dropping out begin long before these events occur with numerous academic, behavioural and attitudinal engagement factors that impact the demands and expectations of schooling. Although there is a paucity of literature on engagement for students with disabilities, one can postulate that student engagement variables and combinations of variables that serve as predictors for school completion of typical students may well be similar predictors for students with disabilities, such as students with behaviour disorders and mental illnesses. The four areas of student engagement identified by Rumberger and Lim (2008) provide a useful structure for educators to examine and understand individual student characteristics thought to be associated with school completion: 1) educational performance, 2) behaviour, 3) attitudes, and 4) background characteristics. In this section, relevant literature pertinent to three of the four areas of student engagement: educational performance, behaviour, and background characteristics are reviewed as they pertain to students with behaviour disorders and mental illnesses. Research on academic achievement, student mobility and grade retention is included under Rumberger and Lim's category of educational performance, and participation, attendance/absenteeism and emotional and behaviour disorders is included under the category of behaviour. Research on gender, English Language Learners and Aboriginal students is addressed under Rumberger and Lim's category of background characteristics. Rumberger and Lim described attitudes as psychological factors such as students' motivation, values, goals and disposition. There are no available provincial data regarding attitude variables and therefore this area is not incorporated in the dissertation analysis.

Educational performance.

Educational performance is the first of four components of student engagement identified by Rumberger and Lim (2008). It is likely the most easily understood by educators and the area that has been most widely studied in the dropout literature. Educational performance generally includes observable and measurable tasks such as time on task, mastery of content, homework completion, test scores and grades - activities that can easily be tracked by teachers. Rumberger and Lim highlighted academic achievement, student mobility (non-promotional school changes) and retention as strong predictors of dropping out or graduating, based on their review of 203 published studies from the past 25 years that analyzed a variety of national, state and local data.

There is extensive literature that documents poor academic outcomes of students with behaviour disorders and mental illnesses (Cullinan & Sabornie, 2004; Nelson, Benner, Lane, & Smith, 2004; Siperstein et al., 2011; Trout, Nordess, Pierce, & Epstein, 2003; Whitley, Lupart, & Beran, 2009), some comparing the academic achievement of students with behaviour disorders and mental illnesses with their normally achieving peers and others comparing the academic achievement of students with behaviour disorders and mental illnesses with peers who have other identified disabilities. The literature on academic achievement is examined in two sections. The first section focuses on studies and reviews that investigated the academic achievement of students with behaviour disorders and mental illnesses and their non-identified peers. It is followed by a section that focuses on the body of literature that examines the academic achievement of students with behaviour disorders and mental illnesses compared to students with other identified disabilities. A review of the literature on student mobility is then examined, followed by a review of grade retention. Both

these elements are examined through the lens of students with behaviour disorders and mental illnesses.

Academic achievement of students with behaviour disorders and mental illness and typical peers.

Students with behaviour disorders and mental illnesses are noted for academic underachievement and negative academic outcomes compared to their typically developing peers (Cullinan, Evans, Epstein, & Ryser, 2003; Lane, Barton-Arwood, Nelson, & Wehby, 2008; Mooney, Epstein, Reid, & Nelson, 2003; Reid, Gonzalez, Nordess, Trout, & Epstein, 2004; Wagner, 1995). Two comprehensive reviews were conducted to examine the literature on the academic status of students with behavioural disorders and mental illnesses. Trout et al. (2003) conducted a narrative review that covered the literature published in peer-reviewed journals between 1961 and 2000. The participants in the studies were children with behaviour disorders and mental illnesses who were between 5 and 21 years of age. The review included 65 articles that met the final criteria for inclusion and resulted in a total of 70 data sets. The study extracted 16 data sets that resulted in 35 reports that described the academic status of students with behaviour disorders and mental illnesses. Trout et al. found that no studies reported students with behaviour disorders and mental illnesses performing at or above grade level. Ninety-one percent of the studies reported that students with behaviour disorders and mental illnesses were academically deficient, including 16 of 18 (89%) reports on reading, 12 of 13 (92%) reports on arithmetic and two reports on written expression. Reid and colleagues (2004) conducted a meta-analysis to quantitatively estimate the magnitude of difference in academic performance between students with behaviour disorders and mental illnesses and their same-age nondisabled peers. Like Trout et al., the articles included in the review were

published between the years 1961 and 2000 and the study sample consisted of children and youth between the ages of 5 and 21. Twenty-five studies published in peer-reviewed journals resulted in 2,486 participants with behaviour disorders and mental illnesses and yielded 101 effect sizes. Overall, there was a moderate to large (-.69) difference in the academic performance of students with behaviour disorders and mental illnesses compared to students without disabilities. Of the 101 effect sizes, Reid et al. found 90 of the effect sizes were negative, indicating that in 89% of the comparisons students with behaviour disorders and mental illnesses performed lower in academics than their nondisabled peers. In fact, students with behaviour disorders and mental illnesses performed lower than their nondisabled peers across all subject areas, with the largest effect sizes in math (-.81) and spelling (-.81). The effect sizes for reading (-.61) and written expression (-.46) were also statistically different from zero. The bootstrap confidence intervals did not demonstrate any statistical difference in the academic performance of students with behaviour disorders and mental illnesses between and among subject areas. The results of the meta-analysis by Reid et al. are consistent with the literature review by Trout et al. Both of these reviews provide compelling evidence of the academic deficits experienced by children and youth with behaviour disorders and mental illnesses.

There is evidence that academic difficulties for students with behaviour disorders and mental illnesses emerge at an early age and persist throughout their school career. Rosenblatt and Rosenblatt (1999) examined the educational and functional status of 143 youth from two counties in California enrolled in education/mental health programs. The participants ranged in age from 6 to 18, with the exception of three children under the age of six. The researchers found the students performed well below expected grade levels on standardized tests and

especially poorly in the areas of spelling and written language. However, the results were presented in mean years behind expected grade level and did not report academic achievement by age or grade. Nelson et al. (2004) conducted a cross-sectional study of a random sample of 155 students from kindergarten to Grade 12 and found that students with behaviour disorders and mental illnesses experienced large academic achievement deficits relative to standardized norms and across all content areas as measured by the Woodcock-Johnson III Tests of Achievement (Woodcock et al., 2001). Nelson et al. conducted *t* tests to determine if the mean differences in the academic achievement of children (ages 5 to 12) and adolescents (ages 13 to 18) were statistically significant. They found no statistical difference in the mean differences between children and adolescents in reading and written language, indicating that academic achievement levels in these two subject areas may remain stable over time. However, the results indicated that adolescents were more likely to experience academic deficits in mathematics than children, indicating deficits in mathematics may increase over time. Two other studies were conducted by Montague, Enders, and Castro (2005) examining the academic and behavioural outcomes for students identified as being at risk for emotional and behavioural disorders from an early age. In the first study, Montague and her colleagues examined the academic and behavioural outcomes for adolescents in middle school who were identified when they were in kindergarten or first grade as being at risk for developing behaviour disorders and mental illnesses. Fifty-five moderate-risk ($n = 43$) and high-risk ($n = 12$) students were followed for three years while they were in elementary school and were administered the Woodcock-Johnson-Revised (Woodcock & Johnson, 1989) annually to determine reading and math achievement. The Social Skills Rating System (SSRS; Gresham & Elliott, 1990) was also administered annually as a

measure of social skills. Students were then administered the Woodcock-Johnson III Tests of Achievement once when the students were in Grades 7 to 9 and the Behavioral Assessment System for Children-Teacher Rating Scales (Reynolds & Kamphaus, 1992) over three semesters when the students were in Grades 7 to 9. The results indicated that the primary school academic achievement and teacher ratings of academic competence were significantly associated with middle school reading achievement and moderately associated with math achievement, suggesting that academic problems in the early school years continue into the middle school years, placing these students at risk for academic problems, school failure and dropping out of school. In the second study, Montague, Enders, Cavendish, and Castro (2011) extended their previous analysis (Montague et al., 2005) by describing the academic outcomes for a sample of students who were followed longitudinally from middle school through high school to investigate whether early reading and math achievement predicted academic achievement through high school. Once again, four achievement subtests from the Woodcock-Johnson-Revised and the Social Skills Rating System Problem Behaviour and Academic Competence scales were administered to the children when they were in the primary grades to measure reading and mathematics achievement. The Woodcock-Johnson III Tests of Achievement was administered during middle and high school. The results from the study suggested that overall the Woodcock-Johnson-Revised subtests predicted reading achievement in high school. However, in contrast to the earlier study (Montague et al., 2005) students with lower reading achievement scores in primary grades did not progress at a faster rate in high school and their rate of growth appeared to plateau. Also, unlike the earlier study, early math achievement was not significantly associated with high school math achievement

and growth as measured by the Woodcock-Johnson III Tests of Achievement. Lastly, teacher ratings of academic competence in primary grades predicted learning problems at age 17.

Other studies have not only reported poor academic performance throughout elementary and high school years but have suggested that the areas of academic difficulty change as a student progresses through the grades. For example, Lane et al. (2008) compared the academic performance of 42 elementary and secondary students with serious behaviour disorders and mental illnesses. Lane et al. (2008) examined mean levels of performance of elementary and secondary students and computed effect sizes (ES_{sm}) to determine the magnitude of differences in performance patterns between the two groups. The results of effect size calculations identified four academic variables with high-magnitude effect between elementary and secondary students. The elementary students had higher performance in broad math ($ES_{sm} = -2.23$) and reading comprehension ($ES_{sm} = -1.14$) than the secondary students, while the secondary students had higher oral reading fluency ($ES_{sm} = 4.59$) and academic competence ($ES_{sm} = 1.28$) than the elementary students. It is interesting to note that while older students read more fluently, their comprehension skills did not improve at a commensurate rate, which would make it more difficult for them to access information from text, a necessary skill for academic success. Despite the small sample size restricting the statistical power to detect meaningful differences between elementary and secondary students and the generalizability of the findings, the study supports the notion that the predictive pattern of academic performance for elementary students is different from that of secondary students, and academic achievement can and should be addressed differently at the various stages of the student's educational career.

Studies have also shown that academic difficulties persist despite alternative settings designed to meet the academic, behavioural and social needs of students with behaviour disorders and mental illnesses. Alternative settings should presumably result in better academic, behavioural and social progress relative to other placements such as the general education classroom. However, in their meta-analysis, Reid and his colleagues (2004) reported that students with behaviour disorders and mental illnesses exhibited significant academic delays across all placements, and students in self-contained classrooms and residential settings performed more poorly than students in other settings. Lane, Wehby, Little, and Cooley (2005) compared kindergarten through eighth grade students educated in self-contained classrooms ($n = 29$) to students educated in a self-contained school ($n = 43$) to examine how students with behaviour disorders and mental illnesses progress. The researchers found that students in both environments demonstrated academic deficits across a number of measures (reading comprehension, oral reading fluency, oral language skills, written language skills, broad math skills, broad reading skills, and academic competence) and students in the more restrictive self-contained school had lower academic achievement than students in self-contained classrooms. Moreover, the students made limited academic progress on reading and math skills in both settings. In a subsequent study, Lane et al. (2008) studied the academic performance of 23 elementary (kindergarten through fifth grade) and 19 secondary (sixth through eighth grade) students with behaviour disorders and mental illnesses who received services in a self-contained school. The results were consistent with their earlier study (Lane et al., 2005) reporting that elementary and secondary group scores were well below the 25th percentile on reading, math and written expression measures despite

the students being enrolled in a school with additional services dedicated to serving students with significant behaviour and mental health challenges.

The studies investigating the academic achievement of students with behaviour disorders and mental illnesses demonstrate the consistently poor academic performance of these students compared to their non-disabled peers. Further, the evidence demonstrates that students with behaviour disorders and mental illnesses who have academic difficulties in their early years continue to have difficulties as they progress through middle school and high school. Despite alternative settings designed to meet the academic needs of students with behaviour disorders and mental illnesses, the academic difficulties do not improve. The academic challenges continue and in some cases the academic deficits increase over time. Other research compares the academic achievement of students with behaviour disorders and mental illnesses with peers who have other disabilities. These studies are examined in the next section.

Academic achievement compared to students with other disabilities.

A number of studies have been conducted to compare the academic achievement of students with behaviour disorders and mental illnesses and students with other high incidence disabilities. Anderson et al. (2001) conducted a longitudinal study on the academic achievement of kindergarten and Grade One students with behaviour disorders and mental illnesses ($n = 42$) and students with learning disabilities ($n = 61$) over a span of 5 years. The study found that students with behaviour disorders and mental illnesses began with significantly higher reading achievement scores than students with learning disabilities, but reading achievement scores for students with behaviour disorders and mental illnesses did not improve over time, while reading scores for students with learning disabilities

demonstrated statistically significant improvement over time. As a result, students with learning disabilities made better academic gains in reading compared to students with behaviour disorders and mental illnesses who made very small gains. The two groups did not differ significantly with respect to achievement in math. Anderson et al. also examined the relationship between academic achievement and selected school-related variables of interest. They found that students with behaviour disorders and mental illnesses missed significantly more school, had more behaviour referrals, and received full-time special education services more often than students with learning disabilities. Of special concern was the finding indicating the lack of academic progress for students with behaviour disorders and mental illnesses even after five years of additional full-time special education services.

In a comprehensive review of the literature, Trout et al. (2003) also made a number of comparisons between students with behaviour disorders and mental illnesses and several high incidence categories, including students with learning disabilities, students with mild intellectual disabilities and students with attention deficit hyperactivity disorder (ADHD). Trout and her colleagues found students with behaviour disorders and mental illnesses performed in a manner similar to students with learning disabilities in arithmetic and written expression. They also found students with behaviour disorders and mental illnesses performed in a manner similar to students with ADHD across reading, arithmetic and written expression and better than students with mild intellectual disabilities in arithmetic and written expression. Sabornie, Cullinan, Osborne, and Brock (2005) conducted a meta-analysis to determine if meaningful, educationally related, and quantitative differences exist across three school-identified high incidence categories: students with learning disabilities, students with mild intellectual disabilities, and students with behaviour disorders and mental illnesses.

Fifty-eight studies from 26 peer-reviewed journals between the years 1977 and 2003 met the final selection criteria. The research studies were limited to those that included participants between the ages of 3 and 21. A total of 14,528 participants were used for the meta-analysis, including 7,876 (54%) participants with learning disabilities, 3,057 (21%) students with mild intellectual disabilities, and 3,595 (25%) students with behaviour disorders and mental illnesses. A weighted effect size was calculated for each of the two group comparisons in each of the three domains of interest - IQ, academic achievement and behaviour. In the IQ domain, students with behaviour disorders and mental illnesses were comparable to students with learning disabilities, but statistically significant effect sizes separated both groups when compared to students with mild intellectual disabilities. In the academic achievement domain, the effect size estimates across the three high incidence groups were statistically significant. The standardized test performance for academic achievement between students with mild intellectual disabilities and students with behaviour disorders and mental illnesses showed the greatest disparity, and the comparison between students with learning disabilities and students with behaviour disorders and mental illnesses showed the least disparity. The findings by Sabornie et al. support the argument that students with mild intellectual challenges and students with behaviour disorders and mental illnesses are academically different from each other and are generally consistent with the earlier findings by Trout et al. However, Sabornie et al. examined academic achievement as a broad category whereas the earlier studies by Trout et al. identified specific academic areas and found the differences in academic performance between students with learning disabilities and students with behaviour disorders and mental illnesses were in math and written expression. A subsequent study by Lane, Carter, Pierson, and Glaeser (2006) investigated the academic performance of

high school students with behaviour disorders and mental illnesses ($n = 45$) and those with learning disabilities ($n = 49$). Basic reading skills and broad math skills subtests from the Woodcock-Johnson III Tests of Achievement (Woodcock et al., 2001) were used to assess academic performance. A one-way multivariate analysis of variance was conducted to compare the two groups of students. Results indicated there were no significant differences between the two groups based on standardized academic achievement. Both groups performed below average and demonstrated substantial academic deficits in both reading and math. This study supported the findings from Sabornie et al. and Trout et al., indicating little disparity in academic achievement, specifically in math, between students with behaviour disorders and mental illnesses and students with learning disabilities.

The research comparing students with behaviour disorders and mental illnesses and students with other high incidence categories provides evidence that the groups differ in academic achievement across grades and in some basic skill areas. The greatest difference between students with behaviour disorders and mental illnesses and students with other high incidence disabilities was in reading achievement (Anderson, 2001; Trout et al., 2003). Academic differences were greater between students with behaviour disorders and mental illnesses and students with mild intellectual challenges than they were between students with behaviour disorders and mental illnesses and students with learning disabilities (Lane et al., 2006; Sabornie et al., 2005; Trout et al., 2003;). However, students with behaviour disorders and mental illnesses do not appear to make comparable gains relative to students with learning disabilities despite the provision of additional services. The most significant differences in academic achievement between students with behaviour disorders and mental illnesses and students with learning disabilities appeared to be in the elementary grades

(Anderson et al., 2001), while weaker differences in academic achievement between students with behaviour disorders and mental illnesses and students with learning disabilities appeared to be in high school (Lane et al., 2006). One possible explanation for the lack of difference in the upper grades could be that students with behaviour disorders and mental illnesses who are struggling academically have missed a significant amount of school resulting in poor or limited academic progress.

The research provides evidence that poor academic achievement is one of the defining characteristics for students with behaviour disorders and mental illnesses. The research is consistent with previous longitudinal research (Greenbaum et al., 1996) and clearly demonstrates an association between students with behaviour disorders and mental illnesses and poor academic achievement. Further, the research demonstrates that students with behaviour disorders and mental illnesses perform academically differently from their peers both with and without disabilities. These academic differences warrant the study of students with behaviour disorders and mental illnesses as a category of its own and not combined with other high incidence categories. The research also highlights the need for early identification as well as ongoing prevention and intervention that is sensitive to the age or grade level of the students. Thus, the importance of studying students with behaviour disorders and mental illnesses from the time they are identified through to high school completion is apparent. The timing of the initial identification may play a role in the academic success or failure of students with behaviour disorders and mental illnesses and warrants further investigation. A closer examination of the academic achievement of students with behaviour disorders and mental illnesses that follows students from kindergarten through to Grade 12 is needed given the evidence that the level of academic achievement

changes from elementary school to high school. This information would increase our knowledge and understanding specific to this population of students and provide useful insight to inform our educational practices.

Student mobility (Non-promotional school changes).

Rumberger and Lim (2008) identified student mobility as one of the aspects of educational performance that is a strong predictor of graduating or dropping out of school. However, there is a paucity of research that exists on how student mobility impacts the academic achievement of students with behaviour disorders and mental illnesses. Only one study that examines school mobility and its association to academic achievement that is specific to students with behaviour disorders and mental illness was identified (Anderson et al., 2001). One journal article explored the relationship between student mobility and dropout among students with behaviour disorders and mental illnesses but it was anecdotal in nature (Osher, Morrison, & Bailey, 2003). Other studies suggesting the relationship between student mobility and academic achievement is a problem has been with other very specific groups of children and youth such as those under foster care (Eckenrode, Rowe, Laird, & Brathwaite, 1995).

The research on the association of school mobility and academic achievement of students with behaviour disorders and mental illnesses is limited and conflicting. Anderson et al. (2001) examined the academic progress of students with behaviour disorders and mental illnesses and students with learning disabilities over five years (kindergarten to Grade 5) and included several factors related to academic achievement, including school mobility. They defined school mobility as the total number of times a student changed schools within the district during kindergarten, first, second, third and fourth grades. Surprisingly, Anderson et

al. did not find a significant relationship between school mobility and academic achievement for students with behaviour disorders and mental illnesses. This finding is contrary to earlier research by Rumberger and Larson (1998) who looked at the incidence, causes and consequences of student mobility of a large cohort of eighth graders ($n = 11,671$) using data from the National Education Longitudinal Survey of 1988 to examine the relationship between the incidence of student mobility between 8th and 12th grades and its effect on high school completion. The research confirmed that changing schools affects students' educational status. Results further indicated that students who made even one non-promotional school change between 8th and 12th grades were twice as likely to drop out or enroll in an alternative educational program as students who did not change schools. This research indicated that school mobility does impact academic achievement if one equates school completion with academic achievement. However, it is difficult to compare the two studies as Anderson et al. focused on two sub-groups of high incidence elementary age students whereas Rumberger and Lim (1998) focused on a cohort of eighth grade students. Barrington and Hendricks (1989) conducted a longitudinal study and found student mobility to show no significant difference at the elementary level but a significant difference at the high school level. However, the results of this research are from a small sample size of 107 dropouts and non-graduates and a comparison group of graduates from two high schools.

There is clearly a gap in the literature that examines the association of student mobility and academic achievement for students with behaviour disorders and mental illnesses. One would anticipate school mobility to be a factor that influences both academic achievement and school completion. For example, school changes could be beneficial to students with behaviour disorders or mental illnesses if the change is to attend an alternate

school that provides a program that is more conducive to learning. On the contrary, school changes could be detrimental if the move is due to difficulties with peer or teacher relationships and the behaviour issues have resulted in an expulsion from the school. However, the current research is inconclusive and further studies are necessary to explore the relationship between student mobility and academic achievement for students with behaviour disorders and mental illnesses.

Grade retention.

The research on the association of grade retention and academic achievement for students with behaviour disorders and mental illnesses demonstrates that although grade retention is a commonly used practice, it is an ineffective strategy to support academic achievement. Based on an analysis of data from two longitudinal studies, the Special Education Elementary Longitudinal Study (SEELS) and the National Longitudinal Transition Study-2 (NLTS2), Bradley et al. (2008) found the rate of grade retention for elementary students with behaviour disorders and mental illnesses is similar to that of other disability groups (22%) and the rate of grade retention increases at the high school level (38%). While the rate of grade retention is high, the effectiveness of grade retention appears to be low. Bradley et al. further concluded that retention is an ineffective strategy to address the academic deficits of students with behaviour disorders and mental illnesses. This conclusion is supported by an earlier study by Anderson et al. (2001) who followed 42 elementary students with behaviour disorders and mental illnesses and 61 students with learning disabilities over five years to explore the relationship between academic achievement and several school-related variables, one of which was retention. The researchers found that grade retention was not related to increased academic performance over time for students

with behaviour disabilities and mental illnesses or students with learning disabilities and concluded that retention was not an effective intervention to address academic deficits. In fact, this study found that retention was correlated with lower academic progress over time. In a subsequent review of national data from the Children of the National Longitudinal Surveys of Youth (NLSY) data set (1986-2000), McLeod and Kaiser (2004) found that the most critical explanatory variable of academic failure was repeating a grade, especially in middle or early high school.

Not only has grade retention been associated with low academic achievement, but it has also been associated with high school graduation and dropout. Reschly and Christenson (2006) conducted a series of stepwise logistic regressions to investigate how well the covariates of achievement test scores, socioeconomic status, grade retention and student engagement variables predict dropout among students with behaviour disorders and mental illnesses and students with learning disabilities. The researchers found grade retention to be a significant predictor of dropping out among students with behaviour disorders and mental illnesses. In fact, grade retention was the strongest predictor among all the covariates and supports earlier research conducted by Rumberger (1995) on a national sample of about 25,000 middle school students that found grade retention to be the single most powerful predictor that influences the decision to leave school early. Despite the growing evidence that retention is not an effective intervention, Nelson, Babyak, Gonzalez and Benner (2003) found that students with behaviour disorders and mental illnesses are retained at twice the rate of their peers with other disabilities.

The research literature suggests that academic achievement, student mobility, and grade retention are critical engagement factors that Rumberger and Lim (2006) identified

under the component of educational performance. Poor academic achievement, changing schools and repeating grades are risk factors with respect to Finn's (1989) conceptualization of student engagement. All three factors can be associated with a lack of participation in school resulting in poor educational outcomes. According to Finn's theory, the poor educational outcomes result in a lack of identification with school, leading to withdrawal or dropping out of school. Given the apparent association between these three critical engagement factors to students with behaviour disorders and mental illnesses, further investigation is warranted to determine whether they are efficacious variables that can predict the probability of academic success and ultimately predict the probability of school completion.

Behaviours.

Behaviour is the second component of student engagement identified by Rumberger and Lim (2008). Within this component, student engagement or participation is one of the most important behavioural factors that precedes dropping out of school in many of the conceptual models, including Finn's (1989) participation-identification Model. In Finn's model, behavioural components include activities such as attending school, listening to the teacher, following directions and doing homework. As students get older, participation can become more sophisticated such as setting one's academic goals or participating in extracurricular activities. In this section, participation, attendance or absenteeism and emotional and behaviour disorders are briefly addressed.

Participation.

In Finn's (1989) model, participation is associated with successful school performance which, in turn, promotes identification with the school. Conversely, students

who do not demonstrate behaviours for successful participation in school become less likely to participate in activities and slowly become more disconnected from school and are at high risk for dropping out. Although empirical research that has studied the link between student engagement and school completion exists (Alexander et al., 1997; Finn & Rock, 1997; Rumberger & Lim, 2008), there is a paucity of literature that looks specifically at the relationship between student engagement and school completion among students with behaviour disorders and mental illnesses.

Reschly and Christenson (2006) conducted one of the few studies that examined the engagement of students with high incidence disabilities, specifically students with learning disabilities ($n = 338$) and students with emotional or behavioral disorders ($n = 1064$) who dropped out or stayed in school. In their analysis, behavioural engagement was defined by seven specific variables: behaviour, preparation, tardiness, absences, skipping classes, homework and extracurricular activities. A logistic regression analysis revealed that better preparation for class, more homework completion, and less tardiness were associated with a decrease in the odds of dropping out of school. Behaviour (e.g., misbehavior, fighting), absences (e.g., away from school, skipping classes) and lack of preparation for classes (e.g., coming to class without pens, books or completed homework) were associated with an increase in the odds of dropping out of school. The researchers also found that *within* each of these groups, these variables were significant predictors of students who stayed in school or dropped out. Given that students with behaviour disorders and mental illnesses are at high risk for poor school completion outcomes, further investigation of student engagement would be useful to help identify students at risk of dropping out of school and providing them with

effective intervention strategies to change their school trajectories towards more positive outcomes.

Attendance / Absenteeism.

There appears to be very little research directly related to students with behaviour disorders and mental illnesses and their attendance at school and even less information on attendance as a function of school completion or dropout. Anderson et al. (2001) compared the academic progress of kindergarten to Grade 4 students ($n = 103$) with emotional and behavioural disorders and students with learning disabilities and their relationship between academic achievement over time, which included a limited set of factors hypothesized to be related to achievement, one of which was attendance. Attendance was represented by the total number of absences from school during the first, second, third and fourth grades. The results indicated that students with emotional and behavioural disorders missed significantly more school than students with learning disabilities. However, school absence did not demonstrate any significant relationship with academic progress over time. Lane et al. (2006) examined similarities and differences of high school students ($n = 94$) with emotional disturbances and learning disabilities including three archival variables contained in the students' school records, one being daily attendance. The results indicated that students with emotional and behavioural disorders had over twice as many absences than students with learning disabilities. Yet they found no significant differences between students with emotional and behavioural disorders and students with learning disabilities in standardized academic achievement performance.

Both studies provide evidence of a high level of absence from school that was characteristic of students with emotional and behavioural disorders. Taken together, the

studies appear to indicate that there is no significant relationship between absenteeism and academic progress from elementary school through to high school. However, it should be noted that both studies were limited to relatively small sample sizes and more studies to examine attendance and absenteeism and the relationship to dropout among students with behaviour disorders and mental illness is necessary to draw any conclusive evidence.

Emotional and behaviour disorders.

Students with behaviour disorders and mental illnesses are known for a wide range of behavioural and social/emotional characteristics. These behaviours, often classified as externalizing behaviours (aggressive, acting-out) and internalizing behaviours (social withdrawal), can be seriously disabling and impede a student from learning. Both externalizing and internalizing behaviours exhibited by students with behaviour disorders and mental illnesses can vary in frequency, intensity and scope. Behaviour disorders can include physical, emotional or sexual aggression and/or hyperactivity or social problems related to delinquency, substance abuse, child abuse or neglect. Mental illnesses can include negative or undesirable psychological states such as anxiety, stress-related disorders and depression as well as behaviours related to disabling conditions, such as thought disorders or neurological or physiological conditions (BC Ministry of Education, 2011). Conley, Marchant, and Caldarella (2014) conducted a literature review and identified a list of six components characteristic of students with behaviour disorders and mental illnesses – unsuccessful peer relationships, antisocial behaviour, internalizing behaviour, aggression, academic problems and attention problems. When these characteristics were compared to a survey of elementary teachers, they found that teacher and researcher perceptions of behaviour difficulties were similar, with teachers adding two additional components, disrespect and hyperactivity, to the

list of behaviours. Wagner, Kutash et al. (2005) found the same broad range of problems was reported by a sample of parents of children and youth with behaviour disorders and mental illnesses receiving special education services.

There are behaviours students exhibit that, broadly speaking, almost all cultural groups and all social strata would agree are unacceptable or atypical behaviours. They are behaviours that fall outside of the nearly universally accepted developmental norms. However, students who fall into the behaviour disorder and mental illness category are more often students who demonstrate behaviours that are beyond the standards specific to their social or cultural environment. All students experience a range of emotions and behaviours. However, at what point are the behaviours beyond the norms of what is acceptable? The challenge is the subjective nature of determining whether students fall beyond what is considered within a “normal” range.

The majority of behaviours are defined by socio-cultural expectation and are influenced by a variety of factors. Different professions influence the definition or view of behaviour disorders and mental illnesses and do not necessarily agree on the criteria. The manner in which information is gathered (i.e., norm referenced assessments, checklists, observations) and the criteria that are established for eligibility for services can also vary. For example, criteria for educational services may be different from criteria for mental health services. Even at the local school level there are differences between what is considered typical for students’ age and stage of development. In addition, there are differences in the level of tolerance of deviant behaviour among teachers and others who work with these students.

Despite the disparity that exists in definitions and eligibility, students who exhibit these behaviours are recognized by teachers and others at some point during their school career. These behaviours impact the students' relationships with teachers and peers. Any of these behaviours, if not addressed, can increase the students' risk of dropping out of school. Unfortunately, many are not designated into a special needs category until they have exhibited very serious behavioural problems over a period of time. Further investigation is needed for effective evidence-based practices that are context-specific and results-driven.

Background characteristics.

Predictors of dropout such as background characteristics, although not amenable to intervention, are worthy of some discussion. Few studies on students with behaviour disorders and mental illnesses appear to report participant performance by gender, cultural and linguistic diversity or race. In a meta-analysis of 58 studies on intellectual, academic and behavioral functioning across high incidence disabilities, Sabornie et al. (2005) found only 48% of the studies provided separate gender data and 38% of the studies reported racial demographics. The researchers found that very few of the studies in the analysis reported information that could be separated into disability designation. For the purposes of this research, gender, Aboriginal status and English Language Learner (ELL) status of students specifically with behaviour disorders and mental illnesses are reviewed.

Gender.

Behaviour disorders and mental illnesses in children and adolescents are grave concerns that occur in both males and females. However, very few studies have been conducted where gender has been a primary focus of the study. In fact, a large number of studies have been conducted with all male or predominantly male populations. Very few

studies have been conducted that directly pertain to special education programming for females with emotional and behavioural disabilities (Rice, Merves, & Srsic, 2008). Further, studies may or may not report gender and even when gender data are available, analysis by gender is frequently not reported.

Schaeffer et al. (2006) conducted one of the few studies that explicitly examined the differences between males and females with aggressive-disruptive behaviours. The researchers conducted a longitudinal study that examined potential similarities and differences in gender in early trajectories of aggressive-disruptive behaviour and later trajectories of aggressive-disruptive behaviour. Only a few gender differences were found. Among students with low levels of aggressive-disruptive behaviour, the researchers found that females started with lower levels of aggressive-disruptive behaviours that did not increase over time whereas males started with lower levels of aggressive-disruptive behaviours that increased over time. In addition, males were at higher risk than females for antisocial personality disorder (ASPD) diagnosis and incarceration in adolescence and young adulthood. When high levels of aggressive-disruptive behaviours were compared, the researchers found that the levels of behaviour were similar for both males and females. In terms of their trajectory of future distal outcomes, both males and females with high levels of aggressive-disruptive behaviour were at increased risk for antisocial outcomes in adolescence and young adulthood and had similar rates of ASPD diagnosis and arrests for both violent and nonviolent offences. In an earlier study, Broidy et al. (2003) used data from six sites across three countries to examine the trajectory of physical aggression in childhood and its link to violent and nonviolent offending outcomes in adolescence. Using a growth model technique similar to Schaeffer et al., the researchers found that the trajectories across

childhood physical aggression were stable for both males and females. However, the results also suggested that physical aggression and non-physical offending in childhood was a distinct predictor of later violent delinquency only for males. There was no consistent relationship between childhood physical aggression and adolescent offending among females. Dekker et al. (2007) also conducted a longitudinal multiple-cohort study ($n = 2076$) to examine depressive symptoms in males and females from early childhood to late adolescence. Gender differences were found for the trajectories of depressive problems. The researchers identified a chronic trajectory of early-childhood onset depression that increased over time only in females. They also identified a group with increasing levels of depressive symptoms that reached a high level around adolescence for both males and females, although the onset for males was earlier than for females. The researchers also found that for some males the early-childhood onset level of depressive symptoms decreased, reaching normative levels of depressive symptoms around late childhood and for others around mid-adolescence. A decrease in depressive symptoms was not evident in females. Although the actual behaviours under investigation varied among the studies, they demonstrated that when examining the developmental trajectories of students with behaviour disorders and mental illnesses, there are both similarities and differences between males and females. There are various influences on different kinds of disruptive behaviours and despite gender differences, students who display problem behaviours are clearly at risk for later inappropriate or antisocial behaviour.

Other researchers have reported on gender differences and results have been mixed. In a study on characteristics of emotional disturbance among 336 elementary school students (274 males, 62 females), Cullinan et al. (2003) identified five characteristics of emotional

disturbance and found only one significant effect. More females than males with emotional disturbance showed comorbidity involving physical symptoms or fears based on a standardized, norm-referenced instrument (The Scale for Assessing Emotional Disturbance; Epstein & Cullinan, 1998). Nelson et al. (2003) conducted a cross-sectional study on 166 students (136 males, 30 females) receiving special education services for emotional and behavioural disorders and found that larger proportions of girls than boys met criteria for externalizing and internalizing behaviours as measured by the *Child Behavior Check-list: Teacher Report Form* (Achenbach, 1991).

Evidence suggests that although there are similarities between males and females, there are also differences. The studies that address gender look at particular aspects of behaviour disorders and mental illnesses (e.g., aggressive-disruptive behaviours, depressive symptoms, emotional disturbance) that vary from study to study, making it difficult to determine if patterns of behaviour exist amongst males or females. However, the studies provide direction for further exploration to gain more clarity on gender differences.

Aboriginal status students.

Research indicates that Aboriginal students⁷ with behaviour disorders and mental illnesses are over represented in British Columbia. The British Columbia Ministry of Education reports student achievement and demographics of the BC kindergarten to Grade 12 education system on an annual basis and a special report specifically on Aboriginal students (BC Ministry of Education, 2015a). As of the 2012-2013 school year, there were 65,849

⁷ In British Columbia, Aboriginal status (First Nations: Status and Non-Status, Métis and Inuit) is determined through self-identification. Once a student has self-identified as being of Aboriginal ancestry, the student is included in all reported outcomes for Aboriginal students.

students who self-identified as Aboriginal, making up 11.7% of the student population in British Columbia. Approximately half of the Aboriginal students were male (50.3%) and half were female (49.7%). Aboriginal students made up approximately 21% of the special needs students in the province. Of the Aboriginal students who were identified with special needs, more students were designated with behaviour disabilities (31%) than any other disability category (learning disabilities–28%, sensory disabilities–2%, gifted–2%). Also of significance, the six-year high school completion rate for Aboriginal students was 61% in contrast to the non-Aboriginal six-year school completion rate of 86%. The dropout rate was consistent with Hallet et al. (2007), who found an overall dropout rate of 55.7% for a sample of students that included all students in British Columbia who started Grade 7 in 1995 and who indicated they were of Aboriginal ancestry.

Aman (2006) conducted a large scale exploratory analysis of Aboriginal students enrolled in the public school system in British Columbia over thirteen years (1991-1992 to 2003-2004) to investigate the variability of school completion of Aboriginal students in British Columbia. The research revealed that, although there was a positive trend in school completion rates of Aboriginal students, they graduated in much lower proportions than non-Aboriginal students. Aman found a greater rate of attrition at each grade level between Grade 8 and Grade 12 as well as greater overall attrition when Aboriginal students were compared to non-Aboriginal students. Additionally, among these students, a high proportion had school careers interrupted, grades repeated or placement in “ungraded” programs; many of the students had changed schools. Aman concluded that although the data did not provide firm conclusions, differences existed in the school careers of Aboriginal students and non-

Aboriginal students, with Aboriginal students among the most vulnerable to school attrition and non-completion.

The existing data demonstrate inequity of school outcomes between Aboriginal students and non-Aboriginal students. Taken together, the disproportionately low levels of school completion and high levels of students identified with behaviour disorders and mental illnesses among Aboriginal students in British Columbia is clearly a cause for concern.

English language learners.

Researchers have acknowledged that English Language Learners are a growing population in North America (Bowman-Perrott, Herrera, & Murry, 2010; Genesee, Lindholm-Leary, Saunders, & Christian, 2005; Sheng, Sheng, & Anderson, 2011). These students generally come from a language background other than English and their level of proficiency in English interferes with their learning. Few researchers have examined the relationship between English language proficiency and dropping out of school. Rumberger and Lim (2008) conducted a review of over 200 research studies over a period of 25 years to better understand the underlying causes of students' decisions to drop out of school. Their research identified only six studies and 13 separate analyses that examined the relationship between English language proficiency and high school dropout, with varying results. Only three of the six studies found students with higher English language proficiency had lower dropout rates. In a separate review, Genesee et al. (2005) found evidence that based on academic measures, ELL students tended to perform more poorly than students who have fluent English language proficiency. Independent of ELL, Lehr et al. (2003) conducted an integrative review of prevention and intervention studies addressing dropout or school completion. Only three of the 45 studies met criteria for inclusion in the review to address

students with disabilities. Taken together, one might speculate that there is likely little or no available research that examines dropout or school completion of students with high incidence disabilities, specifically students with behaviour disorders and mental illnesses, who are also ELL.

British Columbia has a multicultural and linguistically diverse population. According to the Ministry of Education (2015b), English Language Learners (ELL) made up 10.2% of the student population in British Columbia in the 2014-2015 school year. The BC Ministry of Education defines ELL students as “those whose primary language, or languages, of the home are other than English. For this reason, they require additional services in order to develop their individual potential within British Columbia’s school system” (BC Ministry of Education, 2013, p. 4). During the 2012-2013 school year, 86.1% of students identified as ELL graduated from high school within six years from the first time they enrolled in Grade 8. This is higher than the school completion rate of 83.6% for all students in the province. However, there is no information on the number of students in British Columbia who have been identified as ELL students who have also been designated as students with special needs. Given the large percentage of ELL students in British Columbia and the anticipation that this number will continue to grow, it would be of great interest to examine the trajectories of students who are ELL *and* identified with behaviour disorders and mental illnesses.

Summary

Research has demonstrated that students with behaviour disorders and mental illnesses experience far less school success than any other students including those with other disabilities. We know relatively little about the educational achievement of students with

behaviour disorders and mental illnesses in Canada and much less in British Columbia. Little is known about the academic and social experiences of students with behaviour disorders and mental illnesses in British Columbia during their elementary and secondary school years or the impact of the educational environment in which the students are situated. This is of great concern to educators, administrators and policy makers, considering academic achievement is the primary outcome of schooling and an expected outcome of education.

This research compares students with behaviour disorders and mental illnesses who graduate to students with behaviour disorders and mental illnesses who do not graduate across the identified student engagement variables, in an attempt to isolate differences in characteristics between the two groups. A better understanding of the differences between graduates and non-graduates throughout the span of their kindergarten to Grade 12 education will help to identify students at the earliest possible juncture in order to provide focused intervention and support as a proactive measure to increase the graduation rates among students with behaviour disorders and mental illnesses in British Columbia. Further, the outcome of the analysis may provide information to help direct current special education policy in British Columbia.

Chapter 3: Methodology

Introduction

This research was an exploratory study to provide insight into academic success of students in British Columbia who have significant behavioural and mental health challenges. The methodology was based on a secondary analysis of data from the Ministry of Education database. The investigation was an attempt to identify critical engagement factors associated with students with behaviour disorders and mental illnesses and the degree to which these factors or combinations of factors can predict the probability that the students will or will not successfully complete high school.

