RECONSIDERING DROPOUT PREVENTION BY UNDERSTANDING

DROPOUTS

by

Ed Gillis

A project submitted to the Faculty of Education
in conformity with the requirements for
the degree of Master of Education

Queen’s University
Kingston, Ontario, Canada
September, 2014

© Ed Gillis, 2014
ABSTRACT

Knowing that the decision to leave school before graduating has a dramatic effect on the lives of the people who make this choice, why would anyone leave school before graduating from high school in Canada? School is important, and parents bring their children to school brimming with the hope their children will do well. Notwithstanding this hope, every elementary school classroom in Canada has two or more children who are likely to drop out of school. If these children live in an inner-city or a reserve, the likelihood they will not graduate increases dramatically. In fact, Grade 1 teachers who teach on reserves in Canada can look at the students in their classrooms and know that more than half of these students are unlikely to graduate. This project is an attempt to address this issue by understanding more about why students drop out, particularly students who are disadvantaged due to low socioeconomic status (SES) and/or Aboriginal status. It consists of a general introduction to the topic (Chapter 1), an extensive review of theories with respect to dropping out (Chapter 2), two workshops, one to increase understanding of these theories and another that addresses the effects poverty has on the neurocognitive development of children (Chapter 3), and reflections on the process (Chapter 4). It is largely intended for teachers and administrators who would like to understand the dropout phenomenon and increase graduation rates for disadvantaged students.
ACKNOWLEDGMENTS

Over the course of my childhood and adolescence, I had many teachers who helped, taught, and mentored me. Although they will never read this document, I would like to acknowledge that they played a part in me being where I am at today. Thank you, Ms. Whales, Mr. Hawthorne, Mr. Giacobbo, Mr. Richard, and Mr. Anthony.

I want to thank my parents. They provided me with a strong foundation of values and discipline that has helped me overcome adversity throughout my life. We did not have many things, but I was protected, loved, and disciplined well.

I want to thank the people who have taken the time to mentor me at work. I have been taught by many amazing people, and it is only now that I have begun to accept how much care, effort, and attention that they put into helping me. Thank you Jack, Marcel, Harold, Mark, and Paul. I consider you good friends.

I want to thank my instructors at Queen’s University: Ruth Rees, William Egnatoff, Denise Stockley, Nicole Bell, and Gloria Thomas. I also took a couple of courses at the University of Alberta with Makere Stewart-Harawira, and I want to acknowledge her as well.

I particularly want to thank my supervisor from Queen’s University, John Freeman. John has always been encouraging, supportive, and direct with me, depending on what he felt I needed. I appreciate your efforts and will always remember what you have done for me. Your support and mentoring through the development of this project was above and beyond what I expected. I was particularly moved that you travelled to Alberta to help me. This was a kind and generous act that helped me beyond measure.
I want to thank my son, Josh, and his girlfriend, Kincso. You have both been through this experience with me and have watched how much effort I have put into my education at Queen’s. I hope you learn from it and continue to work hard to reach your goals also.

I want to thank my wife Darlene. You have been with me through everything and especially through my experiences at Queen’s. You have always helped and supported me and have been understanding of when and how I have needed support. I really love you.
TABLE OF CONTENTS

ABSTRACT ........................................................................................................................ ii
ACKNOWLEDGMENTS ................................................................................................. iii
TABLE OF CONTENTS .....................................................................................................v
CHAPTER 1: INTRODUCTION ........................................................................................1
  Purpose of the Project .................................................................................................3
  Definition of Dropout ..............................................................................................4
  Rationale for the Project ..........................................................................................5
  Theoretical Framework ............................................................................................9
CHAPTER 2: LITERATURE REVIEW ...........................................................................12
  Generalized Understandings ..................................................................................14
    Risk and Resilience ............................................................................................14
    The Influence of Jeremy Finn ............................................................................17
  Personal Factors .....................................................................................................19
  Family Factors .......................................................................................................21
  School-Related Factors .........................................................................................22
  Environmental Factors ..........................................................................................24
  Categorical Understandings ...................................................................................25
    Push, Pull, and Fall-Out Factors .........................................................................25
    Dropout Typologies ............................................................................................29
  Engagement Understandings ...................................................................................34
  Emerging Understandings .....................................................................................36
Poverty and the Developing Mind.................................................................37
Stress and Neurocognitive Development.................................................42
Stress and Adolescent Development.......................................................46

CHAPTER 3: WORKSHOPS........................................................................53
Workshop 1: Understanding Why Students Drop Out...........................55
   Workshop 1 Lesson Plan .................................................................55
   Workshop 1 PowerPoint Slides .......................................................64
Workshop 2: Understanding the Deficits of Children who Grow Up in Poverty ..86
   Workshop 2 Lesson Plan .................................................................86
   Workshop 2 PowerPoint Slides .......................................................97

CHAPTER 4: REFLECTIONS.................................................................1099
Looking Back .......................................................................................1099
Moving Forward ...................................................................................110
Final Reflections ..................................................................................1133
REFERENCES .......................................................................................1144
CHAPTER 1: INTRODUCTION

My name is Ed Gillis, and I am an Assistant Principal at an Alternative Education High School in Sherwood Park, Alberta. I run the day-to-day operations of a school for youth at risk. I have had a long history of working with at-risk children and youth that extends back to the early 1990s. My understanding about what it means to be at risk was initially formed during my childhood. I am a treaty Indian born of a Métis mother and treaty father in a family with nine children. My parents were both social workers and, although we had a stable and nurturing family life, we lived in poverty with all of the environmental deficits poverty encompasses. Given the fact that my father was treaty and my mother was Métis, I have had the opportunity to interact in both of these communities through my parents’ families. They are subtly different yet also similarly defined by their struggles coping with the past. Thus I have interacted intimately with poverty, prejudice, racism, hopelessness, and people who have struggled changing in the hope of a better future. I also have unique perspectives about these experiences because I am a fair skinned person who was raised in a fundamentalist Christian native family. My parents believed in instilling White cultural values regarding manners, respect, and education, along with our Aboriginal values regarding the social imperative to support one’s extended families and community. I could and can interact in middle- and upper-class environments in ways in which those around me believe that we share the same values. Thus they could speak in my presence and/or tell me directly about what they really thought about native people. Similarly, Aboriginal people have shared their views with
me seeing me as a fair-skinned Aboriginal man who acts like a White person. I have seen both sides of the prejudice coin.

My work experience over the past 20-plus years has been varied and shaped my thinking with respect to dropouts. In the early 1990s, I worked for the Indigenous Sport Council of Alberta (ISCA). The ISCA endeavours to foster sport development programs for Aboriginal people in Alberta in an effort to foster resilience in Aboriginal children and youth. In 1995, I was recruited by the Alberta Community Development Department of the Government of Alberta to help start up a program called the Alberta’s Future Leaders (AFL) program. AFL was a program designed to create, operate, and foster the development of sport, recreation, arts, and drama programs on reserves and settlements throughout the Province of Alberta. I was responsible for training and coordinating the efforts of people who worked in the program. During this time, I was trained to operate and direct Outward Bound style leadership development programs that used adventure training to help teach youth at risk personal lessons about life that fostered their resilience.

In 2001, I decided to make a change in my life and go back to school. I went to the University of Alberta and graduated in 2004 with an Education degree, whereupon I was hired by the Edmonton Catholic School Board’s (ECSD) alternative education department to work in its outreach programs. The first year that I worked in the outreach programs I was hired to be a career counsellor for Aboriginal students and, as such, I spent half a day each week at the eight different outreach sites that the ECSD had. This experience provided me with an opportunity to be informed about the underlying beliefs and practices of each site, as well as the different teachers who worked with at-risk youth
for the ECSD. I worked in the ECSD’s outreach schools as a teacher at three different sites between 2005 and 2012. ECSD’s outreach program used a teacher advisor system, which meant that teachers would do intake interviews with students to find out why and how they ended up coming to an outreach, i.e., psycho-ecological interviews. During my years with Edmonton Catholic, I interviewed over 400 different students about their education and lives. In 2012, I moved to the Elk Island Public School District to become an Assistant Principal for the district’s continuing education departments outreach programs that work with at-risk students in Junior and Senior High. During this time, I have interviewed an additional 300 to 400 students, many of whom were/are at risk. I have been responsible for setting up intervention systems and training teachers about how to support our students. I began my Master’s program with Queens University in 2009 and, since this time, I have endeavoured to improve my understanding about youth at risk in the hope that I can help students overcome the barriers of their lives. Through my childhood, work, life, and now educational experiences, I feel I have developed a unique and well-rounded understanding of youth who are ‘at risk’ and how to support them. This project is a compilation of many, but not all, of the things I have learned. I have learned far more than could ever be compiled in so few pages.

**Purpose of the Project**

The true nature of the problem with high school dropouts may not be well understood. Many people in society tend to have conceptions of who and what a dropout is and beliefs about the choices these students make that are based on biases and prejudice. Teachers and school administrators often have similar conceptions of who
dropouts are. Teachers and administrators generally place a heavy burden on the parents as the major contributors to student dropout rates and imply that educator efforts are burdened by parental inability to support the efforts of schools. Intergenerational poverty, parenting, abuse, and neglect are issues that educators believe are beyond the purview of teachers and administrators, but understanding the depth and nature of the problem is not. Thus the purpose of this project is to understand the true nature of the dropout problem to be able to explain, teach, prevent, and intervene in the lives of students who want to graduate.

**Definition of Dropout**

Dropout within the context of this project signifies students who leave school for more than five months (one high-school semester) before their anticipated graduation date for reasons that are not medical in nature. The use of the word dropout to describe students who leave school before graduation has been challenged in education literature as being pejorative and/or not descriptive of society’s systemic roadblocks for students. With this argument the term early school leaver has been suggested as a more suitable term that does not carry the heavy burden of failure (Ferguson, Tilleczek, Boydell, & Rummens, 2005). I have chosen not to use the term early school leaver because of my own experiences with youth at risk. The term early school leavers is a benign term that does not accurately reflect the harshness of the outcomes that students face when they choose to leave school. The reality is that people in society will judge students who have left school without graduating. Thus I do not use the term early school leavers because I believe that the term does not accurately reflect the barriers a lack of education will have
in the life of a person who drops out of school. Employers and society will judge students for this decision, and it is best that they come to terms with the harshness of this reality.

**Rationale for the Project**

Graduation rates in Canada have improved drastically over the past 20 years. During the early 1990s, it was not uncommon to have school completion rates at less than 65% for many areas of Canada. Canada has made efforts to address this problem; such efforts have paid off. A recent report by The Organization for Economic Cooperation and Development (OECD), “Education at a Glance 2013,” showed that Canada was one of the most well educated nations in the world. Graduation rates for Canadian secondary students were 85% overall, with an 88% completion rate for women and an 82% completion rate for men (OECD, 2013). Efforts to keep students in school have helped, but the advances in retention rates mask a problem related to the differences between higher and lower SES communities and Aboriginal and non-Aboriginal people in Canada.

The chances of dropping out of school are affected by one’s ethnicity and SES. If a person comes from a disadvantaged SES in Canada, he or she has a three times/threefold greater likelihood of dropping out compared to his or her higher SES counterparts at 11.7% compared to 3.6% (Zeman, 2007). Ethnicity also makes a difference. Aboriginal and Black students are automatically at higher risks of dropping out than all other ethnicities. Black students have dropout rates that are twice that of Caucasian students (Loiselle, 2013). The likelihood of dropping out increases dramatically if you are a First Nations, Métis, or Inuit student in Canada (Richards, 2009). The C.D. Howe Institute notes that Métis students have dropout rates twice that of non-Aboriginals and First Nations students have dropout rates that are four times that of
their peers (Richards, 2009). The Assembly of First Nations confirms the C.D. Howe Institute’s statistics and goes further by noting that reserve schools have on average only a 36% graduation rate, and 61% of First Nation young adults between the age (20-24) have not completed high school (Chiefs Assembly on Education 2012). Thus children who grow up and attend a reserve school have a greater chance of going to jail than they have of graduating (Woods, 2013).

Students who do not obtain a high school diploma are faced with multiple disadvantages throughout their lifetime including: lower lifetime earnings, higher unemployment rates, higher incarceration rates, more preventable health-related ailments, more family/marriage instability, increased reliance on social programs, and shorter lifespans (Loiselle, 2013). Education is therefore a crucial determinant of an individual’s chances of living a healthy and secure life. Given the fact that the lives of students who do not graduate are marred by social ailments that exact a social and financial cost to society, dropping out of school should be seen as a determinant for the future health of a nation, because, ultimately, the financial and social burdens of school failure continue throughout the lifetime for everyone in society.

In the early 1990s, the Canadian government launched a series of campaigns to address the high numbers of dropouts in Canada. The new focus on dropout prevention was accompanied by a 5-year, $300 million dollar Stay in School initiative that began a concerted effort to stop students from leaving school before their high school graduation (Abrami et al., 2006). The new focus on dropout prevention led to the creation of prevention and intervention programs across Canada that have had mixed results. Evidence to support the effectiveness of prevention and intervention programs is weak,
despite two decades of concerted efforts. Although there are many prevention and intervention programs described in the literature, only a small portion of these programs have been subject to rigorous analysis (Abrami et al., 2006). Close analysis of research relating to dropout prevention programs reveals two major problems. First, the anecdotal evidence used to support the efforts of prevention and intervention programs is not supported by empirical research. Second, research about best practices in prevention and intervention programs has not been possible because research has been overly focused on whether the programs keep students in school or not. Considerations about why the programs work, or why they may not work, have rarely been considered. These limitations are problematic in that insight about how to prevent students from dropping out is limited and subject to the vagaries of human interpretation rather than quantifiable understanding.

After over two decades of concerted efforts to prevent students from dropping out, Canada has seen an increase in graduation rates across all provinces and territories. Nonetheless, the overall rise in graduation rates is deceiving because the results differ significantly between social classes. Aboriginal, Black, and children living in poverty have a serious need for interventions to ensure their equal likelihood of successfully completing high school. Poverty as a barrier to education is well documented but, surprisingly, not well understood. The efforts to effectively prevent and intervene in the lives of students can be subject to bias, misinterpretation, misunderstanding, and prejudice. The efforts to effect change have been hit and miss. Society needs to know the true nature of the problem, so that systems can be created with knowledge of who, when,
and how to best provide support for students at risk of dropping out. Such an understanding is the goal of this project.
Theoretical Framework

In the 1970s, Urie Bronfenbrenner developed an ecological model of human development to explain how the environment affected the course of human development. Bronfenbrenner believed people must be understood as a product of not only their individual characteristics but also of the interactions they had with the varying ecologies they experienced (Bronfenbrenner, 1976). Bronfenbrenner’s theory is based on the fundamental notion that people develop symbiotically with and through their interactions within the proximal and distal ecologies over the course of their lives. Bronfenbrenner, Condry, and Russell Sage Foundation’s (1970) model can be pictured as a system of concentric circles of influence that extend outwards from each individual at the core (see Figure 1). The individual characteristics of each child, defined by items like race, gender, health, size, and personal dispositions, is the starting point from which the environments of the child begins to influence his or her development.

Bronfenbrenner, Condry, and Russell Sage Foundation (1970) perceived the environment as consisting of four interconnected systems of influence that they labelled: Micro, Meso, Exo, and Macro systems (see Figure 1; Bronfenbrenner, 1976). The microsystem includes the environments in which a person interacts with others on an interpersonal basis. Examples of the microsystem include an individual’s family, school, daycare, playground, and church. The mesosystem consists of a system of microsystems that involves the interplay between two or more microsystems in which persons interact as they are developing. The interactions of a parent with a teacher at school fit within that student’s mesosystem. Bronfenbrenner describes the exosystem as the ecological system that affects a person indirectly through the other systems it influences. People do not
interact personally with exosystems but are affected by them because of the way they affect the people, organizations, and systems in which individuals interact. A school system can be considered part of a developing person's exosystem because the decisions made by the school system have the power to affect change in multiple microsystems of the student’s life, including a student’s family, classroom, and school. The macrosystem includes societal items like history, governance, social conditions, economic system, cultural values, and the values of the dominant society (Rosa & Tudge, 2013).

In the later part of Bronfenbrenner’s life, he adjusted his Ecological model to a Bioecological model to reflect his newfound belief in the importance of individuals and their power to affect change in their environments through their biological predetermined characteristics and the choices they made over time (Rosa & Tudge, 2013). This evolution of Bronfenbrenner’s theory is reflected in the newer images of his Ecologic Systems theory through the addition of the Chronosphere, which is intended to reflect the reinforcement and/or changes that people experience throughout time. Bronfenbrenner’s Ecological model is ground-breaking in its acknowledgement of the influence of ecological factors upon development. However, Bronfenbrenner’s later research placed a far greater emphasis on individuals' choices in their interactions with their environment and the effects of duration and timing on each individual (Rosa & Tudge).

Bronfenbrenner’s model is useful for understanding why students drop out of school because it provides insight into the fact that the differing factors related to dropping out of school play symbiotic roles that affect each individual and each other in a non-static fashion. Thus each factor in and of itself provides limited insight into an individual without the tacit understanding that each of the factors has a complex
interaction with each other, through multiple possible ecologies of influence.
Bronfenbrenner’s addition of the effects of time and choice provide balance to his theory because it acknowledges that people make choices in their interactions in the environment, and these choices have a greater effect over a longer period of time.

**Figure 1: Bronfenbrenner’s Ecological Systems Theory**

https://picasaweb.google.com/110208999841943910417/DropBox?authkey=Gv1sRgCJjhj_DY98umYQ#5629593902886612386
CHAPTER 2: LITERATURE REVIEW

In the past, leaving school before graduation was not uncommon for students in Canada. Up until the 1950s, students would leave school prior to graduating from high school and enter the work force. These students lived in an age where joining the workforce prior to graduation was not seen as a necessarily negative act but rather a choice one could make without an overtly negative connotation attached to it. Perceptions changed during the 1960s. Education became an important and defining factor in the economy, and the importance of the education system followed suit. Students who made the decision to leave school at this time were seen as “dropouts.” As the description implies, leaving school prior to graduation became a negative act implying that a person had failed.

During the seventies and eighties, the term ‘dropouts’ became the common descriptor of students who left school prior to graduating. This terminology reflected the negativity associated with the failure of the students rather than the failure of the education system itself. The early 1990s saw the beginning of the process of reflection on the failure of not only the students who dropped out of school but also the education systems themselves. Students didn’t just choose to leave school one day because they were failures. The act of leaving school was a process that happened over time. Modern research on high school dropouts demonstrates that there are many identifiable precursors to the decision to leave school that can be identified and acted upon in an effort to help students see their education through to graduation.

The increasingly competitive and global nature of the economy has motivated research throughout North America and the world into why students drop out of school.
Nonetheless, identifying the causes of dropping out of school has proven to be a complicated problem. The act of dropping out of school is influenced by a broad array of factors that speak to the complicated nature of human beings who are affected by their interactions with the world around them. All students bring with them their own individual characteristics that are not only defined by their genetics but also their experiences within their families, schools, and communities (see Bronfenbrenner, 1976; Bronfenbrenner et al., 1970). Dropouts themselves cite numerous reasons for their decisions to leave school that include personal, family, school, and work-related reasons. Given both the vast number of interactions that happen over time, and the broad array of factors related to the decision to leave school before graduation, finding a simple cause-and-effect relationship that can be simply addressed has proven to be nearly impossible.

Numerous theoretical models have been developed in an attempt to understand why students drop out of school before graduation. These models attempt to provide clarity to a problem that can be seen to be both very individualistic, related to personal factors within the student, yet also systemic in nature, based on reasons that lie outside of the realm of control of the educational system, i.e., they have to do with the interactions among many differing belief systems involved in varying families, cultures, communities, and environments.

Theories of dropouts tend to fall into three categories: those that propose theories recognizing dropouts as an amorphous unit of students that can be understood by refining their characteristics; those that differentiate across types of dropouts; and those that see dropouts as stemming from the failure of education systems to captivate the attention of
students who struggle, i.e., the engagement model. As such, they provide generalized, categorical, and engagement reasons for why young people drop out of school.