This study addressed the following three questions:

- 1) Is there a factor or combination of factors that can distinguish students with behaviour disorders and mental illnesses who complete high school from those who do not?
- 2) If a factor or combination of factors can be identified, are they the same factors and do these factors have the same or different degree of predictability for students with Aboriginal or ELL status and students with non-Aboriginal or non-ELL status?
- 3) Is there a relationship between the age at which students are first identified and reported with a categorical designation and whether they will graduate from high school?

This chapter begins with a brief description of the context within which the exploratory analysis was conducted, including a description of the students in the study. A description of the student-level and school-level data sets is described followed by a definition of each dependent and independent variable that is central to this study. Clarification of specific concepts is also delineated. Procedures used to create and analyze a

single, multi-level data set to explore the factors associated with students with behaviour disorders and mental illnesses in this study are described.

Several tests were also conducted to assess the significance of the individual predictor variables. The Pearson's chi-square test of independence was conducted to determine if there was a relationship between the independent variables and the dependent variable (high school completion). Three specific tests were conducted as part of the screening process to prepare the data for logistic regression analysis: 1) sample size, 2) multicollinearity, and 3) outliers. Given the large number of cases in this study ($N = 16,498$), sample size was not an issue. Multicollinearity and tests for outliers are described later in this chapter. Tests were also conducted to determine whether the model was stable across the sample or if certain cases exerted undue influence over the parameters of the model. These tests are also addressed later in the chapter. Finally the binary logistic regression analysis including the statistical formula, the method, the statistical tests that were used, and the intended results are described.

Research Context

This section provides the educational context in British Columbia. It includes a description of the demographics of the school population as well as a description of the school system.

School population.

British Columbia (BC) is the third most populated province in Canada. The population of BC in 2011 according to Statistics Canada was 4,576,600, with 14% of the provincial population of school age. During the 2011-2012 school year, there were 641,592 students enrolled in BC schools, 569,728 (88.8%) in public schools and 71,864 (11.2%) in

independent schools; 315,018 (49.1%) were female and 326,574 (50.9%) were male (BC Ministry of Education, 2012b). Of the total population of students, 13,065 (2.3%) were reported as having moderate to severe behaviour disabilities or mental health issues as defined by the criteria in the BC Ministry of Education, Special Education Policies, Procedures and Guidelines (BC Ministry of Education, 2011).

School system in British Columbia.

British Columbia is currently divided into 60 public school districts, each responsible for administering publicly funded education from kindergarten to Grade 12. Under the *School Act* (1996), the provincial government provides funding to Boards of Education for the operation and provision of public education programs to school age residents in British Columbia. “School age student” is defined by the BC Ministry of Education as a student between the age of five by December 31 of the current calendar year and 19 on or after July 1 of the current school year. Since March 1, 2002, the *School Act* has provided legal authority for special needs funding. Supplemental grants are provided to Boards of Education to address the costs associated with additional support and accommodations of students with special needs, including students who fall into the category “students requiring intensive behaviour interventions or serious mental illness,” more commonly referred to as Category H. In the 2011-2012 school year, the province provided \$9,200 per full time equivalent (FTE) or \$64,390,000 in supplementary funding to support students in public schools with severe behaviour and mental health issues.

There is a second body of schools that falls under the Ministry of Education, the Independent Schools Branch. These schools offer programs that have a particular religious, cultural, philosophical or educational approach that is different from the public schools. The

schools fall into one of three groups that are directly tied to funding. The group designation is determined by the comparison of the independent school's average per student operating cost with the local school district's average per student operating amount. If the independent school's per student operating cost is less than or the same as the district's per student grant amount, the school is designated as a Group 1 school. If the independent school's per student operating cost exceeds the district's per student grant amount, the school is designated as a Group 2 school. Group 1 schools receive 50 percent of their local board of education per student operating grant on a per FTE student basis. Group 2 schools receive 35 percent of their local board of education per student operating grant. Group 3 schools must enroll at least 50 percent of the students who are "eligible students" as defined by the Independent School Regulation but receive no funding. Supplementary special education grants are provided to Group 1 and Group 2 independent schools at the same level and under the same criteria as public schools. Group 1 and Group 2 schools account for 97.8% of the independent schools in BC.

Participants

This study was a retrospective analysis of four cohorts of students in British Columbia who were enrolled in public or independent schools between the 1996-1997 and 2012-2013 school years. The students included in this study were identified as having significant behaviour challenges or mental health issues at some point during their school career. Identification of these students was based on the edition of the *BC Special Education Services: Manual of Policies Procedures and Guidelines* that was available at that time. Given that placement in this special education category was never intended to be static from year to year, the students may have been identified as having significant behaviour

challenges or mental illnesses in some years and not in other years. Data were examined from students' initial registration in school which was typically in kindergarten, through students' 13 years of schooling or to the point at which they left school. This investigation fills a gap in earlier research as many of the studies that take a retrospective account of students with behaviour and mental health challenges only examine a segment of the students' school career. For example, some studies focus specifically on elementary school age students (Cullinan, Evans, Epstein, & Ryser, 2003; Morgan, Farkas, & Wu, 2009; Siperstein, Wiley, & Forness, 2011) while other focus specifically on high school students (Lane, Carter, Pierson, & Glaeser, 2006; Montague, Enders, Cavendish, & Casro, 2011; Sinclair, Christenson, & Thurlow, 2005); few studies examine the students' entire school career.

In the 1990s the Ministry of Education made a number of significant changes in the area of Special Education and in 1995 a substantially revised manual *Special Education: A Manual of Policies, Procedures and Guidelines* was published and distributed to schools. This manual reflected changes that had taken place in legislation, policy and educational practice since the initial publication of the manual in 1985. The changes included significant reorganization and revision of the special needs categories including the categories for students with behaviour disorders and mental illnesses. Although periodic revisions have been made since 1995, the definition of students with behaviour disorders and mental illnesses has remained relatively stable. The students with behaviour disorders and mental illnesses in this study were identified under the definitions provided in the 1995 revision.

Students who graduated within six years of beginning Grade 8 or earlier were classified as 'graduates.' This group included those who received a Dogwood Diploma and those who received an Evergreen Certificate. The Dogwood Diploma is awarded to students

who have met the requirements for graduation as set out by the BC Ministry of Education. The Evergreen Certificate, also known as the BC School Completion Certificate, is awarded to students who have met the goals of their educational program; it reflects different requirements than the graduation requirements set out by the BC Ministry of Education. Students who completed 5 or 6 years of high school but did not graduate with a Dogwood Diploma or an Evergreen Certificate at the end of their school year were classified as 12th grade ‘non-graduates.’ The remaining students, those who left the education system prior to meeting the BC Ministry of Education graduation requirements or before completing 5 years of high school, were classified as ‘dropouts.’ There is a possibility that a few students may have left the province or have died, but this number is likely insignificant and should not impact the study.

Data Sets

The data for this study were extracted from the BC Ministry of Education database through Edudata Canada, a data broker housed in the Faculty of Education at the University of British Columbia that assists with the collection and organization of data. Three different data sets were requested from the Ministry of Education database: 1) Student-level data, 2) School-level data, and 3) Foundations Skills Assessment (FSA) data. One of the advantages of this type of secondary analysis was that it allowed for analyzing the influence of multiple factors. Another key advantage of this retrospective analysis was that students with behaviour disorders or mental illnesses, a low incidence population, were already identified, thereby reducing the necessity of creating a large sample size. Edudata uses BC Ministry of Education approved practices and adheres strictly to security and confidentiality policies set

out by the BC provincial government. Edudata masked student identities prior to release of the data to ensure confidentiality.

Student-level data.

Student-level data were extracted from the BC Ministry of Education database and served as the primary source of information for this study. The initial student-level database included selected variables from any student who had ever been categorically designated and reported to the BC Ministry of Education as having a behaviour disorder or mental illness at any time during their school career. The designations were based on the BC Ministry of Education document, *Special Education Services: A Manual of Policies, Procedure and Guidelines*, that was current at the time of designation and reporting. The data included students who were enrolled in both public and independent schools in the BC school system from the 1995-1996 school year, up to and including the 2012-2013 school year. The initial search revealed a total of 74,735 students. Demographic and school-related information for each student was included. Twelve individual student variables were requested from Edudata and an additional nineteen student variables were derived from the original data set.

School-level data.

School-level data were extracted from the BC Ministry of Education database and included demographic information for any school that had enrolled a student identified in the student-level data. Seven specific school variables were requested from Edudata.

Variables

Dependent variables.

The dichotomous outcome variables that were investigated in this study were ‘graduates’ and ‘non-graduates.’ The data were extracted or derived from the student-level Ministry of Education database. ‘Graduates’ included both students who had met the requirements for graduation and had been awarded the Dogwood Diploma within six years of beginning Grade 8 or students who had met the goals of his or her individual educational program and had been awarded the Evergreen Certificate (School Completion Certificate) within six years of beginning Grade 8. ‘Non-graduates’ included students who attended school for five or six years from beginning Grade 8 but were not awarded a Dogwood Diploma or an Evergreen Certificate or students who left school prior to completing five years from beginning Grade 8.

Independent variables.

A number of independent variables were explored to provide a detailed descriptive analysis of the students in this study as well as to explore the critical engagement factors that may be associated with school completion. The independent variables included student-level and school-level variables related to the school history of each student in the study. The student-level and school-level data included data directly available from the BC Ministry of Education database as well as data derived from the existing data. Also included was a selection of FSA data (Data Set C: Foundation Skills Assessment Data) as a measure of academic achievement. The FSA is an annual province-wide assessment of British Columbia students’ academic skills in the areas of reading, writing and numeracy, administered to Grade 4 and Grade 7 students in public and provincially funded independent schools.

Data set A: Student-level data.

The following student-level information was available directly from the Ministry of Education database with no manipulation of the data:

1) Gender

Indication of whether the student is male or female

2) Grade Level by Year

Grade level the student was enrolled in each year (kindergarten to Grade 12, Elementary Ungraded, Secondary Ungraded)

3) Graduation Date

Month and year the student graduated

4) BC Secondary School Graduation

Indication of whether a student received a Dogwood Diploma

5) BC School Completion Certificate

Indication of whether a student received an Evergreen Certificate

6) School Exit Date

Month and year the student completed or left school

7) Aboriginal Status by Year

Indication of whether a student self-identified as being of Aboriginal ancestry (First Nations: status and non-status, Metis and Inuit) in a particular year

8) Aboriginal Status Ever

Indication of whether a student had ever self-identified as being of Aboriginal ancestry (First Nations: status and non-status, Metis and Inuit)

9) Band Residency Status by Year

Indication of whether a student self-identified as being part of an organizational structure that represents a particular body of First Nations people (as defined in the Indian Act) in a particular year

10) English as a Second Language by Year

Indication of whether a student registered as an English as a Second Language student in a particular year

11) English as a Second Language Ever

Indication of whether a student was ever registered as an English as a Second Language student over the course of their educational career

12) Special Needs by Year

Indication of students who were identified as meeting Ministry criteria for a special needs category other than for behaviour disorders and mental illness (Intellectual Disability - Categories C & K; Sensory Disabilities - Categories E & F; Chronic Health - Category D; Autism - Category G; Learning Disabilities - Category Q; Gifted - Category P; Other - Categories A & B).

Data set B: School-level data.

The following school-level information was available directly from the Ministry of Education database with no manipulation of the data:

1) School Name by Year

The official name of the school a student was enrolled in each year

2) School Code Number

Unique Ministry code number assigned to each school

3) School Years of Operation by Year

Indication of whether the school was open in a given year. Several schools have opened and closed since 1999-2000, which would have resulted in a forced move to another school.

4) School Location

City in which the school was located

5) School District by Year

School district the student was enrolled in each year

6) School Group by Year

Indication of whether the school was a public school, an independent school, or a Federal Band school

7) Facility Type

Indication of the type of facility the student was enrolled in, specifically, Standard, Alternate, Youth Custody, Continuing Education, Distance Education or Long Term Education.

Data set C: Foundation skills assessment data.

The Foundation Skills Assessment (FSA) is an annual province-wide assessment derived from the British Columbia provincial curriculum to provide a snapshot of students' basic academic skills, specifically reading comprehension, writing and numeracy. The FSA is administered to Grade 4 and Grade 7 students in public and provincially funded independent schools and all students are required to participate.

1) FSA Grade 4 Reading

A sampling of the foundation skills that reflects a Grade 4 mid-year profile in reading comprehension.

2) FSA Grade 4 Writing

A sampling of the foundation skills that reflects a Grade 4 mid-year profile in writing.

3) FSA Grade 4 Numeracy

A sampling of the foundation skills that reflects a Grade 4 mid-year profile in numeracy.

4) FSA Grade 7 Reading

A sampling of the foundation skills that reflects a Grade 7 mid-year profile in reading comprehension.

5) FSA Grade 7 Writing

A sampling of the foundation skills that reflects a Grade 7 mid-year profile in writing.

6) *FSA Grade 7 Numeracy*

A sampling of the foundation skills that reflects a Grade 7 mid-year profile in numeracy.

For each FSA, the following scores were included in the database:

- **Percentage Score** – Student’s score as a percentage of possible marks
- **Raw Score** – Sum of the student’s correct answers (only existed prior to the 2007-2008 school year)
- **Scaled Score** – Student’s score scaled against other test takers
- **Three Point Scale** – An indication of whether the student did not meet, met, or exceeded expectations
- **Excused Flag** – An indication of whether the student was excused from the FSA (only existed prior to the 2007-2008 school year)

Although school contexts such as low-income neighbourhoods would expose students to other risk factors associated with negative academic and behavioural outcomes, these factors were not a focus of this study. The study was limited to factors over which schools or school districts may have some control or influence.

Clarification of Data

This section provides additional information for further clarification of the variables in this study. Aboriginal students, elementary and secondary ungraded, English as a Second Language, student mobility and school type are addressed in this section.

Aboriginal students.

The Ministry of Education has collected data on Aboriginal ancestry on an annual basis since 2003/2004. Aboriginal ancestry refers to whether a person has reported ancestry

associated with the Aboriginal peoples of Canada and is determined through student self-identification. This includes status and non-status First Nations, Metis and Inuit peoples. A student may or may not self-identify from year to year for any number of reasons. For the purpose of this study, students who had *ever* identified themselves as Aboriginal during their school career were identified as being of Aboriginal status.

Elementary and secondary ungraded.

Elementary ungraded and secondary ungraded are categorizations for students who are not enrolled in a regular graded program. The BC Ministry of Education defines elementary ungraded (EU) as ‘students who are taking courses at the kindergarten to Grade 7 level and the school personnel does not consider the student to be in a specific grade’ and secondary ungraded (SU) as ‘students who are taking courses at the Grade 8-12 level and the school personnel does not consider the student to be in a specific grade’ (Ministry of Education, n. d.). The categorization of students and their associated individual educational programs are determined by individual school districts and these practices can vary across school districts.

English as a second language.

English as a Second Language (ESL) is a program offered to students whose English language proficiency is assessed as being sufficiently below what is required to access the curriculum. These students are identified as requiring supports and services to achieve the expected learning outcomes of the provincial curriculum. Although many of the students eventually do not need ESL support, for the purposes of this study, students who had *ever* been identified as ESL during their school career were identified as having ESL status.

English Language Learner (ELL) is the more recent terminology that is being used in education. For the purposes of this study, ESL and ELL are used interchangeably.

Student mobility.

Student mobility is the practice of elementary and secondary students changing schools for reasons other than promotion from one school to another (e.g., involuntary transfers, expulsions, transfers to alternate or specialized schools). Changes in schools were based on the September enrolment data. The data were not sensitive to students who moved temporarily between September and June and returned to the school where they were originally enrolled. Nor were the data sensitive to students who changed schools multiple times between September and June.

School type.

Although the Ministry of Education does not collect information on specialized programs specific to individual school districts, a number of school districts host alternative programs to meet the needs of students whose needs cannot be met within the setting of the neighbourhood school or district resource programs. School districts are required to report on students enrolled in these programs including alternate schools, youth custody centres, continuing education, distance education, or long term education. This information was extracted from the Ministry of Education data set.

Procedures

Creating the data sets.

In order to understand the various sets of data, the first step was to create a single multi-level data set. The data were screened and prepared separately before merging into a

single, multi-level data set. Screening and cleaning allowed for an analysis of the case histories of students who had been identified with behaviour disorders and mental illnesses as defined by the BC Ministry of Education and a probe for patterns that might identify possible influences on successful completion of high school.

As the student-level data were screened and cleaned, several observations were made regarding special education categorical designations: 1) No special education categorical designation data were collected by the Ministry of Education during the 1995-1996 school year; 2) For three school years, from 1996-1997 to 1998-1999, only Categories A-H⁸ existed; 3) In 1999-2000, five new high incidence categories (Categories J, K, M, N and P)⁹ were added; and 4) In 2002-2003, the high incidence categories were merged. The five high incidence categories from 1999-2000 to 2001-2002 were recoded and are consistent with the current special education categories. From 2002-2003 to the present, Categories A-H and Categories K, P, Q and R¹⁰ are the special education designation categories that are assigned to students and reported to the Ministry of Education.

Student cohorts.

Four sets of student cohorts who were born between 1991 and 1994, and who had been identified as students with behaviour disorders or mental illnesses at any time during

⁸ Low incidence categories: A = Dependent Handicapped; B = Deafblind; C = Moderate to Profound Intellectual Disabilities; D = Physical Disability/Chronic Health Impairment; E = Visual Impairment; F = Deaf or Hard of Hearing; G = Autism spectrum Disorder; H = Students Requiring Intensive Behaviour Intervention or Students with Serious Mental Illness

⁹ High incidence categories: J = Learning Disabilities; K = Mild Intellectual Disabilities; M = Moderate Behaviour Support; N = Mental Illness; P = Gifted

¹⁰ High incidence categories: Q = Learning Disabilities (formerly Category J); R = Moderate Behaviour Support or Mental Illness (formerly Categories M and N)

their school career were the main unit of analysis in this study. Students were identified through Data Source A: Student-Level Data from the Ministry of Education database. Three critical elements were considered when the students were selected for this study: 1) the number of years a student could have been enrolled in the school system; 2) the potential to be designated and reported with a categorical designation in any year the student was enrolled in the school system; and 3) the student's year of birth.

The students in this investigation were school-aged students based on the Ministry of Education definition.¹¹ The students would typically have entered kindergarten at age 4 or 5 and stayed enrolled until they graduated from Grade 12, thirteen years later. The data set took into consideration students who stayed enrolled in high school for a sixth year to complete their graduation or school completion requirements. Therefore, each cohort covered a span of fourteen years. The data set only included students who could have been identified and reported to the Ministry of Education as students with behaviour disorders and mental illnesses from kindergarten through to the completion of high school or whenever they left school. Given that the Ministry of Education only began tracking the categorical designation of students in 1996-1997, the data set was limited to students who would have begun kindergarten in the 1996-1997 school year.

Cohorts were identified based on the year students were born rather than the year they began kindergarten, as students were not always enrolled in the grade that corresponded to their age. The data revealed differences in the grades students were enrolled due to: 1)

¹¹ School age student: A student between the age of 5 by December 31 of the current calendar year and 19 on or after July 1 of the current school year. (Ministry of Education in effect March 1, 2002. Revised January, 2014)

delayed entry into kindergarten; 2) not being registered in the school system for a year or more although of school age; 3) repeated grade or grades; 4) skipped grade or grades; 5) enrollment in 'elementary ungraded' or 'secondary ungraded'; and/or 6) being home-schooled for one or more years. Students who began kindergarten in the 1996-1997 school year were born in 1991. Therefore, students who were born prior to 1991 were eliminated from the database.

The original data that were extracted from the Ministry of Education database provided the means to examine the educational trajectories of students who graduated from high school up to and including the 2012-2013 school year. As shown in Table 3.1, the final data set was limited to students who were born no earlier than 1991 and who graduated no later than the 2012-2013 school year.

Table 3.1. *Identification of school-age students based on year of birth with each cohort spanning a period of 14 school years*

Cohort	Year of Birth	Kindergarten (School Year)	5 Year Graduation (plus 1 year)
Cohort 1	1991	1996-1997	2009-2010
Cohort 2	1992	1997-1998	2010-2011
Cohort 3	1993	1998-1999	2011-2012
Cohort 4	1994	1999-2000	2012-2013

Four cohorts of students in British Columbia who were enrolled in public or independent schools between the 1996-1997 and 2012-2013 school years were selected, resulting in a total of 16,498 individual students, each identified by a coded Student ID. A relatively equivalent number of students was reported each of the four years (Table 3.2).

Table 3.2. *Number of cases and corresponding percentage of each cohort in the study*

Cohort	Year of Birth	Frequency (# of Cases)	Percent
Cohort 1	1991	4,326	26.2
Cohort 2	1992	4,235	25.7
Cohort 3	1993	3,969	24.1
Cohort 4	1994	3,968	24.1
TOTAL	1991 - 1994	16,498	100.0

FSA data.

The Foundation Skills Assessment (FSA) is an annual province-wide assessment of British Columbia students' academic skills in the areas of reading comprehension, writing and numeracy. These data were used as a measure of academic achievement for the students in this study. The original FSA data retrieved from the Ministry of Education database were provided in two separate databases: 1) Pre 2008 data, and 2) Post 2008 data. Both databases included percent, IRT scaled score and FSA 3-point scale for each of the Grade 4 and Grade 7 numeracy, reading comprehension and writing assessments. The Pre 2008 database also included the raw score and an excused flag.¹²

Pre 2008 and Post 2008 data sets were each disaggregated into six separate databases: Grade 4 Numeracy, Grade 4 Reading Comprehension, Grade 4 Writing, Grade 7 Numeracy, Grade 7 Reading Comprehension, and Grade 7 Writing. Pre 2008 data and Post 2008 data for each assessment were merged (e.g., Pre 2008 Grade 4 Numeracy and Post 2008 Grade 4

¹² The excused flag is a formal acknowledgement by the Ministry of Education that the student would not be participating in the FSA assessment.

Numeracy). In a very small number of cases, a specific student appeared twice, once in Pre 2008 and once in Post 2008, resulting in two sets of scores for the same assessments. It is likely the student repeated the grade and wrote the assessment in two consecutive years. The Post 2008 score was maintained as this would have been the most current entry and the Pre 2008 score was deleted from the database. As shown in Table 3.3, the total number of cases deleted from the combined Pre 2008 Post 2008 data set was 232.

Table 3.3. *Total number of repeated cases deleted from the combined Pre 2008 and Post 2008 FSA database for each grade and academic area of assessment*

Grade Level	FSA Assessments	Total Unique Cases (Pre 2008 Post 2008 Combined)	Repeated Cases (Deleted from file)
Grade 4	Numeracy	38,506	12
	Reading Comprehension	38,655	12
	Writing	38,499	12
Grade 7	Numeracy	46,962	65
	Reading Comprehension	47,140	66
	Writing	46,988	65
Total number of repeated cases deleted			232

Most of the students would have written all three assessments (i.e., numeracy, reading comprehension, and writing) in Grade 4 and Grade 7. However, the data indicated there were instances where a student only wrote one or two of the assessments in a given year, which resulted in an inconsistent number of unique cases at the Grade 4 and Grade 7 levels.

The six combined Pre 2008 and Post 2008 FSA databases were once again screened for multiple entries. Again, there were a number of instances where students appeared more

than once in each of the databases. These students likely repeated a grade between 1996 and 2007 or between 2008 and 2013. Because dates were not associated with the data for each of the assessments, it was not possible to select the most current entries. Therefore, the following criteria were used to eliminate the duplicate entries:

- The entry with the better or higher percentage score was retained;
- If the scores were the same, but one entry was flagged ‘excused’ and the other entry was ‘not excused,’ the ‘excused’ entry was retained. The ‘excused’ flag was not collected Post 2008.
- If the scores were the same, but the entry was tagged with ‘student did not respond meaningfully,’ ‘student did not respond’ or ‘unspecified,’ the entry tagged with ‘student did not respond meaningfully’ was retained or, if this tag was not used, the entry tagged with ‘student did not respond’ was retained.

Each identified multiple entry was reviewed and duplicate entries were systematically removed from the database. As shown in Table 3.4, the total number of additional cases deleted from the combined Pre 2008 Post 2008 data set was 2,789.

Table 3.4. *Total number of repeated cases deleted from the FSA database for each grade and academic area of assessment*

Grade Level	FSA Assessments	Cases Retained	Cases Deleted
Grade 4	Numeracy	38,285	221
	Reading Comprehension	38,284	371
	Writing	38,278	221
Grade 7	Numeracy	46,372	590
	Reading Comprehension	46,372	768
	Writing	46,370	618
Total number of repeated cases deleted			2,789

After all duplicate entries were eliminated from the six separate FSA databases, they were merged to create one FSA data set where each student was represented only once and included assessment data for Grade 4 and Grade 7 numeracy, reading comprehension, and writing assessments. The merged FSA data set consisted of 51,872 individual students, each identified by a unique Student ID. Frequencies for each of the variables were inspected for scores that were out of range (i.e., not within the range of possible scores). Lastly, the 3-point scale was recoded into numeric values.

Merging student-level and FSA data.

Table 3.5 summarizes the merging of both screened and cleaned student-level data (16,498) and FSA data (51,872 cases) to create a single, multi-level data set. Fifteen thousand eight hundred twenty matching rows were found when the two data sets were merged. This indicated that 15,820 students from the student-level data had scores for at least one FSA assessment. Six hundred seventy-eight students did not match with FSA data. This indicated that no FSA results were associated with 678 students from the student-level data and the students likely did not participate in writing any of the FSA assessments. There were 36,052 rows of FSA scores with no matching student. This indicated that 36,052 cases from the original FSA data retrieved from the Ministry of Education were students who had never been identified as students with behaviour disorders or mental illness at any time during their school career. Rows of FSA data not associated with identified students were deleted from the data set. A total of 16,498 cases (15,820 + 678) were included in the final database.

Table 3.5. *Results of merge between student-level database and FSA database*

Results of Merge	# of Cases
Student + FSA scores	15,820
Student + No FSA scores	678
No student + FSA scores	36,052

Merging student-level/FSA data and school-level data.

The school-level data provided additional demographic information for the 16,498 cases in the analysis. The following variables were added to the merged student-level and FSA database:

- 1. School Name** – The school name associated with the Ministry School Code
- 2. District Name** – The district name associated with the School District number
- 3. Facility Type** – The type of school, specifically Standard, Alternate, Continuing Education, Distance Education, District Distance Education, District Electronic Education, Long Term Provincial Resource Program (PRP), and Youth Custody
- 4. School Location** – The city where the school is physically located.

Data were reviewed by visual inspection to identify any data entry errors or inconsistencies, and corrections were made in order to establish as accurate a database as possible.

Derived variables.

An additional 19 variables were created by aggregating and manipulating the data set to support the analysis. The derived variables provided information about individual students regarding:

1. **First Special Education Category Ever** – This is the first special education categorical designation in which a student was reported in his/her educational career.
2. **Age First Identified in Special Education Category** – This is the age at which a student was first identified and reported with a special education categorical designation.
3. **Grade First Identified in Special Education Category** – This is the grade to which a student was assigned when first identified and reported with a special education categorical designation.
4. **Age First Identified in R/H**¹³ – This is the age at which a student was first identified and reported in either of the behaviour support/mental illness categorical designations.
5. **Grade First Identified in R/H** – This is the grade to which a student was assigned when first identified and reported in either of the behaviour support/mental illness categorical designations.
6. **First Designation Pre R/H** – This is the first special education categorical designation to which a student was assigned and reported prior to receiving the behaviour support/mental illness designation.
7. **Number of Different Designations Pre R/H** – This is the number of different special education categorical designations in which a student was identified and reported prior to being identified and reported in one of the behaviour support/mental illness designation categories.

¹³ R/H – Category R (Students Requiring Moderate Behaviour Support or Students with Mental Illness) and Category H (Students Requiring Intensive Behaviour Intervention or Students with Serious Mental Illness) were studied as a single category in this study. Because the severity or intensity of the behaviour or mental health condition is subjective, and the availability of the inter-service/agency assessment processes that are required to manage, educate and maintain the students in school and their community can vary, it would be difficult to compare and analyze Category R and Category H as two distinct categories with any level of confidence.

8. **First Designation Post R/H** – This is the first special education categorical designation in which a student was assigned and reported following a behaviour support/mental illness categorical designation.
9. **Number of Different Designations Post R/H** – This is the number of different special education categorical designations in which a student was reported after being identified and reported in one of the behaviour support/mental illness categorical designations.
10. **Number of Schools** – This is the number of schools a student attended in his/her school career.
11. **Repeated Grade** – This is an indication of whether or not a student repeated a grade at any time during his/her school career.
12. **Grade Repeated First Time** – This is the grade that was repeated the first time a student repeated a grade during his/her school career.
13. **Number of Years Completed from Grade 8** – This is the number of years a student was enrolled in school from the year he/she was enrolled in Grade 8.
14. **Last Grade Enrolled** – This is the last grade a student was enrolled before he/she graduated, left or dropped out of school.
15. **Age When Student Left School** – This is the age of a student when he/she graduated, left or dropped out of school.
16. **Grade Student Began School** – This is the first grade in which a student was enrolled when he/she began school.
17. **Age Student Began School** – This is the age of the student when he/she began school.
18. **Age Student Began Kindergarten** – This is the age of the student when he/she began kindergarten.
19. **Years Not Enrolled** – This is the number of years a student was not enrolled in the school system between the initial enrollment and when the student graduated, left or dropped out of school.

Data Analysis

The purpose of this study was to explore the characteristics, demographics, and educational experiences of four cohorts of students identified with behaviour disorders and mental illnesses in British Columbia over their school career. This study was longitudinal in design and tracked changes in the educational history of students from the time they entered kindergarten in September until they left the school system. Their educational success was measured in terms of school completion and non-school completion, while examining the influence of various student-level and school-level variables. The data analysis began with an in-depth descriptive analysis of both student-level and school-level data. As patterns emerged and new questions arose, additional analyses were conducted to further understand the data. Both SPSS and Excel data management programs were used for the data analysis.

Descriptive analysis.

The descriptive analysis was examined in two sections. The first section focused on student-level variables and the second section focused on school-level variables. The purpose of the descriptive analysis was to shed some light on possible student-level and school-level variables that influence student engagement and in turn increase the probability of school completion. The descriptive analysis was the initial stage to address the first research question: Is there a factor or combination of factors that can distinguish students with behaviour disorders and mental illness who complete high school from those who do not? The factors identified in the descriptive analysis were then included in the logistic regression analysis.

Student-level analysis.

Data analysis began at the student level. Individual student variables were explored to uncover any general patterns that may exist within the educational careers among students with behaviour disorders and mental illnesses. The student-level data were then disaggregated into two groups: Graduates (students who completed high school with a Dogwood Diploma or Evergreen Certificate) and non-graduates (students who did not meet graduation requirements or dropped out of school) to analyze differences that existed between the two groups and begin to address the first research question using student-level data available from the BC Ministry of Education. Specifically, the following factors were explored:

1. **Gender** – Of the students who completed high school, how many were males and how many were females? Of the students who did not complete high school, how many were males and how many were females?
2. **Age** – Of the students who completed high school, at what age were they initially identified with a behaviour disorder or mental illness? Of the students who did not complete high school, at what age were they initially identified with a behaviour disorder or mental illness?
3. **Aboriginal Status** – Of the students who completed high school, how many ever self-identified as having Aboriginal status? Of the students who did not complete high school, how many ever self-identified as having Aboriginal status?
4. **English as a Second Language (ESL)** – Of the students who completed high school, how many had ever been designated as ESL? Of the students who did not complete high school, how many had ever been designated as ESL?
5. **Special Needs Categorization** – Of the students who completed high school, how many had ever been designated in another special needs category prior to the behaviour disorder and mental illness designation? Of the students who did not

- complete high school, how many had ever been designated in another special needs category prior to the behaviour disorder and mental illness designation?
6. **Category R or H Identification (primary)** – Of the students who completed school, how many were initially designated in the behaviour disorder and mental illness category while in the primary grades? Of the students who did not complete school, how many were initially designated in the behaviour disorder and mental illness category while in the primary grades?
 7. **Category R or H Identification (intermediate)** – Of the students who completed school, how many were initially designated in the behaviour disorder and mental illness category while in the intermediate grades? Of the students who did not complete school, how many were initially designated in the behaviour disorder and mental illness category while in the intermediate grades?
 8. **Category R or H Identification (high school)** – Of the students who completed high school, how many were initially designated in the behaviour disorder and mental illness category while in high school? Of the students who did not complete high school, how many were initially designated in the behaviour disorder and mental illness category while in high school?
 9. **Student Mobility (elementary school)** – Of the students who completed high school, how many times did students change schools while enrolled in elementary school (kindergarten – Grade 7)? Of the students who did not complete high school, how many times did students change schools while enrolled in elementary school (kindergarten – Grade 7)?
 10. **Student Mobility (high school)** – Of the students who completed high school, how many times did students change schools while enrolled in high school (Grade 8 – Grade 12)? Of the students who did not complete high school, how many times did students change schools while enrolled in high school (Grade 8 – Grade 12)?
 11. **Retention (elementary school)** – Of the students who completed high school, how many students repeated at least one grade while enrolled in elementary school (kindergarten – Grade 7)? Of the students who did not complete high school, how

- many students repeated at least one grade while enrolled in elementary school (kindergarten – Grade 7)?
12. **Retention (high school)** – Of the students who completed high school, how many students repeated at least one grade while enrolled in high school (Grade 8 – Grade 12)? Of the students who did not complete high school, how many students repeated at least one grade while enrolled in high school (Grade 8 – Grade 12)?
 13. **FSAs (Grade 4 Reading Comprehension)** – Of the students who completed high school, how many students did not meet, met or exceeded expectations in reading comprehension at the Grade 4 level? Of the students who did not complete high school, how many students did not meet, met or exceeded expectations in reading comprehension at the Grade 4 level?
 14. **FSAs (Grade 4 Writing)** – Of the students who completed high school, how many students did not meet, met or exceeded expectations in writing at the Grade 4 level? Of the students who did not complete high school, how many students did not meet, met or exceeded expectations in writing at the Grade 4 level?
 15. **FSAs (Grade 4 Numeracy)** – Of the students who completed high school, how many students did not meet, met or exceeded expectations in numeracy at the Grade 4 level? Of the students who did not complete high school, how many students did not meet, met or exceeded expectations in numeracy at the Grade 4 level?
 16. **FSAs (Grade 7 Reading Comprehension)** – Of the students who completed high school, how many students did not meet, met or exceeded expectations in reading comprehension at the Grade 7 level? Of the students who did not complete high school, how many students did not meet, met or exceeded expectations in reading comprehension at the Grade 7 level?
 17. **FSAs (Grade 7 Writing)** – Of the students who completed high school, how many students did not meet, met or exceeded expectations in writing at the Grade 7 level? Of the students who did not complete high school, how many students did not meet, met or exceeded expectations in writing at the Grade 7 level?

18. **FSA (Grade 7 Numeracy)** – Of the students who completed high school, how many students did not meet, met or exceeded expectations in numeracy at the Grade 7 level? Of the students who did not complete high school, how many students did not meet, met or exceeded expectations in numeracy at the Grade 7 level?

School-level analysis.

School-level variables were analyzed to explore whether any patterns emerged among students with behaviour disorders and mental illnesses. The data were then disaggregated into two groups, graduates (students who completed high school with a Dogwood Diploma or Evergreen Certificate) and non-graduates (students who did not complete high school requirements or dropped out of school) to determine if any patterns or differences existed between the two groups. The following factors were explored:

1. **School Group** – Of the students who completed high school, to which school group did the school they attended in their final school year belong (i.e., public school, independent school or Federal Band school)? Of the students who did not complete high school, to which school group did the school they attended in their final school year belong?
2. **Facility Type** – Of the students who completed high school, what type of school (i.e., Standard, Alternate, Youth Custody, Continuing Education, Distance Education or Long Term Education) did they attend in their final year? Of the students who did not complete high school, what type of school did they attend in their final year?

Predictive analysis.

Graduation or school completion is the product of an array of factors in which student characteristics and student engagement variables influence the probability of academic success. Logistic regression analysis was used to describe the ability of student engagement variables that were identified in the literature review and descriptive analysis to predict the academic success of students with behaviour disorders and mental illnesses. Of particular

interest were the student engagement variables in the domain of educational performance. The specific variables that were investigated in this study were demographic variables (gender, Aboriginal status, ELL status), school-related variables (school enrollment, student mobility, grade retention), academic achievement, and special needs designation. In this study, academic success was defined by the dichotomous categorical outcome, namely 'graduation,' which included both school completion recognized by a Dogwood (graduation) diploma and Evergreen (school completion) certificate.

Several steps were required to prepare the data prior to conducting the logistic regression analysis. First, a reduced data set was created due to the large proportion of FSA data that was coded 'no valid indicator of success' that could possibly bias the results. The code 'no valid indicator of success' misrepresented the data, making it appear that the cases with this coding did worse than cases that were assigned a rating of 'not yet meeting expectations.' Only those cases with a complete set of FSA data were selected for the logistic regression analysis. All cases that had even one assessment that included 'no valid indicator of success' were systemically removed from the data set. Of the 16,498 cases in the single multi-level data set, 7,975 cases had valid indicators of success (exceeds, meets, or not yet meeting expectations) across all of the FSA assessments in Grade 4 and Grade 7. Once the cases for the reduced data set were determined, several data screening procedures were conducted.

Data screening.

Tests of Independence as well as several data screening processes were conducted to prepare the data for the logistic regression analysis. One of the first considerations was the size and nature of the sample. A second consideration was the issue of multicollinearity, or

inter-correlations between the predictor variables. The final consideration was to check for the presence of outliers, or cases not well explained by the model. The screening process used to prepare the data for the statistical analysis is described below.

Tests of independence.

The Pearson χ^2 test of independence was conducted on each of the 23 potential predictor variables. As shown in Table 4.13, the results indicated there was a significant association between each of the potential predictor variables and student graduation status at $p \leq .001$ for 19 of the predictor variables. Two of the potential predictor variables, gender and ELL status, were significant at $p \leq .05$. Only 2 variables, grade student began school and age student began school, were not significant at the $p \leq .05$ level.

The Cramer's V statistic was computed to measure the effect size or the magnitude of the association between the predictor variables and student graduation status, taking into account the degrees of freedom. The values for the Cramer's V are displayed in Table 4.13 below. The effect sizes for five of the variables were found to meet Rea and Parker's (1992) convention for a moderate association with the dependent variable with values that fell between .20 and under .40. An additional nine variables had effect sizes that fell between .10 and under .20, meeting the convention for a weak association with the dependent variable.

Table 3.6. *Tests of independence (Pearson χ^2) and magnitude of association (Cramer's V) between potential predictor variables and student graduation status (n = 7,975)*

Variable	Pearson χ^2	df	p	Cramer's V	
				Value	p
Repeated grade	1171.146	1	≤ .001	0.383	≤ .001
Number of years enrolled from Gr. 8	898.827	2	≤ .001	0.336	≤ .001
Facility type	872.476	1	≤ .001	0.331	≤ .001
Number of schools attended	560.83	2	≤ .001	0.265	≤ .001
Age when student left school	428.861	3	≤ .001	0.232	≤ .001
Years not enrolled (Gaps in schooling)	244.826	2	≤ .001	0.175	≤ .001
Last grade enrolled	202.791	3	≤ .001	0.159	≤ .001
Aboriginal status	179.201	1	≤ .001	0.150	≤ .001
Grade first identified in R/H	123.839	4	≤ .001	0.125	≤ .001
Age first identified in R/H	114.064	3	≤ .001	0.120	≤ .001
Grade first identified as special needs	113.298	4	≤ .001	0.119	≤ .001
Age first identified as special needs	106.457	3	≤ .001	0.116	≤ .001
FSA – Gr. 7 Reading Comprehension	78.981	1	≤ .001	0.100	≤ .001
FSA – Gr. 7 Numeracy	56.804	1	≤ .001	0.110	≤ .001
Grade repeated (1 st time)	54.494	4	≤ .001	0.084	≤ .001
FSA – Gr. 7 Writing	50.379	1	≤ .001	0.079	≤ .001
FSA – Gr. 4 Reading Comprehension	39.468	1	≤ .001	0.070	≤ .001
FSA – Gr. 4 Numeracy	27.316	1	≤ .001	0.059	≤ .001
FSA – Gr. 4 Writing	19.002	1	≤ .001	0.049	≤ .001
Gender	6.16	1	≤ .05	0.028	≤ .05
ELL status	4.998	1	≤ .05	0.025	≤ .05
Grade student began school	1.847	3	≥ .05	0.015	≥ .05
Age student began school	0.97	2	≥ .05	0.011	≥ .05

Sample size.