Theories about why students drop out can be enhanced by modern neurocognitive research on the effects stress has on neurocognitive development of children during childhood and adolescence. This research provides insight into the effects poverty has on the neurocognitive development of children and how stress affects the development and motivations of students during adolescence. These insights provide unique clarity about why students struggle to learn and make the decision to leave before graduating. As such, neurocognitive research is an emerging way to conceptualize dropouts.

**Generalized Understandings**

Generalized dropout models have evolved over the past 20 years by recognizing the complexity of the interaction between factors involved in dropping out while also refining these models based on correlational studies. These models evolved concurrently with research on risk and resilience factors and are heavily indebted to the pioneering work of Finn and his intellectual descendants. These models suggest that the decision to leave school is influenced by several factors including: personal, family, school-related, and environmental.

**Risk and Resilience**

Resilience is the ability to successfully adapt to the varying tasks of life in the face of social disadvantage and multiple adversities. Resilience, from an educational standpoint, can be described as the ability of a student to overcome the obstacles and circumstances of a disadvantaged life in order to graduate. From a risk and resilience
standpoint, all of the factors related to dropping out of school can be interpreted as factors that either increase risk or foster resilience. This basic understanding has spurred research into the unique qualities of resilient students.

Successful at-risk students demonstrate five key qualities that differentiate them from their contemporaries: a) they have developed a sense of self-efficacy, i.e., they believe they can succeed when they try hard; b) they demonstrate self-control, i.e., they are able to deny their immediate desires; c) they are persistent, i.e., they have learned to work to overcome the varying challenges they face; d) they have learned to plan ahead, i.e., they set goals and attempt to regulate their behaviours to reach these goals; and e) they regulate their anxieties, i.e., they have learned to cope with their fears by increasing efforts and applying coping strategies (Martin & Marsh, 2006). Martin and Marsh also found that resilient students often experienced a fear of failure. Their fear provided the incentive for their efforts, yet also remained an obstacle that they had to overcome (Martin & Marsh, 2006).

Lessard, Butler-Kisber, Fortin, and Marcotte (2014) provide two noteworthy insights into the differences between the at-risk students who graduated and those who did not: 1) both groups tended to have poor relationships with their fathers, but the students who graduated had mothers who provided unconditional support in the face of family turmoil; and 2) students who graduated were able to describe at least one positive relationship with a teacher; conversely, students who dropped out could not describe a single positive personal relationship with a teacher (Lessard et al., 2014).

Disengagement from Secondary School (Ferguson et al., 2005). This report highlighted the lived realities of the students through interviews that defined the varying reasons the students left school from their own perspectives. The report highlighted the various risk and protective factors associated with leaving from the perspectives of the students (see Table 1).

Table 1: Risk and Protective Factors for Youth

<table>
<thead>
<tr>
<th>Key Risk Factors for Youth</th>
<th>Macro</th>
<th>Meso</th>
<th>Micro</th>
</tr>
</thead>
</table>
| Non-School-Related | • Low SES  
• Minority status  
• Gender  
• “Place”  
• Youth culture  
• Immigration/Resettlement | • Family  
• School-home link  
• Adult status | • Disabilities  
• Risk-taking  
• Social isolation  
• Identity issues  
• Moves/Interruptions |
| School-Related | • Ineffective discipline  
• Lack or referral, counselling, or outreach  
• Negative school culture  
• School structure flaws  
• Lack of assessment for disabilities  
• School culture conflicts | | • Low level of engagement  
• Suspensions/Retentions |

<table>
<thead>
<tr>
<th>Key Protective Factors for Youth</th>
<th>Macro</th>
<th>Meso</th>
<th>Micro</th>
</tr>
</thead>
</table>
| Non-School-Related | • Place  
• Supportive others in community (links to welfare, etc.) | • Family  
• School-home link  
• Moderate employment | • Educational advantage  
• Friends/Partners  
• Healthy lives  
• Insight, reflection, motivation |
| School-Related | • Positive school climate  
• School and class size  
• Tutors and support  
• Alternative education | • Teaching style/Care  
• Counsellors-outreach  
• Curriculum | • Friends/Peers  
• Classmates |

Analyzing the factors related to dropping out of school through a risk and resiliency lens can be useful at multiple levels of interaction. At a macro level, it is useful because it can guide policy decisions for schools and governments that hope to intervene in the lives of children and ‘youth at risk’. It can also be useful on a micro and meso
level, where the insights provided by resiliency research are used to instruct the interactions that teachers, youth workers, social workers, parents, and sundry people have with children and youth who are ‘at risk’. From a school perspective, it is important to recognize that a positive relationship with a teacher was an essential resiliency factor.

Research into the qualities of resilient students provides insight into the great importance of non-cognitive behaviour skills for learning. Knowing that self-efficacy, self-control, persistence, planning, and anxiety management are key components for the development of resilience presents a curriculum redevelopment pathway towards a broad-based prevention program that can help many students who are ‘at risk’ of dropping out.

**The Influence of Jeremy Finn**

In 1989, Jeremy Finn developed two theoretical models that provide unique insights into the process of dropping out of school: the frustration self-esteem model and the participation-identification model. The frustration self-esteem model argues that the initial antecedent to the decision to leave school early comes about because of early school failure (Rumberger & Lim, 2008). Students who struggle early on in their schooling develop low self-esteem, which leads to problematic behaviours. These problematic behaviours further erode struggling students' academic performance leading to further deterioration of their self-esteem and subsequent behaviours. The frustration self-esteem model is based on two beliefs: that students’ self-concept is of paramount importance to their academic success, and that inappropriate behaviours are defense mechanisms that mask the frustration and embarrassment of struggling students (Finn, 1989). Finn believed that struggling students seek to assuage their feelings of inferiority by engaging in behaviours that raise their status among their peers who are also
struggling. These peers begin to support each other and provide reinforcement for their inappropriate behaviours. These problematic behaviours further erode struggling students' academic performance, leading to further deterioration of their self-esteem and subsequent behaviours. In this model, students are asked to leave school and/or choose to leave school on their own because of their problem behaviours (Finn, 1989). This model is helpful because it recognizes that the nature of the problem of school dropouts stems from the frustration that students feel when they can’t learn.

Finn’s (1989) “participation-identification” model places paramount importance on the feeling of attachment that students have with their school. Finn believed that feelings of attachment resulted from the positive social bonds that were created through participation in school activities. Social bonds are essential for ‘at-risk’ students, because they mediate feelings of alienation and decrease the influence of delinquent peers (Finn, 1989). Thus, when participation in school-related activities declines, the student’s school performance declines in unison, subsequently leading to less identification with the school. In this model, participation in school included students’ responses to the requests of their teachers, both in the classroom during learning activities and outside of the classroom doing homework and completing school-based assignments. Participation also includes participation in sports as well as non-academic school activities, such as participation in the governance of the school (Rumberger & Lim, 2008). This model acknowledges that there is both a behavioural and emotional component inherent in the decision to leave school prior to graduation.

In an effort to learn more about predictors and processes of high school students most likely to drop out of school, Fortin, Marcotte, Diallo, Potvin, and Royer (2013)
posed a multidimensional model based on five factors that contributed to the likelihood that students drop out prior to graduation. Two factors pertained to family interactions, while three were based on school variables. In families, students with poor interpersonal relationships with parents leading to conflict, combined with depression, to increase the likelihood of dropping out. In schools, poor academic results, a lack of positive teacher interactions, and/or relationships combined with poor classroom environments led to increased likelihood of students dropping out. Additionally, male and lower SES students were more likely to drop out than female and higher SES students.

Fortin et al. (2013) asserted that the factors they identified interacted with each other in a symbiotic manner to increase the likelihood that a student would drop out. For example, poor parent-teenager relationships led to feelings of depression and defiance. These feelings then fueled future family conflicts and poor perceptions of and interactions at school. Negative perceptions of school led to reduced engagement levels and/or problem behaviours at school. Problematic behaviours at school led to poor academic outcomes and/or sanctions by the school. Sanctions by the school fueled future family conflict. Conflicts and poor academic results provided the final impetus for the decision to drop out of school (Fortin, Marcotte, Diallo, Potvin, & Royer, 2013).

**Personal Factors**

Personal reasons for dropping out of school fall within five sub-factors: (1) educational performance, (2) affective (3) attitudes, (4) mobility, and (5) voluntary and involuntary. On the personal level, the most telling factor related to dropping out is based on one's history of academic success. Students who have struggled, have failed a grade, and/or who fall behind and don’t get essential support to catch up, become likely
candidates to drop out of school. Teacher-based assessment of student achievement is a surprisingly simple yet accurate indicator of the likelihood a student will drop out. This connection may be because low or failing grades are often indicators of not only the academic achievement of a student but also a measure of a student’s ability to negotiate the expectations of the social/behavioural aspects of school (Bowers, Sprott, & Taff, 2013).

In addition to the personal cognitive reasons, there are affective reasons for leaving school: these include lack of motivation, interest, and/or engagement in school; inability to fit in socially; depression; high levels of anxiety; and social isolation. (Fortin et al., 2014). Students' personal sense of their abilities and their belief in their ability to control their impulses are important personal attributes that are related to success for at-risk students. Students' self-esteem and locus of control have both been found to be positively correlated with higher graduation rates among students of low socioeconomic status.

Attitudes are related to the likelihood that a student will drop out. The seeming lack of motivation is oftentimes closely associated with an early school leaver's feelings of competence. Students who lack feelings of competence become negatively motivated by school. Within this personal category, one of the most telling signs is based on the behaviour of the student. Students who have cognitive or affective problems leading to behavioural issues increase their likelihood of leaving school prior to graduation.

School mobility and grade level retention both play roles in increasing the likelihood of dropping out of school. Although school mobility is often found in conjunction with other personal risk factors, the act of moving schools itself is associated
with lower social/emotional maturity levels, increased delinquency, lower academic achievement, and an increase in behaviour problems (Herbers, Reynolds, & Chen, 2013).

There are often numerous reasons for moving schools that range from voluntary movement based on an individual’s choice, through to the involuntary for those who are asked or directed to leave by the school itself. Sometimes moving is a function of changing family residences. In lower socioeconomic environments, these changes can sometimes be indicative of family stress. Regardless of the reason for moving schools, school mobility is disruptive for middle school and high school students because it affects the interpersonal relationships of students at a time in their lives in which they are negotiating developmental changes.