Descriptive statistics were run on each of the predictor variables. Tabachnick and Fidell (2001) suggested there should be at least five times the number of cases as cells in the design. Although the sample size requirement was easily met ($n = 7,975$), some cells contained too few subjects within a single category and the predictors had to be collapsed.

Once collapsed, all variables met the assumption concerning the ‘minimum expected cell frequency’ with 0 cells (0.0%) having expected counts less than 5 with the exception of two variables, age student began school (2 cells (33.3%) had an expected count less than 5) and grade student began school (2 cells (25.0%) had an expected count less than 5). However, in both cases, it did not make logistic sense to collapse the categories any further.

Multicollinearity.

Multicollinearity is a concern when there is a high inter-correlation between predictor variables, indicating possible redundancy that may suppress another variable to a certain extent. The suppression makes it difficult to see the true effect of two predictors that are measuring the same thing. Bivariate correlations were checked by scanning the correlation matrix of the 23 predictor variables. An r value > 0.70 , was used as an indication of high inter-correlation. A high inter-correlation was found among the pairs of similar variables that differed by age or grade of the students. A high inter-correlation was also found between students identified in any special needs category and students identified in Category R or H which is essentially a subset of the special needs categories. (See full correlation matrix as presented in Appendix A.)

Six pairs of potential predictor variables exceeded an r value > 0.70 indicating high inter-correlation and required further investigation:

- Age first identified in special needs category and Age first identified in R/H ($r = .949$)
- Age first identified in special needs category and Grade first identified in R/H ($r = .899$)
- Age first identified in R/H and Grade first identified in special needs category ($r = .903$)

- Grade first identified in R/H and Age first identified in R/H ($r = - .943$)
- Grade first identified in special needs category and Grade first identified in R/H ($r = -.953$)
- Grade first identified in special needs category and Age first identified in special needs category ($r = -.946$)

Collinearity diagnostics were run using SPSS. The Tolerance statistic and Variable Inflation Factor (VIF), two common quantitative measures, were run to help detect problems with collinearity. A tolerance value of < 0.10 was an indication of high collinearity with other predictors. A VIF value > 10 was also an indication of high collinearity. As shown in Table 3.7, Tolerance and VIF values indicated a severe multicollinearity problem for four variables. As already identified in the correlation matrix scan, a high inter-correlation was identified among pairs of similar variables that differed by the age or grade of the students and that identified students in a special education category or the R/H category.

Table 3.7. *Indicators of collinearity between predictor variables (n = 7,975)*

Variable	Collinearity Statistics	
	Tolerance	VIF
Gender	.833	1.200
Aboriginal status	.914	1.094
ESL status	.920	1.087
Age student began school	.754	1.326
Grade student began school	.757	1.322
Last grade enrolled	.823	1.214
Number of years enrolled from Gr.8	.716	1.396
Age when student left school	.661	1.513
Years not enrolled (Gaps in schooling)	.826	1.210
Number of schools attended	.939	1.065
Repeated grade*		
Grade repeated (1 st time)	.893	1.119
Age first identified in R/H	.019	53.490
Grade first identified in R/H	.017	59.627
Age first identified in Special Ed	.018	56.919
Grade first identified in Special Ed	.016	63.314
Facility type	.903	1.108
FSA – Gr. 4 Numeracy	.779	1.283
FSA – Gr. 4 Reading Comprehension	.716	1.396
FSA – Gr. 4 Writing	.887	1.128
FSA – Gr. 7 Numeracy	.801	1.248
FSA – Gr. 7 Reading Comprehension	.726	1.377
FSA – Gr. 7 Writing	.839	1.191

* SPSS deleted this variable from the analysis.

Influential statistics (outliers).

An analysis of standardized residuals and scatterplots was carried out to identify any potential outliers. P-P plots were used to examine whether the residuals met the assumed probability of a normal distribution. As can be seen in Figure 3.1, the observations deviated from normality and shifted the points away from the diagonal. As shown in Figure 3.2, the

scatterplot of the standardized predicted value and the dependent variable (Graduate vs. Non-Graduate) demonstrated that while a few cases approached the absolute value of 3.3, all of the cases fell within the criteria indicating no outliers in the sample. An examination of case wise diagnostics with Mahalanobis Distance also suggested outliers existed among the cases included in this study. However, given the large sample size, the outliers likely did not have undue influence on the results. In addition, the Cook's Distance value indicated that no particular individual observations had undue influence on the results.

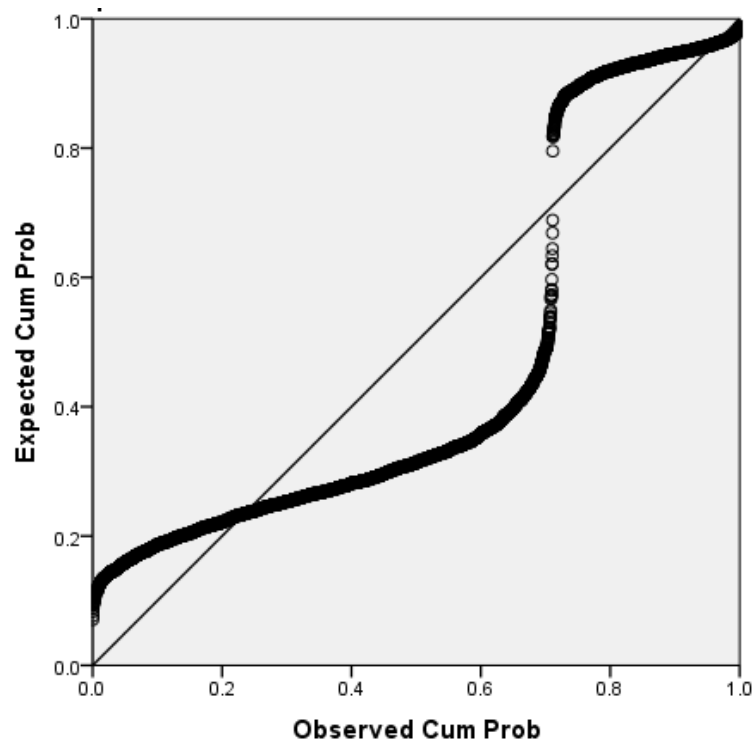


Figure 3.1. Normal P-P Plot of Regression Standardized Residual Dependent Variable: Graduate or Non-Graduate.

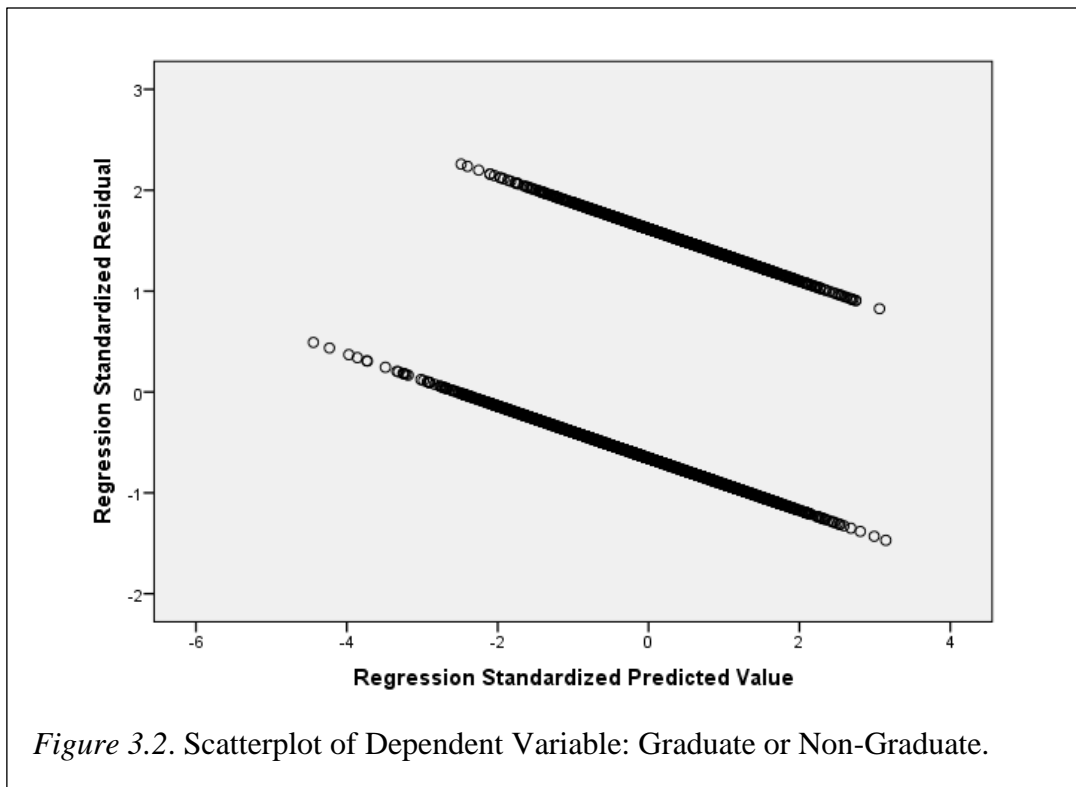


Figure 3.2. Scatterplot of Dependent Variable: Graduate or Non-Graduate.

Selection of predictors of graduation status.

Based on the statistical tests on the 23 predictor variables, nine variables were eliminated from the original list of potential variables. Two of the variables, age student began school and grade student began school, were clearly not significant at the $p \leq .05$ level and the magnitudes of the association between each of the two variables and graduation status were negligible. From a practical perspective, the age or grade a student entered the school system had little relevance as there was no way of determining what schooling, if any, had occurred prior to formal enrollment in the BC school system. It was decided that both variables would be eliminated as they both had little to contribute in terms of explanatory value to the model.

Four of the potential predictor variables pertinent to the categorical designation and the age or grade of the student (i.e., age first identified in R/H, grade first identified in R/H, age first identified in special education, and grade first identified in special education) were

highly correlated. It was important to retain the Category R or H variable as this population was the focus of the study. Again, retaining the grade variable as opposed to the age variable made logical sense as the measure of success in school. Therefore, the 'grade first identified in R/H' was retained as the variable identifying the categorical designation that was most critical to the study. The variables 'age first identified in R/H,' 'age first identified in special education,' and 'grade first identified in special education' were eliminated.

An additional three variables, last grade enrolled, number of years enrolled from Grade 8 and age when student left school were eliminated because they were confounded with graduation status. These variables reflect a student who is a graduate from high school. The BC school system is structured for students to graduate within five or sometimes six school years. It is understood that early departure from school or leaving prior to attending high school for five years, would decrease the likelihood of graduation. Including any of the three variables would be tautological and therefore they were not included in the binary logistic regression analysis.

One additional variable, grade repeated first time, was eliminated due to the large number (39.4%) of missing cases. Because SPSS does a listwise deletion of missing values, only cases with non-missing values for the dependent as well as all independent variables were used in the analysis. Keeping this variable would have significantly affected the sample size and may also have biased the outcome.

The Tolerance statistic and VIF were re-run on the final 14 predictor variables and the results indicated that the issue of collinearity was resolved. A re-analysis of standardized residuals was carried out with the 14 predictor variables. The P-P plot indicated that the majority of the observations were now clustered along the normal distribution line indicating

with more confidence that there were no outliers. Also given the large sample size, it was unlikely that there were any influential outliers. The 14 remaining predictor variables satisfied all the considerations and were selected as the predictors of outcomes for graduation in this study. See Appendix B for the distribution and coding of the 14 variables.

Logistic regression analysis - Graduation

Logistic regression analysis is the analytic tool of choice when the phenomena to be studied are discrete rather than continuous in nature. The binary discrete phenomena investigated in this study were ‘graduates’ or ‘non-graduates.’ The dependent variable ‘graduates’ was represented by the value of 1 and the dependent variable ‘non-graduates’ was represented by the value of 0. Logistic regression makes no assumption about the distribution of the independent variables. The regression coefficients can take any form and in this study were a mix of continuous and categorical variables. The regression coefficients demonstrated the increase or decrease in the predicted probability of students who graduated from high school due to a change in the independent variables.

Because the relation between the predictor variables (independent variables) and outcome variables (dependent variables) was not presumed to be a linear function, the measure associated between the predictor variables and the response variables was represented by the odds. The odds were defined as ratios of probabilities of Y happening (π) to probabilities of Y not happening ($1-\pi$) and represented the relative frequency with which different outcomes occurred. The comparisons of odds provided knowledge of the relationships and strengths among the variables, while their confidence intervals demonstrated their statistical significance.

The following equation is the basic formula to predict the probability of the occurrence of the outcomes of interest:

$$\pi = \text{Probability (Y = outcome of interest | X= x, a specific value of X)} = \frac{e^{\alpha + \beta x}}{1 + e^{\alpha + \beta x}}$$

where π is the probability of the outcome of interest (i.e., graduation), α is the Y intercept (the constant in the equation), β is the coefficient of the predictor variables, and $e = 2.71828$, the base of the system of natural logarithms.

Given that multiple predictors were explored in this study, a complex logistic regression equation for Y was used to predict the probability of occurrence of the outcomes of interest:

$$\pi = \text{Probability (Y = outcome of interest | X}_1 = x_1, X_2 = x_2, \dots, X_n = x_n) = \frac{e^{\alpha + \beta_1 x_1 + \beta_2 x_2 \dots \beta_n x_n}}{1 + e^{\alpha + \beta_1 x_1 + \beta_2 x_2 \dots \beta_n x_n}}$$

where π is the probability of the outcome of interest (i.e., graduation), α is the Y intercept, β s are regression coefficients, Xs are the set of predictors, and $e = 2.71828$, the base of the system of natural logarithms.

The analytic approach of the log-odds is sometimes known as logit analysis. An alternative form of the logistic regression equation is:

$$\text{logit} [\pi(x)] = \log \left[\frac{\pi(x)}{1 - \pi(x)} \right] = \alpha + \beta_1 x_1 + \beta_2 x_2 \dots \beta_n x_n$$

The enter method was used in this binary logistic regression analysis where all independent variables were introduced into the equation in one step. It is a preferred method when conducting either purely predictive analyses or exploratory analyses (Menard, 2002). When conducting purely predictive research, the goal is to identify a set of predictors that can accurately predict some phenomenon such as graduation, as in this current study. Causality is not a concern. In exploratory research, there may be an attempt to support a theory to predict or explain a phenomenon, such as the theory of student engagement. In this study, the binary logistic regression procedures appeared to be appropriate in both contexts. The analysis included all Category R and Category H students identified for this study to explore whether there was a variable or a combination of variables that can differentially predict students who graduate from those who do not graduate.

The logistic regression results included an overall evaluation of the logistic model as well as the appropriateness, adequacy and usefulness of the model. Three inferential statistical tests were used to assess the overall model: the likelihood ratio test, the score test and the Wald test. The statistical test to determine the significance of individual predictors was the Wald chi-square statistic. The goodness of fit test was used to measure how well the model described the response variable. The Hosmer-Lemeshow test was used to assess the goodness of fit while allowing for any number of response variables in any form (i.e., continuous or categorical).

Logistic regression analysis of sub-populations.

Two additional sub-categories were identified in the literature review as relevant to a separate analysis: Aboriginal students with behaviour disorders and mental illnesses and

English Language Learners (ELL) with behaviour disorders and mental illnesses. Each sub-category was examined separately. This addressed the second research question in this study: If a factor or combination of factors can be identified, are they the same factors and do these factors have the same or different degree of predictability for students with Aboriginal or ELL status and students with non-Aboriginal or non-ELL status? A binary logistic regression analysis was conducted with the same dependent and independent variables that were used in the original analysis with the four cohorts of students with behaviour disorders and mental illnesses in this study.

Single variable analysis.

A single variable analysis was conducted to inform the third research question: Is there a relationship between the age at which students are first identified and reported with a categorical designation and whether they will graduate from high school? A separate analysis with the variable, 'age first identified in R/H' was necessary because this variable was not included in the original analysis due to a high correlation with the variable 'grade first identified in R/H.' The dependent variable, 'graduate' or 'non-graduate,' remained the same as the previous analysis.

The following chapter describes the results of both the descriptive analysis and the predictive analysis of the students in this study.

Chapter 4: Results

Introduction

This chapter describes the results of a retrospective analysis of four cohorts of students identified with behaviour disorders and mental illnesses. The purpose of this analysis was to examine student data, from the time of their enrollment in kindergarten through to the time the students finished or left high school, to explore whether there is a common identifiable factor or combination of factors that could distinguish between students who successfully complete high school from those who do not. The study used data provided by the BC Ministry of Education to attempt to answer the following questions:

1. Is there a factor or combination of factors that can distinguish students with behaviour disorders and mental illness who complete high school from those who do not?
2. If a factor or combination of factors can be identified, are they the same factors and do these factors have the same or different degree of predictability for students with Aboriginal or ELL status and students with non-Aboriginal or non-ELL status?
3. Is there a relationship between the age at which students are first identified and reported with a categorical designation and whether they will graduate from high school?

This chapter begins with a descriptive analysis of the cases under investigation in this study. Patterns, themes and potential critical factors associated with successful high school completion for students who have been identified and reported with behaviour disorders and mental illness emerged from the descriptive analysis.

Several tests were conducted to assess the significance of the individual predictor variables and additional tests were conducted as part of the screening process to prepare the data. These procedures were described in Chapter 3. Of the 23 potential predictor variables,

14 predictor variables satisfied all the considerations. The 14 variables were applied to logistic regression analyses to further explore and examine with what degree of accuracy they could predict whether students with behaviour disorders and mental illness would, or would not, successfully complete high school. The odds ratios and predictive probabilities are reported.

A secondary analysis was also conducted to explore two specific sub-groups: a) students of Aboriginal status, and b) students with ELL status. Both of these sub-groups are of specific interest given their prevalence in British Columbia. As a point of reference, in the 2014-2015 school year 10.5% of the student population was identified as students with Aboriginal status and 10.2% was identified as English Language Learners (BC Ministry of Education, 2015b).

A final analysis was conducted with one variable that was not included in the logistic regression analysis, 'age students were first identified in R/H' due to a high correlation with another variable. This analysis was in response to the third research question regarding a potential relationship between the age at which students are first identified and reported with a categorical designation and whether they would graduate from high school.

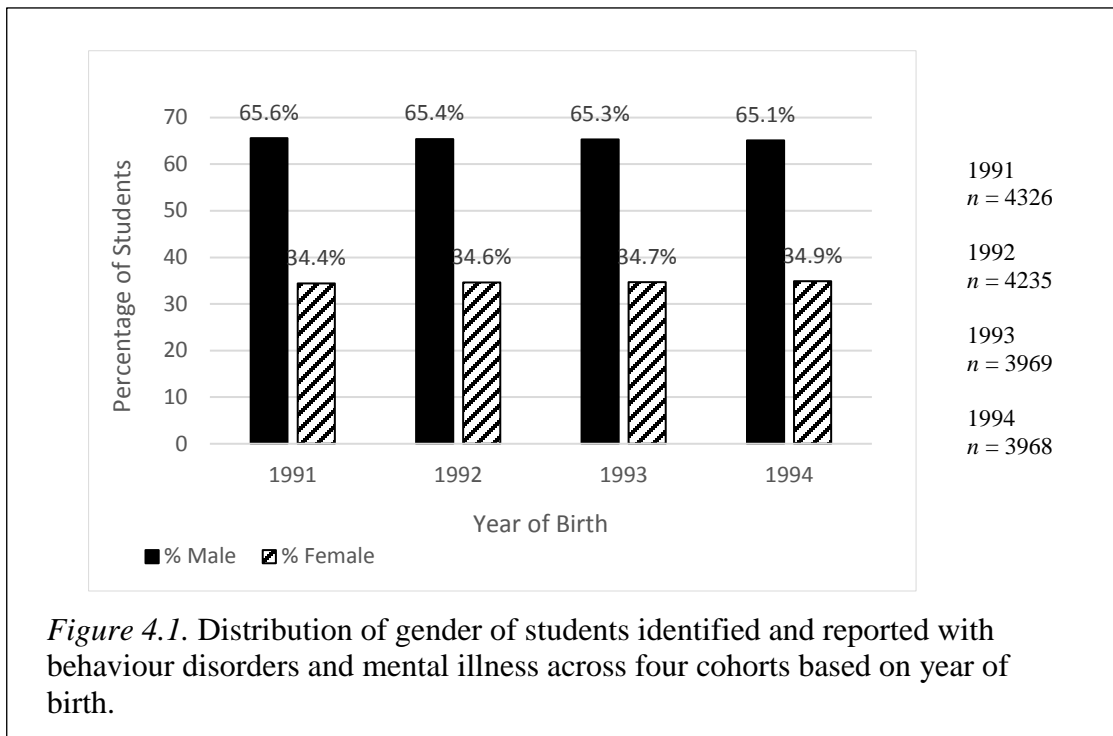
Descriptive Analysis

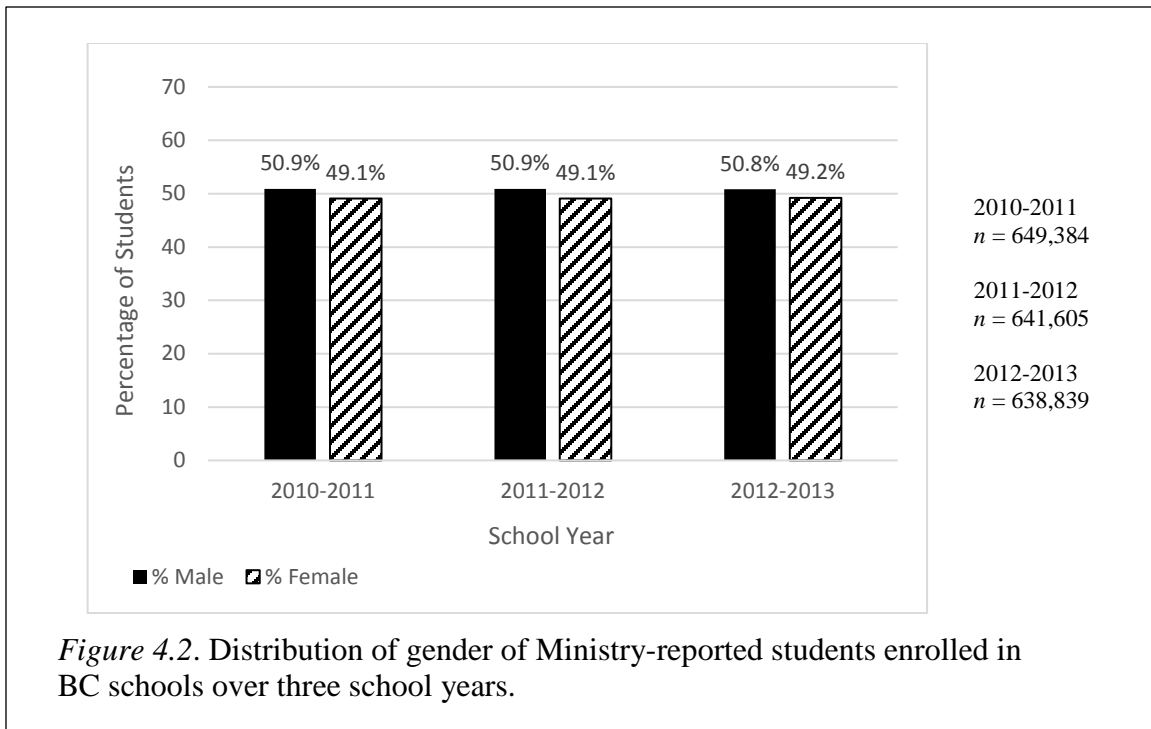
This section provides a descriptive analysis of the students ($N = 16,498$) who were included in this study. The descriptive analysis is provided in four sections: 1) student-level observations, 2) school-related observations, 3) special needs designation observations, and 4) FSA achievement observations.

Student-level observations.

Gender.

Figure 4.1 shows the gender distribution of students identified and reported with behaviour disorders and mental illness in this study. Approximately twice as many males (65.4%) as females (34.6%) were identified and reported with behaviour disorders and mental illness. The ratio of males to females appeared to be consistent across each of the four cohorts in this study. The ratio is in contrast to the relatively equal distribution of males to females across Ministry-reported student population in British Columbia (BC Ministry of Education, 2015b). As shown in Figure 4.2, the ratio of males to females was relatively consistent across three school years, 2010-2011, 2011-2012 and 2012-2013.





Aboriginal status.

Figure 4.3 shows almost one third (32.5%) of the students who were reported and identified with behaviour disorders and mental illness in this study were also reported as having Aboriginal status at some point in their school career. This is in contrast to the Ministry-reported number of students from the 2012-2013 school year that indicated 11.0% of all students enrolled in BC schools were reported as having Aboriginal status at some point in their school career (BC Ministry of Education, 2015b). Further analysis of this sub-group is discussed later in this chapter.

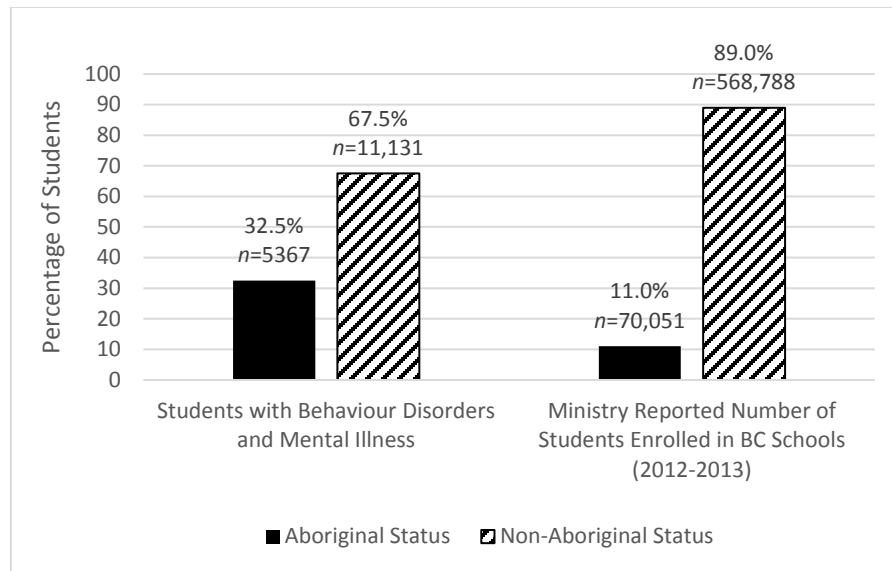


Figure 4.3. Comparison of the distribution of Aboriginal status between students reported with behaviour disorders and mental illness and Ministry-reported students in BC schools.

English language learner (ELL).

As illustrated in Figure 4.4, approximately one fifth (19.3%) of the students reported with behaviour disorders and mental illness were reported as having ever been ELLs at some point in their school career. In comparison, only one tenth (10.1%) of the students enrolled in BC schools in the 2012-2013 school year were reported as having ever been ELL at some point in their school career (BC Ministry of Education, 2015b). The percentage of ELLs reported with behaviour disorders and mental illness in this study is almost twice that of the general population as reported in the 2012-2013 school year. Additional analysis of this subgroup is discussed later in this chapter.

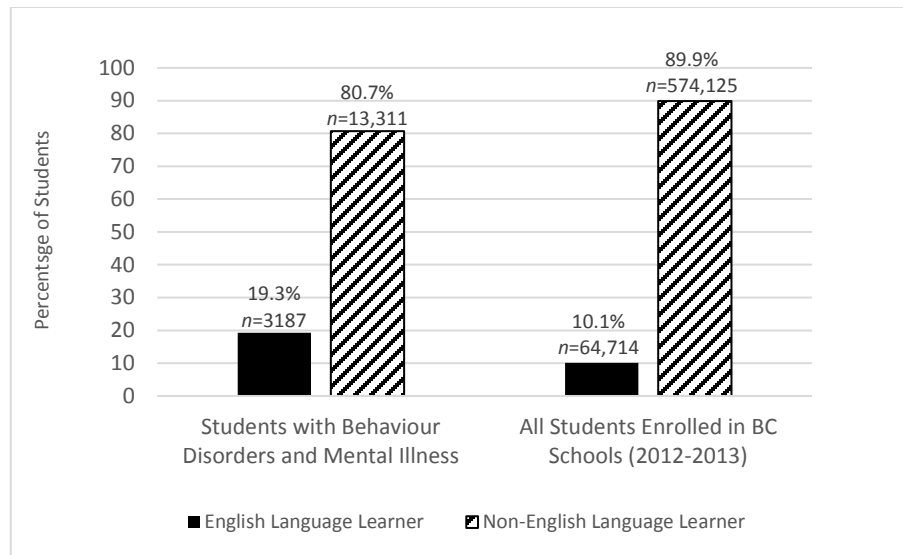


Figure 4.4. Comparison of the distribution of ELL status between students reported with behaviour disorders and mental illness and Ministry-reported students in BC schools.

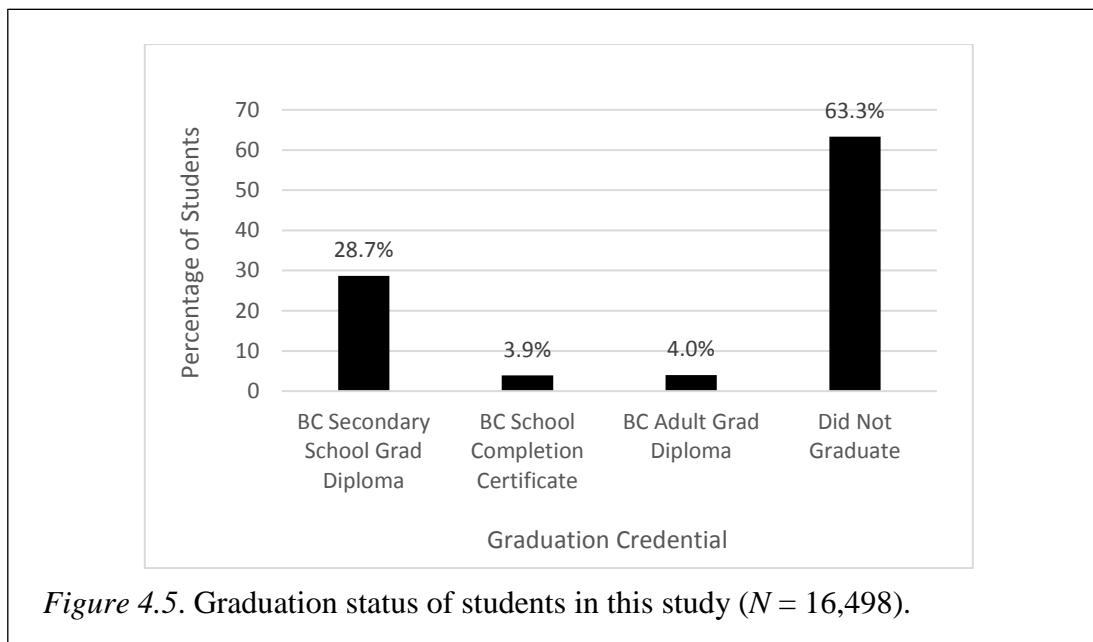
Graduation status.

Figure 4.5 illustrates the graduation status of the students in this study.

Approximately one-third of the students reported with behaviour disorders and mental illness (32.6%) in this study achieved some form of graduation status. Of these students, 28.7% graduated from high school receiving a BC Secondary School Graduation (Dogwood) diploma and 3.9% graduated receiving a BC School Completion (Evergreen) certificate. An additional 4.0% of the students met graduation requirements through the BC Adult Graduation Diploma, an alternative certificate available to adult learners (18 and older) that leads to graduation. The graduation rate of the students in this study (36.7%) is in contrast to

the 83.6% six-year completion rate¹⁴ of all students enrolled in 2012-2013 (BC Ministry of Education, 2015c).

Almost two thirds of the students (63.3%) reported with behaviour and mental illness in this study did not graduate from high school compared to the 16.4% of the general population of students that did not complete high school in 2012-2013 (BC Ministry of Education, 2015c). Of the students with behaviour disorders and mental illness who did not graduate, there were twice as many males (41.5%) compared to females (21.8%). Likewise, of the students with behaviour disorders and mental illness who graduated, there were twice as many males (23.9%) as females (12.8%). Given that the ratio of males to females who graduated and did not graduate was similar to the overall ratio of males to females in the study, these data were inconsequential.



¹⁴ Six-Year Completion Rate – The proportion of students who graduate, with a British Columbia Certificate of Graduation or British Columbia Adult Graduation Diploma, within six years from the first time they enrol in Grade 8, adjusted for migration in and out of British Columbia.

Graduation status was examined for two specific sub-groups in this study, students with Aboriginal status and students with ELL status. Only one quarter (25.4%) of the students who were ever identified with Aboriginal status in this study completed high school in comparison to 59.4% of Aboriginal students who completed high school in the 2012-2013 school year (BC Ministry of Education, 2015c). Approximately one third (33.1%) of the students who were ever identified with ELL status in this study completed high school in comparison to the 86.1% of ELL students that completed high school in the 2012-2013 school year. The school completion rates of students with Aboriginal status and students with ELL status with behaviour disorders and mental illness were consistently lower than the general population of Aboriginal and ELL students.

School-related observations.

Entry into the British Columbia school system.

As shown in Table 4.1, the majority of students (85.7%) entered the school system in kindergarten and most of the students (84.4%) began kindergarten at the age of 5 by December 31 of the calendar year. Only 1.3% of the students in the study were held back one year and began kindergarten at age 6. There was no record of 14.3% of the students in the study entering kindergarten. These students possibly entered into the school system at another time, in another grade, or into an ungraded class. Ninety-three percent of the students had entered the school system before beginning Grade 4. Ninety-seven percent of the students identified and reported as having a behaviour disorder or mental illness had entered the school system by Grade 7.

Table 4.1. *Grade students entered into the BC school system (N = 16,498)*

Grade Level	Number of Students	Percentage of Students
Kindergarten	14131	85.7
Gr. 1-3	1205	7.3
Gr. 4-7	677	4.1
Gr. 8-10	350	2.1
Gr. 11-12	64	0.4
Ungraded Elementary	7	0.0
Ungraded Secondary	20	0.1
Home Schooled	44	0.3

Based on the age of entry into the British Columbia school system, 93.3% of the students began school by age 8 and 97.4% had entered the school system by age 12. Only a small percentage of students entered the school system between 13 and 19 years of age, with the majority of these students entering the school system in their early teenage years.

Grades repeated.

Almost two thirds (62.3%) of the students identified and reported with behaviour disorders and mental illness repeated a grade or grades during their school career. As shown in Figure 4.6, of the students that repeated a grade, 45.1% repeated a grade once, 15.8% repeated a grade twice, and 1.7% repeated a grade three or more times. Only 37.7% of the students in this study did not repeat a grade during the time they were enrolled in school.

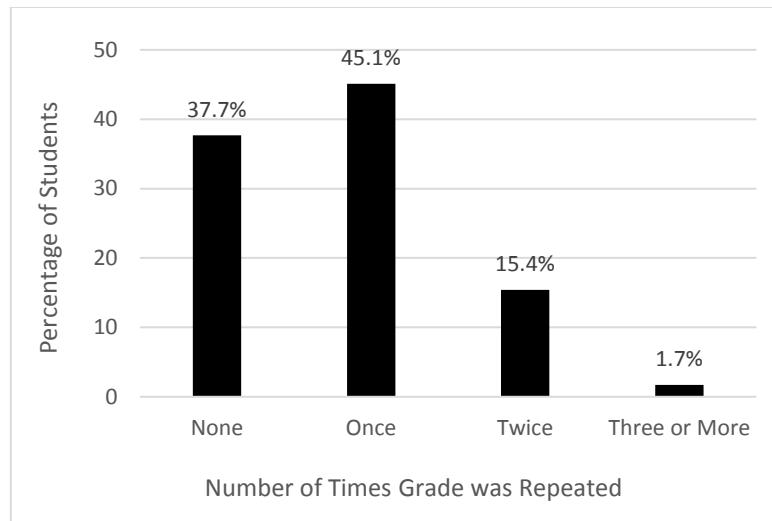


Figure 4.6. Number of grades repeated ($N = 16,498$).

As illustrated in Table 4.2, more than three-quarters of the students (81.9%) first repeated a grade between Grade 8 and 12 with the majority of the students repeating a grade between Grades 10 and 12. Very few students (1.4%) repeated at the kindergarten level and only 12% repeated a grade between Grades 1 and 7.

Of all the students that repeated a grade ($n = 10,276$), approximately one quarter of the students (25.9%) completed high school. This is in contrast to the students that did not repeat a grade ($n = 6222$) where well over half of the students (55%) completed high school. This study demonstrated that the school completion rate of students with behaviour disorders and mental illness that repeated a grade was lower than the overall graduation rate of the students with behaviour disorders and mental illness in this study (36.7%).

Table 4.2. *Relationship between graduation status and grade level the first time a grade was repeated (n = 10,276)*

Grade Repeated	Graduate	Non-Graduate	Total
Kindergarten	48 (0.5%)	92 (0.9%)	140 (1.4%)
Gr.1 to Gr.3	161 (1.6%)	479 (4.7%)	640 (6.2%)
Gr.4 to Gr.7	129 (1.3%)	467 (4.5%)	596 (5.8%)
Gr.8 to Gr.9	484 (4.7%)	2166 (21.1%)	2650 (25.8%)
Gr.10 to Gr.12	1726 (16.8%)	4036 (39.3%)	5762 (56.1%)
Other*	110 (1.1%)	378 (3.7%)	488 (4.7%)
Total	2658 (25.9%)	7618 (74.1%)	10276 (100%)

Note: Total percentages and columns and rows may not be exact totals because of rounding.

* Other is with reference to Elementary Ungraded, Secondary Ungraded, Home Schooled and Graduated Adult

Gaps in school enrollment.

A majority of the students identified and reported with behaviour disorders and mental illness (77.7%) stayed in school from the time they first enrolled until they graduated or left school. Almost one quarter of the students (22.3%) were not enrolled for one or more years at some point during their school career. Thirteen percent of the students were not enrolled for one year and 4.9% were not enrolled for two years. Approximately 4.4% of the students were not enrolled for 3 or more years.

Number of schools attended.

Table 4.3 illustrates the number of schools that were attended by students in this study. Almost half of the students (48.4%) attended up to 4 different schools while 51.6% of the students attended 5 or more schools over the course of their school career. A small percentage of students (1.3%) attended 10 or more schools. The mean number of schools

attended by students in this study who were identified and reported with behaviour disorders and mental illness is 4.76 ± 1.89 .

The relative number of students who graduated from high school high school was higher than the number of students who did not graduate from high school for those who attended two or three schools over the course of their school career. Only one sixth of the students who attended the same school throughout their school career graduated from high school. For students who attended four or more schools, the relative number of students who graduated from high school was consistently lower than the number of students who did not graduate and the number of students who graduated decreased as the number of schools they attended increased. A similar pattern was noted for non-graduates for students who attended six or more schools.