**Family Factors**

One's family environment plays an influential role in the process of either staying in school or dropping out. Parent-school interactions are important. Parents who are not involved, supportive, or expectant of results in school increase the likelihood that the student will not find success. Personal, family interactions are also important. When families do not provide necessary emotional attachments, interact or communicate in a positive fashion, and/or closely supervise their child's social activities the likelihood that a student will not complete high school education increases.

Family economics also play a significant role in graduating. Students who come from low SES have an increased likelihood not to graduate (Englund, Egeland, & Collins, 2008). Parents’ level of education has further been found to be a factor in a student’s likelihood of completing high school. Students of parents who have not graduated themselves are more likely to leave school prior to graduation. This finding is consistent
even when the parents have had the hopes and expectations that their children will graduate. Families of students who come from lower SES and from riskier social environments can still have the children experience success when the parents create emotionally supportive environments that provide the students reassurance in the face of adversity or failure (Finn & Rock, 1997). Clark’s (1983) study of the school performance of students from poor Black communities asserted that there was a consistent pattern of parenting that was demonstrated by families whose students were successful in these communities. The successful families invariably taught their children that, not only was their schooling important, but that their children’s success lay in their effort through regular practice and work at home (Finn & Rock, 1997).

**School-Related Factors**

Dropouts cite school-related factors as being the number one reason they choose to leave school before graduation (Lessard et al., 2008). Thus the importance of school-related factors for high school completion cannot be understated. These factors encompass psychosocial factors as affecting decisions to drop out: ineffective and unfair discipline, low achievement, boredom, lack of purpose and motivation, conflicts with teachers and administrators, lack of support for special needs and disabilities, negative school climates, feelings of insecurity, not belonging, bullying at school, lack of relevant curriculum, and not being able to get along with teachers or administrators (Lessard et al., 2008). In addition, there are many demographic and economic factors cited in research: school size, school location, academic quality, school climate, availability of materials, funding issues, class sizes, availability of extracurricular activities, availability of counsellors, student body make-up, numbers of immigrants, and teaching techniques
Larger schools, for example, are oftentimes related to higher numbers of dropouts. This is likely a school-related issue that is not a matter of size but a matter of belonging related to a school’s social climate (Lan & Lanthier, 2003).

Research about school-related factors is equivocal about the point where a student’s relationship with someone in the school and a sense of belonging to a school becomes an essential factor in retaining potential dropouts (Lan & Lanthier, 2003). Positive teacher-student relationships play an integral role in creating the bond that helps students develop the motivation required to overcome the negative aspects of their lives and school. Conversely, students who do not have a positive relationship with a teacher demonstrate increasingly negative attitudes towards their schools that translate into their efforts. Thus the school’s environment and how students are disciplined and/or motivated by their teachers and administrators are important factors in the efforts to retain at-risk students (Lan & Lanthier, 2003).

Low SES urban schools tend to face challenges far beyond those that are faced in communities with higher SES. Urban schools have higher dropout rates, lower academic scores, more students below grade level expectations, more students with special needs, higher truancy rates, more immigrants, more students who have English as a second language, more new and inexperienced teachers, more turnover among staff, and, more often than not, less equipment and resources to overcome these obstacles (Neild & Balfanz, 2006).
Environmental Factors

The environment of the student’s surrounding community plays a key role in the decision to leave school before graduation. Students who come from middle or upper SES environments have a far greater likelihood of graduating than their impoverished peers. Students from low SES backgrounds tend to live in communities with fewer high school graduates, live in environments with more crime, and have parents who are either unemployed and/or who are gone because of the necessity to work long hours or multiple jobs to make ends meet for their families. These communities often have higher crime rates and fewer healthy and/or positive activities in which the students can participate in their spare time (Lan & Lanthier, 2003).

Students from lower SES communities deal with environmental factors that students from higher SESs communities do not have to face. Students who enter school in these environments begin school with a level of understanding of all subjects that is behind their cohorts from higher SES communities. Notwithstanding this limitation, these students also have to deal with schools that are characterized by chronic absenteeism and widespread course failure, classrooms with limited resources, cohorts that are more likely to disturb the classroom environment, and teachers with limited experience (Neild & Balfanz, 2006). Students who come from lower SES communities may struggle with persevering in their education because their communities do not always foster the belief in the importance of education and, as a result, there is far less stigma about one’s decision to leave school (Neild & Balfanz, 2006).

Students from rural communities face unique circumstances that affect their attrition rates. Rural students can be faced with extended time on buses that adds
significantly to the amount of time they expend to attend school each day. Their teachers are often more transient and have less experience, while their schools have less resources and fewer options (Neild & Balfanz, 2006). The SES of these communities can be quite low, resulting in barriers related to poverty. In some communities, the lure of employment in resource extraction and farm-based communities is quite significant, resulting in higher attrition rates (Lessard et al., 2008).

**Categorical Understandings**

The dropout categorical models begin with the premise that students leave school for many different reasons that are particular to the circumstances of their lives. There are two types of categorical systems that are differentiated by how they analyze why students leave school before graduation. The first type analyzes reasons for leaving and questions who made the decision to leave and how it was made as push, pull, and fall-out factors. The second type does not address who makes the decision to leave but focuses on analyzing similarities and differences across groups of dropouts that can be quantified by statistical analysis.

**Push, Pull, and Fall-Out Factors**

Analysis of push, pull, and fall-out factors related to high school dropouts has become one of the predominant lenses through which school dropouts are studied. This framework categorizes students who leave school before graduation based on the antecedent factors related to the decision to leave school and differentiates them based on those who: a) were pushed out by their interactions at school, b) were pulled out by factors unrelated to school, and c) fall out because of poor academic outcomes.
Push-outs are students who have traditionally struggled academically and, as a result, have begun to reject school and the context of school itself. The student’s negative feelings toward school manifest themselves in inappropriate behaviours by the student, leading to disciplinary actions being taken by the school. The disciplinary actions of the school serve to increase the student’s negative feelings toward school, which ultimately reinforce the decision to drop out of school. Thus these students are considered push-outs because their decision to leave school comes as a consequence of the actions taken at school (Jordan, Lara, & McPartland, 1994). Pull-outs are students who have made the decision to leave school because of an outside factor unrelated to school. Pull-outs fall within two categories: students who leave in response to personal or family circumstances and students who are lured away from school by opportunities deemed more likely to benefit the student than school itself (Jordan et al., 1994). Fall-outs are students who choose to leave in the later years of their schooling as a result of their academic struggles. These students leave school because they believe that graduating from school will not change the outcomes of their lives, and thus completing school is not worth the effort that will be required (Doll, Eslami, & Walters, 2013).

A meta-analysis of 50 years of push, pull, and fall-out studies in the United States, entitled Understanding Why Students Drop Out of High School, According to Their Own Reports: Are They Pushed or Pulled, or Do They Fall Out? A Comparative Analysis of Seven Nationally Representative Studies, provides for a comprehensive overview of how push, pull, and fall-out factors are related to dropping out of school (Doll et al., 2013). The results provide some unique insights:
• Most male dropouts are push-outs, regardless of whether they leave school in the early or later years. They usually attribute not liking school and poor academic results as reasons for their decisions. They leave school because of a combination of poor academic results and problematic school behaviours.

• Females are more likely to be pull-outs. In the earlier grades, they leave because of family-related reasons, whereas, in the later stages of school, employment becomes the key motivator (Doll et al., 2013).

• Students who leave school in the later grades are more likely to be pull-outs. They choose to leave because of a mixture of family-related reasons and jobs.

School administrators believed students left for different reasons than the students themselves. Administrators believed:

• Students who left school in the earlier grades left because of pull-out factors related to a lack of parental support and family problems.

• Students who left school in the later stages of their education were most likely to be fall-outs who were disinterested in school, and, as a result, they struggled academically (Doll et al., 2013).

The authors also found that:

• Late dropouts reported a low expectation of a return for their efforts in school.

• Family problems were seen as a strong influence among both the early and late stage leavers.

• Administrators expressed the most concern about absences and tardiness.

• Teachers were most worried about their experiences with the abusive behaviours of students.
• Push factors have replaced pull factors as the predominant reasons for dropping out (Doll et al., 2013).

Analyzing dropouts through a push, pull, and fall-out framework provides a deeper understanding of dropouts by adding clarity to the distinctive patterns of disengagement from school for diverse students over time. Awareness of the differences across dropouts as they relate to their stage of education helps when considering the types of prevention and intervention strategies that should be used for each student. This distinction helps identify where prevention and interventions may be most effective for a school system. For example, efforts to retain students who choose to leave because of pull-out factors may be less successful than strategies that improve academic results and engagement patterns of push-outs and fall-outs, because the antecedents factors for the pull-out students’ decisions to drop out were largely unrelated to school.

Analysis of the varying perspectives of students, teachers, and administrators provides for additional insights into the fact that schools focus on overt behaviours with this focus lending itself to a misperception of the complexity of reasons students may leave school before they graduate.

Understanding why fall-outs leave school before graduation is very useful. These students are unique because they usually come close to graduation but choose to leave because they see no benefit in their continued academic struggles. It is likely that these students perceive that the curriculum requirements of graduation are unrelated to their future occupations. Graduation would be nice, but these students weigh this outcome against the efforts that will be required in a place that doesn’t interest them and/or makes them feel inferior to those around them. This insight provides impetus for examining the
relationship between school curriculum and the credentials required by students as they prepare to transition to post-secondary education or enter the workforce.

Classifying students as “push-outs” is enlightening because it demonstrates the political nature of the problem behind school dropouts. Students are defined as “push-outs” because the consequences administered by the school become the defining factor identified by students for their decisions to leave school. This definition puts the locus of control for this decision into the hands of the school rather than into those of the students. Thus the school becomes responsible for a student’s decision to leave school. This subtlety is notable because it forces educators to reflect on the nature of the problem and the roles schools play in either engaging or disengaging students. In addition, the use of the term “push-outs” demonstrates that some students are not wanted in school because their behaviours are problematic for the safe operation of a school and/or hinder the learning of others. Sometimes students are pushed out as an undesired consequence of the use of standardized tests to judge teachers, administrators, and schools. Removing students rather than attempting to retain them becomes an unstated imperative of schools. Examining the reasons why push-outs might be unwanted in the environment could provide additional insights into how school policies can aid student retention.