Table 4.3. *Relationship between graduation status and number of schools attended over school career (N = 16,498)*

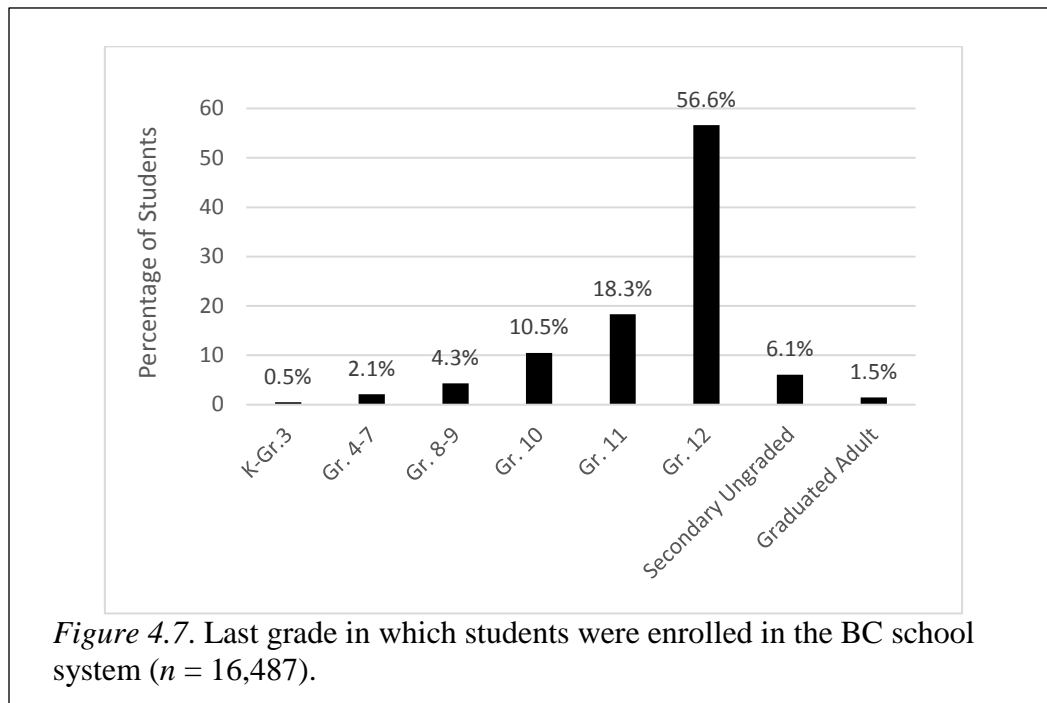
Number of Schools Attended	Graduate	Non Graduate	Total
1	47 (0.3%)	262 (1.6%)	309 (1.9%)
2	723 (4.4%)	631 (3.8%)	1354 (8.2%)
3	1444 (8.8%)	1387 (8.4%)	2831 (17.2%)
4	1431 (8.7%)	2059 (12.5%)	3490 (21.2%)
5	1098 (6.7%)	2175 (13.2%)	3273 (19.8%)
6	660 (4.0%)	1693 (10.3%)	2353 (14.3%)
7	378 (2.3%)	1129 (6.8%)	1507 (9.1%)
8	151 (0.9%)	623 (3.8%)	774 (4.7%)
9	86 (0.5%)	305 (1.8%)	391 (2.4%)
10	22 (0.1%)	138 (0.8%)	160 (1.0%)
11	7 (0.0%)	34 (0.2%)	41 (0.2%)
12	4 (0.0%)	7 (0.0%)	11 (0.1%)
13	0 (0.0%)	4 (0.0%)	4 (0.0%)
Total	6051 (36.7%)	10447 (63.3%)	16498 (100%)

Note: Total percentages and columns and rows may not be exact totals because of rounding.

Exit from the school system.

Of the 16,498 students identified in this study, 16,020 (97.1%) were enrolled in Grade 7. A small number of students (2.7%) were never enrolled in a British Columbia school after Grade 7. For these students, the last grade enrolled was spread over the eight years between kindergarten and Grade 7. The number of students enrolled in Grade 8 dropped to 14,985 or 90.8% of the sample. Some students did not enroll in Grade 8 but were found to have enrolled again in Grade 9 (2.7%), Grade 10 (1.2%), Grade 11 (.5%) or Grade 12 (0.1%) and

1.9% were enrolled in a secondary ungraded class¹⁵. As can be seen in Figure 4.7, 56.6% of the students in this study enrolled in Grade 12. The majority of the students who did not enroll in Grade 12 left after Grade 10 (10.5%) or Grade 11 (18.3%).



Note: Students who were enrolled in Elementary Ungraded (3 students) and students who were home schooled (8 students) were not included in this graph due to the low numbers.

Table 4.4 shows the number of years students were enrolled in high school. Typically, students enter Grade 8 and stay enrolled for 5 years to graduate. Of the students in this study, 41.4% of the students were enrolled for 5 years and 26.3% of the students were enrolled for a sixth year of high school. An additional 8.4% of students continued for a 7th, 8th or 9th year of

¹⁵ The BC Ministry of Education defines secondary ungraded (SU) as students who are taking courses at the Grade 8-12 level and the school personnel does not consider the student to be in a specific grade' (Ministry of Education, no date).

high school. Just under one quarter of the students (24%) left school before enrolling in their fifth year of high school.

The majority of the students who graduated from high school were enrolled in high school for 5 years from beginning Grade 8. Another relatively large group of students who graduated from high school were enrolled in high school for a sixth year. Of the students who were enrolled beyond 6 years from the time they entered Grade 8, there were relatively fewer students who graduated from high school compared to those who did not graduate.

Table 4.4. *Relationship between graduation status and number of years attended from Grade 8 (N = 16,498)*

Number of Years	Graduate	Non-Graduate	Total
0	2 (0.0%)	437 (2.6%)	439 (2.7%)
1	9 (0.1%)	266 (1.6%)	275 (1.7%)
2	31(0.2%)	423 (2.6%)	454 (2.8%)
3	65 (0.4%)	903 (5.5%)	968 (5.9%)
4	213 (1.3%)	1592 (9.6%)	1805 (10.9%)
5	3890 (23.6%)	2945 (17.9%)	6835 (41.4%)
6	1506 (9.1%)	2837 (17.2%)	4343 (26.3%)
7	318 (1.9%)	889 (5.4%)	1207 (7.3%)
8	17 (0.1%)	133 (0.8%)	150 (0.9%)
9	0 (0.0%)	22 (0.1%)	22 (0.1%)
Total	6051 (36.7%)	10447 (63.3%)	16498 (100%)

Some of the data in Table 4.4 reflect very unusual patterns of school attendance. The results indicated that two students graduated after completing no years of high school. This is an unlikely scenario, but one that could not be verified. One plausible explanation could be that the students transferred into a British Columbia school from another province in Grade

12, after the September 30th data collection, and completed high school that year. This may also be error in the data. Similar explanations may apply to the nine students who were reported to have attended high school for one year, yet were reported as graduates. It is plausible, for example, that these students transferred from another province and completed their graduation requirements in a school in British Columbia. Students who graduated but completed less than five years in high school could also reflect students who were working towards school completion certificates. The BC Ministry of Education grants school completion certificates to students who have successfully completed the goals and objectives contained in their individual educational plan (Ministerial Order 205/95) and there is no associated time requirement.

Figure 4.8 illustrates the age at which the students in this study left the school system. Very few students (3%) left the school system before the age of 13. Between the age of 13 and 15, an additional 8.3% of students left school, indicating that by age 15, 11.3% of the students in this study were no longer enrolled in school.

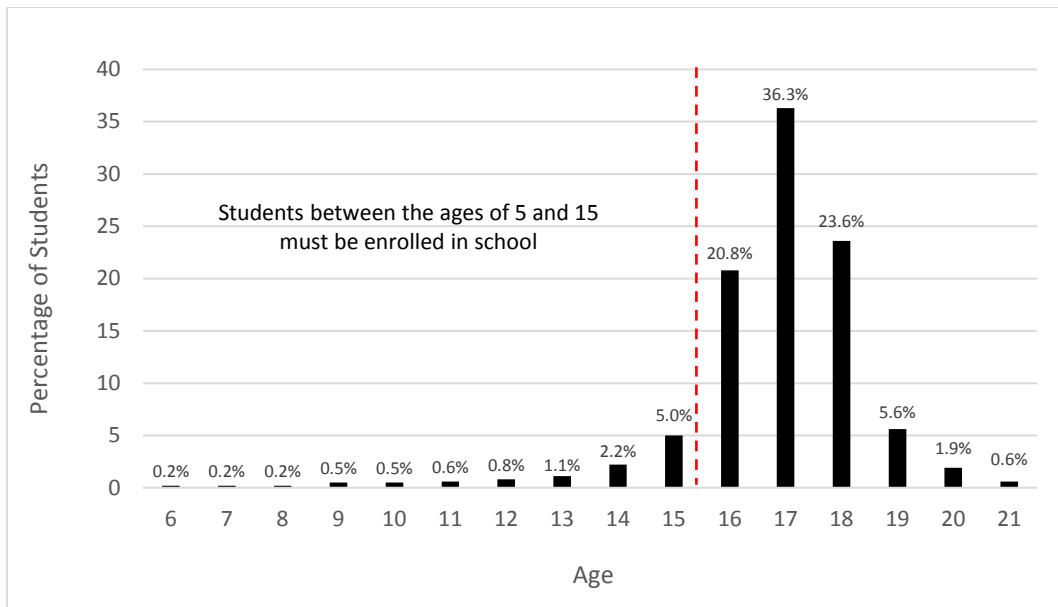


Figure 4.8. Age student left the school system (N = 16,498).

Between the ages of 15 and 16, the number of students who left the school system quadrupled from 5.0% to 20.8%. It should be noted here that in British Columbia, it is not mandatory for students to attend school after the age of 15. Leaving school occurred most frequently between ages 16 and 18. Almost 60% of the students did not leave school until age 17 or 18 and 5.6% of the students did not leave school until age 19. The data also indicate that 2.5% of the students stayed enrolled in school although they were no longer of school age.

Table 4.5 shows the relationship between the age at which students left school and whether or not they graduated. Although over one third of the students stayed in school until they were 17 years old, fewer than half of these students graduated from high school. Of the students who stayed in school until they were 16, approximately half graduated from high school. The relative number of students that graduated from high school decreased as the age at which the student left school increased beyond 17 years of age.

Table 4.5. *Relationship between graduation status and age at which students left school (N = 16,498)*

Age	Graduate	Non Graduate	Total
4 to 8 Years	0 (0.0%)	104 (0.6%)	104 (0.6%)
9 to 12 Years	3 (0.0%)	385 (2.3%)	388 (2.4%)
13 to 15 Years	28 (0.2%)	1338 (8.1%)	1366 (8.3%)
16 Years	1723 (10.4%)	1705 (10.3%)	3428 (20.8%)
17 Years	2726 (16.5%)	3264 (19.8%)	5990 (36.3%)
18 Years	1218 (7.4%)	2674 (16.2%)	3892 (23.6%)
19 Years	254 (1.5%)	663 (4.0%)	917 (5.6%)
> 19 Years	99 (0.6%)	314 (1.9%)	413 (2.5%)
Total	6051 (36.7%)	10447 (63.3%)	16498 (100%)

School and facility type.

The study included students enrolled in both public and independent schools. As students could move in and out of various programs, the school and facility type were determined based on September 30th of the last year a student was enrolled before graduating or leaving school. The majority of the students (97.8%) were enrolled in one of 60 public school districts. The rest of the students (2.2%) were enrolled in one of 67 of approximately 330 independent schools.

The BC Ministry of Education also collected data on the type of facility in which the students were enrolled. The ministry coding of facilities falls into 8 categories: 1) Standard: Standard schools include the public and independent school facility, sometimes referred to as “brick-and-mortar” schools; 2) Alternate: Alternate Education schools focus on the educational, social and emotional issues for those students whose needs are not being met in

a traditional school program. The schools provide support through differentiated instruction, program delivery and enhanced counseling services based on student need; 3) Continuing Education: These programs are usually adult education programs offered by school districts, either leading to high school completion or the upgrading of a current graduation certificate; 4) Distance Education: Distance Education is a form of Distributed Learning, a method of instruction that relies primarily on indirect communication between students and teachers including internet or other electronic-based delivery, teleconferencing or correspondence; 5) District Distance Education: Also a form of Distributed Learning that is administered by the school district; 6) District Electronic Education: Another form of Distributed Learning historically referred to as electronic delivery, electronic programs or Distributed Electronic Learning; 7) Long Term Provincial Resource Programs (PRP): PRPs are facilities for special needs students who, for health or other reasons, do not attend a regular school. Students are in Long Term PRPs for over 3 months; and 8) Youth Custody: These are centres where students may be sent either by court order or while they are on probation. For the descriptive analysis, Distance Education, District Distance Education and District Electronic Education were collapsed into one category and relabelled as Distance Education.

As shown in Figure 4.9, more than half of the students with behaviour disorders and mental illness (54.4%) were last enrolled in a standard school. Of all the students in this study, almost one third of the students (31.4%) were last enrolled in an alternate setting. It should be noted that types of alternate settings varied within and between school districts. Less than 5% of the students were last enrolled in Continuing Education. More than 9% of the students were last enrolled in Distance Education. Finally, fewer than 1% were enrolled in Long Term PRPs or were in Youth Custody.

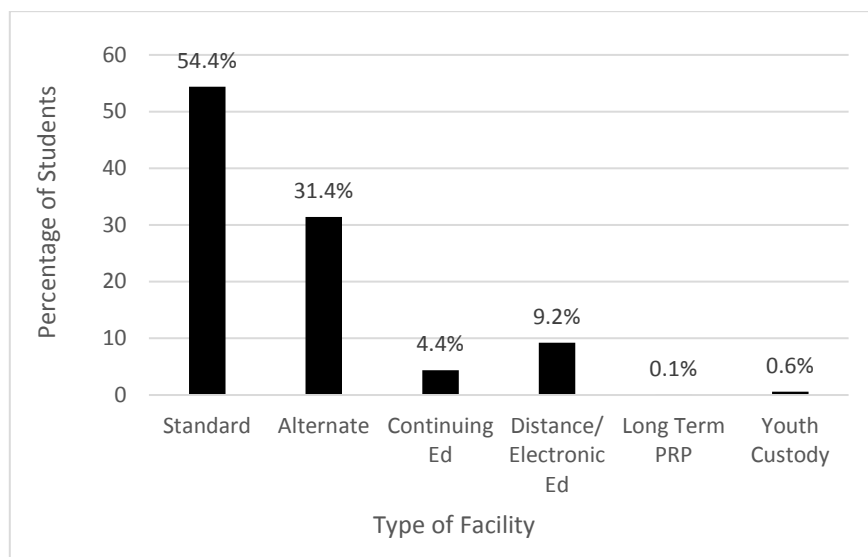


Figure 4.9. Facility type in which students were last enrolled before graduating or leaving school ($N = 16,498$).

Of the students who were last enrolled in a standard setting approximately one half of the students (49.3%) graduated from high school. Of the students who were last enrolled in a non-standard setting, including alternate schools as well as other facilities, approximately one fifth of the students (21.6%) graduated from high school.

Special needs designation observations.

Initial identification in category R or H.

All of the students in this study were reported to the Ministry of Education in one of two special needs categories (Category R or Category H¹⁶) at some time during their school career. The data indicated that for 87.7% of the students, Category R or Category H was their

¹⁶ Category R (Students Requiring Moderate Behaviour Support or Students with Mental Illness) and Category H (Students Requiring Intensive Behaviour Intervention or Students with Serious Mental Illness)

first special needs designation. Just under half of the students (49.5%) initially identified with behaviour disorders or mental illness were first identified in Category R, students with moderate behaviour or mental illness. A smaller percentage of students (38.3%) were first identified in Category H, students with intensive behaviour or severe mental illness. Students received this initial designation at different points during their school career and as late as 17, 18, or 19 years of age when students were typically in their final year of high school.

Initial identification in category R or H by age/grade.

The age and grade of initial identification and reporting of students in Category R or H, although not identical, followed a similar pattern. Approximately half of the students (50.7%) were first identified and reported with behaviour disorders and mental illness between the ages of 4 and 12 when students typically attend elementary grades (kindergarten to Grade 7). Initial identification began as early as 4 and 5 years of age when students typically enter kindergarten. About 22.8% of the students were first identified between ages 4 and 8, when they would typically be enrolled in primary grades (kindergarten to Grade 3). The actual percentage of students who were first identified and reported when enrolled in kindergarten to Grade 3 was 21.6%. More than one quarter of the students (27.9%) were first identified and reported with behaviour disorders and mental illness between ages 9 and 12. The actual percentage of students who were first identified and reported when enrolled in Grade 4 through to Grade 7 was 27.6%. The rest of the students (49.3%) were first identified between the ages of 13 and 19, when they would typically be enrolled in high school (Grade 8 to Grade 12). The actual percentage of students who were first identified and reported when enrolled in Grade 8 through to Grade 12 was 47.3%. The slight discrepancy between the age and grade students were identified and reported may primarily be due to delayed entry into

the school system, repeating a grade or grades, or withdrawing from school for one or more years and then re-entering the school system.

The largest percentage of students in this study first identified and reported with behaviour disorders and mental illness occurred at age 14 (10.6%) and 15 (11.8%). Based on the grade in which the students were enrolled, the largest number of students first identified with behaviour disorders and mental illness was in Grade 9 (11.3%) and Grade 10 (13.2%). The mean age of initial identification and reporting of all the students ($N = 16,498$) was 11.95 years \pm 3.625. There was little difference between the mean age of initial identification and reporting of graduates (11.73 years \pm 3.636; $n = 6051$) and non-graduates (12.07 years \pm 3.613; $n = 10,447$). As shown in Table 4.6, the relationship between the age the students were first identified and reported in Category R or H and school completion was relatively stable with approximately one third of the students graduating. The graduation rate ranged from 32.8% for students first identified and reported in Category R or H at age 13 to 15 to 39.8% for students first identified and reported in Category R or H at age 9 to 12.

Table 4.6. *Relationship between graduation status and age first identified and reported in Category R or H (N = 16,494)*

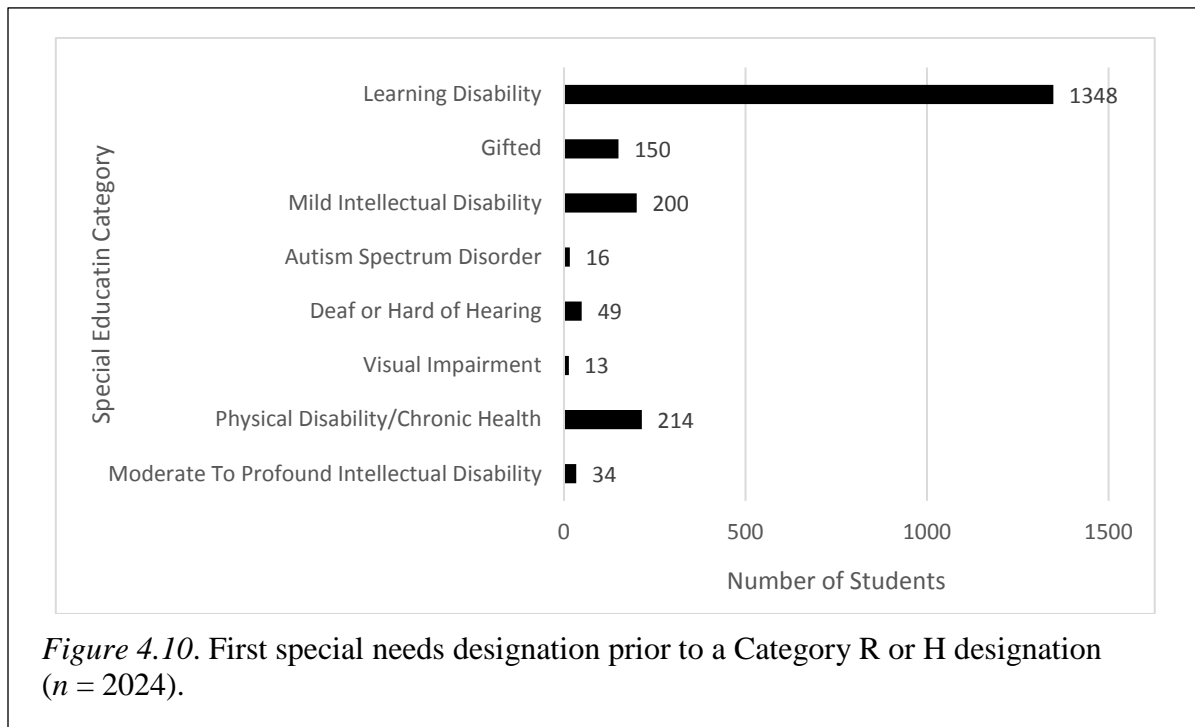
Age 1st identified in Category R or H	Graduate	Non Graduate
4 to 8 years old	38.8%	61.2%
9 to 12 years old	39.8%	60.2%
13 to 15 years old	32.8%	67.2%
16 to 19 years old	35.6%	64.4%
Overall	36.7%	63.3%

Note: Three students were first identified and reported at age 20 and one student at age 21 and were not included in this table.

Initial identification in a special needs category different from category R or H.

Although all of the students in this study were identified with behaviour disorders and mental illness by the school/school district at some point during their school career, some students had a different special needs designation prior to a Category R or H designation.

Students first designated in a special needs category different from Category R or H made up 12.3% of the students in the study ($n = 2024$). As shown in Figure 4.10, the majority of these students were first identified as having a learning disability (8.2%). Other initial designations included students with a physical disability or chronic health impairment (1.3%), students with a mild intellectual disability (1.2%), students who are gifted (0.9%), students who are deaf or hard of hearing (0.3%), students with moderate to profound intellectual disabilities (0.2%), students who have visual impairments, (0.1%) and students with an autism spectrum disorder (0.1%). A small number of students (0.9%) had two or more different designations prior to the Category R or H designation.



The data revealed that the first designation in another special needs category could occur at any time from kindergarten through to Grade 12. However, as illustrated in Figure 4.11, there was a higher likelihood that a student would have initially been designated in a special needs category other than a behavior and mental illness category in the earlier grades. Having a special needs designation other than Category R or H occurred most frequently at Grade 3 (18.7%). As the age and grades increased, there were fewer students who had a different diagnosis prior to a behaviour and mental illness designation. There were three students in Grade 12 with an initial diagnosis other than Category R or H. All three of these students were enrolled in Grade 12 for more than one year and subsequently had a Category R or H designation while still enrolled in the school system.

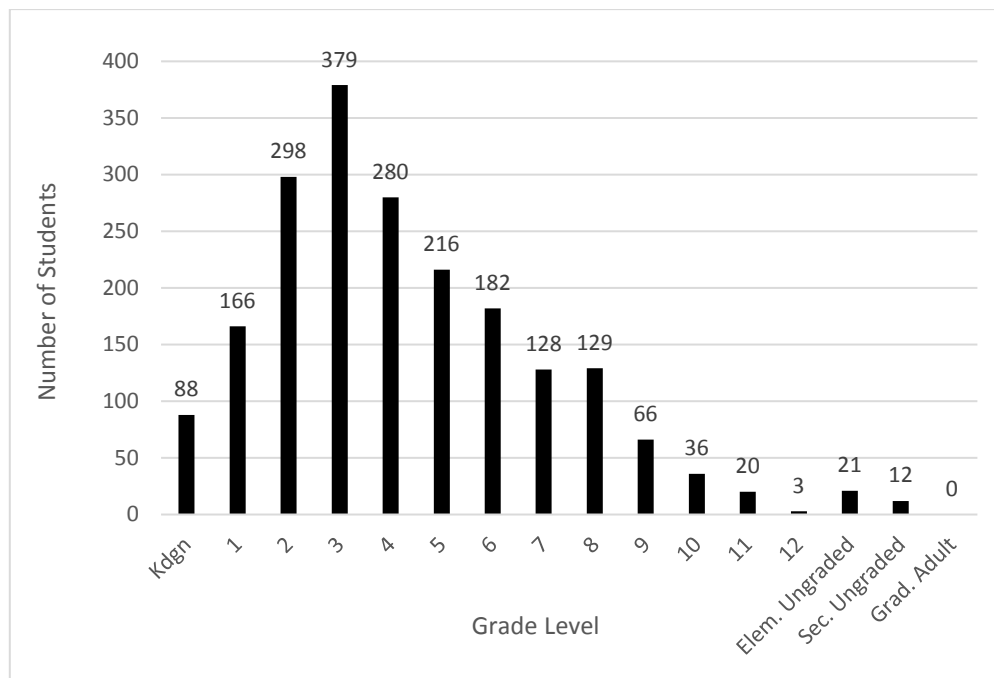
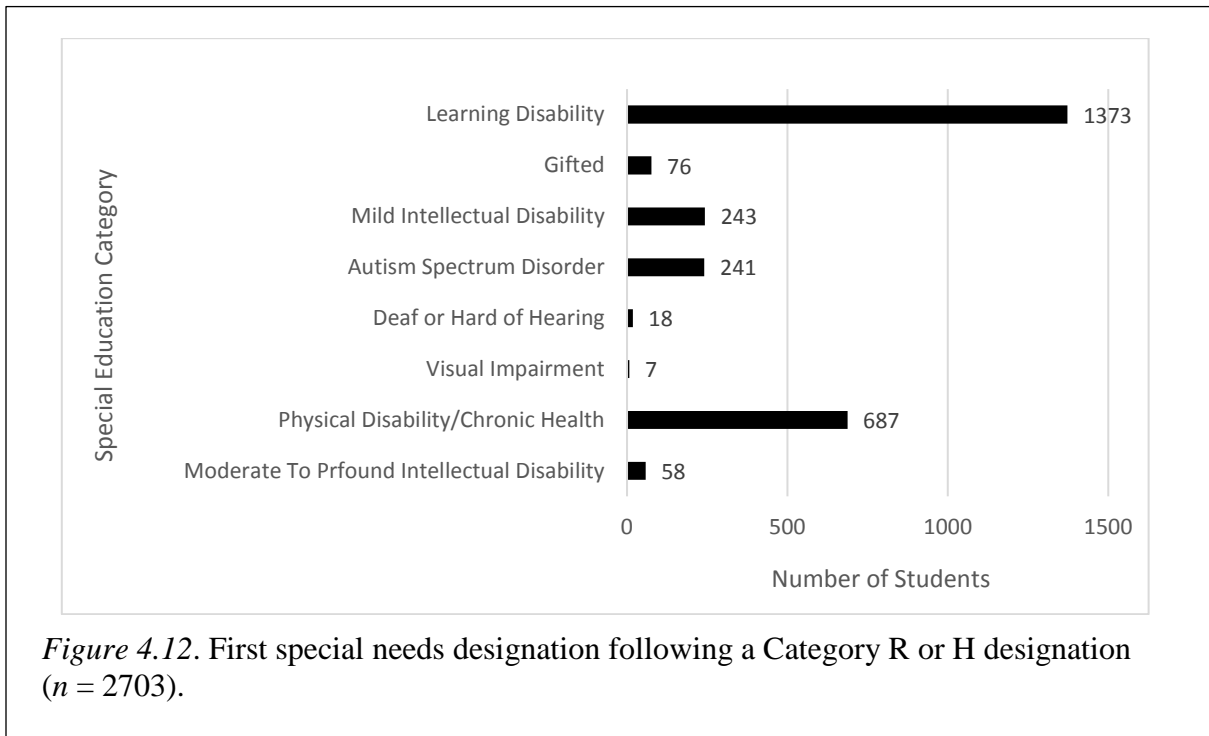


Figure 4.11. Grade first identified in a special needs category prior to a Category R or H designation ($n = 2024$).

Change from category R or H to a different special needs category.

Almost 16.4% of the students who were identified and reported with a Category R or Category H designation received one or more different subsequent special needs designations. As can be seen in Figure 4.12, the most common special needs designation was a learning disability which accounted for just over half (50.8%) of the subsequent designations. Six hundred eighty-seven students (25.4%) were later designated in the physical disability/chronic health category. This is more than three times as many students as those who were designated in the physical disability/chronic health impairment category prior to a Category R or H designation (214 students). A similar trend was observed for the 241 students (8.9%) subsequently designated in the Autism Spectrum Disorders category compared to the 16 students who were designated in this category prior to the Category R or H designation. An additional 243 students (9.0%) were designated in the mild intellectual disability following the Category R or H designation. The remaining 149 students were designated across several other categorical designations. A small percentage of the students (2.0%) received two or more different designations after receiving a Category R or H designation.



FSA achievement observations.

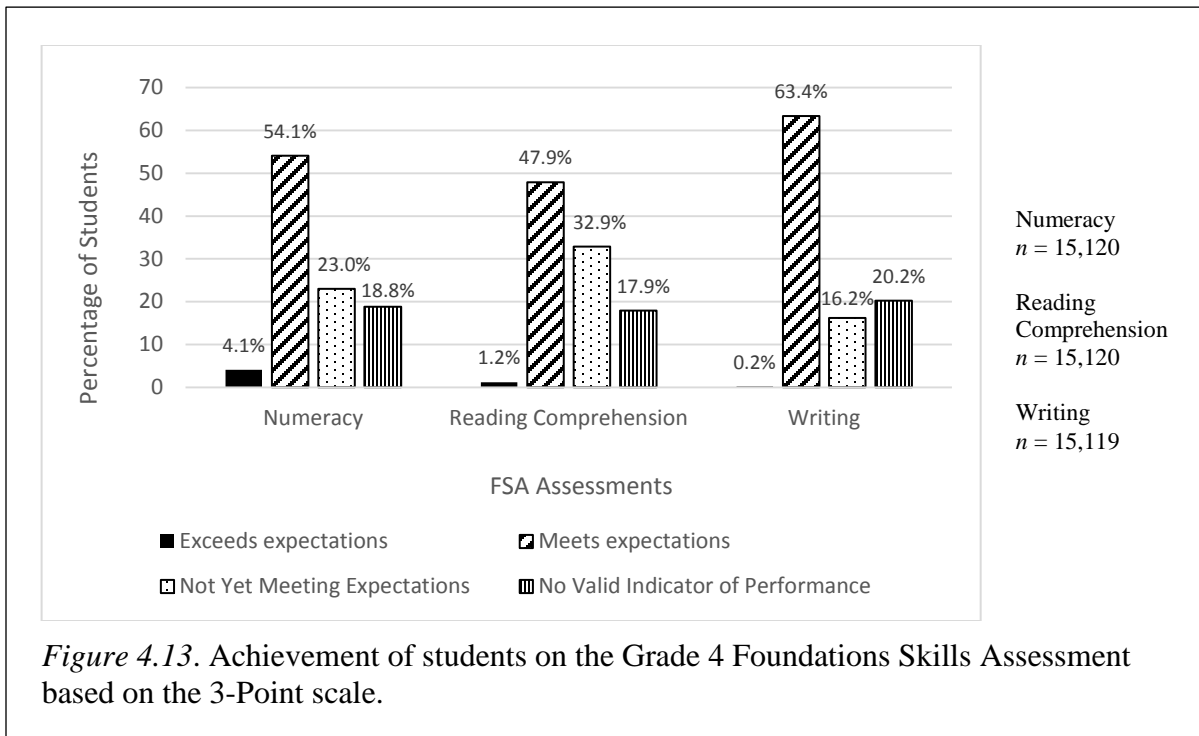
Foundational Skills Assessment (FSA) outcomes in Grade 4 and Grade 7 in the areas of numeracy, reading comprehension and writing were used as measures of student academic achievement. Three different types of FSA scores were extracted from the Ministry of Education database: 1) Percentage score – the student’s score as a percentage of possible marks; 2) IRT score – calibrated scores determined by the difficulty of items based on actual student responses; and 3) 3-Point scale – a rubric that assigns ‘Not Yet Meeting,’ ‘Meeting’ and ‘Exceeding Expectations’ for each assessment at both grade levels. Other indicators included ‘Student Did Not Respond,’ ‘Student Did Not Respond Meaningfully,’ ‘Unspecified’ and ‘FSA Performance Level Unknown.’ These indicators were collapsed into one category and relabelled ‘No Valid Indicator of Performance,’ There was no record of

FSA participation for 8.4% of the students at the Grade 4 level ($n = 1378$) and 8.3% of the students at the Grade 7 level ($n = 1364$).

The 3-Point Scale was used for this analysis. The percentage scores and the IRT scores were too broadly dispersed to provide any meaningful information.

Grade 4 FSAs.

The Grade 4 FSA success rate, defined by meeting or exceeding grade level expectations based on the 3-Point scale, varied across the three content areas. As can be seen in Figure 4.13, the students in this study had the highest success rate in the area of writing (63.6%), followed by numeracy (58.2%), and reading comprehension (49.1%). A substantial number of students wrote the FSAs but did not meet expectations in writing (16.2%), numeracy (23.0%) and reading comprehension (32.9%). There were no valid indicators of performance for approximately 18% to 20% of the students. These students either wrote the assessment but did not write anything meaningful or did not participate in the assessment at all.



A χ^2 test of independence was performed to examine the relationship between school completion and Grade 4 FSA level of achievement in each of the three content areas – numeracy, reading comprehension and writing. In each of the content areas, the number of graduates who met or exceeded expectations was higher than would be expected by chance and the number of graduates who did not meet expectations or had no valid indicator of performance was lower than would be expected. Conversely, the number of non-graduates who met or exceeded expectations was lower than would be expected by chance and the number of non-graduates who did not meet expectations or had no valid indicator of performance was higher than would be expected (Table 4.7, Table 4.8 and Table 4.9).

According to the χ^2 test of independence, the difference between graduates and non-graduates was statistically significant for numeracy $\chi^2(3, n = 15,120) = 189.026, p \leq .001$, reading comprehension $\chi^2(3, n = 15,120) = 156.145, p \leq .001$ and writing $\chi^2(3, n = 15,119)$

= 107.014, $p \leq .001$ so one can infer that students who met or exceeded expectations on FSA assessments in Grade 4 were more likely to graduate from high school.

Table 4.7. Number, percentage and expected counts of students for the FSA Grade 4 Numeracy Assessment by graduation status and level of achievement ($n = 15,120$)

Level of Achievement	Graduates	Non-Graduates	Total
Exceeds Expectations	349 (2.3%)	277 (1.8%)	626 (4.1%)
Expected Count	236.6	389.4	626.0
Meets Expectations	3314 (21.9%)	4864 (32.2%)	8178 (54.1%)
Expected Count	3091.1	5086.9	8178.0
Not Yet Meeting Expectations	1153 (7.6%)	2320 (15.3%)	3473 (23.0%)
Expected Count	1312.7	2160.3	3473.0
No Valid Indicator of Performance	899 (5.9%)	1944 (12.9%)	2843 (18.8%)
Expected Count	1074.6	1768.4	2843.0
Total	5715 (37.8%)	9405 (62.2%)	15120 (100%)
Expected Count	5715.0	9405.0	15120.0

$\chi^2 (3, n = 15,120) = 189.026, p \leq .001$

Note: Total percentages are not 100 for every content area because of rounding.

Table 4.8. *Number, percentage and expected counts of students for the FSA Grade 4 Reading Comprehension Assessment by graduation status and level of achievement (n = 15,120)*

Level of Achievement	Graduates	Non-Graduates	Total
Exceeds Expectations	99 (0.7%)	86 (0.6%)	185 (1.2%)
Expected Count	69.9	115.1	185.0
Meets Expectations	3067 (20.3%)	4182 (27.7%)	7249 (47.9%)
Expected Count	2739.9	4509.1	7249.0
Not Yet Meeting Expectations	1690 (11.2%)	3287 (21.7%)	4977 (32.9%)
Expected Count	1881.2	3095.8	4977.0
No Valid Indicator of Performance	859 (5.7%)	1850 (12.2%)	2709 (17.9%)
Expected Count	1023.9	1685.1	2709.0
Total	5715 (37.8%)	9405 (62.2%)	15120 (100%)
Expected Count	5715.0	9405.0	15120.0

$\chi^2 (3, n = 15,120) = 156.145, p \leq .001$

Note: Total percentages are not 100 for every content area because of rounding.

Table 4.9. *Number, percentage and expected counts of students for the FSA Grade 4 Writing Assessment by graduation status and level of achievement (n = 15,119)*

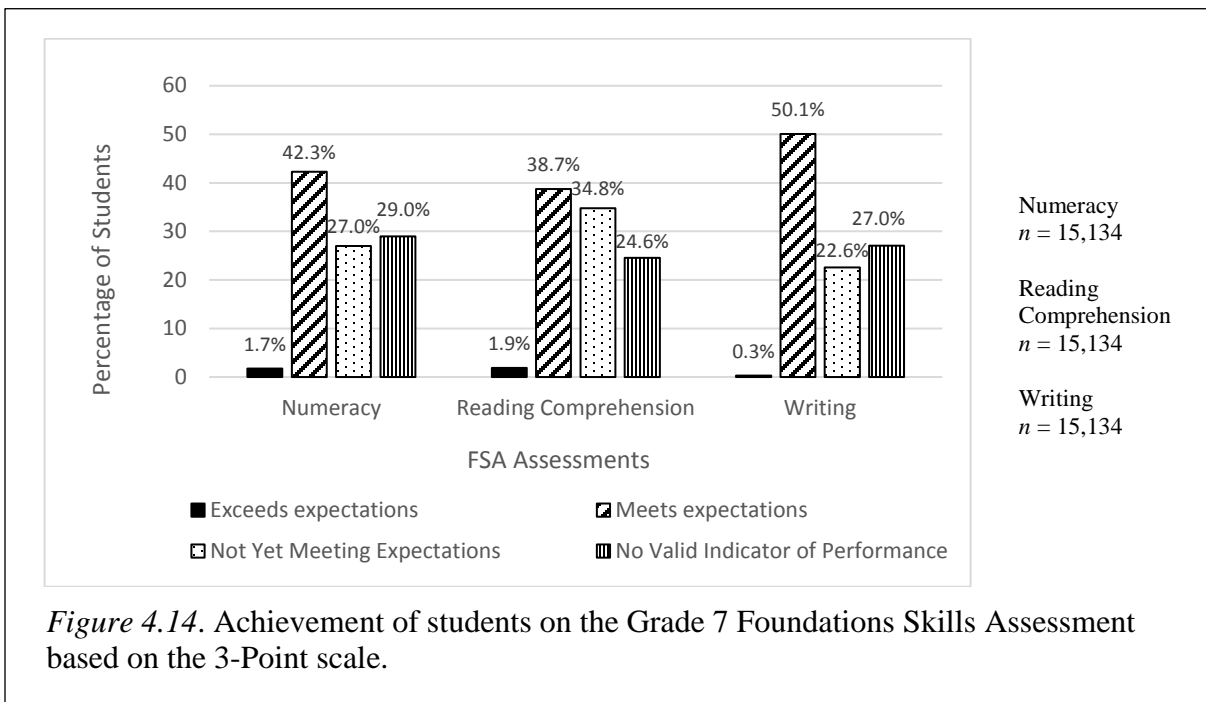
Level of Achievement	Graduates	Non-Graduates	Total
Exceeds Expectations	15 (0.1%)	18 (0.1%)	33(0.2%)
Expected Count	12.5	20.5	33.0
Meets Expectations	3913 (25.9%)	5667 (37.5%)	9580 (63.4%)
Expected Count	3620.6	5959.4	9580.0
Not Yet Meeting Expectations	813 (5.4%)	1637 (10.8%)	2450 (16.2%)
Expected Count	925.9	1524.1	2450.0
No Valid Indicator of Performance	973 (6.4%)	2083 (13.8%)	3056 (20.2%)
Expected Count	1155.0	1901.0	3056.0
Total	5715 (37.8%)	9405 (62.2%)	15119 (100%)
Expected Count	5714.0	9405.0	15119.0

$\chi^2 (3, n = 15,119) = 107.014, p \leq .001$

Note: Total percentages are not 100 for every content area because of rounding.

Grade 7 FSAs.

The FSA success rate was lower at the Grade 7 level when compared to the success rate at the Grade 4 level. As shown in Figure 4.14, students in the study who wrote the FSA assessments had the highest success rate, defined by meeting or exceeding grade level expectations, in writing (50.4%). The success rates for numeracy (44.0%) and reading comprehension (40.6%) were noticeably lower. A higher percentage of students who wrote the Grade 7 FSA assessments did not meet grade level expectations when compared to the percentage of students who wrote the Grade 4 FSA assessments. There was no valid indicator of performance for approximately 25% to 29% of the students. These students either wrote the assessment but did not write anything meaningful or did not participate in the assessment at all.



A χ^2 test of independence was performed to examine the relationship between school completion and Grade 7 FSA levels of achievement in each of the three content areas –

numeracy, reading comprehension and writing. A similar pattern to the relationship between school completion and Grade 4 FSAs was observed. In each of the three areas, the number of graduates who met or exceeded expectations was higher than would be expected by chance and the number of graduates who did not meet expectations or had no valid indicator of performance was lower than would be expected. Again, the number of non-graduates who met or exceeded expectations was lower than would be expected by chance and the number of non-graduates who did not meet expectations or had no valid indicator of performance was higher than would be expected (Table 4.10, Table 4.11 and Table 4.12).

Just as with the Grade 4 FSAs, the χ^2 test of independence indicated that there was a statistically significant association between school completion status and Grade 7 FSA level of achievement for numeracy ($\chi^2 (3, n = 15,134) = 349.525, p \leq .001$), reading comprehension ($\chi^2 (3, n = 15,134) = 338.281, p \leq .001$), and writing ($\chi^2 (3, n = 15,134) = 289.550, p \leq .001$). Therefore, one can infer that students who met or exceeded expectations on FSA assessments in Grade 7 were more likely to graduate from high school.

Table 4.10. *Number and percentage of students for the FSA Grade 7 Numeracy Assessment by graduation status and level of achievement (n = 15,134)*

Level of Achievement	Graduates	Non-Graduates	Total
Exceeds Expectations	179 (1.2%)	83 (0.5%)	262 (1.7%)
Expected Count	100.6	161.4	262.0
Meets Expectations	2852 (18.8%)	3547 (23.4%)	6399 (42.3%)
Expected Count	2456.2	3942.8	6399.0
Not Yet Meeting Expectations	1471 (9.7%)	2615 (17.3%)	4086 (27.0%)
Expected Count	1568.4	2517.6	4086.0
No Valid Indicator of Performance	1307 (8.6%)	3080 (20.4%)	4387 (29.0%)
Expected Count	1683.9	2703.1	4387.0
Total	5809 (38.4%)	9325 (61.6%)	15134 (100.0%)
Expected Count	5809.0	9325.0	15134.0

$\chi^2 (3, n = 15,134) = 349.525, p \leq .001$

Note: Total percentages are not 100 for every content area because of rounding.

Table 4.11. *Number and percentage of students for the FSA Grade 7 Reading Comprehension Assessment by graduation status and level of achievement (n = 15,134)*

Level of Achievement	Graduates	Non-Graduates	Total
Exceeds Expectations	172 (1.1%)	116 (0.8%)	288 (1.9%)
Expected Count	110.5	177.5	288.0
Meets Expectations	2678 (17.7%)	3186 (21.1%)	5864 (38.7%)
Expected Count	2250.8	3613.2	5864.0
Not Yet Meeting Expectations	1876 (12.4%)	3389 (22.4%)	5265 (34.8%)
Expected Count	2020.9	3244.1	5265.0
No Valid Indicator of Performance	1083 (7.2%)	2634 (17.4%)	3717 (24.6%)
Expected Count	1426.7	2290.3	3717.0
Total	5809 (38.4%)	9325 (61.6%)	15134 (100.0%)
Expected Count	5809.0	9325.0	15134.0

$\chi^2 (3, n = 15,134) = 338.281, p \leq .001$

Note: Total percentages are not 100 for every content area because of rounding.

Table 4.12. *Number and percentage of students for the FSA Grade 7 Writing Assessment by graduation status and level of achievement (n = 15,134)*

Level of Achievement	Graduates	Non-Graduates	Total
Exceeds Expectations	28 (0.2%)	17 (0.1%)	45 (0.3%)
Expected Count	17.3	27.7	45.0
Meets Expectations	3375 (22.3%)	4206 (27.8%)	7581 (50.1%)
Expected Count	2909.9	4671.1	7581.0
Not Yet Meeting Expectations	1211 (8.0%)	2206 (14.6%)	3417 (22.6%)
Expected Count	1311.6	2105.4	3417.0
No Valid Indicator of Performance	1195 (7.9%)	2896 (19.1%)	4091 (27.0%)
Expected Count	1570.3	2520.7	4091.0
Total	5809 (38.4%)	9325 (61.6%)	15134 (100.0%)
Expected Count	5809.0	9325.0	15134.0

$\chi^2 (3, n = 15,134) = 289.550, p \leq .001$

Note: Total percentages are not 100 for every content area because of rounding.

Summary of descriptive analysis.

The descriptive analysis highlighted some of the unique characteristics of the sample of students ($N = 16,498$) in British Columbia with behaviour disorders and mental illnesses in this study. Of greatest concern was the large proportion of students reported with behaviour disorders and mental illness who did not achieve any form of school completion or graduate from high school. The age or grade the students were initially designated in Category R and H did not appear to have a bearing on school completion status. Of significance was the large number of students who repeated a grade or grades during their school careers, with many repeating a grade more than one time. Also of note was the number of schools students attended and the early age at which they left the school system. The χ^2 test of independence indicated that there was a statistically significant association between FSA levels of achievement for numeracy, reading comprehension and writing and graduation status.

The analysis provided a view into the characteristics of a sample of students with behaviour disorders and mental illness as they move through their school careers. The results from the descriptive analysis helped to identify a number of characteristics likely to influence the prediction of graduation success. The next section provides an analysis of these characteristics or factors to further explore their relationship to school completion and the research questions in this study.

Predictive Analysis

The predictive analysis was conducted using binary logistic regression to respond to the three research questions in this study. As described in Chapter 3, 14 predictor variables satisfied all the considerations from the data screening procedures and were selected as the potential predictors for the binary logistic regression analyses. All 14 predictors were used to address to the first research question. Separate analyses were conducted using four subsets of students, specifically students with or without ELL status and students with or without Aboriginal status, to respond to the second research question. There were 13 predictor variables for each of the analyses as the variables ‘ELL status’ and ‘Aboriginal status’ were removed from the list of predictor variables when each of the respective groups, students with or without ELL status and students with or without Aboriginal status were being analyzed. The final analysis only included one predictor variable to respond to the third research question regarding the age students were first identified in R/H.

Binary logistic regression analysis.

A binary logistic regression was performed using the reduced data set of 7,975 cases from the original 16,498 cases in the single multi-level data set to address the first question of this research study:

- Is there a factor or combination of factors that can distinguish students with behaviour disorders and mental illnesses who complete high school from those who do not?

The analysis was conducted to ascertain the effects of the 14 selected variables on the likelihood that a student would be a graduate from high school. The analysis was performed using SPSS V.23. This section begins with a baseline analysis, followed by the comparative results from the binomial logistic regression analysis, including the model fit and explained variation. The contribution of the independent variables to the model and odds ratios follows. Finally, the results of an additional analysis to describe the predictive ability of a single variable that was not included in the logistic regression analysis is described.

Baseline analysis.

The case processing summary indicated that there were 7,749 cases included in the binary logistic regression analysis in the reduced data set. There were 226 missing cases in the analysis. The overall model predictive ability with no independent variables classified 4,277 of the 7,749 (55.2%) as non-graduates.¹⁷ That is, the probability that a student would be correctly predicted to be a non-graduate was 55.2%.

¹⁷ SPSS calculated the overall model predictive ability based on non-graduates due to the larger number of non-graduates ($n = 4277$) compared to the number of graduates ($n = 3472$) in the analysis.

Binomial logistic regression analysis results.

A test of the full model with all 14 predictors indicated 71.5 percentage accuracy in classification (PAC) of the non-graduates. This is an improvement of 16.3% over the 55.2 PAC from the baseline model where only the constant was included. The Omnibus Tests of Model Coefficients were statistically significant with an overall indication of 'goodness of fit' ($\chi^2(14, n = 7749) = 1732.439, p \leq .001$) indicating the predictors, as a set, reliably distinguished between graduates and non-graduates.

Nagelkerke R^2 indicated that approximately 27% of the variance of the dependent variable was predicted by the set of 14 predictor variables indicating a relationship between the predictors and student graduation status of the students. Sensitivity of the model (true positives) indicated that 61.2% of the students that graduated had been accurately identified by the model. Specificity of the model (true negatives) indicated that 79.8% of the non-graduates were correctly identified. The positive predictive value of 71.1% indicated the cases that the model classified as graduates were actually observed in this group. Likewise, the negative predictive value of 71.7% indicated the cases that the model classified as non-graduates were observed in this group.

Contribution of variables to the prediction of graduation status.

The main statistic that was used to describe the results of the binary logistic regression analysis was the odds ratio. The odds ratio is the influence of a one-unit change in the independent variable on the dependent variable. An odds ratio that is greater than one reflects a positive influence of the independent variable on the prediction of the dependent variable. An odds ratio that is less than one reflects a negative influence of the independent variable on the prediction of the dependent variable. An odds ratio that is equal to one

indicates that the independent variable does not have an influence on the prediction of the dependent variable and the probability of dependent variable occurring or not occurring are the same. In this study, the odds ratio was used to compare the relative odds of being a graduate or being a non-graduate, given the exposure to the 14 independent variables that were selected for this study. Table 4.13 shows the contribution of each variable to the prediction of the graduation status of the students. The Wald statistic was used to determine statistical significance of each independent variable. According to the Wald criterion, 10 of the 14 variables had a p value of $\leq .05$, indicating these variables made a uniquely statistically significant contribution to the predictive ability of the model.

Table 4.13. *Logistic regression analysis of graduation status as a function of predictor variables (n = 7,749)*

Step		β	S.E.	Wald	df	p	Exp (β)	95% C.I. for Exp (β)	
								Lower	Upper
1 ^a	Gender	-.158	.058	7.323	1	.007	.854	.761	.957
	Aboriginal status	-.407	.061	43.797	1	.000	.666	.590	.751
	ELL status	.040	.076	.273	1	.602	1.040	.897	1.207
	Years not enrolled (between first enrollment and leaving school)	-.635	.068	88.098	1	.000	.530	.464	.605
	Number of schools attended	-.391	.044	77.991	1	.000	.676	.620	.738
	Repeated grade	-1.204	.060	402.387	1	.000	.300	.267	.338
	Facility	.559	.061	84.154	1	.000	1.748	1.551	1.970
	Grade first identified in R/H	-.060	.025	5.873	1	.015	.942	.898	.989
	FSA - Gr. 4 Numeracy	-.022	.069	.100	1	.752	.978	.855	1.120
	FSA - Gr. 4 Reading Comprehension	-.053	.064	.683	1	.409	.948	.836	1.076
	FSA - Gr. 4 Writing	.169	.074	5.162	1	.023	1.184	1.023	1.369
	FSA - Gr. 7 Numeracy	.051	.061	.699	1	.403	1.052	.934	1.185
	FSA - Gr. 7 Reading Comprehension	.260	.062	17.836	1	.000	1.297	1.150	1.464
	FSA - Gr. 7 Writing	.285	.063	20.267	1	.000	1.330	1.175	1.506
Constant	.669	.140	22.915	1	.000	1.951			

The facility (standard/non-standard) was the strongest predictor that a student would be a graduate with a related odds ratio of 1.748. That is, the odds of being a graduate was 1.75 times higher when a student was enrolled in a standard school as opposed to an alternate school or other environment (youth custody, continuing education, distance education or long term education). The facility variable refers to the last facility in which the student was enrolled prior to graduating or leaving school. Three of the FSA variables were also predictors that a student would be a graduate – Grade 7 writing, Grade 7 reading comprehension, and Grade 4 writing. The Grade 7 writing assessment was the strongest predictor of the three FSA variables with an odds ratio of 1.330 indicating the odds of being a graduate was 1.3 times higher when a student met or exceeded expectations. The odds ratio for Grade 7 reading comprehension and Grade 4 writing were 1.297 and 1.184 respectively, indicating the odds of being a graduate were approximately 1.2 to 1.3 times higher when a student met or exceeded expectations on the assessments.

Six of the variables had an odds ratio of less than one ($\text{Exp.}(\beta) < 1$) ranging from 0.300 to 0.942, indicating a negative influence on the prediction of graduation status. Repeating a grade had the lowest odds ratio on the prediction of graduation status. That is, if a student repeated a grade at any time during his/her school career, the likelihood that the student would be a graduate decreased by 70% ($\text{Exp.}(\beta) = 0.300$). The number of years not enrolled also indicated a negative influence on graduation. As the number of years a student was not enrolled in school increased, the likelihood a student would be a graduate decreased by 47% ($\text{Exp.}(\beta) = 0.530$) for each unit change (0 years, 1 to 2 years, more than 2 years). Similarly, as the number of schools a student attended throughout his/her school career

increased, the likelihood that a student would be a graduate decreased by approximately 32% ($\text{Exp.}(\beta) = 0.676$) for each unit change (1 to 2 schools, 3 to 4 schools, 5 or more schools).

The variables Aboriginal status and ELL status were comparatively different in their contribution to the model. The Aboriginal status of students (Aboriginal/non-Aboriginal) made a statistically significant contribution to the model and was negatively related to graduation status. If a student was identified as Aboriginal at any time during the course of his/her school career, he/she was less likely to be a graduate. In fact, if a student was identified as Aboriginal, the likelihood that a student would be a graduate decreased by approximately 33% ($\text{Exp.}(\beta) = 0.666$). In contrast, a student identified with ELL status (ELL/non-ELL) did not make a significant contribution to the likelihood of a student being a graduate ($p \geq .05$). It was therefore difficult to determine if ELL status made it more or less likely that a student would be a graduate.

Logistic regression analysis of sub-populations.

This section presents results of the analysis to address the second research question of this study:

- If a factor or combination of factors can be identified, are they the same factors and do these factors have the same or different degree of predictability for students with Aboriginal or ELL status and students with non-Aboriginal or non-ELL status?

Two separate subgroups of the initial logistic regression analysis: 1) students with Aboriginal status and 2) students with English Language Learner (ELL) status were explored. The baseline analysis, results from the binomial logistic regression analysis including the model fit, the contribution of the independent variables to the model and odds

ratios were examined for each subset. In addition, a comparison between Aboriginal and non-Aboriginal status and ELL and non-ELL status results were explored.

Students with Aboriginal / Non-Aboriginal status.

A binary logistic regression analysis was performed to determine if any one variable or a combination of variables would be a good predictor of graduation status (1 = graduate; 0 = non-graduate) among students with Aboriginal status as well as among students with non-Aboriginal status.

Baseline analysis.

A baseline analysis was conducted with 2,118 students (26.6%) who had been identified with Aboriginal status at some point during their school career from the 7,975 students in the original binary logistic regression analysis. The case processing summary indicated that 2029 cases were included and 89 cases were missing in the analysis. The overall model predictive ability with only the constant included in the model and no independent variables, classified 1,368 of the 2,029 Aboriginal students as non-graduates. That is, the probability that an Aboriginal status student would be correctly predicted to be a non-graduate was 67.4%.

A parallel baseline analysis was conducted with 5,857 students (73.4%) from the 7975 students in the original binary logistic regression analysis who had never been identified and reported with Aboriginal status during their school career. The case processing summary indicated that 5720 cases were included and 137 cases were missing in the analysis. The overall model predictive ability with only the constant included in the model and no independent variables classified 2,909 of the 5,720 or approximately half of the non-

Aboriginal students as non-graduates. The probability that a non-Aboriginal status student would be correctly predicted to be a non-graduate was 50.9%.

Binomial logistic regression analysis results.

A test of the full model with 13 predictors¹⁸ indicated 74.2% accuracy in classification (PAC) of the Aboriginal non-graduates. This is only a small improvement of 6.8% over the 67.4 PAC from the baseline analysis. The Omnibus Tests of Model Coefficients were statistically significant with an overall indication of ‘goodness of fit’ ($\chi^2(13) = 349.535, p \leq .001$). Nagelkerke R^2 indicated that approximately 22% of the variance between graduates and non-graduates was predicted by the set of 13 predictor variables. Sensitivity of the model (true positives) indicated that 41.9% of the Aboriginal students who graduated were accurately identified by the model. Specificity of the model (true negatives) indicated that 89.8% of the Aboriginal students who did not graduate were correctly identified. The positive predictive value indicated 66.4% of the students whom the model classified as graduates were actually observed in this group. Likewise, the negative predictive value indicated 76.2% of the students whom the model classified as non-graduates were observed in this group.

A test of the full model with 13 predictors was also conducted on the non-Aboriginal students. The analysis indicated 70.6 PAC of the non-Aboriginal non-graduates. This was almost a 20% increase over the 50.9 PAC from the baseline analysis indicating the predictor variables clearly made a contribution to the predictive ability of the model for non-Aboriginal non-graduates. The Omnibus Tests of Model Coefficients were statistically

¹⁸ The full model included 13 predictors (14 predictor variables minus the variable ‘Aboriginal status’ as this is the defining characteristic of the subset that was analyzed).

significant with an overall indication of ‘goodness of fit’ ($\chi^2(13) = 1244.014, p \leq .001$).

Nagelkerke R^2 indicated that over one quarter of the variance (26%) between non-Aboriginal graduates and non-graduates was predicted by the set of 13 predictor variables. Sensitivity of the model (true positives) indicated that 65.8% of the non-Aboriginal students who graduated were accurately identified by the model. Specificity of the model (true negatives) indicated that 75.2% of the non-Aboriginal students who did not graduate were correctly identified. The positive predictive value indicated 72.0% of the students whom the model classified as graduates were observed in this group. The negative predictive value indicated 69.5% of the students whom the model classified as non-graduates were observed in this group.

Contribution of variables to the prediction of graduation status.

Aboriginal status students: The contribution of each variable to the prediction of graduation for students with Aboriginal status is displayed in Table 4.14. The Wald statistic indicated that only six of the 13 variables were statistically significant ($p \leq .05$): ELL status, years not enrolled, number of schools attended, repeated grade, facility, and Grade 7 reading comprehension FSA. Only two of the variables, facility and Grade 7 reading comprehension FSA, increased the probability that an Aboriginal student would be a high school graduate. The odds ratio for the variable facility was 1.682, indicating the odds of an Aboriginal student being a graduate was over 1.5 times higher if he/she attended a standard school setting the last year he/she was enrolled in school. The odds ratio for Grade 7 reading comprehension FSA was 1.361, indicating the odds of being a graduate increased by almost 1.4 times if a student met or exceeded expectations on the Grade 7 reading comprehension FSAs.

Table 4.14. *Aboriginal Status Analysis: Logistic regression analysis of graduation status as a function of predictor variables (n = 2029)*

Step		β	S.E.	Wald	df	p	95% C.I. for Exp (β)		
							Exp (β)	Lower	Upper
1 ^a	Gender	-.006	.115	.003	1	.955	.994	.793	1.245
	ELL status	-.329	.129	6.466	1	.011	.719	.558	.927
	Years not enrolled (between first enrollment and leaving school)	-.927	.132	49.341	1	.000	.396	.306	.513
	Number of schools attended	-.410	.091	20.405	1	.000	.664	.556	.793
	Repeated grade	-1.122	.121	86.278	1	.000	.326	.257	.412
	Facility	.520	.118	19.356	1	.000	1.682	1.334	2.121
	Grade first identified in R/H	.039	.050	.600	1	.438	1.040	.942	1.147
	FSA - Gr. 4 Numeracy	.020	.130	.023	1	.881	1.020	.790	1.316
	FSA - Gr. 4 Reading Comprehension	-.170	.125	1.853	1	.173	.844	.661	1.077
	FSA - Gr. 4 Writing	.079	.143	.306	1	.580	1.083	.817	1.434
	FSA - Gr. 7 Numeracy	-.006	.117	.002	1	.962	.994	.791	1.250
	FSA - Gr. 7 Reading Comprehension	.308	.122	6.326	1	.012	1.361	1.070	1.730
	FSA - Gr. 7 Writing	.222	.125	3.151	1	.076	1.249	.977	1.596
	Constant	.303	.280	1.171	1	.279	1.354		

Four of the variables, although significant, had an odds ratio of less than one (Exp.(β) < 1), indicating a decrease in probability that a student would be a high school graduate. Repeating a grade with an odds ratio of 0.326 and gaps in number of years enrolled between the time a student first enrolled in school until he/she left school with an odds ratio of 0.396 were the strongest predictors that an Aboriginal student would not be a graduate. In other words, if an Aboriginal student repeated a grade at any time during his/her school career, the likelihood that the student would be a graduate diminished by approximately 67% (Exp.(β) = 0.326). As the number of years an Aboriginal student was not enrolled in school increased,

the likelihood a student would be a graduate decreased by 60% ($\text{Exp.}(\beta) = 0.396$) for each unit change (0 years, 1 to 2 years, more than 2 years). Similarly, an increase in the number of schools an Aboriginal student attended was associated with a decrease of almost 34% in the likelihood of being a graduate ($\text{Exp.}(\beta) = 0.664$) for each unit of change (1 to 2 schools, 3 to 4 schools, 5 or more schools). A negative influence was also associated with ELL status ($\text{Exp.}(\beta) = 0.719$) indicating that an Aboriginal student who was also an English language learner decreased the likelihood that he/she would be a graduate by 28%.

The variables gender, grade first identified in Category R/H, and the FSA assessments at both Grade 4 and Grade 7 levels, with the exception of the Grade 7 reading comprehension, did not contribute significantly to the predictive ability of the model.

Non-Aboriginal status students: The contribution of each variable to the prediction of graduation for students without Aboriginal status is displayed in Table 4.15. Based on the Wald statistic, all of the predictor variables were statistically significant ($p \leq .05$) with the exception of three FSA assessments, Grade 4 numeracy, Grade 4 reading comprehension, and Grade 7 numeracy. Five of the variables increased the probability that a non-Aboriginal student would be a graduate from high school. The facility a student attended (standard school/non-standard school) was the strongest predictor that a non-Aboriginal student would be a graduate with an odds ratio of 1.793 indicating the odds of a non-Aboriginal student being a graduate was almost 1.8 times higher if he/she attended a standard school the last year he/she was enrolled in school. Three FSA assessments, Grade 7 writing, Grade 7 reading comprehension, and Grade 4 writing were predictors that a student would be a graduate from high school with odds ratios of 1.334, 1.276 and 1.203 respectively, indicating that if a student met or exceeded expectations, he/she was approximately 1.2 to 1.3 times

more likely to be a graduate. ELL status was also a predictor that a student would be a graduate with an odds ratio of 1.265 indicating that a non-Aboriginal student who was an English language learner was almost 1.3 times more likely to be a graduate from high school.

Table 4.15. *Non-Aboriginal Status Analysis: Logistic regression analysis of graduation status as a function of predictor variables (n = 5,720)*

		β	S.E.	Wald	df	p	Exp (β)	95% C.I. for Exp (β)	
								Lower	Upper
Step 1 ^a	Gender	-.223	.068	10.700	1	.001	.800	.700	.914
	ELL status	.235	.096	5.941	1	.015	1.265	1.047	1.528
	Years not enrolled (between first enrollment and leaving school)	-.514	.080	41.239	1	.000	.598	.512	.700
	Number of schools attended	-.374	.051	53.790	1	.000	.688	.622	.760
	Repeated grade	-1.221	.070	306.355	1	.000	.295	.257	.338
	Facility	.584	.071	66.867	1	.000	1.793	1.559	2.062
	Grade first identified in R/H	-.094	.028	10.863	1	.001	.911	.861	.963
	FSA - Gr. 4 Numeracy	-.031	.082	.140	1	.708	.970	.826	1.138
	FSA - Gr. 4 Reading Comprehension	-.011	.075	.020	1	.887	.989	.853	1.147
	FSA - Gr. 4 Writing	.185	.087	4.473	1	.034	1.203	1.014	1.427
	FSA - Gr. 7 Numeracy	.068	.071	.905	1	.341	1.070	.931	1.230
	FSA - Gr. 7 Reading Comprehension	.244	.072	11.624	1	.001	1.276	1.109	1.469
	FSA - Gr. 7 Writing	.288	.074	15.247	1	.000	1.334	1.154	1.542
	Constant	.662	.161	16.959	1	.000	1.938		

Five of the variables, although statistically significant, resulted in an odds ratio of less than one, implying that the influence of these variables would decrease the probability that a student would be a graduate from high school. Repeating a grade was the strongest predictor that a non-Aboriginal student would not be a graduate from high school. An odds ratio of 0.295 indicated that the likelihood a student would be a graduate decreased by over 70% if a

student repeated a grade at any time during his/her school career. The number of years not enrolled between the time a student first enrolled in school until he/she left school and an increase in the number of schools attended, decreased the likelihood that a student would not be a graduate with odds ratios of 0.598 and 0.688 respectively. That is, for each incremental increase in the number of years a non-Aboriginal student was not enrolled between the time a student first enrolled in school until he/she left school (0 years, 1 to 2 years, more than 2 years), the likelihood of being a graduate decreased by approximately 40%. Similarly, for each incremental increase in the number of schools a non-Aboriginal student attended (1 to 2 schools, 3 to 4 schools, 5 or more schools), the likelihood of being a graduate decreased by 31%. The later a student was first identified in category R or H also decreased the probability of graduating from high school. That is, the higher the grade grouping in which a student was first identified in Category R or H (kindergarten to Grade 3, Grade 4 to Grade 7, Grade 8 to Grade 9 and Grade 10 to Grade 12), the less likely a student would be a graduate from high school. Each incremental change decreased the likelihood of being a graduate by approximately 9% ($\text{Exp.}(\beta) = 0.911$). Finally, if a student was a non-Aboriginal male, the likelihood that the student would be a graduate decreased by approximately 20% ($\text{Exp.}(\beta) = 0.800$). In other words, a non-Aboriginal male student was less likely to be a graduate than a non-Aboriginal female student.

Comparison of logistic regression analysis between Aboriginal status and Non-Aboriginal status student results.

When a comparison was made between the binary logistic regression with students of Aboriginal status and students of non-Aboriginal status, some distinctions between the two groups became evident. In the absence of any predictor variables, the overall model predictive ability of students with Aboriginal status as non-graduates (67.4%) was 16.5% greater than the overall model predictive ability of students with non-Aboriginal status as non-graduates (50.9%). However, when the 13 predictor variables were added to the model, there was a 19.7% improvement in PAC for students with non-Aboriginal status whereas there was only a 6.8% improvement in PAC for students with Aboriginal status. The difference indicated the full set of 13 predictors had an overall greater predictive influence on non-Aboriginal status students. As a result, the test of the full model with 13 predictors indicated a similar PAC for students with Aboriginal status (74.2%) and students without Aboriginal status (70.6%). The Wald statistic indicated that only six variables were statistically significant ($p \leq .05$) for students with Aboriginal status whereas ten variables were statistically significant ($p \leq .05$) for students without Aboriginal status.

There were several similarities in the results of the logistic regression analysis between students of Aboriginal status and students of non-Aboriginal status. The variables facility and Grade 7 reading comprehension FSAs increased the probability that a student would be a graduate for both groups, with the facility (attendance at a standard school) being the strongest predictor. Repeating a grade, an increase in the number of years not enrolled between the time a student first enrolled in school until he/she left school, and an increase in the number of schools attended, decreased the probability that a student would be a graduate

from high school for both groups of students. Repeating a grade was the strongest predictor that a student would not be a graduate for both Aboriginal and non-Aboriginal students.

There were several differences in the results of the logistic regression analysis between students of Aboriginal status and students of non-Aboriginal status. Two FSA variables, Grade 7 writing and Grade 4 writing, were predictors of graduation status for non-Aboriginal students only. The grade a student was first identified in Category R or H and the gender of a student decreased the likelihood that a student would not graduate for non-Aboriginal students only. For non-Aboriginal students, ELL status was a predictor that a student would graduate. However, for Aboriginal students, ELL was a predictor that a student would not graduate.

Students with ELL / non-ELL status.

A binary logistic regression analysis was performed among students with ELL status and with non-ELL status to determine if any one variable or a combination of variables would be a predictor of graduation status (1 = graduate; 0 = non-graduate).

Baseline analysis.

A baseline analysis was conducted with 1,208 students (15.1%) who had been identified as ELL as some point during their school career from the 7,975 students in the original binary logistic regression analysis. The case processing summary indicated that 1146 cases were included and 62 cases were missing in the analysis. The overall model predictive ability was 57.8%. In other words, with only the constant in the model and no independent variables, the model correctly classified 662 of the 1,146 ELL students as non-graduates.

A baseline analysis was also conducted on the 6,767 students (84.9%) who had never been identified as ELL during their school career from the 7,975 students in the original

binary logistic regression analysis. The case processing summary indicated that 6603 cases were included and 164 cases were missing in the analysis. The overall model predictive ability with only the constant included and no independent variables was 54.7% correct. That is, the model predicted that 3,615 of the 6,603 non-ELL students would not graduate from high school.

Binomial logistic regression analysis results.

A test of the full model with 13 predictors¹⁹ indicated 72.5% accuracy in classification (PAC) of the ELL non-graduates netting a 14.7% increase in predictability from the baseline (57.8 PAC) with no predictor variables. The Omnibus Tests of Model Coefficients were statistically significant with an overall indication of ‘goodness of fit’ ($\chi^2(13) = 313.992, p \leq .001$) of the model. Nagelkerke R^2 indicated that approximately 32% of the variance of the dependent variable (graduates and non-graduates) was predicted by the set of 13 predictor variables. Sensitivity of the model (true positives) indicated that 58.3% of the students who graduated were accurately identified by the model. Specificity of the model (true negatives) indicated that 82.9% of the non-graduates were correctly identified. The positive predictive value indicated 71.4% of the students whom the model classified as graduates were actually observed in this group. The negative predictive value indicated 73.1% of the students whom the model classified as non-graduates were observed in this group.

A test of the full model with 13 predictors was also conducted on the 6,603 students who had never been identified with ELL status. The analysis indicated 71.4 PAC of the non-

¹⁹ The full model included 13 predictors (14 predictor variables minus the variable ‘ELL status’ as this is the defining characteristic of the subset that was analyzed).

ELL non-graduates, increasing the PAC by 16.7% from the baseline analysis (54.7 PAC) indicating the set of predictor variables made a contribution to the overall predictive ability of the model. The Omnibus Tests of Model Coefficients were statistically significant, with an overall indication of 'goodness of fit' ($\chi^2(13) = 1436.690, p \leq .001$). Nagelkerke R^2 indicated that 26% of the variance between graduates and non-graduates could be explained by the set of 13 predictor variables. Sensitivity of the model (true positives) indicated that 61.8% of the students who graduated were accurately identified by the model. Specificity of the model (true negatives) indicated that 79.3% of the students who did not graduate were correctly identified. The positive predictive value indicated 71.1% of the students whom the model classified as graduates were observed in this group. Likewise, the negative predictive value indicated 71.5% of the students whom the model classified as non-graduates were observed in this group.

Contribution of variables to the prediction of graduation status.

ELL status students: Table 4.16 shows the contribution of each variable to the prediction of graduation status for students who were identified as ELLs. The Wald statistic indicated that only five of the 13 variables were statistically significant at the ($p \leq .05$) level. Only one of the 13 variables, Grade 7 reading comprehension FSA, was a predictor of graduation for students with ELL status with an odds ratio of 1.551. That is, a student who met or exceeded expectation on the Grade 7 reading comprehension FSAs was 1.5 times more likely to be a graduate.

Table 4.16. *ELL Status Analysis: Logistic regression analysis of graduation status as a function of predictor variables (n = 1,146)*

Step		β	S.E.	Wald	df	p	Exp (β)	95% C.I. for Exp (β)	
								Lower	Upper
1 ^a	Gender	.027	.156	.029	1	.865	1.027	.756	1.395
	Aboriginal status	-.854	.155	30.490	1	.000	.426	.314	.576
	Years not enrolled (between first enrollment and leaving school)	-.710	.175	16.532	1	.000	.492	.349	.692
	Number of schools attended	-.436	.117	13.933	1	.000	.646	.514	.813
	Repeated grade	-1.313	.168	60.857	1	.000	.269	.193	.374
	Facility	.192	.167	1.322	1	.250	1.212	.873	1.682
	Grade first identified in R/H	-.080	.065	1.541	1	.214	.923	.813	1.048
	FSA - Gr. 4 Numeracy	-.075	.173	.186	1	.666	.928	.661	1.302
	FSA - Gr. 4 Reading Comprehension	-.107	.169	.403	1	.525	.898	.646	1.250
	FSA - Gr. 4 Writing	.079	.201	.155	1	.694	1.083	.730	1.606
	FSA - Gr. 7 Numeracy	-.094	.164	.332	1	.565	.910	.660	1.254
	FSA - Gr. 7 Reading Comprehension	.439	.163	7.246	1	.007	1.551	1.127	2.135
	FSA - Gr. 7 Writing	.174	.176	.980	1	.322	1.190	.843	1.678
	Constant	1.373	.360	14.557	1	.000	3.947		

Four variables, although significant, had a negative β value, indicating a decrease in the probability that a student with ELL status would be a high school graduate. Repeating a grade was the strongest predictor that a student with ELL status would not be a graduate from high school. An odds ratio of .269 indicated the likelihood that a student would be a graduate decreased by 73% if he/she repeated a grade at any time during his/her school career. An increase in the number of years not enrolled between the time a student first enrolled in school until he/she left school and an increase in the number of schools attended, both decreased the probability that a student with ELL status would be a graduate from high

school. As the number of years an ELL student was not enrolled in school increased, the likelihood a student would be a graduate decreased by 51% ($\text{Exp.}(\beta) = 0.492$) for each unit change (0 years, 1 to 2 years, more than 2 years). Similarly, as the number of schools a student with ELL status attended increased, the likelihood he/she would be a graduate decreased by 35% ($\text{Exp.}(\beta) = 0.646$) for each unit change (1 to 2 schools, 3 to 4 schools, 5 or more schools). A negative influence was associated with Aboriginal status ($\text{Exp.}(\beta) = 0.426$), indicating a student with ELL status who was also Aboriginal decreased the likelihood of being a graduate by 57%.

Non-ELL status students: The contribution of each variable to the prediction of graduation status for students never identified as an ELL is presented in Table 4.17. The Wald statistic indicated that all of the predictor variables were statistically significant with the exception of three FSA assessments – Grade 4 numeracy, Grade 4 reading comprehension, and Grade 7 numeracy. Ten of the variables were significant at the $p \leq .05$ level. Like the results from the logistic regression analysis for non-Aboriginal students, the same four variables were found to increase the likelihood that a non-ELL student would be a graduate from high school. The facility (attendance at a standard school) was the strongest predictor that a non-ELL student would be a graduate from high school. The odds ratio for the variable facility was 1.852, indicating the odds of a non-ELL student being a graduate was almost 1.8 times higher if he/she was attending a standard school setting the last year he/she was enrolled in school. The three FSA assessments, Grade 7 writing, Grade 7 reading comprehension, and Grade 4 writing were predictors that a student would be a graduate from high school with odds ratios of 1.331, 1.258 and 1.192 respectively, indicating that if a

student met or exceeded expectations, he/she was approximately 1.2 to 1.3 times more likely to be a graduate.

Table 4.17. *Non-ELL Status Analysis: Logistic regression analysis of graduation status as a function of predictor variables (n = 6,603)*

Step		β	S.E.	Wald	df	p	Exp (β)	95% C.I. for Exp (β)	
								Lower	Upper
1 ^a	Gender	-.197	.063	9.701	1	.002	.821	.725	.929
	Aboriginal status	-.315	.068	21.721	1	.000	.730	.639	.833
	Years not enrolled (between first enrollment and leaving school)	-.624	.074	72.064	1	.000	.536	.464	.619
	Number of schools attended	-.380	.048	62.639	1	.000	.684	.623	.751
	Repeated grade	-1.185	.064	338.047	1	.000	.306	.270	.347
	Facility	.616	.066	88.251	1	.000	1.852	1.628	2.106
	Grade first identified in R/H	-.057	.027	4.630	1	.031	.944	.896	.995
	FSA - Gr. 4 Numeracy	-.006	.076	.007	1	.934	.994	.857	1.152
	FSA - Gr. 4 Reading Comprehension	-.042	.070	.364	1	.546	.959	.836	1.099
	FSA - Gr. 4 Writing	.176	.080	4.794	1	.029	1.192	1.019	1.395
	FSA - Gr. 7 Numeracy	.069	.065	1.122	1	.289	1.072	.943	1.219
	FSA - Gr. 7 Reading Comprehension	.229	.067	11.837	1	.001	1.258	1.104	1.433
	FSA - Gr. 7 Writing	.286	.068	17.573	1	.000	1.331	1.165	1.522
	Constant	.587	.152	14.908	1	.000	1.799		

Six of the variables, although statistically significant, resulted in an odds ratio of less than one, indicating that the influence of these variables would decrease the probability of being a graduate for students with non-ELL status. Repeated grade was the strongest predictor that a non-ELL student would not be a high school graduate. An odds ratio of 0.306 indicated that the likelihood a student would graduate from high school decreased by over 69% if he/she repeated a grade at any time during his/her school career. The variables

Aboriginal status, number of years not enrolled, and number of schools attended were also negatively related to the prediction of graduation status. If a non-ELL student was of Aboriginal status, the likelihood of being a graduate decreased to approximately 27% ($\text{Exp.}(\beta) = .730$). For each incremental increase in the number of years a student was not enrolled (0 years, 1 to 2 years, more than 2 years), the likelihood a student would be a graduate decreased by 46% ($\text{Exp.}(\beta) = .536$). Likewise, for each incremental increase in the number of schools a student attended throughout his/her career (1 to 2 schools, 3 to 4 schools, 5 or more schools), the likelihood that a student would be a graduate decreased by 32% ($\text{Exp.}(\beta) = .684$). The odds ratio for the variable gender ($\text{Exp.}(\beta) = .821$) indicated that a male student had an 18% lower likelihood of being a graduate than a female student. The variable grade first identified in R/H had a small negative influence ($\text{Exp.}(\beta) = .944$), suggesting that as the grade level in which a student was first identified increased (primary, intermediate, junior high or senior high), the likelihood of a student being a graduate decreased by only 6% for each incremental change.

Comparison of logistic regression analysis between ELL status and non-ELL status results.

A comparison was made between the binary logistic regression of students ever identified with ELL status and those who had never been identified with ELL status to look for possible similarities and differences in degrees of predictability of the predictor variables. The overall predictive ability with only the constant included in the model and no independent variable was similar for both students ever identified with ELL status (57.8%) and students never identified with ELL status (54.7%). A test of the full model with 13 predictors was also similar for both groups with a PAC of 72.5 for ELL non-graduates and a

PAC of 71.4 for non-ELL non-graduates. In both cases, the Nagelkerke R^2 was significant at $p \leq .001$ and accounted for 38% of the variance for ELL non-graduates and 36% of the variance for non-ELL non-graduates explained by the set of 13 predictor variables.

Sensitivity, specificity, positive predictive value and negative predictive value for both groups were also similar.

There were both similarities and differences between student with ELL status and students without ELL status in the individual contribution of each of the predictor variables. The Grade 7 reading comprehension FSA was the only variable that had a positive predictive influence on whether a student would be a graduate for both ELL students ($\text{Exp.}(\beta) = 1.551$) and non-ELL students ($\text{Exp.}(\beta) = 1.258$). Three variables, facility ($\text{Exp.}(\beta) = 1.852$), Grade 7 writing FSA ($\text{Exp.}(\beta) = 1.331$) and Grade 4 writing FSA ($\text{Exp.}(\beta) = 1.192$) had a positive influence on the graduation status of non-ELL students only.

Four variables had a negative influence on graduation status for both ELL students and non-ELL students. The variable repeated grade was the strongest predictor that a student would not be a graduate for both ELL students ($\text{Exp.}(\beta) = 0.269$) and non-ELL students ($\text{Exp.}(\beta) = 0.306$). The variable number of years not enrolled and number of schools attended were both negatively related to graduation status for both groups. Number of years not enrolled had an odds ratio of 0.492 for ELL students and an odds ratio of 0.536 for non-ELL students. The number of schools attended had an odds ratio of 0.646 for ELL students and an odds ratio of 0.684 for non-ELL students. Although the variable Aboriginal status had a negative influence on graduation status for both ELL and non-ELL students, the odds ratios were significantly different. The likelihood that a non-ELL student would be a graduate decreased by 27% ($\text{Exp.}(\beta) = 0.730$) whereas the likelihood that an ELL student would be a

graduate decreased by 58% ($\text{Exp.}(\beta) = 0.426$), almost double that of non-ELL students. The variables gender and grade first identified in R/H were both negatively associated with graduation status for non-ELL students only.

Single variable analysis: Age students were first identified in R/H.

A separate analysis was conducted to examine the predictive ability of the single variable, age student was first identified in Category R or H, to inform the third research question:

- Is there a relationship between the age at which students are first identified and reported with a categorical designation and whether they will graduate from high school?

The age student was first identified in Category R or H was not included in the binary logistic regression due to the high correlation with grade student was first identified in Category R or H. Therefore, a separate analysis was conducted using the full set of cases ($N = 16,498$) as the FSA scores did not influence the results. The logistic regression analysis included 16,494 of the 16,498 cases. Four cases were missing as these students were over 19 years of age. The overall predictive ability with no predictive variables identified 10,445 of the 16,494 cases (63.3%) as non-graduates. A test of the full model that included the variable, age first identified in R or H, resulted in a 63.3 PAC (percentage accuracy in classification) of non-graduates indicating no increase from the baseline. Thus, the age students were first identified in Category R or H did not contribute to the prediction of graduation status.

Table 4.18 shows the contribution of the single variable, age student was first identified in Category R or H, as a predictor of graduation status. The results of the age

students were first identified in Category R or H were similar to the contribution of the variable, grade students were first identified in Category R or H, in the original logistic regression analysis. The odds ratio was less than one indicating that for each incremental increase in the age a student was first identified in Category R or H (4 to 8 years old, 9 to 12 years old, 13 to 15 years old, 16 to 19 years old), the likelihood that a student would be a graduate decreased by 8% ($\text{Exp}(\beta) = 0.921$).