**Dropout Typologies**

Research about dropouts has focused on the reasons for leaving school as though dropouts are a homogenous group, rather than a mixture of heterogeneous subgroups that leave school for different reasons (Janosz, Boulerice, Le Blanc, & Tremblay, 2000). Research has begun to develop typologies of dropouts that focus on the differences among dropouts, rather than differences between graduates and those who drop out.
A meta-analysis of the research about dropout typologies provides insight into the various typologies that have been proposed in educational research. Four definable typologies emerged as constants: 1) students who chronically struggled with academics, 2) students who were bored with the process, 3) students who disrupted school, and 4) students described as quiets (see Table 2; copied from Bowers & Sprott, 2012, p. 2).

**Table 2: Overview of Past Typology Categories**

<table>
<thead>
<tr>
<th></th>
<th>Chronically Struggling with Academics</th>
<th>Bored with the Process</th>
<th>Disrupting School</th>
<th>Quiets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balfanz et al. (2009)</td>
<td>Failure to Succeed in School</td>
<td>Fade Outs</td>
<td>Push outs</td>
<td>Life Events</td>
</tr>
<tr>
<td>Fortin et al. (2006)</td>
<td>School Adjustment Difficulty</td>
<td>Antisocial Covert Behavior</td>
<td>Social Adjustment Difficulty</td>
<td>Uninterested in School/Depressive</td>
</tr>
<tr>
<td>Janosz et al. (2000)</td>
<td>Low Achievers</td>
<td>Disengaged</td>
<td>Maladjusted</td>
<td>Quiets</td>
</tr>
<tr>
<td>Lessard et al. (2008)</td>
<td>Never Being in the Game</td>
<td>Dabbling in the Margins/Turning Away</td>
<td>Sabotaging the Journey</td>
<td>Living Invisibly</td>
</tr>
</tbody>
</table>

The ‘chronically struggling with academics’ category included the students whose primary difficulty with school was due to their inability to meet the academic standards required of them. The ‘bored with the process’ category included students who were the most capable academically but the least committed to the requirements of school. These students were described as lackadaisical, bored, and uncommitted. Their primary difficulties with school were based on their lack of motivation to conform to the expectations of school. The ‘disrupted school’ category included students whom people usually conceive as high school dropouts. This sub-group had the most negative school interactions with students in this group described as demonstrating behaviours that were
delinquent and/or maladjusted in some manner. These students demonstrated low academic achievement and engagement levels at school. They were also considered the most problematic of the sub-groups and were often pushed out of school because they behaved in manners that disrupted the proper functioning of both the classroom and school (Bowers & Sprott, 2012). The ‘quiet’ category of students included those who struggled academically but were rarely problematic behaviourally and were thus deemed as almost invisible (Janosz et al., 2000). These students were thought to be embroiled in out-of-school turmoil that interfered with their ability to focus on the requirements of school. They were also considered the unexpected dropouts notwithstanding the fact that the sub-group was also thought to contain the largest number of high school dropouts (Janosz et al., 2000).

Bowers and Sprott (2012) reviewed the previous typology research and analyzed the 4-category models using latent class analysis to test the validity of the types of dropouts proposed. Their analysis revealed three categories they termed Jaded, Quiet, and Involved (Bowers & Sprott, 2012). Jaded students accounted for a little over a third of the students they identified. Jaded students were much like the students included in the “chronically struggling with academics” category proposed in the previous research. Jaded students reported disliking school, and feeling that rules were unevenly applied and that classes were uninteresting. Jaded student had the most absences, lowest grades, lowest amount of homework completed, and the least involvement in school and were in trouble the most often (Bowers & Sprott, 2012). Quiet students were the largest sub-group of high school dropouts who constituted a little over 50% of the number of students who dropped out (Bowers & Sprott, 2012). These students reported not liking
school and feeling that they could not complete courses or pass tests. They read about 3 hours a week on average. Quiet students did not get into trouble often, and they participated in extra-curricular activities for an average of an hour a week. Quiet students had marks that were a little above the Jaded students but were lower than the last category described as Involved (Bowers & Sprott, 2012). Involved students consisted of students who differed because of the amount of engagement they had in school. These students performed better academically than both the Jaded and Quiet students and participated in extracurricular activities most often. They reported liking school more often than either the Jaded or Quiet categories. This category is most like graduating students with the exception of the fact that they are in trouble more often than either Quiet or graduating students. The Involved category has not been mentioned in previous literature, but these students are notable because they come the closest to graduation and are the most likely to graduate in the future (Bowers & Sprott, 2012).

Acknowledging the differences among students who drop out provides for many insights that simplify understanding, while also providing enough information to be useful. For example,

- Jaded students are the students whom most people perceive as dropouts. They leave because of their low academic results, problem interactions at school, and their long-term disengagement from school. They feel disaffected by school and are the most resistant to efforts to engage because of their attitudes about school.

- Quiet students leave school because of their low academic results and feelings that they cannot succeed in school or do not belong. These students can likely
be engaged through processes that improve their academic results and increased social engagements that ameliorate their sense of belonging.

- Involved students are fairly active in school but are only moderately successful academically. They leave school because of incidents that involve discipline by the school. These students are the most likely to graduate in the future. Their reasons for leaving are the most remedial to efforts to reengagement.

Research into the dropout typologies provides insight into why prevention and intervention programs have had limited success. Strategies that provide one-type-fits-all methodologies that do not consider typologies, may be failing because they are not addressing the unique requirements of the persons they are trying to help.

The typologies identified may be related to personality types and feelings of social competence, with each of these subtypes varying based on individual biases towards introversion or extroversion, and/or students’ need for feelings of social acceptance amongst their peers. Thus Jaded students interact within their cohort and develop behaviours that reinforce their divergence from school. Quiet students withdraw because they are biased toward introspection when they face academic or social problems at school. Involved dropouts may belong socially at school but struggle academically and, as a result, they purposefully engage in behaviours that result in their leaving school to save their standing among their peers.
Engagement Understandings

The student engagement model begins with the premise that academic success is the most important factor related to students leaving school. The focus of this model is related to the underlying idea that schools should focus on changing that which they can change, i.e., the amount of time a student focusses on what is being taught.

In engagement models, the decision to leave school prior to graduation comes about as a process of disengagement rather than as an event. Students' measure of engagement in school is related to their observable behaviours. Students can be said to be engaged when they are: attentive to the task at hand, complete their homework, attend school both regularly and on time, follow behavioural expectations, and participate in sports or other extracurricular activities. Student engagement is seen as an inner quality of concentration, effort, interest, and enthusiasm. The development and nurturing of these qualities are part of the day-to-day activities of most elementary school teachers. When these qualities are not inherent and/or undeveloped in early elementary school, students begin to fall behind their peers. Being behind the average student and/or falling behind affects the self-esteem of the students, which then complicates the process of engaging them academically. Oftentimes the disengaged student either acts out behaviourally and/or withdraws.

Disruptive students are obviously disengaged. They call attention to their lack of engagement by creating disturbances that interfere with the flow of instruction and require immediate attention leading to intervention strategies that are meant to re-engage them academically. Ironically, students who are inattentive but withdrawn can oftentimes be more complicated to handle because, although they seem distracted or preoccupied,
their behaviours are benign and/or non-disruptive in nature (Finn & Rock, 1997). Nonetheless, both of these student types can be seen as disengaged from the process of learning; thus their performances on achievement tests reflect their inattentiveness.

Patterns of engagement in early elementary school are predictive of future academic success and healthy behaviours. Conversely, students who show signs of disengagement at an early age are at risk of not continuing their education through to graduation because of the cumulative effects of their disengagement. Disengaged students often develop patterns of behaviours that serve as defense mechanisms for their self-esteem that has suffered because of their awareness of their lack of success in school.

Lessard et al. (2008) note that the process of disengagement has definable stages. The first stage includes the events that provide the stimulus for the decision to disengage. Family turmoil and poor academic results are the common stimuli for this initial stage. The initial stage is followed by a stage in which the dropout teeters between activities that reinforce and/or extinguish the desire to go to school. The final stage, in which the student leaves school, comes from either a meaningful school-related event and/or a fading away process that is sanctioned by the lack of interventions by the schools the student attends (Lessard et al., 2008).

Engagement levels are a useful flag for recognizing that students may be at risk in some manner because normative patterns of engagement reflect on the stability in the underlying processes of support that students have in their lives. Students who have high levels of engagement are highly likely to be successful at school, whereas students whose levels of engagement begins to decrease markedly and students whose levels of engagement are at a steady low level, are at higher risks of dropping out (Archambault,
Janosz, Fallu, & Pagani, 2009). When considering the importance of engagement, these two points are noteworthy: Student academic success is the number one predictor of students who are likely to drop out with academic success directly related to engagement.

Understanding student engagement and its relationship to why students drop out has many useful functions. It provides a simple cause-and-effect principle for understanding ‘youth at risk’ that a teacher and a school have the power to affect in some manner. It creates a parameter to gauge students who are, or who will become, at risk of dropping out. It identifies that dropping out is a process rather than an event. Thus there are multiple opportunities to try to intervene. Increasing engagement levels is a concrete principle to begin the process of change, because it is easily understandable and it is something that teachers and schools can do that does not rely on outside factors. If teachers and schools adjust their practices to engage marginal students, they can affect change in these students and increase the likelihood these students have of graduating in the future.

**Emerging Understandings**

Over the course of the past 10 years, scientific discoveries outside of education have led to a revolution in understanding the complexity of human physiology and neurological development. These findings provide insight into how students learn and why some students struggle from a neurophysiological perspective. These new insights have implications for understanding why students who live in poverty drop out of school and how neurophysiological development during adolescence changes the educational trajectories of students propelling them towards the decision to leave school. With this
research in mind, poverty may influence: (i) the development of a child’s mind and (ii) the relationship between stress and neurocognitive development. Stress and neurocognitive development continue to interact as individuals move through adolescence.