Table 4.18. *Logistic regression analysis of graduation status as a function of age students are first identified in R/H (n = 16,494)*

		β	S.E.	Wald	df	p	Exp (β)	95% C.I. for Exp (β)	
								Lower	Upper
Step 1 ^a	Age first identified in R/H	-.082	.016	28.119	1	.000	.921	.893	.949
	Constant	-.427	.028	241.247	1	.000	.652		

Summary

This chapter reported the descriptive and predictive analyses of a sample of students identified with behaviour disorders and mental illnesses to explore whether there are factors that could distinguish between students who successfully completed high school from those who did not. The analysis included student-level observations, school-related observations, special needs designation observations, and FSA achievement observations. The analysis revealed several factors associated with successful school completion as well as some factors not related to successful school completion. Parallel analyses of students identified as Aboriginal and students identified as ELL were also conducted to explore characteristics that might be associated with successful school completion for these subsets of students. Results

revealed differences among the two sub-groups. The following chapter presents a discussion and interpretation of these results.

Chapter 5: Discussion

School completion for students with behaviour disorders and mental illness is a critical issue in British Columbia. The number of students who are not completing high school continues to occur in epidemic proportions. The purpose of this study was to explore the educational trajectories of students in British Columbia who are identified with behaviour disorders and mental illness to examine the issue of poor graduation rates among this population of students and identify potential predictors leading to school completion.

The present study focused on a sample of four cohorts of students ever identified with the BC Ministry of Education behaviour disorders and mental illness designation over a period of 16 school years, from 1996-1997 to 2012-2013. The data were drawn from information collected annually by the BC Ministry of Education. All possible variables collected by the BC Ministry of Education that could be extracted as potential predictive variables as well as several variables that could be derived to create additional potential predictive variables and shed some light on the characteristics of the students in this study were captured in the database.

This chapter begins with a discussion of the interpretation and implications of the findings in response to each of the three research questions in this study: 1) Is there a factor or combination of factors that can distinguish students with behaviour disorders and mental illness who complete high school from those who do not? 2) If a factor or combination of factors can be identified, are they the same factors and do these factors have the same or different degree of predictability for students with Aboriginal or ELL status and students with non-Aboriginal or non-ELL status? 3) Is there a relationship between the age at which students are first identified and reported with a categorical designation and whether they will

graduate from high school? Embedded into the discussion are a number of student-level, school-level, special needs designation, and FSA achievement characteristics uniquely related to the sample of students in this study. The characteristics most likely to influence the prediction of successful school completion are highlighted in this discussion. Implications of the findings related to policy and practice are discussed. The chapter concludes with a discussion of the limitations of the study and directions for the conduct of future research.

Interpretation and Implications of the Findings

An exploration of factors that influence school completion of students identified and reported with behaviour disorders and mental illness was the central topic in this study. The data revealed that some form of graduation status²⁰ was only achieved by an alarming one third (36.7%) of all students ever identified and reported with behaviour disorders and mental illness over a 16 year period (1996-1997 to 2012-2013). This is inordinately lower than the 82.9% average six-year completion rate of all students in the province of British Columbia between 2010-2011 and 2014-2015 (BC Ministry of Education, 2015b). This study clearly identifies poor educational outcomes, defined by low school completion rates, of students with behaviour disorders and mental illnesses in British Columbia. Outcomes related to poor graduation rates of similar populations of students have been cited in previous research (Bradley, Doolittle, & Bartolotta, 2008; Cullinan, Evans, Epstein, & Ryser, 2003; Lane, Barton-Arwood, Nelson, & Wehby, 2008; Mooney, Epstein, Reid, & Nelson, 2003; Quinn & Poirier, 2004; Reid, Gonzalez, Nordess, Trout, & Epstein, 2004; Wagner, 1995).

²⁰ Students who receive some form of graduation status include students who graduate with a British Columbia Certificate of Graduation (Dogwood) or a School Completion Certificate (Evergreen). The BC Ministry of Education data does not distinguish between the two when reporting the six-year completion rates.

Each of the three research questions in the present study addressed a particular aspect of predictive factors or combination of factors that could distinguish between students with behaviour disorders and mental illness who successfully complete high school from those who do not: 1) predictive student-level factors, 2) Aboriginal and ELL status, and 3) age students are first identified and designated with special needs. The intent is not to detail the results of each variable used in the study, but rather to capture the most compelling findings and their possible impact on policy and practice.

Research question #1.

The first research question focused on identifying possible factors that could predict school completion for students with behaviour disorders or mental illness. An analysis was conducted to determine the predictive potential of 14 variables that were identified through a data screening procedure to address the first research question:

- Is there a factor or combination of factors that can distinguish students with behaviour disorders and mental illnesses who complete high school from those who do not?

Several significant school enrollment variables, academic achievement variables, and demographic variables were identified in the analysis as factors that can possibly distinguish students with behaviour disorders and mental illnesses who complete high school from those who do not. These variables and their influence on the graduation status of students with behaviour disorders and mental illness are discussed below.

School enrollment.

As could be expected, the strongest predictors that distinguished students with behaviour disorders and mental illness who completed high school from those who did not were variables related to school enrollment. The study identified four relatively strong

predictors of school completion, all related to school enrollment: 1) 'repeated grade,' 2) 'facility,' 3) 'number of years not enrolled,' and 4) 'number of schools attended.' The following section will address school enrollment as well as the four predictor variables that were identified as factors that could predict school completion for students with behaviour disorders and mental illness.

The descriptive data illustrated that, like most students in the school system, students who stayed enrolled in school for the typical 13 years from kindergarten to Grade 12, moving continuously from one year to the next, were the most likely to graduate from high school. However, this was not the typical pattern of school enrollment for students with behaviour disorders and mental illness. Over one third of the students left school before enrolling in Grade 12. Very few students left the school system during their elementary school years, between ages five and twelve. However, approximately one third of the students left school prior to turning 17 years of age when many typical students would graduate from high school. Of particular note was the sudden increase in the number of students who left school at 16 years of age. In fact, the number of students who left the school system between ages 15 and 16 quadrupled from 5.0% to 20.8%. This abrupt increase might be explained by the challenges and struggles students face with the increasing demands of the academic curriculum, but it is also plausible that the sudden increase of students leaving school at age 16 may, in some cases, be related to the BC Ministry of Education policy that requires all students to attend school up to the age of 15. The current policy on compulsory school age in BC allows students to leave school at age 16, prior to completing graduation requirements, without any legal ramification. Although this study did not investigate causal factors of school leaving prior to meeting graduation requirements, one can postulate that there would

be a combination of various academic, social, psychological, and/or family factors that play a role in a student's decision to leave school.

An interesting relationship between the age students left the school system and school completion rates was observed among the students in the 16 to 19 year old grouping. Contrary to what one would expect, the data seemed to indicate that the longer students stayed in school, the less likely they were to complete high school. Of the students who completed high school, 28.5% of the students who left school at age 16 and 45% of the students who left school at age 17 completed high school. What was surprising was that only 20% of those who stayed in school until they were 18 years of age completed high school and an even smaller number of students (4.2%) who stayed in school until they were 19 years of age completed high school. The results from the analysis indicated that, for students with behaviour disorders and mental illness, simply staying in school for more years did not appear to benefit students' academic progress and their ability to achieve school completion status. It is possible that some students remained in high school for purposes other than working towards graduation or school completion, but data to explore this were not available.

Facility.

The strongest predictor of school completion in this study was the variable facility, where attending a standard school was identified as a critically important marker of eventual graduation success. A student enrolled in a non-standard school setting in his/her final year of schooling had a diminished chance of graduating from high school. A majority of the students who attended a non-standard school were enrolled in an alternate school setting. Other non-standard school settings included continuing education, distance or electronic education, long term Provincial Resource Programs (PRP), and youth custody.

A decrease in the probability of graduating if a student was enrolled in a non-standard school setting makes logical sense. Schools generally do their utmost to provide an inclusive environment and accommodate students with special needs in the standard general education classroom. In these settings supports are intended to provide for students with special needs, including those with behaviour disorders and mental illness, to allow them to enroll in their neighbourhood school within their community in classrooms with same age and grade peers. Alternative schools, on the other hand, are often designed to meet the needs of a student who cannot learn effectively in a standard learning environment.

Alternative schools enroll students whose demands are likely so great and characteristically different from his/her peers that they are incompatible with the day-to-day functioning of a standard school setting. Such students have behaviours that affect their learning, interpersonal relationships, and/or personal adjustment over a prolonged period of time. It is reasonable to assume that for these students, the emphasis in the alternative setting is different from a standard school setting, where the focus is on addressing social, emotional, behavioural, and mental health issues rather than on academic achievement. In addition, it is conceivable that the gathering of students, all of whom have behaviour disorders and/or mental health issues, changes the learning environment and likely lowers the opportunities to engage in academic activities, reducing the chances of working towards high school completion or graduation. Given that almost half of the students (49.3%) who were enrolled in a standard school setting graduated from high school, further inquiry is warranted to uncover the successful practices in the standard school setting that are keeping students with behaviour disorders and mental illnesses in school through to graduation.

Repeated grade.

Another strong predictor of school completion in this study was the variable 'repeated grade.' When a student with behaviour disorders and mental illness repeated a grade, it was identified as a significant predictor of future school failure. A student who repeated a grade at any time during his/her school career was 70% less likely to complete high school compared to those who did not repeat a grade. Yet, grade retention of students with behaviour disorders and mental illness in this study appeared to be a common practice, as almost two thirds of the students repeated a grade and more than one quarter of these students repeated grades two or more times. The findings of this research suggest that repeating one or more grades impedes school completion and does not improve student success. These findings support previous research by Reschly and Christenson (2006), who studied the prediction of dropout among students with mild disabilities. They found that grade retention, or repeating grades, was a powerful predictor of school dropout among students with behaviour disorders and mental illness. Rumberger and Lim (2008) conducted a review of 25 years of research, from 1983 to 2007, to examine why students drop out of school. The researchers found that retention in elementary and middle school was a consistent predictor of whether students would drop out of high school. These results were consistent with an earlier review of 17 studies published between 1970 and 2000 by Jimerson, Anderson & Whipple (2002) who demonstrated that early grade retention was one of the most powerful predictors of dropout status.

The results raise an important question regarding decisions educators make to support students by having them repeat a grade. The practice of grade retention is not a government policy or procedure that is encouraged. Rather, in British Columbia it is expected that students will move fluidly from grade to grade with their peers and learn in a supported environment where accommodations are provided to assist students to access the curriculum

and demonstrate their learning. Yet, well over 13% of the students enrolled in kindergarten to Grade 7 in this study repeated a grade. It is an interesting perspective to think that by simply repeating a grade in which a student was unsuccessful the first time, he/she will somehow be successful with a second exposure to the same curriculum and instruction. There appears to be an underlying optimism that students will be 'more successful' if they are 'held back' and spend an extra year in the same grade. One can speculate that success is being measured by the degree to which students can demonstrate their learning of the academic curriculum. This might suggest a misalignment between the intent of repeating a grade and the behavioural or social/emotional support students with behaviour disorders and mental illness require to be successful in school.

Repeating a grade occurred more frequently in high school than in the elementary grades. Three quarters of the students with behaviour disorders and mental illness repeated a grade in high school, with the majority repeating at the Grade 11 and Grade 12 level, yet this strategy did not seem to have a positive impact on student academic success. Less than 20% of the students who repeated a grade for the first time in Grade 8 or Grade 9 and approximately 30% of the students who repeated a grade for the first time in Grade 10, 11 or 12 successfully completed high school. One can speculate that the increase in grade retention at the high school level is likely due to the heavy focus on academic content and skills that students must acquire in order pass courses, move on to the next grade, and ultimately accumulate enough credits to achieve graduation status. Grade retention is a drastic response to students with behaviour disorders and mental illness who are struggling with the academic curriculum. Unless instruction is accompanied by substantial and meaningful intervention, grade retention is likely to be unsuccessful. The implications from this study suggest that if

the intent of grade retention is to provide more time to achieve academic success, the data do not support this course of action.

Number of years not enrolled.

The variable number of years not enrolled, or gaps in a student's enrollment in school, was a strong predictor that a student would not be a graduate from high school. In fact, a student was almost half as likely to graduate if he/she was not enrolled in school for one or two years between a student's initial enrollment in the school system and leaving the school system, and the likelihood that the student would not graduate increased further if a student missed more than two years of school. Almost one quarter of the students in this study missed at least one or more years of school.

Although the data do not provide information on the cause of the gaps in student enrollment it makes logical sense that a gap in school enrollment would be a predictor of school failure. The BC curriculum is structured for students to advance continuously from grade to grade over a period of 13 years with their same age peers from kindergarten through to Grade 12. A gap in school enrollment can put a student at a significant disadvantage. Not only does an interruption in schooling put a student at an academic disadvantage, but a student can also become disconnected with his/her peers, negatively impacting opportunities for social/emotional growth and development of relationships.

Related to the number of years not enrolled is prolonged or frequent absence from classes for any of a variety of reasons. Students with behaviour disorders and mental illness may be enrolled in school but may not attend classes. Poor attendance or absence from classes could exacerbate the ability to learn academic content and master skills at the high school level.

The study also revealed that some students with behaviour disorders and mental illness have other comorbid challenges that may be factors contributing to their lack of success and early departure from school. The data indicated that over 12% of the students were first identified in a special needs category other than the behaviour disorder and mental illness category, with the majority of these students first identified with a learning disability. Likewise, 16.4% of the students in the study who were identified with behaviour disorders and mental illness were subsequently designated in a different special needs category. Again the predominant category was for learning disabilities. Although the current study does not identify a causal relationship between students with behaviour disorders and mental illness and learning disabilities, this appears to be a pattern or relationship for a significant number of students that likely adds an additional layer of challenges to a group of students who already struggle to complete high school. This underscores the complexity of this group of students and the need to provide direct and intensive support to address not only their specific behavioural, and mental health needs, but also their specific learning needs.

Number of schools attended.

The variable 'number of schools attended' had limited predictive value but nonetheless merits some attention. The results demonstrated that school changes were negatively related to school completion. The greater the number of schools a student attended, the less likely he/she was to complete high school. Approximately half of the students in this study who attended two or three schools over the course of their school career graduated from high school. For many it is likely that these changes were 'natural changes' due to the structure of the school system (e.g., elementary to high school, elementary to middle school to high school, etc.). However, well over 70% of the students in this study

attended four or more schools with some students attending up to 13 different schools over the course of their school career and, of the students who attended four or more schools, only one third graduated from high school. Overall, the results of this study are similar to a longitudinal study conducted by Herbers, Reynolds, and Chen (2013), who found that students who experience more school changes between kindergarten and Grade 12 were less likely to complete school on time and complete fewer years of school than students who experience fewer school changes.

The number of schools a student attended, or the degree of mobility, clearly influenced the probability of whether a student would graduate from high school. What is almost certain is that the data indicating the number of different schools the students in this study attended is likely to be an underestimate of actual student mobility, given the method by which this data is collected in BC schools. The analysis for this study was based on September enrollment and changes in schools were only tracked from one year to the next, thus students who change schools during the school year are not shown as attending more than one school that year.

There may be a variety of reasons why students and specifically those with behaviour disorders and mental illness might change schools during their school career, including family situational factors beyond the students' control, as well as being "pushed out" through frequent suspensions or expulsion from school, but it is the frequency of changes that is the most disconcerting. When students transition from one school environment to another school environment, it can be a challenge, for both students and the school.

For students, changes in teachers and new instructional situations, different learning experiences, changes in routines, and changes in social milieu can make it difficult to adjust

to a new environment. These challenges may very well be compounded for students with behaviour disorders or mental illness. For classroom teachers and resource teachers who receive students with behaviour disorders and mental illnesses, a student transfer can present challenges in program development and determination of what support and resources are needed for the student. Often delays in receiving records from the prior school and time required for new teams to understand the student's strengths and challenges can cause gaps in student learning, and contribute to diminishing any hope of completing high school.

Although this study did not uncover the reasons *why* students change schools so frequently, what is clear is that *when* students change schools frequently, they are less likely to complete high school. The excessive number of different schools students with behaviour disorders and mental illness attend, and the identification and implementation of policies and practices to reduce mobility, warrants further attention.

Summary of school enrollment.

This study provides evidence that factors related to school enrollment can help to distinguish between students with behaviour disorders and mental illness who complete high school from those who do not. Specifically, students with behaviour disorders and mental illness who are able to continuously advance from one grade to the next from kindergarten through to Grade 12 have the highest likelihood of completing high school. However, few students follow this trajectory. It is far too common for students with behaviour disorders and mental illness to have their school careers punctuated by repeating grades or leaving school prior to completion. Multiple changes in schools or school enrollment that exceeds the standard five years in high school from enrolling in Grade 8 also do not appear to be strategies that contribute to school completion. Clearly, further investigation is required to

gain a better understanding of what accommodations are necessary to support students with behaviour disorders and mental illness move through the grades continuously and consistently through to graduation within the standard five year time frame. Also of importance would be to investigate what persuades teachers to retain students with behaviour disorders and mental illness and what compels these students to leave school after turning 16 years of age but prior to completing high school.

Academic achievement variables.

The Foundational Skills Assessment (FSA) outcomes for Grade 4 and Grade 7 in the areas of Numeracy, Reading Comprehension and Writing were used as measures of academic achievement that might distinguish students with behaviour disorders and mental illness who complete high school from those who do not. It was anticipated that positive FSA outcomes (met or exceeded expectations) in Grades 4 and 7 would predict school completion or graduation status, while negative FSA outcomes (not yet meeting) in Grades 4 and 7 would predict non-school completion status. Two Grade 7 FSA outcomes (writing and reading comprehension) and one Grade 4 FSA outcome (writing) were identified as predictors of school completion or graduation status. That is, if students met or exceeded expectations on the Grade 7 writing FSA, the Grade 7 reading comprehension FSA, or the Grade 4 writing FSA, they were more likely to complete high school. The Grade 7 FSAs were a stronger predictor of graduation status than the Grade 4 FSA, indicating approximately a 30% increase in the likelihood that a student would graduate from high school if he/she met or exceeded expectations on the Grade 7 writing or reading comprehension FSA. The Grade 4 writing FSA only indicated an 18% increase in the likelihood that a student would graduate from high school.

Although not all of the FSAs at the Grade 4 and Grade 7 level were identified as predictors of graduation status, there were some interesting observations worth mentioning. The descriptive data from the full data set illustrated that both Grade 4 and Grade 7 FSA outcomes followed a similar pattern. The students in this study were most successful in meeting or exceeding expectations on the writing assessment and were least successful in meeting or exceeding expectations on the reading comprehension assessment. However, the differences in the measure of success among the three assessment areas may be a function of the assessment itself and the manner in which it is scored rather than actual student achievement. More students met grade level expectations in Grade 4 than in Grade 7. The success rates for students in this study dropped across all three assessment areas in Grade 7. This pattern of success for students with behaviour disorders and mental illness who met or exceeded grade level expectations is distinctly different from typical students. Not only were the success rates higher for typical students who met or exceeded grade level expectations, but the success rates remained relatively stable from Grade 4 to Grade 7 (BC Ministry of Education, 2016). A possible explanation for the drop in success rates for students with behaviour disorders and mental illness could be poor management of the students' behaviours or that the disability associated with the behaviours was not considered when responding to and determining disciplinary consequences. Strategies such as office referrals, suspensions, or expulsions are often used as consequences to address challenging behaviour. In fact, in a statewide study that examined suspension data in the state of Maryland, Krezmein, Leone, and Achilles (2006) found that youth with disabilities experienced higher rates of suspension than youth not identified as having disabilities, and students with behaviour disorders and mental illness were found to have higher rates of suspension than

any other disability category. Other researchers have reported similar findings (Zhang, Katsiyannis, & Herbst, 2004). These strategies remove students from the learning environment by increasing their absence from school. It is plausible that similar strategies were being used to address students with challenging behaviour in BC. This finding may point to the need for more teacher education in explicit and intensive academic support in the intermediate grades for students with behaviour disorders and mental illness.

Currently, the British Columbia K-12 curriculum is being redesigned and modernized with a move to being more flexible and student-centred. The new documents explicitly state that a focus will be maintained on sound foundations of reading, writing, and math skills from kindergarten through to Grade 12. These areas have been defined as critical skills that are the foundation of BC's education system and key components to developing an educated citizen. Perhaps with the renewed emphasis on foundational skills, students with behaviour disorders and mental illness will have a greater opportunity to receive the intensive academic support with the basic skills in reading, writing, and numeracy that they so desperately need.

Demographic variables.

Three specific variables related to demographics were explored as possible predictors of school completion for students with behaviour disorders and mental illness in this study: 1) gender, 2) Aboriginal status, and 3) ELL status. Both gender and Aboriginal status were found to have some degree of predictive ability related to school completion. The current analysis indicated there was no significant association between ELL status and school completion. That is, ELL status did not help to predict whether a student with behaviour disorders or mental illness would graduate from high school. Each of these demographic variables is discussed in further detail below.

Gender.

The current study found that males were more likely to be identified and reported with behaviour disorders and mental illness than females. In fact, males were two times more likely to be reported than females. The results are supported by previous studies that also found males more likely than females to be identified with behaviour disorders and mental illness (Kauffman & Landrum, 2009; Lane, Carter, Pierson, & Glaeser, 2006; Trout, Nordess, Pierce, & Epstein, 2003; Reid et al., 2004). Further, the data indicated that the likelihood of male students with behaviour disorders and mental illness would graduate from high school was 15% less than females. However, one should be cautious when interpreting the overrepresentation of males. Despite the difference in number of males and females who were identified and reported with behaviour disorders and mental illness, the reason for this difference is not clear.

One explanation for the overrepresentation of males could be the types of behaviours commonly observed in students with behaviour disorders and mental illness. It is conceivable that more students in this study were identified due to the manifestation of externalizing behaviours often characteristic of males, rather than internalizing behaviours. Although both externalizing and internalizing behaviours can adversely affect a student's educational performance, teachers tend to be more concerned with students who display disruptive behaviour or externalizing behaviour than students with internalizing behaviour (Green, Clopton, & Pope, 1996; Loades & Mastroyannopoulou, 2010). This is not to say that females do not exhibit externalizing behaviours but their behaviours may manifest differently from males with externalizing behaviours.

A second possible reason that may contribute to the overrepresentation of males with behaviour disorders and mental illness is teacher bias. Green et al. (1996) found that teachers

were more likely to believe that boys tend to have the types of externalizing behaviour that are more in need of mental health services. It is plausible that teachers in BC have similar beliefs, influencing their judgement to identify more boys than girls. Related to teacher bias may be the difficulty teachers have managing students with externalizing behaviours in the classroom. Teachers may be motivated to make a concerted effort to gather the required information and report students with externalizing behaviours in the behaviour disorders and mental illness category, as there is an assumption that along with a special needs designation, students will be entitled to more services and in turn, teachers will have more support in the classroom. Green et al. also found that teachers were more likely to believe that the internalizing behaviour that girls exhibit would improve as they mature and, therefore, girls would be less in need of a referral. Again, teachers in BC may have a similar belief. However, based on the data from the current study, it was not possible to determine whether the findings regarding gender are a result of teacher bias and teachers' perceptions of students with externalizing or internalizing behaviours.

Green et al. (1996) also identified academic competence as a contributor to gender differences. They found that girls are less likely to be judged as needing a referral when they are doing well academically. However, this perception did not help account for the overrepresentation of boys in the current study as academic competence, based on FSA outcomes, was similar for males and females. School completion rates were also similar for males and females, with just over one third of both males and females with behaviour disorders and mental illness completing high school. The similarity in high school completion rates is in contrast to a previous study that found a larger percentage of girls graduated from high school than boys (Darney et al., 2013). One explanation for this

difference could be the samples that were used for the studies. The subjects in the study by Darney et al. (2013) were students identified in the first grade with both academic and behaviour problems, whereas the subjects in the current study were students who were identified with a behaviour disorder or mental illness at any point during their school careers. Academic challenge was not a criterion for sample selection in this study. Further, less than 22% of the students in the current study were identified with a behaviour disorder or mental illness while enrolled in primary grades (kindergarten to Grade 3). The majority of the students were identified with a behaviour disorder or mental illness later in their school career.

The overrepresentation of males raises another concern around equity of support services between males and females. Because male students were more likely to be identified and reported with behaviour disorders and mental illness, they may also be more likely to receive intervention support (Beaman, Wheldall, & Kemp 2006). Female students with behaviour disorders and mental illness may be under-identified, and of greater concern, may be under-served and therefore at significant risk of long-term behaviour disorders and mental illness issues.

Aboriginal status and ELL status.

Although the trend of school completion rates among students with behaviour disorders and mental illness was exceedingly poor (36.7%), it was even more pronounced among students of both Aboriginal status and ELL status. The school completion rate among students with behaviour disorders and mental illness who were ever identified as ELL was slightly lower (33.1%) than the overall school completion rate for students in this study. However, the school completion rate for students ever identified as Aboriginal was

extraordinarily low. Only one quarter (25.4%) of the students with behaviour disorders and mental illness who were also of Aboriginal status completed high school. Clearly, students of Aboriginal status are at a great disadvantage in terms of successfully completing high school.

Aboriginal status and ELL status as variables were comparatively different in their ability to predict school completion. The data indicated that students who had ever been identified as Aboriginal during their school career were 33% less likely to graduate from high school than a student who had never been identified as Aboriginal. In contrast, there was no significant association between students who had been identified as ELL and students who had never been identified as ELL and whether they would complete high school. That is, ELL status was not a good predictor of school completion. One should keep in mind that the ELL population in BC is made up of a cross section of dozens of different cultures which may translate into a host of different behavioural norms depending on the students' cultural backgrounds. In order to better understand the potential predictive ability of ELL status, it would be necessary to disaggregate the ELL data and explore individual cultures or specific characteristics of interest as separate subsets of students with behaviour disorders and mental illness.

Conclusion for question #1.

In response to the first research question that focused on identifying possible factors that could distinguish students with behaviour disorders and mental illness who complete high school from those who do not, school enrollment variables were clearly of greatest significance. Students who repeated grades and left school after reaching compulsory school age were associated with poor school completion outcomes. Also, the greater the number of schools students attended, the less likely they were to complete high school. Meeting or

exceeding expectations on Grade 7 writing and reading comprehension FSAs and Grade 4 writing FSAs were also associated with positive school completion outcomes. Two demographic variables, gender and Aboriginal status, were also distinguishing factors related to school completion. That is, being of Aboriginal status and being male were associated with poorer school completion outcomes than being female or non-Aboriginal.

Research question #2.

The second research question in this study focused on possible factors that could predict school completion for Aboriginal and ELL students with behaviour disorders and mental illness. Each subgroup was disaggregated from the reduced data set and a logistic regression analysis was conducted to determine the predictive potential of the 14 variables that were identified earlier in this study to respond to the research question:

- If a factor or combination of factors can be identified, are they the same factors and do these factors have the same or different degree of predictability for students with Aboriginal or ELL status and students with non-Aboriginal or non-ELL status?

Prevalence.

When students of Aboriginal status and students with ELL status were disaggregated from the full data set, it was clear that both groups were over-represented in this study. Students with Aboriginal status made up approximately 11% of the BC student population over the past five years (BC Ministry of Education, 2016), yet accounted for almost one third of the students who were reported and identified with behaviour disorders and mental illness in this study. Similarly, students with ELL status made up approximately 10% of the BC student population over the past five years (BC Ministry of Education, 2016), but accounted for almost 20% of the students who were reported and identified with behaviour disorders

and mental illness in this study. The overrepresentation of students with Aboriginal and ELL status raises concerns and possible unique challenges for these two minority groups.

Differences in cultural values, cultural beliefs, and the perspective of schooling conceivably add to the already complex issue of behaviour disorders and mental illness for this population of students. It is plausible that there may be a discrepancy between what teachers consider acceptable behaviour and the behaviour of students with Aboriginal or ELL status. Teachers may not be as tolerant of behaviours that are not part of their own experience and expectations. In some instances, student behaviours that reflect the attitudes and behavioural standards of a particular culture and are socially acceptable among other cultural groups may be identified as inappropriate behaviour from the perspective of some teachers.

The BC Ministry of Education special needs identification of students with behaviour disorders and mental illness relies considerably on the subjective evaluation of teachers. Other professionals such as school psychologists, social workers, counselors and school nurses may or may not be readily available or accessible to contribute to the identification and designation process, leaving much of the data gathering up to teachers. Akin to the difference in behavioural expectations is perhaps an inability for teachers to differentiate between cultural differences and true indicators of behaviour disorders and mental illness (Moreno, Wong-Lo, Short, & Bullock, 2014). Given the growing cultural and linguistic diversity in BC, it would seem important for educators and school professionals to develop a more informed understanding of students from Aboriginal and ELL backgrounds in order to better distinguish between cultural differences and genuine disability indicators as well as provide more culturally attuned practices.

Graduation rates.

The trend of poor graduation rates among students with behaviour disorders and mental illness continued among each of the two subgroups, students with Aboriginal status and students with ELL status. Only one quarter of the students who were ever identified with Aboriginal status in this study completed high school in comparison to an average of 59% of Aboriginal students in British Columbia who completed high school between 2010-2011 and 2014-2015 (BC Ministry of Education, 2015a). Similarly, only one third of the students who were ever identified with ELL status in this study completed high school, in comparison to an average of 85% of ELL students in British Columbia who completed high school between 2010-2011 and 2014-2015 (BC Ministry of Education, 2015a). When the overall probability of school completion for students with behaviour disorders and mental illness was compared to students of ELL status with behaviour disorders and mental illness and students of Aboriginal status with behaviour disorders and mental illness, the results differed between the two sub-groups. The probability of school completion for the sub-group of students identified as ELL in this study was consistent with the probability of school completion for the overall population of students with behaviour disorders and mental illness. This would lead one to believe that coming from a home where English is not the first language had little impact on whether students with behaviour disorders and mental illness would complete high school. However, the probability of school completion for the sub-group of students who were of Aboriginal status in this study was significantly different from the overall probability of school completion for students with behaviour disorders and mental illness. The poor school completion rate was significantly more pronounced among students of Aboriginal status. Therefore, if students with behaviour disorders and mental illness were also of

Aboriginal status, they would have the lowest probability of completing high school and be at higher risk for dropping out of school than any other sub-group of students.

Identified factors and degree of predictability.

The study identified factors that potentially affect graduation status for both students with Aboriginal status and students with ELL status. As in the overall sample of students, the sub-population of students with and without Aboriginal status and with and without ELL status, school enrollment variables, academic achievement variables, and demographic variables were predictors of whether students with behaviour disorders and mental illness would or would not complete high school. Both commonalities and differences among the set of predictors for students with and without Aboriginal status and with and without ELL status are discussed below.

Aboriginal vs. non-Aboriginal students.

The analysis identified similarities and differences among the potential predictors of graduation status for Aboriginal and non-Aboriginal students with behaviour disorders and mental illness. The facility in which a student was enrolled (standard or non-standard school) was the strongest predictor of school completion. Both Aboriginal and non-Aboriginal students were more likely to graduate from high school if they attended a standard school in their final year of school. Repeating a grade and the number of schools attended had a negative influence on both Aboriginal and non-Aboriginal students. Repeating a grade had the strongest negative influence on graduation status. The data indicated that repeating a grade at any point in a student's career significantly reduced the probability that an Aboriginal or non-Aboriginal student would graduate from high school. The number of schools attended reduced the likelihood that a student would graduate from high school for

both groups of students. However, the *degree of impact* was different for the two groups. Non-Aboriginal students were 40% less likely to graduate for each unit increase (1 to 2 schools, 3 to 4 schools, 5 or more schools) in the number of schools they attended while Aboriginal students were 60% less likely to graduate for each unit increase.

There were also several differences among the predictor variables of graduation status for Aboriginal and non-Aboriginal students. The data indicated that non-Aboriginal students who met or exceeded expectations on the Grade 4 and Grade 7 writing FSAs were more likely to graduate from high school. The Grade 4 and Grade 7 writing FSAs were not predictive of graduation status for Aboriginal students. Gender and grade first identified in Category R or H were predictors that had a negative influence on graduation status for non-Aboriginal status students only. That is, non-Aboriginal males were less likely to graduate than non-Aboriginal females. Also, non-Aboriginal students were increasingly less likely to graduate for each unit increase in the grade students were first identified in Category R or H (kindergarten to Grade 3, Grade 4 to Grade 7, Grade 8 to Grade 9, Grade 10 to Grade 12).

Although the study identified both similarities and differences in the predictors among students with Aboriginal status and non-Aboriginal status, it is the difference in predictors that is worthy of some discussion. It is plausible that the variation in predictors and impact of the variables that influence the high rates of school leaving and lack of school completion that were identified in this study may be related to differences in cultural characteristics between the two groups, characteristics that are not well reflected in the BC school system. The pedagogical approaches, curriculum, and assessment methods may not be aligned with the particular learning needs, interests, and values of Aboriginal students and their families (Whitley, 2014). Students of Aboriginal status may come from families and

communities that have held strong to the structures and practices of their culture. It is possible that some of the value systems that drive our current school system are incongruent with the Aboriginal value systems and priorities. The differences may reflect a poor 'cultural fit' between Aboriginal status students and the BC school culture, resulting in Aboriginal students being less successful in completing school than non-Aboriginal students.

It is equally plausible that the differences in predictors and impact of the variables that influence the high rates of school leaving and lack of school completion among Aboriginal students are related to an element of systemic racism and discrimination (Riley & Ungerleider, 2008, 2012; Ungerleider, 2003). Despite the seemingly objective standards and appropriate practices that are outlined in the Ministry of Education policy manual, stigmatization, stereotyping, and implicit biases continue to exist based on current and historical perceptions of First Nations people who have been branded with the social stigma of being an inferior group of people in Canada (Truth and Reconciliation Commission of Canada, 2012). The over-identification of Aboriginal students with behaviour disorders and mental illness may be a result of the persistent mis-characterization of the Aboriginal population. The high rates of school leaving among Aboriginal students with behaviour disorders and mental illness in BC is not, and cannot, be viewed as an Aboriginal problem. It is a provincial problem that is not limited to the education system. As with all students with behaviour disorders and mental illness, the supports and services required for this population of students extend far beyond the realm of education. As delineated in the Truth and Reconciliation Report (2015), a document that describes the current and historical treatment of Aboriginal people in Canada, all aspects around policy and practice including educational, social, cultural, and political arenas, need to be considered.

An additional consideration is the number of Aboriginal children in BC who are under the protection of Child and Family Services, often referred to as ‘children in care.’²¹ Aboriginal children are disproportionately represented among the children in care in British Columbia (Representative for Children and Youth, 2015). In addition, the Growing Up in B.C. document (Representative for Children and Youth, 2015) reports that the gap in academic achievement, measured by the FSAs, for children in care is equal to, or even wider than the gap for Aboriginal children. Although the current study did not have data on the number of Aboriginal students with behaviour disorders and mental illness who were also children in care, it is presumable that some of the students fell into this category.

ELL and non-ELL students.

The data analysis revealed both similarities and differences among the predictors of graduation status for ELL and non-ELL students with behaviour disorders and mental illness. Five of the 13 variables were predictors of graduation status for both ELL and non-ELL status students. The Grade 7 reading comprehension FSA was the only variable that increased the probability of graduation for both ELL and non-ELL students. It stands to reason that reading comprehension would be a predictive factor of graduation status for ELL students. Proficiency in the English language is fundamental to reading comprehension. Reading comprehension is a necessary skill for any student, including students with behaviour disorders and mental illness, to access information for learning across the curriculum in almost every subject area. Repeating a grade, number of years not enrolled, and number of schools attended were variables that decreased the probability of graduation

²¹ Children in Care are those children who have been removed from their families because of actual or perceived risk of abuse and/or neglect, or an inability of parents to reasonably look after their children.

for both ELL and non-ELL students. These three variables consistently appeared as factors that decreased the probability of graduation status across all students with behaviour disorders and mental illness and was not specific to any particular group of students. Aboriginal status was also a variable that decreased the probability of graduation for both ELL and non-ELL students. However, there was a notable difference in the degree of impact. If an ELL student was Aboriginal, the probability of being a graduate decreased by 57.4% whereas if an ELL student was non-Aboriginal, the probability of being a graduate decreased by 27%. Once again, evidence points to Aboriginal students being at a clear disadvantage to achieve graduation status. The evidence seems to suggest that the disadvantage is due to other factors beyond a language barrier.

The data revealed an additional five factors that were predictors of graduation status for non-ELL students only. The variables facility, Grade 7 writing FSA, and Grade 4 writing FSA were identified as factors that increased the probability of graduation status for non-ELL students only. Similarly, the variables grade first identified in category R or H and gender (male) were factors that decreased the probability of graduation status for non-ELL students only.

Conclusion for question #2.

The current study identified several factors that were predictors of school completion for students with and without Aboriginal status and students with and without ELL status. There were limited factors that were predictor variables for Aboriginal and ELL students and several more for non-Aboriginal and non-ELL students. The factors also had different degrees of impact for the different sub-groups. There was some variation in the ability of FSA assessment scores to predict school completion with Grade 7 reading comprehension

being the one consistent FSA that was a predictor of graduation status across all groups of students.

Factors associated with cultural and linguistic diversity can be complex and may not be limited to school factors. It is likely that other variables in addition to those identified in this study may be more strongly associated with both the over-representation of Aboriginal status students and ELL status students with behaviour disorders and mental illness as well as with school completion. Differences in cultural factors such as values, social perception, attitudes towards authority, and individual vs. group dynamics would likely influence student behaviour and how educators might respond. Racism and discrimination are also factors that would likely influence how educators might respond to students from various cultural and linguistic backgrounds. Such factors would add to the challenge of accurately distinguishing between cultural differences and indicators of behaviour disorders and mental illness.

It should be noted here that the current study did not identify students that were exclusively of Aboriginal status or exclusively of ELL status. Some students identified as ever being Aboriginal were also identified as ever being ELL. Therefore the results of the predictability of the individual variables for the two sub-groups should be viewed with caution. Nonetheless, the exploration of the two sub-groups certainly points to a need for further investigation of both students with Aboriginal and ELL status as they account for a significant portion of the student population in British Columbia. The discrepancy between Aboriginal and non-Aboriginal status students, and ELL and non-ELL status students among students with behaviour disorders and mental illness and the predictive factors of graduation status requires further investigation to understand and respond to the unique demographic and cultural characteristics of these sub-populations of students.

Research question #3.

A separate analysis was conducted with the single variable, 'age first identified in Category R or H²²,' to inform the third and final research question:

- Is there a relationship between the age at which students are first identified and reported with a categorical designation and whether they will graduate from high school?

The age at which students were first identified and reported with a categorical designation (Category R or H) did not appear to be related to whether a student would or would not graduate from high school. The age of identification and designation in Category R or H was equally distributed across the school years. Students were not identified at a higher rate for any one age group. Poor school completion rates persisted regardless of whether students were first identified and designated in Category R or H at ages 4 to 8 (primary school years), ages 9 to 12 (intermediate school years), ages 13 to 15 (junior high school years), or ages 16 to 19 (senior high school years). Despite similar outcomes, distinguishing between students identified and designated in Category R or H in their early school years and those identified in their later school years and possible reasons why identification and categorization take place at different points in a student's career may help to understand why students with behaviour disorders and mental illness struggle to complete high school and is worthy of exploration.

²² Category R and H are BC Ministry of Education special needs categories. (Category R = Students Requiring Behaviour Support or Students with Mental Illness; Category H = Students Requiring Intensive Behaviour Intervention or Students with Serious Mental Illness)

Students identified in their early school years and possible relationship to poor school completion rates.

Given the overall poor school completion outcomes of students with behaviour disorders and mental illness, one would conjecture that it would be critically important to identify students as early as possible in their school career in an effort to provide timely and effective intervention. Studies suggest that early identification of students combined with early intervention can decrease the likelihood of future negative outcomes (Dunlap et al., 2006; Lane & Menzies, 2003). Yet, despite identification of students with behaviour disorders and mental illness in their earlier years, this study demonstrates that a large majority of these students did not have future positive outcomes and did not complete high school. Half of the students in this study were initially identified and reported in Category R or H between the ages of 4 and 12 and only one third of these students, with some identified as young as 4 and 5 years of age, completed high school. This section takes a brief look at students with behaviour disorders and mental illness who are identified early in their school career and the possible relationship to the less than desirable school completion rates.

Students with externalizing behaviours.