**Poverty and the Developing Mind**

All of the factors related to why students drop out intersect in the lives of students in poverty. Consequently, children who live in poverty have a far greater chance of dropping out of school than children who come from middle or upper class families. Thus understanding why students drop out cannot be comprehensive without acknowledging the effects of poverty on children. Poverty is a powerful word that engenders many negative associations; consequently, it has given way to the term socioeconomic status (SES) as a word that exemplifies the effects of poverty without the negative connotations that go with the word. The term SES is more than a measure of wealth; it is a measure of status that includes family economics, education, and occupation. Low SES has been correlated with many negative biological, psychological, and sociological outcomes that exceed the norms in all of the categories that are measured (Hackman & Farah, 2009). The effect that low SES has on education is obvious the moment students begin school because there are many differences between them and students of higher SES. Low SES children tend to have: shorter working memories, less inhibitory controls, fewer executive functions, and less awareness of phonology and syntax (Hackman & Farah, 2009). In addition to these deficits, children from the lowest SES families begin school with vocabularies that are less than ½ of their cohorts from high SES parents (Hackman & Farah, 2009). Given these deficits, it is not surprising that children from low SES
families graduate less often and have lower results in all measures of cognitive development throughout their time in school. The seemingly obvious reasons for a higher number of dropouts among low SES students also present a conundrum because they do not affect all low SES students in the same manner.

There are many presumptions about people who live in poverty that are commonly used to explain the differences across SES, e.g., poor people are unmotivated and lack a strong work ethic, poor parents are uninvolved because they do not value education, poor people are linguistically deficient, and poor people abuse drugs and alcohol (Gorski, 2008). Gorski addresses these presumptions in his article entitled “The Myth of the Culture of Poverty.” Poor people do not demonstrate less work ethic than wealthier people. In fact, poor working adults spend more hours at work than their wealthier counterparts and value education just as much. Poor parents care about school; they tend not to interact at school as often as their counterparts because they have to work multiple jobs and later shifts, cannot afford transportation, lack childcare, or cannot afford to take time off to attend school functions (Gorski, 2008). Low SES parents also feel uncomfortable in school because of their own childhood experiences and/or because they feel judged (Gorski, 2008). Poor people do not abuse drugs or alcohol more often than their higher SES counterparts. In fact, alcohol consumption is considerably higher among upper middle class white students and higher SES parents than lower SES cohorts (Gorski, 2008). Drug and alcohol abuse is equally distributed across all SES classes. The vocabulary, language, and syntax structure are different between lower and higher SES classes, but these differences do not imply lack of sophistication in communication (Gorski, 2008). Forming beliefs about people in poverty is a natural process that is an
extension of our cognitive processes that seek to order information to allow efficient functioning of memory, but the assumptions that are made are not necessarily accurate and the biases that result from these prejudices affect the expectations and interactions with children from lower SES families.

Enrichment and parenting styles are often cited explanations for the differences between lower and higher SES students. The variation in understanding of language between low and high SES students is dramatic and has continuing effects throughout the course of a student’s education. Notwithstanding Gorski’s (2008) argument about the sophistication of the vocabulary, structure, and syntax of lower SES families, there is a difference in language preparation for children entering elementary school that is not based on the argument about formal and informal register. In 1995, Hart and Risley’s longitudinal study found that there is a 3 million word gap between high and low SES children by the age of 3 in the number of words they had heard. Although all children began to speak and develop proper structures at the same time, the higher SES children were spoken to and heard a wider variety of vocabulary on a daily basis. In addition, 98% of the words in a child’s vocabulary consist of words spoken to them by a parent (Hart & Risley, 2003). The extent of the parent-child language development relationship continues throughout the lifespan of the child and is found to be correlated to language skills at the ages of 9 and 10. However, lower and higher SES families, who were all volunteers, were similar to each other in the amount of care, nurturance, and playful interaction they had with their children. Although the children had different personalities, they all were polite and interacted appropriately within their families and were properly socialized in preparation for preschool (Hart & Risley, 1995). There were a few notable
differences in parenting styles. The higher SES parents interacted with their children on a face-to-face basis and provided positive feedback to their children when they spoke. Additionally, the higher SES families provided on average 32 affirmations to 5 prohibitions per hour to their child, whereas parents from lower SES families provided 5 affirmations to 11 prohibitions per hour. If you project these interactions over time, a child from a lower SES family will experience 144,000 fewer encouragements and 84,000 more prohibitions by 4 years of age (Hart & Risley, 2003).

Disparities in interaction and lack of novel experiences limit the development of children. Guo and Mullan-Harris (2000) analyzed how the physical environment at home, mother’s involvement with her child, amount of cognitive stimulation, health of the child, and the quality of child care, affected the intellectual development of children in poverty. Poverty had no effect on intellectual development that was not mediated by an intervening factor. Amount of cognitive stimulation had far more effect on intellectual development than the other factors measured; parenting styles had the second most effect, but this effect was only ¼ of the effect of stimulation. The physical setting and health had negligible effects (Guo & Mullan-Harris, 2000).

Parents from low SES families love and care for their children, yet their parenting styles are different. More often than not, parenting style is a by-product of parents’ own upbringing, with the amount of stress experienced by parents affecting their parent-child interactions and often being associated with harsher discipline and more authoritarian parenting styles (Parke et al., 2004). Parents who live in poverty have to cope with a pervasive finance-related stress that affects nearly every aspect of their lives, which then affects their interactions with their children (Parke et al., 2004). Finance-related stress
can be due to the simple inability to pay bills that meet family needs, but it also extends to choices that are forced upon parents who live in poverty, e.g., when they have to work at times that limit their ability to interact with their children and/or supervise them. For example, low SES parents often work later in the evenings and cannot afford care for their children, or have to leave home before their children are off to school. These two contingencies can create stress, because low SES parents know that it is best for them to be with their children before and after school to ensure that the children have guidance and nurturance. This limitation can create angst on its own but, if the low SES child begins to sleep in, miss school, skip homework, and/or act inappropriately, stress becomes exponential, leading to confrontations. Parenting styles may begin with nurturance and discipline styles that develop intrinsic motivation and control but become harsher because of the nature of environmental forces and risks that are not a part of the lives of higher SES parents. Finance-related stress has one additional outcome that is notable, i.e., it is correlated with depression in both parents (Parke et al., 2004).

Depression among parents begins a whole new set of contingencies that get passed on to low SES children. In extreme cases of parents’ inappropriate reaction to stress, children have to deal with neglect and verbal or physical abuse.

The pervasive stress that people in poverty experience is an exigent factor that compromises their interactions with each other and potentially limits the amount of time and energy parents have to interact with their children. Parent-child interactions may be mediated by the stress levels of the parents. Perhaps, the coping mechanisms of parents who live in stress mediate the quantity and quality of parent-child nurturance and interactions and, in effect, explain why some lower SES children are more resilient than
others. The effects of poverty and the relationship between poverty and stress begin to provide a new mode of conceptualizing what is compromising the learning of students who live in poverty. Stress becomes a possible suspect.

**Stress and Neurocognitive Development**

Research into the neurocognitive development of children and adolescents provides unique understanding about what is happening to the children and youth from low SES families. There are significant neurocognitive differences between low and high SES children. Children from lower SES families have shorter working memories. They struggle with identifying pertinent information and have to work harder than their high SES counterparts when sorting information, sorting information that requires the integration of more complex tasks, sorting relevant and non-relevant information in a classroom environment, and handling auditory distractors and processing sounds with lower fidelity than their higher SES counterparts (Hackmann & Farah, 2009). In addition to these limitations, in measures of neural activity, the lower SES students have neural wave-patterns that are noisier, more variable, and continually active in the absence of sound (Hackmann & Farah, 2009).

In an effort to explain differences, Evans and Shamberg (2009) hypothesized that the stress levels of children exposed to poverty from birth to 6 years of age affected the development of their brains and limited their functioning capabilities. The researchers tested this hypothesis by measuring the allostatic load of students at 9 years of age and 13 years of age and compared these measures of stress to their abilities to perform working memory tests (Evans & Schamberg, 2009). The allostatic load is an index that measures the physiological systems of the body for effects that are outside of developmental norms.
Physiological responses to stress affect the neuroendocrine system of the body, which regulates neurological processes in the hippocampus and prefrontal cortex, two portions of the brain related to cognitive functioning (Evans & Schamberg, 2009). Childhood exposure to poverty measurably affects the working memories of young adults; the longer that individuals are exposed to the stressors of poverty, the greater the effect on their working memories as adults (Evans & Schamberg, 2009). However, there were some low SES students who avoided the cumulative effects of stress; these students performed better on the working memory tests (Evans & Schamberg, 2009). Thus early childhood poverty was not directly related to poor working memory, but rather exposure to stress was what affected working memory.

The flight or fight stress response is a unique part of human adaption to the environment that is an automatic response to perceived danger. When a threat is perceived, a stress response is triggered, thereby releasing epinephrine and norepinephrine throughout the body. Epinephrine and norepinephrine are powerful hormones that are meant to hyper-arouse the neuromuscular systems of the body to defend itself or to run away (Lucassen et al., 2014). The effects of the system are meant to be short-term because there are pathologies related to over-activation that affect growth, suppress immune functioning, and stress the body (Smith & Vale, 2006). The flight or fight system is an autonomic system that bypasses executive functions, i.e., it is beyond conscious control. There is a built-in regulation system that releases cortisol to allow the body to return to homeostasis once a person is safe (Lucassen et al., 2014). The regulation of this system is not autonomic but is part of individuals’ perceptions of whether they are safe or not. Children struggle to regulate this system without support.
from a parent or caregiver. When a response is triggered in children, they respond by crying. Their system will regulate itself in response to soothing by a parent or caregiver. When children are not soothed or when the fight or flight system is triggered continuously, problems develop. The regulation system is prone to misread potential dangers and/or not be able to reach homeostasis even when children perceive they are safe. In essence, stress is a by-product of hyper-activation or dis-regulation that alters the developing brain and increases the likelihood of future stress responses. This consequence is extremely problematic for learning because the executive functions of children who have been exposed to stress become compromised by their hyper-attentiveness to the environment. This hypersensitivity inhibits the ability to focus, to sort through distractors, and to hold things in working memory. Each of these factors inhibits learning and memory functions.

The effects that stress has on the ability to learn are dramatic and uniquely problematic for children or youth who experience stressful lives and/or who are unable to regulate their responses. Cortisol is the regulatory hormone that is released by the body to return to homeostasis. Cortisol levels (also known as a glucocorticoid) shape the encoding, consolidation, and retrieval of memories (Rimmele, Meier, Lange, & Born 2010). In essence, cortisol impairs the ability to correctly recall items that are deemed unimportant to survival. Stress also impairs working memory (Schoofs, Preuss, & Wolf, 2008). Working memory is the short-term storage mechanism that holds information in place to be organized, manipulated, and stored. Working memory is important for many learning functions including language comprehension, reading, and problem-solving related to higher-order thinking (Evans & Schamberg, 2009). The relationship among
poverty, stress, and memory is important because working memories are essential for the development of higher cognitive functions that require more complex tasks. When students do not have previous experience with a concept or activity, they must rely on their working memory rather than their experiences to find relationships between items. Children who have had more experiences or better vocabularies have implicit memories from experience that do not tax their working memories, whereas children who do not have implicit memories of topics must hold in their working memories meanings that require attention that taxes their working memory. If a teacher is teaching a concept that relies on previous knowledge, the student has to decipher the instruction and then hold it in memory, while also trying to create meaning about something else. Simple tasks or relationships can require more abstract thought than teachers realize or intend.

Given the number and nature of the effects stress has on the neurocognitive development of children, a distinction begins to emerge about how stress is a defining factor in the neurocognitive limitations of children in poverty, rather than the poverty itself. Thus a distinction emerges between children in poverty who demonstrate the effects of stress, rather than those who simply lack enrichment. Students from lower SES families who have experienced a stressful life tend to have more neurocognitive limitations than lower SES children who only lack enrichment. This distinction may explain differences in resilience and provide insight into identifying students who might most benefit from immediate and differentiated supports. The relationship between stress and learning may also provide insight into children who are not from lower SES backgrounds but who also struggle because developmental experiences with stress levels can be experienced in all socioeconomic classes. Given the fact that student achievement
is the best predictor of whether or not students graduate (Lessard et al., 2008), the relationship between developmental stress levels and neurocognitive development needs to be recognized and considered when working to prevent students from dropping out.

**Stress and Adolescent Development**

The brain undergoes synaptic reorganization during adolescence. The hippocampus, amygdala, and prefrontal cortex of the brain see the most changes but all portions of the brain go through changes. Neurons are pruned, and myelination of pathways between regions of the brain is developed. These changes increase the ability of students to understand, associate, and integrate knowledge, which dramatically increases the capacity for higher-order thinking. The rewiring of the brain also increases feelings of self-consciousness and attunes adolescent development toward social interactions with their peers (Blakemore & Choudhury, 2006). Consequently, self-identity and social acceptance become important moderators of adolescent motivation and behaviours.

Along with these changes in capability and functions of the brain, the autonomic nervous system begins a period of hyper-activation; the Hypothalamic-Pituitary-Axis (HPA) increases the level and duration of responses to physiological and psychological stress (Eiland & Romeo, 2013). However, the precise effects of stress on the adolescent brain are not known because research on the neurological development has been focused on understanding development in children. Research about the effects of stress during adolescence must be projected from research on adolescent rats. This research has had dramatic results. Exposure to stress during adolescence altered the structure and functions of the hippocampus, amygdala, and prefrontal cortex of adolescent rats (Eiland & Romeo, 2013). These three systems all play key roles in the brain: the hippocampus in
the formation of memories and the regulation of emotions; the amygdala in the autonomic systems of the body that respond to danger in the environment and in interpreting emotions and motives of others; and the prefrontal cortex in executive functions of the brain that involve focus, abstract thinking, and analysis. The prefrontal cortex additionally regulates emotions and interprets and analyzes information used in making decisions. The implications of how stress interacts with the development of the adolescent mind cannot be understated because every system of neurocognition is rewired during adolescence. These changes propel teenage students into a world in which the social aspects of their lives, most particularly those aspects related to their peers, begin to dominate their underlying motivations. This new social imperative directly affects their self-esteem and creates new stressors that can compromise learning.

The evolutionary model proposed in a recent paper entitled *The Evolutionary Basis of Risky Adolescent Behavior: Implications for Science, Policy and Practice* (Ellis et al., 2012) provides additional insight into the implications of adolescent neurocognitive development. The evolutionary model can best be understood as standing in contrast to the psychopathology model of development that endeavours to explain the developmental pathways of “youth at risk.” The psychopathology model theorizes that human development is a function of persons’ interactions within their environments. As such, the psychopathology model proposes that the risky, maladaptive behaviours of adolescence are a natural result of the developing child’s exposure to: poor parenting, neglect, abuse, poverty, delinquent peers, discrimination, and unsupportive communities and schools. Conversely, it is believed that positive behaviours leading to healthy development are a function of adolescents’ exposure to healthy families with supportive parents, who live in
healthy communities with enriched environmental opportunities and supportive schools (Ellis et al., 2012).

In contrast, the evolutionary model proposes that the maladaptive behaviours of adolescence, that are traditionally described as risky, should not necessarily be viewed as maladaptive, but rather a function of neurobiological mechanisms that have been developed by human beings to weigh the fitness-relevant costs and benefits of behaviours (Ellis et al., 2012). Human beings have evolved in both stressful and supportive environments and, as a result, have inherent biological processes related to weighing the costs and benefits of behaviours related to the environments in which they develop. Thus behaviours that are normally viewed as being maladaptive, for example, dropping out of school, can be interpreted as adaptive responses to environments that persons have made, given their estimation that their efforts are fruitless and/or better focused in another endeavour with a higher likelihood of meeting their biological needs.

The keystone of this model is the understanding that adolescence is the inflection point of the neurobiological development of children that propels them from their childhood developmental processes into a potentially reproductive individual (Ellis et al., 2012). Evolutionary developmental theorists believe the full extent of the neurobiological changes of adolescence is quite remarkable, yet often unconsidered when endeavouring to understand youth at risk. Changes involve multiple domains and are marked by the secretion of growth hormones, gonadal steroid, and adrenal androgens. These powerful hormones drive rapid change that increases metabolism, speeds growth, and activates the motivation to procreate. This newfound motivation to procreate provides impetus for
many adolescent behaviours and affects social interactions across the multiple ecologies of their lives.

Interpreting the behaviour of youth at risk of dropping out of school through an evolutionary perspective provides for many insights, for example:

- The circadian rhythm changes the sleep patterns of the adolescents. This pattern of change can be seen to be evolutionary in that it heightens the nighttime activity of teenagers when most romantic behaviours occur, while also separating adolescents from the patterns of their parents, thereby allowing for the provision of opportunity to procreate. This sleep pattern is nonetheless problematic for efforts to retain at-risk students because it affects their ability to attend to what is being taught in school, which then affects their academic success.

- The need to procreate leads to adolescents’ desire to distance themselves from their parents and adult supervision. This distancing can lead to the increased influence of problematic peer influences, poor parent-child interactions, and increased disengagement from school. These three categories of risk are also all related to an increase in an adolescent’s likelihood of dropping out.

- From an evolutionary perspective, behaviour can be seen as a function of the need to display one’s hierarchal dominance in a group to increase one’s attractiveness for potential mates. Such behaviour may result in bullying and defiant behaviours. Bullying is very problematic in school and increases anxiety levels not only for those who are bullied but also other students who witness these displays. Behaviours that attempt to display dominance may also in part explain the anxiety
levels of certain typologies of dropouts (e.g., those who are traditionally described as Quiets).

- Anxiety and depression levels of adolescent girls increase. The increase in anxiety may be a reflection of their interpretation of their ability to compete for potential mates as well as sensitivity to perceived negative evaluations of their attractiveness. Increased anxiety levels and depression are related to the ability to attend to school as well as engagement levels.

The most important insight provided by the evolutionary perspective is in the simple notion that students may be making either a conscious and/or unconscious fitness-relevant cost-benefit analysis of their efforts in school and finding these efforts are fruitless. Thus students who drop out may be doing so because they believe that they cannot compete in an academic arena; as a result, their continued efforts weighed against their believed outcome means that school is a waste of their time. This is an especially poignant insight that may help provide understanding about why so many students leave school before graduating in inner-city and Aboriginal communities across Canada.

The evolutionary model can additionally be used to provide insight as to why prevention and intervention programs have struggled to affect change because the intrinsic motivation for the problematic behaviours has been misunderstood. This understanding is important in light of recent research into the iatrogenic effects of group programs that attempt to teach healthy behaviours to youth at risk. An iatrogenic effect happens when the results of the treatment have the opposite effect to the purpose of the treatment (Rhule, 2005). It is believed that many treatment and/or group psychotherapeutic programs have the opposite effect of their intent because they
congregate at-risk youth who then re-interpret the intended points of the treatment within their own cohorts outside of the behaviour modification programs (Rhule, 2005). The reinterpretation of the lessons is then affected by displays of dominance that attempt to mock the lessons within the group. The evolutionary model and the iatrogenic effect may further explain what happens when students are combined in non-academic or behaviour classes. These students may be interpreting the benefits of their efforts in classes they feel will not have an outcome that will be beneficial for their lives. As a result, teachers who try to give advice about the outcomes of negative behaviours are ineffectual. The lessons are being reinterpreted within the struggling student’s at-risk cohort.

Taking into account the numerous insights that stress and neurocognitive development have on the motivations and behaviours of teenage students provides unique additions to educational theories about dropout typologies. For example, students who fall within Bowers and Sprott’s (2012) Jaded, Quiet, and Involved typologies can be viewed with new insights. Jaded students can be seen as students who make fitness-benefit analyses about their efforts and find their efforts to be wasted. They are motivated socially by interactions in the environment that allow them to display dominance or gain status with their peers. These students feel that short-term sacrifices will not have long-term benefits and thus they feel no need to attend school. These students are socially motivated by their peer interactions and participate with their peers in behaviours that involve experimenting with drugs and alcohol.

Bowers and Sprott’s (2012) Quiet category can be seen as students whose social interactions have created stress. Their perceptions of their self-worth have been compromised by their interactions at school and lack of acceptance or status within
school environments. These students experience stress at school that compromises their ability to learn and results in them slowly disengaging from school because of the way their interactions at school make them feel about themselves. These students are prone to psychosocial development problems related to anxiety and depression. They seek distractions that allow them to escape.