It is probable that identification of students early in their school career is related to the intensity or severity of the presenting behaviour (i.e., externalizing behaviour). The literature suggests that early identification is related to the outward behaviour of students (Greene et al., 1996; Loades & Mastroyannopoulou, 2010). The behaviours are observable and blatantly obvious. Students with externalizing behaviours are typically very challenging for teachers to manage in the classroom. The behaviours not only interfere with the student's

learning but also disrupt the learning of their peers in the class. When student behaviours disrupt the class, teachers are more apt to take some sort of action to address the behaviour.

It is reasonable to assume that students with behaviour disorders and mental illness who were identified in the earlier years had many years of challenges ahead of them during their formative years. Identifying students early in their school career may function to alert teachers that these students require intensive intervention and support. But if intensive intervention and support is not provided, challenging behaviours can worsen over time.

Research has shown that children exhibiting behaviour problems and mental illnesses in their early years are prone to significant long-term negative outcomes (Darney et al., 2013; Kim-Cohen et al., 2009; Morgan, Farkas, & We, 2009; Reinke, Herman, Petras, & Ialongo, 2008). However, given the methodology of the current study, it is not known whether the students who were identified in the early years are the same students who left school or completed school at the end of their school career.

Teacher attitudes and perceptions.

Teacher attitudes and perceptions may also add to the complexity of identifying and supporting students with behaviour disorders and mental illness early in their school career. Teachers spend a large part of the day interacting with students and have the opportunity to identify students with potential behaviour disorders or mental illness. However, it may be difficult for teachers to distinguish serious problems from typical developmental progressions. There seems to be a professional reticence pertaining to challenging behaviours, especially in the very early years. In some cases, teachers feel that the behaviours are ‘developmental’ and students are simply maturing at a slower rate. There is an underlying assumption that these students will eventually ‘catch up.’

Teachers may also feel that the student behaviours are not serious enough to warrant the time and energy required to provide intensive intervention. This perspective does not promote addressing issues early while the problems are still relatively small and manageable. Both assuming that the behaviours are ‘developmental’ and not addressing behaviours until they are serious may delay the identification and, therefore, the intervention that the student requires.

Given that students with behaviour disorders and mental illness have a poor prognosis for school completion, it is disconcerting that teacher attitudes and perceptions can delay the identification of these students. Without early and intensive intervention, the severity and magnitude of behaviour issues can increase over time with unwanted behaviours becoming well established in a student’s functional repertoire. Delayed intervention makes it increasingly challenging for long-term change in behaviour, resulting in deleterious effects on a student’s developmental and learning trajectory. One can conjecture that teacher attitudes and perceptions directly impact the timeliness of identification and intervention, and therefore influence the chance at successfully completing school.

Significance of students identified in their early school years.

The data highlighting the identification and designation of students with behaviour disorders and mental illness in their early school years have brought to bear some unique considerations. First, if identification is related to the intensity or severity of the presenting behaviours, one can speculate that only students with the most challenging externalizing behaviours are being identified, designated in a special needs category, and supported or treated in their early years. One can postulate that other students with less disruptive externalizing behaviours could be and should be identified but are not and therefore, are not

receiving the intervention they need. Second, there may be students with significant internalizing behaviours that should be identified in their early school years. However, they may go unrecognized and unidentified until their later school years when the issues become more intense and more difficult to treat. Again, these students then do not receive the intervention they need. Third, teachers' dispositions may influence a lack of early identification. Teachers may be more lenient or tolerant given the students' young age with a tendency to use a 'wait and see' approach. These students also do not receive necessary intervention and support. In each of these scenarios, the students have challenging behaviours that begin early in their school career. If these behaviours persist over a number of school years in an environment that neglects to meet their behaviour needs, it would not be surprising that the majority of these student leave school early.

Early and effective screening to identify students at risk of behaviour disorders and mental illness beyond those with intense and severe externalizing behaviours would serve to identify a broader spectrum of students that fall under the behaviour disorder and mental illness category. Identifying and providing intensive support and intervention early in a student's educational career may serve to catch students prior to behaviours becoming engrained in their functional repertoire. Coupled with teachers' understanding and supporting the need for addressing students' behavioural needs as soon as they become apparent could perhaps change the trajectory of the students' educational career and improve the prognosis of school completion for this population of students.

Students identified in their later school years and possible relationship to poor school completion rates.

Some students manage well during their early school years and it is not until their later school years that behaviour disorders and mental illness become evident. Almost half of the students in this study were not identified and reported in Category R or H until their teenage years, between the ages of 13 and 19, when they are generally enrolled in high school. This section takes a brief look at students with behaviour disorders and mental illness who are identified later in their school career and the possible relationship to the less than desirable school completion rates.

Late onset.

For some students, behaviour disorders and mental illness may not exist in the early years. There may be a particular incident, event or situation at some point later in the student's school career that provokes an undesirable change in the student's behaviour or mental state. Given that almost half of the students were identified and reported in Category R or H in their teenage years, one explanation may be related to changes in students' social and educational environments that may heighten issues related to behaviour disorders and mental illness. A common experience that typically causes students at least some level of anxiety is changes in school settings. Students transitioning from elementary to middle school or high school experience changes in the environment, in expectations, and in routines that could trigger new behaviours or intensify existing behaviours.

Late identification.

Alternatively, there may be pre-existing characteristics related to behaviour disorders and mental illness that have simply gone undetected in the early school years. There may be

a lack of knowledge and expertise at the school level to recognize the soft signs of potential behaviour disorders and mental illness. Behaviour challenges and mental illness could lack the severity or intensity for teachers to consider them an issue that requires attention. Some teachers may interpret the demeanor or conduct of students with behaviour disorders and mental illness as behaviours that are typical of that age group and therefore do not need to be addressed. Parents may be reluctant to acknowledge and address atypical behaviours of their children that, left unattended, could develop into some form of behaviour disorder or mental illness. Other professionals may also contribute to the late identification of students with behaviour disorders and mental illness. Although it is the school or school district that assigns students to Category R or H, the diagnosis is dependent on professionals such as pediatricians, psychologists and psychiatrists who routinely identify and diagnose behaviour and mental health issues. Without documentation from qualified professionals, schools and school districts cannot report students in a special needs category, namely Category R and H. Studies have documented that although practitioners identify significant percentages of their patients with behaviour disorders and mental illness, they consistently under identify and undertreat this population of students (Horwitz, Gary, Briggs-Gowan, & Carter, 2003).

Although the intent of the current study was not to address the cause of late onset, it is important to recognize that characteristics of behaviour disorders and mental illness can emerge at any time during the student's school career. Students who are identified with behaviour disorders and mental illness later in their school years need the same care and attention as students who are identified in their earlier years. All students with behaviour disorders and mental illness require consistent, intensive intervention and support from the time they are identified in order for them to have a chance at successfully completing school.

Internalizing behaviours.

Students with internalizing behaviours may have significant issues but may also be more likely to be overlooked and under identified than students with externalizing behaviours. Teachers have less concern for students with clinical symptoms of an emotional disorder (i.e., internalizing behaviour) who are less visible and less disruptive in the classroom (Loades & Mastroyannopoulou, 2010). Students with less obtrusive or less conspicuous behaviours are perhaps not recognized or may be neglected by teachers. It is plausible that students with internalizing behaviours in this study did not receive necessary intervention until the behaviours became more serious and had a greater negative impact on their learning. The older the students and the more serious the behaviours, the more likely the focus would be on mental health, and school completion would likely be less of a priority.

Lack of early screening and identification.

The large number of students who were first identified and categorically designated at the high school level in this study suggests a lack of early screening and identification. Students with behaviour disorders and mental illness that are not identified in their early years can lose a critical opportunity for early intervention (Horwitz et al., 2003; Kataoka, Zhang, & Wells, 2002). If left alone or ignored, the severity and magnitude of the issues can intensify over time, negatively impacting students' developmental and learning trajectories. With the largest groups of students in this study initially designated in Category R or H at age 14 and 15, it begs the question: "Are we waiting too long to intervene when the students' behaviours have become extreme and more resistant to change?"

An early screening and identification tool could serve as a preventative approach to help identify students at risk of behaviour disorders and mental illness in their early years.

Early screening and identification would allow schools to address behaviours and mental health issues long before students reach adolescence. Conceivably, with appropriate and necessary intensive behaviour support at an early age, the likelihood that symptoms develop into disorders that are more problematic and less amenable to treatment as students get older can be reduced and, in turn, the number of students who are able to complete high school can be increased.

Additional diagnoses.

Related to screening and identification of students with behaviour disorders and mental illness is the identification of other diagnoses. One eighth of the students who were identified with behaviour disorders and mental illness were first identified and reported in another special needs category. The designation in another special needs category prior to the Category R or H designation for the majority of the students occurred in the early years. Approximately two thirds of these students were diagnosed with a learning disability. Likewise, approximately one sixth of the students who were identified with behaviour disorders and mental illness were subsequently identified and reported in another special needs category. Again, learning disabilities accounted for over half of the subsequent designations. The large number of students who were identified with a learning disability before or after they were identified and reported in Category R or H implies there might be a relationship between learning challenges and behaviour disorders and mental illness, at least for a percentage of the students. However, further investigation is required to determine if there is a causal relationship between learning disabilities and behaviour disorders and mental illness. Regardless, the data do support the notion that there is a great deal of

complexity involved in identifying students with behaviour disorders and mental illness, compounding the challenges for these students to successfully achieve school completion.

Lack of effective intervention.

It is important to recognize that for students with behaviour disorders and mental illness who have a Category R or H special needs designation, an individual educational plan and other services *must* be in place. That is, having individual educational plans for students with behaviour disorders and mental illness is a directive from the BC Ministry of Education and is an essential requirement. As such, the assumption is students *are* receiving significant interventions by specialists or supervised educational assistants with the intent to promote behaviour change or provide emotional support. However, school-based personnel, and especially classroom teachers, are the professionals who work with students on a daily basis, but may not have the expertise or training in behaviour and mental health to develop or implement an individual educational plan specific to the student. Students with behaviour disorders and mental illness require co-ordinated school and community interventions. This requires a high level of planning and coordination. It is plausible that the type or intensity of the intervention may not be adequate or aligned with the behaviour or mental health issues that are identified. That is, the intervention or treatment may not be an efficacious match to meet the needs of students with behaviour disorders and mental illness and may have serious implications as to whether they can and will complete high school.

Significance of students identified in their later school years.

Given the large percentage of students who were identified and designated with behaviour disorders and mental illness in their later school years and did not complete high school, this group of students is worth some attention. First, there may be specific and unique

characteristics related to late onset of behaviour disorders and mental illness and late identification of students with behaviour disorders and mental illness. Based on the current data, one can speculate that even with intensive interventions from the time of identification, a large proportion of these students did not complete high school. It is plausible that the trajectories for school completion for students identified later in their school career might be different from students identified in their earlier years. Second, more attention needs to be placed on recognizing the characteristics of students with internalizing behaviours. If students with internalizing behaviours can be identified and have their needs addressed, it may improve their chances for school completion. Third, there appears to be a dire need for a mechanism to be put into place for early screening and identification to increase the opportunity to support students with behaviour disorders and mental illness early in their school career with some hope of increasing the probability that students will complete high school. Finally, there appears to be a critical need for teachers and other school staff to have greater knowledge and skills to address the needs of students with behaviour disorders and mental illness. Specialists with specific training are needed to support school-based teams and coordinate services based on inter-agency processes in order to manage, educate and maintain students in their school communities through to school completion.

Conclusion for question #3.

The current study found that regardless of whether students were first identified and reported with a categorical designation early or later in their school career, the outcome was the same: the majority of students did not complete or graduate from high school. This suggests that despite early identification, current intervention strategies to support students with behaviour disorders and mental illness were not sufficient to change their trajectory

towards school completion. Students with behaviour disorders and mental illnesses have complex needs and the interventions required to address the students' needs are equally complex. It is conceivable that students identified at an early age have behaviour and mental health issues that are characteristically different from students who are identified later in their school career, requiring different strategies and support systems.

Implications Related to Policy and Practice

Theoretical implications.

Engagement in school is essential for positive school outcomes and ultimately school completion or graduation. The findings of this study are consistent with Finn's (1989) participation-identification model of school engagement. The participation-identification model approaches the concept of school engagement from the perspective of positive behaviour and highlights two essential components: 1) participation in school activities and 2) identification with the school. Factors related to both components are described below.

The current research identified three distinct factors related to participation in school activities –school enrollment, academic engagement and facility (Figure 5.1). A number of researchers (Fredricks, Blumenfeld, & Paris, 2004; Jimerson, Campos, & Greif, 2003; Reschly & Christenson, 2006; Rumberger & Lim, 2008) have studied the construct of student engagement since the seminal work by Finn (1989). These researchers have expanded on Finn's original two-component model and, despite differences in terminology and definitions, all have identified school enrollment as a component of engagement, much like Finn's participation component. In this study, the number of years students were not enrolled between the time they initially enrolled in school, until they left or completed school, could be considered related to school engagement. The number of years a student was not enrolled

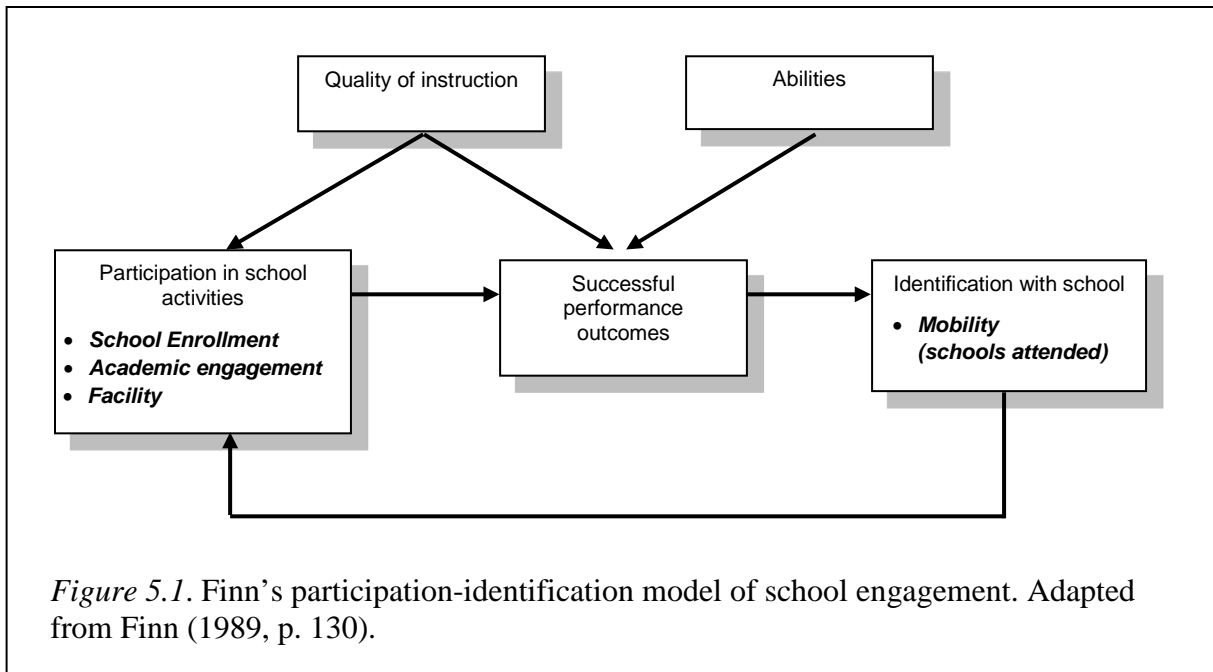
represented the consistency, or lack of consistency, with which the student attended school. As the number of years a student was not enrolled in school increased, the probability that the student would graduate from high school decreased. Repeated grade could also be considered related to participation, or lack of participation, especially from the perspective of student engagement in academic activities and assignments. Lack of participation in academic activities could result in not meeting the expectations for required learning outcomes, and therefore, not being promoted to the next grade.

Closely related to repeated grade is academic engagement. One can postulate that when students attended classes and participated in lessons and activities, they were engaged in learning, at least to some extent. If students were engaged in their learning, it stands to reason that it would increase the probability that they would meet grade level expectations and be promoted to the next grade. In this study, province-wide exams were used as an indicator of academic participation. Students who met or exceeded grade level expectations were more likely engaged in learning.

The facility variable identified the environment in which the student was enrolled (standard school / non-standard school). One can conjecture that if a student was attending a standard school, there was some level of participation or engagement, be it academic or social. Conversely, if a student was not responding academically and/or socially in a standard school setting, despite any specialized services the student may have been receiving, he/she could be placed in an alternative school or setting.

The mobility of students could be considered related to the affective component of Finn's (1989) model, identification with school, which refers to a sense of belonging to the school community and commitment to the school and to learning (Figure 5.1). The degree of

mobility was measured by the number of schools students attended from year to year over the course of their school career. The premise is the fewer times students changed schools, the more opportunities they would have to be connected to the school and school community. Mobility can detract from successful performance outcomes and overall attachment to a school. Changing schools requires students to adjust to new environments with new teachers, different expectations and changes to academic curricula, as well as new social environments. When students are new to a school, they are less engaged and participate in fewer activities (South, Haynie, & Bose, 2007). Frequent changes can create instability and uncertainty for students, and reduce opportunities for appropriate support to be put into place, and for learning to occur, resulting in less successful performance outcomes. Students who experience less successful school performance may have less incentive to be connected to or identify with the school. The less students identify with the school, the less they are likely to participate in school activities, perpetuating the cycle of student disengagement and poor performance outcomes. There were a large number of students in this study who changed schools an inordinate number of times, suggesting these students had a minimal level of identification with the school.



Taken together, the variables that represented participation in school and identification with school characterize a group of students with behaviour disorders and mental illnesses who completed school and those that did not. The variables are contributory factors of student engagement to help understand and improve outcomes for students with behaviour disorders and mental illness. Student participation and connectedness to the school focus on the acquisition of characteristics and skills that can be addressed by schools. Schools have the opportunity to intervene with intensive support to encourage students to participate in school activities and learning, as well as develop a sense of belonging.

The current focus of the BC Ministry of Education and move towards accommodating diversity are positive directions that will serve to support students with behaviour disorders and mental illnesses. The new curriculum will allow for flexibility in programming so a greater emphasis can be focused on addressing student engagement. Perhaps being mindful to support individualized planning that is consistent with participation and connectedness

will be a better educational fit for students with behaviour disorders and mental illnesses and reduce the excessive mobility of students as they move through the school system.

Policy implications.

Current policies and procedures designed to address students with behaviour disorders and mental illness may be ineffective for addressing the learning needs of this population of students. Despite efforts to provide various accommodations and alternative placements, the majority of students with behaviour disorders and mental illness are not completing high school. Moreover, current practice such as extending stay in school and repeating grades may be exacerbating the problems they are designed to support.

Compulsory school age.

BC Ministry policy stipulates that students must stay in school until age 15. The study indicated that the majority of students with behaviour disorders and mental illness abide by this policy and leave school in large numbers from age 16. However, is this an ‘out’ for students? The highest success rate for school completion occurred for those students in this study who did not leave school until age 17. Currently, along with Nova Scotia, British Columbia has the lowest compulsory school age across Canada. The Ministry of Education in Ontario amended their legislation in 2007 to raise the compulsory school age to 18 or graduation “in order to encourage more students to graduate and fewer to leave school without being adequately prepared for work or further learning” (Ontario Ministry of Education, 2007, “Memorandum,” para. 1). Perhaps legislation in British Columbia regarding the age at which students can leave school could be revisited in an effort to encourage students to stay in school and increase time and opportunity to complete graduation requirements. Increasing the compulsory school age to align with the BC

graduation years curriculum may serve to convey a message to the students and to the public of the importance of completing high school. However, simply keeping students in school is not enough. Legislating students to stay in school with no plan or goal serves no purpose. The time spent in the school system needs to be engaging, motivating, and purposeful, with appropriate accommodations that meet the specific needs of students with behaviour disorders and mental illness, with the goal of finishing as a high school graduate.

Category R and H definitions.

The designation of special education categories for distinguishing students with moderate to severe behaviour disorders and mental illnesses has not resulted in supporting this population of students with intervention strategies leading to successful high school completion. Current definitions for students with behaviour disorders and mental illness in the *Special Education Services: Manual of Policies, Procedures and Guidelines* (BC Ministry of Education, 2016) are subjective, putting heavy emphasis on the attitudes and opinions of schools and school districts to determine the status of the students. The vague definitions and subsequent inconsistent identification is problematic and does little to determine if the services are focused on the appropriate students. The type and the intensity of interventions may be influenced or determined by the special needs designations, as opposed to the needs of the students. Students with significant needs who do not meet the Ministry of Education criteria for Category R or H may not be given adequate support and be at a significant disadvantage. Although students with behaviour disorders and students with mental health issues are grouped into categories, their needs may be substantially different and the types of support and services that they require can be contradistinctive.

From a research perspective, the vague definition of students with behaviour disorders and mental illness makes the data somewhat unreliable and inconsistent. Therefore, any research that is conducted that is dependent upon the BC Ministry of Education classification of behaviour disorders and mental illness must be reviewed with caution.

1701 data collection.

The BC Ministry of Education database provided some important information to explore the characteristics of students with behaviour disorders and mental illness. The available data that were acquired for the current study reflected information useful to the Ministry of Education for the distribution of supplemental funding to schools and school districts to support programs and services for special needs students. However, one must wonder if the special needs designations are simply for fiduciary purposes.

The Ministry of Education annual data collection is an opportunity to understand and learn more about the BC student population and the effectiveness of the kindergarten to Grade 12 curriculum. School completion and graduation rates are important to examine. However, the data collected by the Ministry are limited in scope and miss several critical factors likely related to student school success. More robust data collected throughout students' educational careers are needed to track patterns of behaviour and monitor student progress. For example, data on student attendance, an objective measure of student engagement, would inform schools and school districts on whether or not the students with behaviour disorders and mental illness are present at school to access and engage in the curriculum. Student attendance could then be used, from a proactive approach rather than a retrospective approach, for the purpose of informing policy and practice and guiding the trajectories of these students toward school completion.

Teacher training.

Teachers generally have little to no training or experience working with students who have behaviour, social/emotional, or mental health problems and yet, these students are in general education classrooms across the province. Classroom teachers are generally unprepared to take on the additional responsibility of students with behaviour disorders and mental illnesses which can be detrimental to both teachers and students. Research has provided evidence that classroom teachers generally lack knowledge and skills - as well as confidence - to provide appropriate accommodations for this population of students (Beam & Mueller, 2017; Billingsley, Fall, & Williams, 2006).

Like many of the other provinces in Canada, British Columbia does not require teachers who work with students with behaviour disorders and mental illness to take any specific educational training to appropriately teach this population of students. Given the growing number of students who struggle with behaviour disorders and mental illness in British Columbia and the poor track record of school completion, it behooves the province to require teachers to have at least some foundational training to identify and intervene when students have behaviour disorders or mental illnesses. Without training based on evidence-based practices, teachers will simply default to pedagogies of practice that, up to this point, have not been successful in effectively managing students with behaviour disorders and mental illness and keeping students in school through to school completion or graduation.

Inter-ministerial collaboration funding.

The support provided to prevent drop out and promote school completion of students with behaviour disorders and mental illness is needed through additional targeted funding from different sources. The BC Ministry of Education defines students who meet criteria for

Category R as those who require support “beyond normal school discipline and classroom management strategies,” and Category H as those who “warrant intensive interventions by other community agencies/service providers beyond the school” (BC Ministry of Education, 2016). The definitions suggest that the involvement of other agencies and service providers are required to provide adequate or appropriate support to these students. In order for this to occur, these agencies and service providers require targeted funds to assist in supporting the same students for services different from those within the educational realm. Services such as psychological assessments, clinical counseling, and various therapies all contribute to the educational success of students with behaviour disorders and mental illness, yet are beyond the knowledge and expertise of educators.

Currently there is no formal policy requiring inter-ministerial collaboration to support school-age students with behaviour disorders and mental illnesses, despite the need for interagency support. Mandatory collaboration and responsiveness to address the multifaceted needs of students with behaviour disorders and mental illnesses would likely increase the probability of academic success and school completion for this population of students. An additional investment of human and financial resources in students with behaviour disorders and mental illness during their school-age years would likely increase the number of students who stay in school through to high school completion. High school completion is critical to increase the opportunities for students to continue on in postsecondary education or employment to become contributing members of society.

Educational programming implications.

This study provided evidence that the BC school system is failing to address the educational needs of students with behaviour disorders and mental illnesses. The school

completion rates for this population of students are dismal. Current educational interventions and programs do not seem to be effective in keeping this population of students in school through to school completion. Despite the policy of inclusion, the results of this research make one pause to reflect – “Are educators addressing the needs of *all* students?” “Do classroom teachers feel responsible for all students, including those with behaviour disorders and mental illness?”

Exploration of the data highlighted staying enrolled in a standard school setting, without repeating any grades, and with minimal mobility were critical factors that had a positive influence on the outcome of students with behaviour disorders and mental illnesses. In order to keep students in school, not only do educators need to focus on the students and their behaviour, but also on changes in the students’ educational environment to provide opportunities for meaningful engagement. In addition to accommodations and academic support services, educators need to provide opportunities for students to respond and participate in the classroom. A review by Sutherland and Wehby (2001) concluded that opportunities to respond positively affect both academic and behavioural outcomes of students with behaviour disorders and mental illnesses.

Further, the current study confirms what other studies have unfortunately concluded – Aboriginal students with behaviour disorders and mental illnesses are not achieving equitable outcomes among any group of students, even among other students with behaviour disorders and mental illnesses. To be blunt, Aboriginal status students have the worst school completion rates compared to any other group of students in the province. Although this study does not explain why such a disparity exists, it is evident that the current educational accommodations are far from adequate for Aboriginal students with behaviour disorders and

mental illnesses, and these students stand little chance of successfully completing high school.

However, there is a glimmer of hope. Educators have a great opportunity to influence student outcomes through instruction and intervention, especially at this juncture in education where the BC Ministry of Education is making significant changes to the curriculum. The re-designed curriculum provides teachers with flexibility in creating learning environments that are relevant, engaging and novel. The intent of the new curriculum is to personalize learning and increase opportunities to address the diverse needs and interests of students. Further, the new curriculum explicitly integrates authentic and respectful Aboriginal culture and perspectives throughout all areas of learning to reflect the First Peoples Principles of Learning (BC Ministry of Education, 2017). Perhaps these changes will allow for better opportunities for students with behaviour disorders and mental illnesses, and especially those of Aboriginal status, to access the curriculum in a more meaningful and engaging way so teachers will be able to support and guide students through to school completion.

Limitations

The primary strength of this study was that it included *all* students *ever* identified with a Category R or H designation (behaviour disorders and mental illness) over four cohorts of students who were born between 1991 and 1994. The longitudinal design permitted the investigation of outcomes that span the students' educational careers. Although this exploratory study has generated some important findings, there were several limitations that should be noted. Identification of these limitations should assist those seeking to design future studies.

First, the current study was created from secondary data and was dependent upon the available existing data from multiple databases that were aggregated by the Ministry of Education from each public school district and independent school. The data used in the analysis were not collected by the Ministry of Education with the intent of studying school completion and non-completion of students with behaviour disorders and mental illness. Potential key predictor variables that may have had equal or greater impact on school completion (e.g., attendance, suspensions, expulsions) were not collected by the Ministry of Education and therefore not available in the original database, substantially limiting both student-level and school-level analysis. Therefore, the study could not fully explore student engagement factors proposed by Finn (1989). Additional shortcomings of the available student-level data available for analysis should be noted. For example, key academic performance data for BC students, notably the FSA data, is an independent database and not linked to the other student-level data collected by the Ministry. Also, there are potential concerns with the reliability of data collected across the school system. The accuracy and integrity of the data were dependent upon different sources and succession of individuals at every school and school district who were responsible for reporting the data to the Ministry of Education at a given point in time. The annual data collection process may also have impacted the variable, 'number of schools attended,' as data were not sensitive to multiple changes of schools within a school year and whether the change of schools occurred within a school year or at the beginning of a new school year. It should also be noted that the study did not follow individual students from the time they were identified through to school completion or when they left the school system; rather, it tracked all students that were ever identified.. Further, the study did not extend to institutional characteristics of family, school

and community supports. Although students requiring intensive behaviour intervention or students with serious mental illness who are reported to the Ministry of Education, by definition, require extensive support beyond the school setting and warrant intensive interventions by other community agencies/service providers beyond the school, these data were not available for the study. The lack of access to this systems-level data is an additional limitation of the current study.

Second, the study was limited to four cohorts of students, dating back to the 1996-1997 school year. In 1995, the BC Ministry of Education replaced the earlier 1985 manual, *Special Education: A Manual of Policies, Procedures and Guidelines*, to reflect changes in legislation, policy and educational practice, making significant changes to the categorical terminology and definition of special needs students. The revised publication redefined the behaviour category to include students with mental illness. Data prior to 1995 would likely have excluded many of the students with mental illness who, by current definition, would now be considered part of this category. In addition, the Ministry of Education only began collecting special needs data based on the revised publication from the 1996-1997 school year. Also, for the first three years using the revised publication (1996-1997 to 1998-1999), school districts were only required to report on low incidence categories which included Category H, students requiring intensive behaviour intervention or students with serious mental illness. The reporting of high incidence categories, which included Category R (students requiring moderate behaviour support or students with mental illness), was only required from the 1999-2000 school year. This may have influenced the number of students that could have been identified in the high incidence category but were not reported during these years (1996-1997 to 1998-1999). In addition, independent schools, which made up well

over 10% of the BC student population (BC Ministry of Education, 2015b), were not required to formally report special needs students until the 2012-2013 school year. Therefore, students with behaviour disorders and mental illness who spent their entire school career in the independent school system were not reflected in the data. However, some students moved in and out of public and independent schools and, provided they were designated in Category R or H while they were in the public school system, they would have been identified in the data set. Given the changes in the BC Ministry of Education reporting procedures over the years, it is likely that the prevalence of students with behaviour disorders and mental illnesses in British Columbia in this study was an underestimate of the actual count.

Third, reported numbers of students with behaviour disorders and mental illnesses may be an underestimate due to the funding structure in British Columbia. There were students who met the criteria for the behaviour disorders and mental illness category, as well as another special needs category, but the supplementary funding system in British Columbia is set up to report students in only one category. In such cases, school districts are required to report students in the category that best reflects the students' special needs and the type and intensity of educational interventions required. However, given that funding is directly tied to the special needs category, and other low incidence categories (Categories A to G) generate significantly more funds, it was likely these students were identified in a special education category other than the behaviour disorders or mental illness category. While this is understandable from an administrative and financial perspective, it interferes with understanding the prevalence of students with behaviour disorders and mental illness and subsequent research of this population of students.

Fourth, the demographic make-up in British Columbia differs from that found in other provinces and territories in Canada. Thus, generalizations to other provinces and territories need to be made with caution. Replication of the study in other provinces and territories will help to determine whether the findings from this study apply in other jurisdictions with different demographic characteristics.

The final limitation is with regard to the statistical analysis itself. The logistic regression analysis to determine the predictive ability of selected variables was conducted on a reduced data set and included only those cases with a complete set of FSA test results at both grade 4 and grade 7. The selection criteria for this analysis eliminated any case with one or more test results with no valid indicator of success. This procedure resulted in the elimination of more than half of the cases from the original data set. The results of the logistic regression analysis reflects the reduced set of 7,975 students, rather than the 16,498 in the original data set, and may not be an accurate reflection of the characteristics of the larger data set. This limitation in the FSA data collected by the Ministry of Education substantially affects the confidence to be placed in the generalization of the logistic regression results to the larger data set. Further, the results of the current statistical analysis must be regarded as tentative and inconclusive, as this analysis was exploratory in nature and provided a broad overview of the area under study. The analysis was a search for plausible predictors and was not a test of any theory (Menard, 2002). There is much to explore and seek to gain from more comprehensive primary data and/or extensive secondary data.

Future Research

This study was exploratory in nature and offered some preliminary insight and foundational knowledge into four cohorts of students who were identified and reported with

behaviour disorders and mental illness according to the BC Ministry of Education special needs designation. While the study was limited to the information that was available from the BC Ministry of Education data collection, the results revealed several defining characteristics associated with students with behaviour disorders and mental illness of those who completed high school and those who did not. However, the findings were not causal in nature and suggest the need for more focused and sophisticated methodologies to further explore this area of research in order to be fruitful. The following research topics would extend the findings of the current study.

First, the study clearly pointed to a large percentage of students with behaviour disorders and mental illness who left school early, before they met school completion requirements, but the study did not provide any explanation for this pattern of behaviour. Current practices do not appear to be improving the proportion of students with behaviour disorders and mental illness who are successfully completing school. Further investigation is needed to understand what constitutes meaningful engagement and what keeps students with behaviour disorders and mental illnesses in school or pushes them out. Examining the educational and social emotional support strategies provided to students with behaviour disorders and mental illness who successfully complete school may shed some light on how to keep students with behaviour disorders and mental illness in school and discourage them from leaving before meeting graduation requirements. A case study approach for an in-depth analysis to examine both academic and social participation of students with behaviour disorders and mental illness who complete high school would provide valuable information to guide educators understand what influences students to stay enrolled in school.

Second, the data clearly identified high mobility as a key variable related to poor school completion rates. Although some students continued to stay enrolled in school, their academic history was disconnected and disjointed as they moved from school to school over the course of their school career. Other researchers have noted similar patterns of mobility (Aman, 2006). Further investigation is needed to examine actual school changes and the nature of these changes. The current study was not able to specify the actual number of school changes if they occurred more than one time in a particular school year. Similar to students who leave school before school completion, one can speculate that students who frequently change schools are not engaged and are not connected to the school or school community. However, one cannot help to wonder whether students were required to leave (i.e., suspension or expulsion) or if they were choosing to leave (i.e., pushed out) to attend another school. Further study is required to uncover more details and gather evidence to understand what motivates students to stay in school, yet not stay in one location. It should be noted that structural changes of schools such as school openings, school closures, changes in grade groupings within schools, and changes in school catchment areas may have impacted the data on school changes. Socio-economic and demographic variables associated with schools, families, neighbourhoods and communities, although not included in the current study, may also play an important role in understanding school mobility for students with behaviour disorders and mental illness and warrant some consideration in future studies.

Third, it would be prudent to probe more deeply into the educational strategies and support services that were provided to students with behaviour disorders and mental illnesses who managed to complete high school, and the degree to which the strategies and support services improved their academic trajectories. A retrospective study of a sample of Grade 12

students with behaviour disorders and mental illness where graduation is imminent would help identify structures and strategies that support successful school outcomes.

Understanding the impact of course selection, scheduling, instructional formats, and frequency and intensity of support services, as well as opportunities for social emotional guidance and/or counseling can assist educators to make decisions in providing appropriate and pertinent accommodations and support services for future students with behaviour disorders and mental illnesses. Allowing for efficacious accommodations and program personalization to occur as a natural part of the school curriculum may serve to minimize academic disruptions and encourage more students to remain in school. These are clearly areas that teachers and administrators can be directly involved in to influence successful school completion of students with behaviour disorders and mental illnesses.

Fourth, an area that needs further examination and is related to educational strategies is the concept of grade retention, not because it is an effective method for supporting students' academic success, but for precisely the opposite reason. It has proven to be ineffective (Anderson et al., 2001; Bradley et al., 2008; Reschley & Christenson, 2006; Rumberger, 1995; Rumberger & Lim, 2008), yet continues to be a widely used strategy for students with behaviour disorders and mental illness. Despite the lack of effectiveness, the current study revealed that many of the students had been retained in the same grade at least once sometime during their school career, and further, grade retention was a strong predictor of leaving prior to school completion. One cannot help but wonder if grade retention is related to school absence or some other factor. Prolonged absence from classes for any of a variety of reasons could result in reduced opportunity to learn academic content and diminished mastery of grade level skills. However, there is currently no evidence whether

grade retention is related to school absence for this population of students. It would be interesting to examine the correlations between academic progress, school attendance and grade retention to better understand why this strategy is persistently being used.

Unfortunately, the Ministry of Education does not collect data on attendance and therefore school absence was not a variable that could be explored in the current study.

A fifth area for further research are the demographic features, specifically gender and Aboriginal status, that the current study demonstrated as factors that were related to whether or not students with behaviour disorders and mental illness completed high school. Past research of students with behaviour disorders and mental illness has been conducted almost exclusively with males, or with mixed groups with little effort to examine the status of females separately from that of males (Trout et al., 2003). Consideration of the characteristics associated with males and females with behaviour disorders and mental illness needs further exploration to examine potential differences between the two groups. Future research associated with gender should also include an investigation on potential teacher biases towards males and females, and teacher decisions that are made to determine which students require and receive support services.

This study also highlighted differences between students of Aboriginal status and students who are not of Aboriginal status among students with behaviour disorders and mental illness. There is clear indication that school completion rates are especially bleak for Aboriginal status students with behaviour disorders and mental illness, signalling further research is needed specifically among this population of students. In-depth case studies that include the perspectives of the primary experts in this area – the students themselves – might provide knowledge and understanding to help address the ongoing disparity between

Aboriginal and non-Aboriginal students and reveal the facilitators and barriers that improve or impede their educational trajectories and factors that influence school completion. Both provincial and national groups beyond the Ministry of Education have gathered important information and have made significant recommendations to support the education of Aboriginal students. The Representative for Children and Youth along with the Provincial Health Officer joined forces and completed a report in 2010 and updated their information in 2015 to help understand BC's children and youth of the entire province. The 2015 report features a more in-depth look at learning and pays special attention to Aboriginal children and those in government care. The Canadian Council of Child and Youth Advocates (the Council) submitted a special report to the UN Committee on the Rights of the Child (2011) to highlight the critical circumstances facing Aboriginal children, identifying critical systemic challenges impacting Aboriginal children, including education. The final report of the Truth and Reconciliation Commission of Canada (2015) is a summary of the discussion and findings of six years of travelling to all parts of Canada to hear from the aboriginal people. The findings and recommendations from these important works should be considered in future studies.

Finally, future research on students with behaviour disorders and mental illness and school completion should be examined using multi-level procedures in the analysis of the data. School completion rates for students with behaviour disabilities and mental illness should be examined at the individual level and then applied to multi-level analyses to determine whether school factors change the probability of school completion at the individual level. There is much to be gained from seeking more extensive or comprehensive data to investigate student engagement factors and their relationship to school completion of

students with behaviour disorders and mental illnesses. Given the status of students with behaviour disorders and mental illness and the growing need to address their poor school completion rates, it would seem imperative that inquiry in this area continue to be examined.

Conclusion

This study contributes to the literature on students with behaviour disorders and mental illness and potential predictors of school completion. The study was exploratory in nature and provided a bird's eye view of four cohorts of students from kindergarten through to graduation or the time they left school, capturing every student identified and reported to the Ministry of Education, based on the special needs criteria for students with behaviour disorders and mental illness over a period of 16 years. This study is the first in British Columbia to examine province-wide educational trajectories of students with behaviour disorders and mental illness for predictive variables leading to school completion. The results reported in this study provided clear evidence that students with behaviour disorders and mental illnesses in British Columbia have the poorest educational outcomes, defined by school completion, in comparison with any other group of students in the province. Although the study did not address why so few students with behaviour disorders and mental illness did not complete high school, one cannot ignore the disturbingly low rates of school completion among this population of students.

Several major findings characteristic of students with behaviour disorders and mental illness and their relationship to school completion are important to highlight. First, students who are enrolled in a standard school setting and move continuously from one grade to the next without repeating a grade have the highest probability of completing high school. The

study demonstrated that repeating a grade, although a common practice, serves to impede school completion. Second, there was a conspicuous spike in the number of students who left school at the age of 16. Interestingly, this aligns with the compulsory school-age in British Columbia and does little to encourage students to stay in school to meet school completion or graduation requirements. Third, students with behaviour disorders and mental illness experience multiple school changes. The number of schools that students attended was negatively related to school completion. Fourth, the study found that students with behaviour disorders and mental illness who were also of Aboriginal status were grossly overrepresented and clearly at a significant disadvantage to complete high school. Disproportionality may be a result of cultural differences in attitudes and expectations of teachers and challenges distinguishing between cultural differences and genuine disability indicators. Finally, this study indicated the age at which students were first identified and reported with the behaviour disorder and mental illness designation was not related to whether students would or would not complete high school. That is, the prospect of school completion was not any better for students who were identified early than if they were identified in their later years.

Given these findings, there is a need for a call to action to advocate on behalf of students with behaviour disorders and mental illnesses to ameliorate the inequitable conditions that persist among this population of students in British Columbia if they are to have any hope of success as young adults and to become contributing members of society. These students face a formidable challenge to stay enrolled in school and complete high school requirements.

Further research and changes in policy and practice are essential to improve the educational trajectories for students with behaviour disorders and mental illnesses. It is clear

that current practice has not made a significant difference to this population of students to date. Given the commitment of the BC Ministry of Education to provide an inclusive education for all students, it would seem appropriate to seek further understanding and ability to support students with behaviour disorders and mental illnesses to successfully complete high school, as they are the most vulnerable of all special needs students in BC and require significant attention.

References

- Alberta Education. (2011). *Handbook for the identification and review of students with severe disabilities 2010/2011*. Retrieved from http://prrdweb.com/documents/general/hdbk_severedisabilities.pdf
- Alexander, K. L., Entwisle, D. R., & Horsey, C. S. (1997). From first grade forward: Early foundations of high school dropout. *Sociology of Education*, 70, 870-107. <https://doi.org/10.2307/2673158>
- Aman, C. L. (2006). *Exploring the influence of school and community relationships on the performance of Aboriginal students in British Columbia public schools*. (Unpublished doctoral dissertation). University of British Columbia, Vancouver, BC.
- Anderson, J. A., Kutash, K., & Duchnowski, A. J. (2001). A comparison of the academic progress of students with EBD and students with LD. *Journal of Emotional and Behavioral Disorders*, 9(2), 106-115. <https://doi.org/10.1177/106342660100900205>
- Appleton, J. J., Christenson, S. L., & Furlong, M. J. (2008). Student engagement with school: Critical conceptual and methodological issues of the construct. *Psychology in the Schools*, 45(5), 369-386. <https://doi.org/10.1002/pits.20303>
- Barrington, B. L., & Hendricks, B. (1989). Differentiating characteristics of high school graduates, dropouts, and nongraduates. *Journal of Educational Research*, 82(6), 309-319. <https://doi.org/10.1080/00220671.1989.10885913>
- BC Ministry of Education. (n.d.). *Glossary of terms – Reporting on K-12*. Retrieved April 18, 2013 from <http://www.bced.gov.bc.ca/reporting/glossary.php>
- BC Ministry of Education. (1996). *School Act*. Retrieved November 3, 2012 from <http://www.bced.gov.bc.ca/legislation/schoollaw/revisedstatutescontents.pdf>

BC Ministry of Education. (2010). *Special needs: How are we doing? Report, June, 2010.*

Victoria, BC: Author.

BC Ministry of Education. (2011). *Special education services: A manual of policies, procedures and guidelines.* Victoria, BC.

BC Ministry of Education. (2012a). *Special needs: How are we doing? Report, April, 2012.*

Victoria, BC: Author.

BC Ministry of Education. (2012b). *Student Statistics – 2011-2012.* Retrieved August 15, 2012 from http://www.bced.gov.bc.ca/reports/pdfs/student_stats/prov.pdf

BC Ministry of Education. (2012c). *Aboriginal report 2006/07–2010/11 How are we doing?*

Retrieved August 16, 2012 from

http://www.bced.gov.bc.ca/reports/pdfs/ab_hawd/public.pdf

BC Ministry of Education. (2013). *English language learning policy and guidelines.*

Retrieved January 11, 2017 from

<http://www2.gov.bc.ca/assets/gov/education/administration/kindergarten-to-grade-12/english-language-learners/guidelines.pdf>

BC Ministry of Education. (2014). *K-12 Funding – General* [online policy]. Retrieved from

<http://www2.gov.bc.ca/gov/content/education-training/administration/legislation-policy/public-schools/k-12-funding-general>

BC Ministry of Education. (2015a). *Aboriginal report 2010/11 – 2014/15 How are we*

doing? [online]. Retrieved from

https://www.bced.gov.bc.ca/reports/pdfs/ab_hawd/Public.pdf

- BC Ministry of Education. (2015b). *Student statistics – 2014/15 Province – Public and independent schools combined* [online]. Retrieved from https://www.bced.gov.bc.ca/reports/pdfs/student_stats/prov.pdf
- BC Ministry of Education. (2015c). *Six-year completion and grade 12 graduation rates – 2014/15 Province – Public and independent schools combined* [online]. Retrieved from <https://www.bced.gov.bc.ca/reports/pdfs/graduation/prov.pdf>
- BC Ministry of Education. (2016). *Foundation skills assessment – 2015/16 Province – Public and independent schools combined – Writers only*. Retrieved December 7, 2016 from https://www.bced.gov.bc.ca/reports/pdfs/fsa/fsa_writers_only/prov.pdf
- BC Ministry of Education. (2017). *BC's redesigned curriculum: An orientation guide*. [online]. Retrieved July 15, 2017 from https://curriculum.gov.bc.ca/sites/curriculum.gov.bc.ca/files/Curriculum_Brochure.pdf
- Beam, H. D., & Mueller, T. G. (2017). What do educators know, do, and think about behavior? An analysis of special and general educators' knowledge of evidence-based behavioral interventions. *Preventing School Failure, 61*(1), 1-13. <https://doi.org/10.1080/1045988X.2016.1164118>
- Beaman, R., Wheldall, K., & Kemp, C. (2006). Differential teacher attention to boys and girls in the classroom. *Educational Review, 58*(3), 339-366. <https://doi.org/10.1080/00131910600748406>
- Belfield, C. R., & Levin, H. M. (2007). *The price we pay: Economic and social consequences of inadequate education*. Washington: Brookings Institution Press.

- Billingsley, B., Fall, A., & Williams, T. (2006). Who is teaching students with emotional behavioral disorders? A profile and comparison to other special educators. *Behavioral Disorders, 31*, 252-264. <https://doi.org/10.1177/019874290603100301>
- Blackorby, J., Edgar, E., & Kortering, L. J. (1991). A third of our youth? A look at the problem of high school dropout among students with mild handicaps. *The Journal of Special Education, 25*(1), 102-113. <https://doi.org/10.1177/002246699102500107>
- Blackorby, J., & Wagner, M. (1996). Longitudinal postschool outcomes of youth with disabilities: Findings from the National Longitudinal Transition Study. *Exceptional Children, 62*(5), 399-413. <https://doi.org/10.1177/001440299606200502>
- Bowman-Perrott, L. J., Herrera, S., & Murry, K. (2010). Reading difficulties and grade retention: What's the connection for English Language Learners? *Reading & Writing Quarterly, 26*, 91-107. <http://doi.org/10.1080/10573560903397064>
- Bradley, R., Doolittle, J., & Bartolotta, R. (2008). Building on the data and adding to the discussion: The experiences and outcomes of students with emotional disturbance. *Journal of Behavioral Education, 17*(1), 4-23. <https://doi.org/10.1007/s10864-007-9058-6>
- Bradley, R., Henderson, K., & Monfore, D. A. (2004). A national perspective on children with emotional disorders. *Behavioral Disorders, 29*(3), 211-223. <http://journals.sagepub.com/home/bhd>
- Broidy, L. M., Nagin, D. S., Tremblay, R. E., Bates, J. E., Brame, B., Dodge, K. A., ... Vitaro, F. (2003). Developmental trajectories of childhood disruptive behaviors and adolescent delinquency: A six-site, cross-national study. *Developmental Psychology, 39*(2), 222-245. <https://doi.org/10.1037//0012-1649.39.2.222>

Canadian Charter of Rights and Freedoms, Part I of the Constitution Act, 1982, being
Schedule B to the *Canada Act 1982 (UK)*, 1982, c 11.

Canadian Council of Child and Youth Advocates (2011). *Aboriginal children, Canada must do better: Today and tomorrow. Special report submitted to the UN Committee on the Rights of the Child*. Retrieved from
http://www.cdpedj.qc.ca/Documents/CCCYA_UN_Report-final.pdf

Christle, C.A., Jolivette, K., & Nelson, C. M. (2007). School characteristics related to high school dropout rates. *Remedial and Special Education*, 28(6), 325-339.
<https://doi.org/10.1177/07419325070280060201>

Conley, L., Marchant, M., & Caldarella, P. (2014). A comparison of teacher perceptions and research-based categories of student behavior difficulties. *Education*, 134(4), 439-451. <http://www.projectinnovation.com/education.html>

Connell, J. P., & Wellborn, H. G. (1991). Competence, autonomy, and relatedness: A motivational analysis of self-system processes. In M. R. Gunnar & L. A. Sroufe (Eds.), *Self processes and development: The Minnesota Symposia on Child Psychology*, Vol. 23, pp. 43-77, Hillsdale, NJ: Erlbaum.

Cullinan, D., Evans, C., Epstein, M. H., & Ryser, G. (2003). Characteristics of emotional disturbance of elementary school students. *Behavioral Disorders*, 28(2), 94-110.
<http://journals.sagepub.com/home/bhd>

Cullinan, D., & Sabornie, E. J. (2004). Characteristics of emotional disturbance in middle and high school students. *Journal of Emotional and Behavioral Disorders*, 12(3), 157-167. <https://doi.org/10.1177/10634266040120030301>

- Darney, D., Reinke, W., Herman, K. C., Stormont, M., & Ialongo, N. S. (2013). Children with co-occurring academic and behavior problems in first grade: Distal outcomes in twelfth grade. *Journal of School Psychology, 51*, 117-128.
<https://doi.org/10.1016/j.jsp.2012.09.005>
- Dekker, M. C., Ferdinand, R. F., van Lang, N. D. J., Bongers, I. L., van der Ende, J., & Verhulst, F. C. (2007). Developmental trajectories of depressive symptoms from early childhood to late adolescence: Gender differences and adult outcome. *Journal of Child Psychology and Psychiatry, 48*(7), 657-666. <https://doi.org/10.1111/j.1469-7610.2007.01742.x>
- Déry, M., Toupin, J., Pauzé, R., & Verlaan, P. (2004). Frequency of mental health disorders in a sample of elementary school students receiving special educational services for behavioural difficulties. *Canadian Journal of Psychiatry, 49*(12), 769-775.
<http://doi.org/10.1177/070674370404901108>
- Dunlap, G., Strain, P. S., Fox, L., Carta, J. J. Conroy, M., Smith, B. J., . . . Sowell, C. (2006). Prevention and intervention with young children's challenging behavior: Perspectives regarding current knowledge. *Behavioral Disorders, 32*(1), 29-45.
<https://doi.org/10.1177/019874290603200103>
- Dwort, D., & Maich, K. (2007). Canadian school programs for students with emotional/behavioral disorders: An updated look. *Behavioral Disorders, 33*(1), 33-42. Retrieved from <http://www.jstor.org/stable/43153436>
- Eckenrode, J., Rowe, E., Laird, M., & Brathwaite, J. (1995). Mobility as a mediator of the effects of child maltreatment on academic performance. *Child Development, 66*, 1130-1142. <https://doi.org/10.2307/1131803>

- Epstein, M. H., & Cullinan, D. (1998). *Scale for Assessing Emotional Disturbance (SAED)*. Austin, TX: PRO-ED.
- Finn, H. D. (1989). Withdrawing from school. *Review of Educational Research*, 59(2), 117-142. <https://doi.org/10.2307/1170412>
- Finn, J. D., & Rock, D. A. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology*, 82(2), 221-234. <https://doi.org/10.1037//0021-9010.82.2.221>
- Finn, J. D., & Voelkl, K. E. (1993). School characteristics related to student engagement. *Journal of Negro Education*, 62(3), 249-268. <https://doi.org/10.2307/2295464>
- Finn, J. D., & Zimmer, K. S. (2012). Student engagement: What is it? Why does it matter? In S. L. Christenson et al. (Ed.), *Handbook of research on student engagement* (pp. 97-131). https://doi.org/10.1007/978-1-4614-2018-7_5
- Forness, S. R., Freeman, S. F. N., Paparella, T., Kauffman, J. M., & Walker, H. M. (2011). Special education implications of point and cumulative prevalence for children with emotional or behavioral disorders. *Journal of Emotional and Behavioral Disorders*, 20(1), 4-18. <https://doi.org/10.1177/1063426611401624>
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, 74(1), 59-109. <https://doi.org/10.3102/00346543074001059>
- Genesee, F., Lindholm-Leary, K., Saunders, W., & Christian, D. (2005). English language learners in U.S. schools: An overview of research findings. *Journal of Education for Students Placed at Risk*, 10(4), 363-385. https://doi.org/10.1207/s15327671espr1004_2

- Green, M. T., Clopton, J. R., & Pope, A. W. (1996). Understanding gender differences in referral of children to mental health services. *Journal of Emotional and Behavioral Disorders, 4*(3), 182-190. <https://doi.org/10.1177/106342669600400305>
- Greenbaum, P. E., Dedrick, R. F., Friedman, R. M., Kutash, K., Brown, E. C., Lardieri, S. P., & Pugh, A. M. (1996). National adolescent and child treatment study (NACTS): Outcomes for children with serious emotional and behavioral disturbance. *Journal of Emotional and Behavioral Disorders, 4*(3), 130-146. <https://doi.org/10.1177/106342669600400301>
- Gresham, F. M. (2005). Response to intervention: An alternative means of identifying students as emotionally disturbed. *Education and Treatment of Children, 28*(4), 328-344. Retrieved from <http://www.jstor.org/stable/42899857>
- Gresham, F. M. (2007). Response to intervention and emotional and behavioral disorders. *Assessment for Effective Intervention, 32*(4), 214-222. <https://doi.org/10.1177/15345084070320040301>
- Gresham, F. M., & Elliott, S. N. (1990). *Social skills rating system*. Circle Pines, MN: American Guidance Service. Retrieved from: <http://journals.sagepub.com/home/jpa>
- Hallett, D., Want, S. C., Chandler, M. J., Koopman, L. L., Flores, J. P., & Gehrke, E. C. (2008). Identify in flux: Ethnic self-identification, and school attrition in Canadian Aboriginal youth. *Journal of Applied Developmental Psychology, 29*, 62-75. <https://doi.org/10.1016/j.appdev.2007.10.008>
- Hayes, R. L., Nelson, J., Tabin, M., Pearson, G., & Worthy, C. (2002). Using school-wide data to advocate for student success. *Professional School Counseling, 6*(2) 86-95.

- Retrieved from <https://www.schoolcounselor.org/school-counselors-members/publications-position-statements/professional-school-counseling-journal>
- Heath, N. L., Petrakos, H., Finn, C. A., Karagiannakis, A., McLean-Heywood, D., & Rousseau, C. (2004). Inclusion on the final frontier: A model for including children with emotional and behaviour disorders (E/BD) in Canada. *Inclusive Education*, 8(3), 241-259. <https://doi.org/10.1080/1360311042000216910>
- Herbers, J. E., Reynolds, A. J., & Chen, C. (2013). School mobility and developmental outcomes in young adulthood. *Development and Psychopathology*, 25, 501-515. <https://doi.org/10.1017/S0954579412001204>
- Horwitz, S. M., Gary, L. C., Briggs-Gowan, M. J., & Carter, A. S. (2003). Do needs drive services use in young children? *Pediatrics*, 112(6), 1373-1378. <https://doi.org/10.1542/peds.112.6.1373>
- Human Resources and Skills Development Canada. (2012). Indicators of well-being in Canada: Learning – school drop-outs. Retrieved August 24, 2012 from <http://www4.hrsdc.gc.ca/.3ndic.1t.4r@-eng.jsp?iid=32>
- Jimerson, S. R., Anderson, G. E., & Whipple, A. D. (2002). Winning the battle and losing the war: Examining the relation between grade retention and dropping out of high school. *Psychology in the Schools*, 39, 441-457. <https://doi.org/10.1002/pits.10046>
- Jimerson, S. R., Campos, E., & Greif, J. L. (2003). Toward an understanding of definitions and measures of school engagement and related terms. *The California School Psychologist*, 8, 7-27. <https://doi.org/10.1007/bf03340893>

- Kataoka, S. H., Zhang, L., & Wells, K. B. (2002). Unmet need for mental health care among U.S. children: Variation by ethnicity and insurance status. *American Journal of Psychiatry*, 159, 1548-1555. <https://doi.org/10.1176/appi.ajp.159.9.1548>
- Kauffman, J. M., & Hallahan, D. P. (2005). *Special education: What it is and why we need it*. Boston, MA: Pearson Education, Inc.
- Kauffman, J. M., & Landrum, T. J. (2009). *Characteristics of emotional and behavioral disorders of children and youth (9th Ed.)*. Upper Saddle River, NJ: Parson Education, Inc.
- Kim-Cohen, J., Arseneault, L., Newcombe, R., Adams, F., Bolton, H., Cant, L., . . . Moffitt, T. E. (2009). Five-year predictive validity of DSM-IV conduct disorder research diagnosis in 4½-5-year-old children. *European Child & Adolescent Psychiatry*, 18(5), 284-291. <https://doi.org/10.1007/s00787-008-0729-1>
- Kortering, L. J., & Christenson, S. (2009). Engaging students in school and learning: The real deal for school completion. *Exceptionality*, 17, 5-15. <https://doi.org/10.1080/09362830802590102>
- Krezmien, M. P., Leone, P. E., & Achilles, G. M. (2006). Suspension, race and disability: Analysis of statewide practices and reporting. *Journal of Emotional and Behavioral Disorders*, 14(4), 217-226. <https://doi.org/10.1177/10634266060140040501>
- Landrum, T. J., Katsiyannis, A., & Archwamety, T. (2004). An analysis of placement and exit patterns of students with emotional or behavioral disorders. *Behavioral Disorders*, 29(2), 140-153. Retrieved from <http://www.jstor.org/stable/23889447>

- Landrum, T. J., Tankersley, M., & Kauffman, J. M. (2003). What is special about special education for students with emotional or behavioral disorders? *The Journal of Special Education, 37*(3), 148-156. <https://doi.org/10.1177/00224669030370030401>
- Lane, J. (2011). *Factors associated with the successful grade-to-grade transition and graduation of high school students identified with behavioural needs or mental illness in a suburban British Columbia school district* (Unpublished doctoral dissertation). Simon Fraser University, Burnaby, BC.
- Lane, K. L., Barton-Arwood, S. M., Nelson, J. R., & Wehby, J. (2008). Academic performance of students with emotional and behavioral disorders served in a self-contained setting. *Journal of Behavioral Education, 17*(1), 43-62. <https://doi.org/10.1007/s10864-007-9050-1>
- Lane, K. L., Carter, E. W., Pierson, M. R., & Glaser, B. C. (2006). Academic, social, and behavioral characteristics of high school students with emotional disturbances or learning disabilities. *Journal of Emotional and Behavioral Disorders, 14*(2), 108-117. <https://doi.org/10.1177/10634266060140020101>

- Lane, K. L., & Menzies, H. M. (2003). A school-wide intervention with primary and secondary levels of support for elementary students: Outcomes and considerations. *Education and Treatment of Children, 26*(4), 431-451. Retrieved from <http://www.jstor.org/stable/42899771>
- Lane, K. L., Wehby, J. H., Little, M. A., & Cooley, C. (2005). Academic, social, and behavioral profiles of students with emotional and behavioral disorders educated in self-contained classrooms and self-contained schools: Part I – Are they more alike than different? *Behavioral Disorders, 30*(4), 349-361. Retrieved from <http://www.jstor.org/stable/23889848>
- Lehr, C. A., Hansen, A., Sinclair, M. F., & Christenson, S. L. (2003). Moving beyond dropout towards school completion: An integrative review of data-based interventions. *School Psychology Review, 32*(3), 342-264. Retrieved from <http://naspjournals.org/loi/spsr?code=naps-site>
- Loades, M. E., & Mastroyannopoulou, K. (2010). Teachers' recognition of children's mental health problems. *Child and Adolescent Mental Health, 15*(3), 150-156. <https://doi.org/10.1111/j.1475-3588.2009.00551.x>
- Marks, H. M. (2000). Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *American Educational Research Journal, 37*(1), 153-184. <https://doi.org/10.2307/1163475>
- Martin, E. J., Tobin, T. J., & Sugai, G. M. (2002). Current information on dropout prevention: Ideas from practitioners and the literature. *Preventing School Failure, 41*(1), 10-17. <https://doi.org/10.1080/10459880309604423>

- McLeod, J. D. & Kaiser, K. (2004). Childhood emotional and behavioral problems and educational attainment. *American Sociological Review*, 69(5), 636-658.
<https://doi.org/10.1177/000312240406900502>
- McPartland, J. M. (1994). Dropout prevention in theory and practice. In R. J. Rossi (Ed.), *Schools and students at risk: Context and framework for positive change* (pp. 255-276). New York: Teachers College Press.
- Menard, S. (2002). *Applied logistic regression analysis*. Sage University Papers Series on Quantitative Applications in the Social Sciences, 07-106, Thousand Oaks, CA: Sage.
<https://doi.org/10.4135/9781412983433>
- Montague, M., Enders, C., & Castro, M. (2005). Academic and behavioral outcomes for students at risk for emotional and behavioral disorders. *Behavioral Disorders*, 31(1), 84-94. Retrieved from <http://journals.sagepub.com/home/bhd>
- Montague, M., Enders, C., Cavendish, W., & Castro, M. (2011). Academic and behavioral trajectories for at-risk adolescents in urban schools. *Behavioral Disorders*, 36(2), 141-156. Retrieved from <http://www.jstor.org/stable/43153531>
- Mooney, P., Epstein, M. H., Reid, R., & Nelson, J. R. (2003). Status of and trends in academic intervention research for students with emotional disturbance. *Remedial and Special Education*, 24(5), 273-287.
<https://doi.org/10.1177/07419325030240050301>
- Moreno, G., Wong-Lo, M., Short, M., & Bullock, L. M. (2014). Implementing a culturally attuned functional behavioural assessment to understand and address challenging behaviours demonstrated by students from diverse backgrounds. *Emotional and*

- Behavioural Difficulties*, 19(4), 343-355.
<https://doi.org/10.1080/13632752.2013.860682>
- Morgan, P. L., Farkas, G., & Wu, Q. (2009). Kindergarten predictors of recurring externalizing and internalizing psychopathology in the third and fifth grades. *Journal of Emotional and Behavioral Disorders*, 17(2), 67-79.
<https://doi.org/10.1177/1063426608324724>
- National Center for Education Statistics. (1999). The condition of education. Retrieved August 15, 2012 from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=1999022>
- Nelson, J. R., Babyak, A., Gonzalez, J., & Benner, G. J. (2003). An investigation of the type of problem behaviors exhibited by K-12 students with emotional or behavioral disorders in public school settings. *Behavioral Disorders*, 28(4), 348-359. Retrieved from <http://www.jstor.org/stable/23889204>
- Nelson, J. R., Benner, G. J., Lane, K., & Smith, B. W. (2004). Academic achievement of K-12 students with emotional and behavioral disorders. *Exceptional Children*, 71(1), 59-73. <https://doi.org/10.1177/001440290407100104>
- Ontario Ministry of Education. (2007). *Bill 52 Learning to 18*, Retrieved January 4, 2017 from <http://www.edu.gov.on.ca/eng/policyfunding/memos/Bill52Implementation.pdf>
- Osher, D., Morrison, G., & Bailey, W. (2003). Exploring the relationship between student mobility and dropout among students with emotional and behavioral disorders. *Journal of Negro Education*, 72(1), 79-96. <https://doi.org/10.2307/3211292>
- Quinn, M. M., & Poirier, J. M. (2004). Linking prevention research with policy: Examining the costs and outcomes of the failure to prevent emotional and behavioral disorders.

- In R. B. Rutherford Jr., M. M. Quinn, & S. R. Mathyur (Eds.), *Handbook of research in emotional and behavioral disorders*. NY: The Guilford Press.
- Raymond, M. (2008). *High school dropouts returning to school*. Culture, Tourism and the Center for Education Statistics, Statistics Canada. Retrieved from <http://www.statcan.gc.ca/pub/81-595-m/81-595-m2008055-eng.pdf>
- Rea, L. M., & Parker, R. A. (1992). *Designing and conducting survey research*. San Fransisco, CA: Jossey-Bass.
- Reid, R., Gonzalez, J. E., Nordess, P. D., Trout, A., & Epstein, M. H. (2004). A meta-analysis of the academic status of students with emotional/behavioral disturbance. *The Journal of Special Education, 38*(3), 130-143.
<https://doi.org/10.1177/00224669040380030101>
- Reinke, W. M., Herman, K. C., Petras, H., & Ialongo, N. S. (2008). Empirically derived subtypes of child academic and behavior problems: Co-occurrence and distal outcomes. *Journal of Abnormal Child Psychology, 36*, 759-770.
<https://doi.org/10.1007/s10802-007-9208-2>

- Representative for Children and Youth. (2010). *Growing up in B.C.* Office of the Provincial Health Officer. Retrieved from https://www.rcybc.ca/sites/default/files/documents/pdf/reports_publications/growing_up_in_bc.pdf
- Representative for Children and Youth. (2015). *Growing up in B.C.* Office of the Provincial Health Officer. Retrieved from <http://www2.gov.bc.ca/assets/gov/health/about-bc-s-health-care-system/office-of-the-provincial-health-officer/reports-publications/special-reports/guibc-2015.pdf>
- Reschly, A. L., & Christenson, S. L. (2006). Prediction of dropout among students with mild disabilities. *Remedial and Special Education, 27*(5), 276-292. <https://doi.org/10.1177/07419325060270050301>
- Reynolds, C. R., & Kamphaus, R. W. (1998). *Behavior assessment for children*. Circle Pines, MN: American Guidance Service, Inc.
- Rice, E. H., Merves, E., & Srsic, A. (2008). Perceptions of gender differences in the expression of emotional and behavioral disabilities. *Education and Treatment of Children, 31*(4), 549-565. <https://doi.org/10.1353/etc.0.0035>
- Riley, T., & Ungerleider, C. (2008). Preservice teachers' discriminatory judgments. *The Alberta Journal of Educational Research, 54*(4), 378-387. Retrieved from <http://www.ajer.ca/>
- Riley, T., & Ungerleider, C. (2012). Self-fulfilling prophecy: How teachers' attributions, expectations, and stereotypes influence the learning opportunities afforded Aboriginal students. *Canadian Journal of Education, 35*(2), 303-333. <https://cje-rce.ca/>

- Rosenblatt, J. A., & Rosenblatt, A. (1999). Youth functional status and academic achievement in collaborative mental health and education programs: Two California care systems. *Journal of Emotional and Behavioral Disorders*, 7(1), 21-53.
<https://doi.org/10.1177/106342669900700103>
- Rumberger, R. W. (1995). Dropping out of middle school: A multilevel analysis of students and schools. *American Educational Research Journal*, 32(3), 583-625.
<https://doi.org/10.2307/1163325>
- Rumberger, R. W., & Larson, K. A. (1998). Student mobility and the increased risk of high school dropout. *American Journal of Education*, 107(1), 1-35.
<https://doi.org/10.1086/444201>
- Rumberger, R. W., & Lim, S. A. (2008). *Why students drop out of school: A review of 25 years of research*. California Dropout Research Project Report #15, University of California, Santa Barbara. Retrieved from
<http://uchilishteto.org/data/researchreport15.pdf>
- Sabornie, E. J., Cullinan, D., Osborne, S. S., & Brock, L. B. (2005). Intellectual, academic, and behavioral functioning of students with high-incidence disabilities: Across-categorical meta-analysis. *Exceptional Children*, 72(1), 47-63.
<https://doi.org/10.1177/001440290507200103>
- Schaeffer, C. M., Petras, H., Ialonggo, N., Masyn, K. E., Hubbard, S., Poduska, J., & Kellam, S. (2006). A comparison of girls' and boys' aggressive-disruptive behavior trajectories across elementary school: Prediction to young adult antisocial outcomes. *Journal of Consulting and Clinical Psychology*, 74(3), 500-510.
<https://doi.org/10.1037/0022-006x.74.3.500>

- Sheng, Z., Sheng, Y., & Anderson, C. (2011). Dropping out of school among ELL students: Implications to schools and teacher education. *The Clearing House*, 84, 98-103.
<https://doi.org/10.1080/00098655.2010.538755>
- Simpson, R. L. (2004). Inclusion of students with behavior disorders in general education settings: Research and measurement issues. *Behavioral Disorders*, 30(1), 19-31.
Retrieved from <http://journals.sagepub.com/home/bhd>
- Sinclair, M. F., Christenson, S. L., Evelo, D. L., & Hurley, C. M. (1998). Dropout prevention for youth with disabilities: Efficacy of a sustained school engagement procedure. *Exceptional Children*, 65(1), 7-21. Retrieved from
<http://journals.sagepub.com/home/ecx/>
- Sinclair, M. F., Christenson, S. L., Lehr, C. A., & Anderson, A. R. (2003). Facilitating student engagement: Lessons learned from Check & Connect longitudinal studies. *The California School Psychologist*, 8, 29-41. <https://doi.org/10.1007/bf03340894>
- Sinclair, M. F., Christenson, S. L., & Thurlow, M. L. (2005). Promoting school completion of urban secondary youth with emotional or behavioral disabilities. *Exceptional Children*, 71(4), 465-482. <https://doi.org/10.1177/001440290507100405>
- Siperstein, G. N., Wiley, A. L., & Forness, S. R. (2011). School context and the academic and behavioral progress of students with emotional disturbance. *Behavioral Disorders*, 36(3), 172-184. Retrieved from <http://www.jstor.org/stable/43153535>
- South, S. J., Haynie, D. L., & Bose, S. (2007). Student mobility and school dropout. *Social Science Research*, 36, 68-94. <https://doi.org/10.1016/j.ssresearch.2005.10.001>
- Statistics Canada. (n.d.). Public school indicators for Canada, the provinces and territories. Retrieved August 4, 2012 from www.statcan.gc.ca

- Statistics Canada. (2012). Census: Population by year, by province and territory. Retrieved October 31, 2012 from <http://www.statcan.gc.ca/tables-tableaux/sum-som/101/cst01/demo02a-eng.htm>
- Sutherland, K. S., & Wehby, J. H. (2001). Exploring the relationship between increased opportunities to respond to academic requests and the academic and behavioral outcomes of students with EBD: A review. *Remedial and Special Education, 22*(2), 113-121. <https://doi.org/10.1177/074193250102200205>
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics. 5th ed.*, MA: Allyn & Bacon.
- Tankersley, M., Landrum, T. J., & Cook, B. G. (2004). How research informs practice in the field of emotional and behavioral disorders. In R. B. Rutherford Jr., M. M. Quinn, & S. R. Mathyur (Eds.), *Handbook of research in emotional and behavioral disorders*. NY: The Guilford Press.
- Trout, A. L., Nordess, P. D., Pierce, C. D., & Epstein, M. H. (2003). Research on the academic status of children with emotional and behavioral disorders. *Journal of Emotional and Behavioral Disorders, 11*(4), 198-210. <https://doi.org/10.1177/10634266030110040201>
- Truth and Reconciliation Commission of Canada. (2012). *Truth and reconciliation commission of Canada: Interim report*. Winnipeg: Truth and Reconciliation Commission of Canada. Retrieved from <http://www.myrobust.com/websites/trcinstitution/File/Interim%20report%20English%20electronic.pdf>

- Truth and Reconciliation Commission of Canada. (2015). *Honouring the truth, reconciling for the future: Summary of the final report of the Truth and Reconciliation Commission of Canada*. Winnipeg: Truth and Reconciliation Commission of Canada. Retrieved from http://www.myrobust.com/websites/trcinstitution/File/Reports/Executive_Summary_English_Web.pdf
- Ungerleider, C. S. (2003). *Failing our kids: How we are ruining our public schools*. Toronto, ON: McClelland & Stewart.
- U.S. Department of Education. (2006). *26th annual report to Congress on the implementation of the Individuals with Disabilities Education Act, 2004*. Washington, DC: Office of Special Education Programs. Retrieved from <https://www2.ed.gov/about/reports/annual/osep/2004/26th-vol-1.pdf>
- U.S. Department of Education. (2011). *The condition of education 2011*. Retrieved August 17, 2012 from <http://nces.ed.gov/pubs2011/2011033.pdf>
- Waddell, C., & Shepherd, C. (2002). *Prevalence of mental disorders in children and youth*. Mental Health Evaluation & Community Consultation Unit, UBC. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.552.7724>
- Wagner, M. M. (1995). Outcomes for youths with serious emotional disturbance in secondary school and early adulthood. *The Future of Children*, 5(2), 90-112. <https://doi.org/10.2307/1602359>
- Wagner, M., Friend, M., Bursuck, W. D., Kutash, K., Duchnowski, A. J., Sumi, C., & Epstein, M. H. (2006). Educating students with emotional disturbances: A national

- perspective on school programs and services. *Journal of Emotional Behavioral Disorders*, 14(1), 12-30. <https://doi.org/10.1177/10634266060140010201>
- Wagner, M., Kutash, K., Duchnowski, A. J., Epstein, M. H., & Sumi, W. C. (2005). The children and youth we serve: A national picture of the characteristics of students with emotional disturbances receiving special education. *Journal of Emotional and Behavioral Disorders*, 13(2), 79-96. <https://doi.org/10.1177/10634266050130020201>
- Wagner, M., Newman, L., Cameto, R., Garza, N., & Levine, P. (2005). *After high school: A first look at the postschool experiences of youth with disabilities*. Office of Special Education Programs U.S. Department of Education. Retrieved from <http://files.eric.ed.gov/fulltext/ED494935.pdf>
- Whitley, J. (2014). Supporting educational success for Aboriginal students: Identifying key influences. *McGill Journal of Education*, 49(1), 155-181. <https://doi.org/10.7202/1025776ar>
- Whitley, J., Lupart, J. L., & Beran, T. (2009). The characteristics and experiences of Canadian students receiving special education services for emotional/behavioural difficulties. *Exceptionality Education International*, 19(1), 14-31. Retrieved from <http://ir.lib.uwo.ca/eei/>
- Winzer, M. (2005). *Children with exceptionalities in Canadian classrooms (7th ed.)*. Toronto, ON: Person Prentice Hall.
- Wishart, D., & Jahnukainen, M. (2010). Difficulties associated with the coding and categorization of students with emotional and behavioural difficulties in Alberta. *Emotional and Behavioural Difficulties*, 15(3), 181-187. <https://doi.org/10.1080/13632752.2010.497655>

Woodcock, R., & Johnson, W. (1989). *Woodcock-Johnson Psycho-Educational Battery-revised*. Boston: Teaching Corp.

Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). *Woodcock-Johnson III Tests of Achievement*. Itasca, IL; Riverside.

Zhang, D., Katsiyannis, A., & Herbst, M. (2004). Disciplinary exclusions in special education: A 4-year analysis. *Behavioral Disorders*, 29(4), 337-347. Retrieved from <http://journals.sagepub.com/home/bhd>

Appendix A. Correlation Matrix of all 23 Potential Predictor Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1 FSA - Gr. 7 writing	1.000																					
2 Grade student began school	.005	1.000																				
3 ELL status	.023	.004	1.000																			
4 Number of schools attended	.006	-.005	.012	1.000																		
5 Last grade enrolled	-.016	.006	.013	-.012	1.000																	
6 Repeated grade	.040	.001	-.036	.031	-.040	1.000																
7 FSA - Gr. 4 Numeracy	-.023	.020	-.058	.010	-.026	-.010	1.000															
8 Age first Identified in R/H	.001	.027	.025	.025	.044	.010	.006	1.000														
9 Years not enrolled	.021	-.053	-.013	-.063	-.081	-.012	-.018	-.010	1.000													
10 Aboriginal status	-.047	.001	-.193	-.046	-.013	.046	-.020	-.008	-.077	1.000												
11 FSA - Gr. 4 writing	-.139	.008	.006	.021	-.014	.021	-.109	-.009	-.001	-.012	1.000											
12 Number of years attended from Gr.8	.016	-.005	-.019	-.040	-.068	-.146	-.007	-.021	.290	-.047	-.006	1.000										
13 Facility	.010	.026	-.040	-.164	-.095	-.072	.013	.011	-.180	.062	.010	-.145	1.000									
14 Gender (Male)	.190	.001	.054	-.031	-.009	.009	-.106	.011	-.008	-.119	.107	.018	-.042	1.000								
15 FSA - Gr. 7 numeracy	-.114	-.015	.041	-.008	-.009	.051	-.224	.005	-.007	-.030	-.017	.000	.040	-.126	1.000							
16 FSA - Gr. 4 reading comprehension	-.033	-.006	-.081	-.002	-.006	.040	-.268	-.009	-.024	-.035	-.108	-.017	.027	.007	-.050	1.000						
17 Age student began school	-.005	-.488	-.022	.050	.018	-.022	-.025	-.025	.037	.017	-.006	.028	-.003	.006	-.001	.007	1.000					
18 FSA - Gr. 7 reading comprehension	-.125	.010	-.074	-.017	.000	-.010	-.091	.002	.021	-.057	-.012	.033	-.007	.098	-.237	-.294	-.002	1.000				
19 Age when student left school	.010	.026	.001	.024	-.264	.006	-.002	-.006	-.294	.048	.025	-.415	-.034	-.008	-.020	.013	-.009	.002	1.000			
20 Grade first identified in Sped	.009	.032	.026	.027	.007	-.029	.006	.903	-.009	-.009	.006	-.004	.002	.016	-.004	-.008	-.023	-.003	.007	1.000		
21 Age first identified in Sped	.003	-.030	-.024	-.019	-.010	.021	-.010	-.949	.007	.007	.011	.009	-.003	-.033	.007	.008	.017	.005	-.010	-.946	1.000	
22 Grade first identified in R/H	-.004	-.028	-.033	-.028	-.046	-.020	.001	-.943	.012	.010	.000	.010	-.006	-.031	-.005	.009	.027	-.003	.008	-.953	.899	1.000

a. Dependent Variable: Graduate or Non Graduate ($n = 7975$)

Appendix B. Coding and Distribution of Predictor Variables ($n = 7975$)

Variable	Code	Cases	Percentage
1. Graduate	0 = Non-graduate	$n = 4446$	55.7%
	1 = Graduate	$n = 3529$	44.3%
2. Gender (Male)	0 = Female	$n = 2995$	37.6%
	1 = Male	$n = 4980$	62.4%
3. Aboriginal status	0 = Never Aboriginal	$n = 5857$	73.4%
	1 = Ever Aboriginal	$n = 2118$	26.6%
4. ELL status	0 = Never ELL	$n = 6767$	84.9%
	1 = Ever ELL	$n = 1208$	15.1%
5. Years not enrolled	0 = 0 years	$n = 6578$	82.5%
	1 = 1 to 2 years	$n = 1266$	15.9%
	2 = More than 2 years	$n = 131$	1.6%
6. Number of schools attended	0 = 1 to 2 schools	$n = 604$	7.6%
	1 = 3 to 4 schools	$n = 3282$	41.2%
	2 = 5 or more schools	$n = 4089$	51.3%
7. Repeated grade	0 = No	$n = 3146$	39.4%
	1 = Yes	$n = 4829$	60.6%
8. Facility	0 = Non-standard grade school	$n = 3656$	45.8%
	1 = Standard grade school	$n = 4319$	54.2%
9. Grade first identified in R/H	0 = Kindergarten to Grade 3	$n = 1390$	17.4%
	1 = Grade 4 to Grade 7	$n = 2047$	25.7%
	2 = Grade 8 to Grade 9	$n = 1660$	20.8%
	3 = Grade 10 to Grade 12	$n = 2652$	33.3%

10. FSA – Gr. 4 Numeracy	0 = Not yet meeting expectations	<i>n</i> = 1867	23.4%
	1 = Met or exceeded expectations	<i>n</i> = 6108	76.6%
11. FSA – Gr. 4 Reading Comprehension	0 = Not yet meeting expectations	<i>n</i> = 2742	34.4%
	1 = Met or exceeded expectations	<i>n</i> = 5233	65.6%
12. FSA – Gr. 4 Writing	0 = Not yet meeting expectations	<i>n</i> = 1298	16.3%
	1 = Met or exceeded expectations	<i>n</i> = 6677	83.7%
13. FSA – Gr. 7 Numeracy	0 = Not yet meeting expectations	<i>n</i> = 2750	34.5%
	1 = Met or exceeded expectations	<i>n</i> = 5225	65.5%
14. FSA – Gr. 7 Reading Comprehension	0 = Not yet meeting expectations	<i>n</i> = 3302	41.4%
	1 = Met or exceeded expectations	<i>n</i> = 4673	58.6%
15. FSA – Gr. 7 Writing	0 = Not yet meeting expectations	<i>n</i> = 2146	26.9%
	1 = Met or exceeded expectations	<i>n</i> = 5829	73.1%