Finally, Bowers and Sprott’s (2012) Involved students can be interpreted as students who have been successful socially but who have only been moderately successful at school. They begin to feel more stress as graduation approaches. It is possible that the stress they feel is caused by a fitness-relevant estimation of their abilities to compete for the opposite sex against their socially competent peers who are more successful academically. It is also possible that the reason they graduate and go on to post-secondary education more often than either the Jaded or Quiet students is because they have not experienced the same self-esteem compromising stress-levels as the other two dropout types.
CHAPTER 3: WORKSHOPS

I have chosen to create two workshops: one to teach why students drop out and a second to teach how poverty affects the development of children. I chose to create two half-day workshops because I want to be able to pass on what I have learned to people in our school district as well as to other alternative schools with which I am in contact. I had considered creating a blog about these ideas, but I reconsidered because I believe delivering these workshops will have more impact than a blog.

The first workshop is about understanding why students drop out. This workshop provides an overview of the factors related to dropping out and insight into the different models that have been developed to explain and categorize students. This workshop also includes a section about how the developmental changes during adolescence shift the motivation of students and set in motion the different types of trajectories for students who drop out. Understanding these concepts can lead to possibilities for teachers and administrators so that they can prepare to intervene in the lives of these students by meeting their needs and possibly keeping them in school until graduation.

The second workshop is about understanding the effects of poverty. It is common for teachers and administrators to have misconceptions about poverty. Most people employed in the education system come from middle class families and, as a result, their understanding about the limitations that arise from poverty are based on restricted and/or faulty knowledge. This workshop is designed to address the myths of poverty and explain how stress plays a major role in limiting the ability of children to learn to their fullest potential. This workshop addresses possible routes for prevention and intervention
through the development of executive function and the use of growth mindsets. This workshop is designed for teachers and administrators who work with children in elementary schools. I am hoping to teach them that their roles are vital to help at-risk students because they deal with students at an age when the students’ beliefs about their limitations are not yet fully set in place. They tend to still have hope and want to please their teachers.

Both workshops use an adult education model that employs critical reflection as a tool for learning. There is a mixture of delivery, quiet reflection, and discussion. The people who attend the workshop have their own experiences and beliefs about these topics. I am hoping to discuss these beliefs and challenge the conceptions that people have in a non-intrusive fashion. I want people to go away from these workshops and reflect on how they may play a role in helping students who are at risk by understanding their motivations and limitations.
**Workshop 1: Understanding Why Students Drop Out**

**Workshop 1 Lesson Plan**

<table>
<thead>
<tr>
<th>Essential Question:</th>
<th>What types of students drop out of school and what can we do to help these differing types of dropouts?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective:</strong></td>
<td>For teachers/administrators to understand that dropouts are not all the same. There are theories about the types of students who act at, participate in, and leave school for different reasons, requiring different prevention and intervention strategies.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
<th>Instructor Guide</th>
<th>Student Activity</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| **Introduction:** | 2/3 minutes | Introduce myself: Explain my background and qualifications to establish expertise for the lesson.  
• Have the participants choose one of the coloured sheets of papers to make a 3-fold name tag that also identifies where they are coming from.  
• Explain to everyone what we are covering today, i.e., we are learning about why students drop out and the implications this knowledge has for educators. | Prepare name tags  
**Materials Needed:** Different coloured Sheets & Markers | Establish authority/expertise for delivering the lesson |
### Activity

<table>
<thead>
<tr>
<th>Icebreaker:</th>
<th>15 minutes</th>
<th>Divide the meeting participants into groups of four or five using the coloured sheets of papers that people wrote their names on.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1. Tell all the participants that you would like them to reflect on their own for a couple of minutes about the reasons why students drop out. What leads students to make this decision? Have each person write down on a sheet of paper as many reasons as he or she can come up with.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Ask everyone to share/discuss with a partner the different reasons the two of them wrote down.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Ask the groups to identify the factors related to dropping out. Divide these factors into school-related and non-school-related factors. Write these down on chart paper.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>As the groups discuss their ideas, hand out playing cards to participants. Tell them they will need the playing cards later.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Ask for a volunteer to explain the group’s top five factors.</td>
</tr>
</tbody>
</table>

### Purpose

- Have participants ease into meeting each other and into their discussion groups.
- Have teachers reflect on their perceptions of dropouts.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
<th>Instructor Guide</th>
<th>Student Activity</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| Presentation/Discussion  | 5 minutes | Explain that understanding why students drop out is very complicated because there are many factors related to dropping out of school:

  lack of motivation, disinterest, disengagement, depression, anxiety, social isolation, poverty, poor self-esteem, stress, illness, poverty, need to help family, sleep in, low marks, poor attendance, bored, learning disabilities, ESL, no motivation, hopelessness, abuse, neglect, hunger, divorce, negative attitudes, family fighting, parents leave early, parents not home after school, had to babysit, had to work, fear, teasing, bullying, teachers did not like me, inflexible rules, risky behaviour, drugs, negative community, ADHD, SES, negative attachments, too far behind, disengaging classes, poor locus of control, poor executive functions, not wanted, pushed out, pulled out, black, native, gay, lesbian, transgender, school size, class size, teaching techniques, poor teacher-student relationships, not belonging, special needs, family illness, poor environment, community, racism, no counsellors, poor counsellors, work long hours, inappropriate school expectations, crime, lack of parent support, jail, pregnancy, poor academic results, bored, uncommitted, disruptive, at-risk, risky behaviours, gaming, addiction, suicide, death, fighting, threats, alcohol, marijuana, dyslexia, weak math, weak reading comprehension, memory problems, shame, sadness, lack of enrichment, culture

  Explain how factors can be categorized as: Family-Related, Personal, Environmental, & School-Related.                                                                                                                                                                                                                                             | Listen Materials Needed: Different coloured Sheets & Markers | Have teachers understand the complexity of why students drop out. |
| Group Discussion         | 10 minutes | 1. Ask the groups to look at the list and choose the top five factors related to dropping out of school.
2. Ask groups to write these five factors down on their chart papers.
3. Tell groups we will come back to these choices later after we have learned more about dropouts.                                                                                                                                                                                                                      | Reflect & Discuss Materials Needed: Different coloured Sheets & Markers | Have teachers reflect on the most significant factors related to dropping out. |
<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
<th>Instructor Guide</th>
<th>Student Activity</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| Presentation/Discussion   | 2 minutes | Explain that researchers have been trying to make sense about why students drop out to become better at prevention & intervention.  
  - Risk & Resilience  
  - Push-outs, Pull-outs, Fall-outs  
  - Engagement Theory  
  - Dropout Typologies | Listen   | Introduce theories of dropping out.  
  Have teachers understand the complexity of why students drop out. |
<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
<th>Instructor Guide</th>
<th>Student Activity</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation/</td>
<td>10</td>
<td>Explain: Risk &amp; Resiliency. Risk factors are generally obvious, but factors related to resilience should be known by educators</td>
<td>Listen &amp; Reflect</td>
<td>Introduce Risk &amp; Resiliency</td>
</tr>
<tr>
<td>Discussion</td>
<td>minutes</td>
<td>Question: Think of students you know that are or were ‘at risk’, but who were resilient. What made these students different?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Answer:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• They have developed a sense of self-efficacy - they believe they can succeed when they try hard</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• They demonstrate self-control - they are able to deny their immediate desires</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• They are persistent - they have learned to work to overcome the varying challenges they face</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• They have learned to plan ahead - they set goals and attempt to regulate their behaviours to reach these goals</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• They regulate their anxieties, i.e., they have learned to cope with their fears by increasing efforts and applying coping strategies (Martin &amp; Marsh, 2006).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Question: What are the implications for understanding these concepts?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Benchmarks guide learning.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Information can be passed on to students and parents.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• It is important for children to know they can learn (belief).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Teachers can pass on that outcomes are related to persistence and self-discipline.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Understand the potential for anxiety. Help students cope by reassuring them when they struggle.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Teach executive functions. Importance of managing oneself and the learning environment is emphasized.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Time</td>
<td>Instructor Guide</td>
<td>Student Activity</td>
<td>Purpose</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Presentation &amp;</td>
<td>15 minutes</td>
<td>Explain: Push-out, Pull-out, &amp; Fall-out Categories: Push-outs, Pull-outs &amp; Fall-outs are categorized by the antecedent factors related to the decision to leave school and differentiates them based on those who:</td>
<td>Listen &amp; reflect</td>
<td>Introduce: Push-out, Pull-out, and Fall-out Understand implications</td>
</tr>
</tbody>
</table>
| Discussion          |              |   • Were pushed out by their interactions at school  
   • Pulled out by factors unrelated to school  
   • Fall out because of poor academic outcomes, etc. (see PowerPoint).  

Question: Take two minutes and reflect: What are the implications of understanding these categories if you want to keep students in school? Write these down!  

Discuss: Potential answers: Better understanding of who, how, & when to intervene with increased likelihood of successful intervention.  

Question: Who’s to blame when someone drops out?                                                                                                                                                                     |                  |                                                                                                     |
<p>| Transition          | 15-minute    | Change Groups: Ask people to change their groups to match the card given to them when they came in the room                                                                                                         | Transition       | 15-minute break                                                                                   |
|                     | break        |                                                                                                                                                                                                                  |                  |                                                                                                     |</p>
<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
<th>Instructor Guide</th>
<th>Student Activity</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| Presentation  | 15 minutes | Explain: Engagement Theory: The student engagement model is based on the premise that academic success is the most important factor related to students leaving school.  
- The focus of this model is related to the underlying premise that schools should focus on changing what they can change, i.e., the amount of time a student focuses on what is being taught.  
- The vast majority of dropouts are academic dropouts who have been failed by the school system (see PowerPoint).  
Question: Take a minute and reflect: What are the implications of understanding Engagement Theory if you want to keep students in school?  
Discuss  
- The tasks of teachers and schools are to increase student engagement  
- Recognize and start early  
- Beware of changes  
- Create sense of belonging  
- Schools need to recognize the importance of teaching executive functions & engaging students | Listen & Reflect          | Introduce Engagement Theory to understand implications.                                                                                 |
| Discussion    | 30 minutes | Task: Create Own Dropout Theory  
Explain: Given your own experiences and your new knowledge create a theory that explains why students drop out. Remain in current work groups.  
- Try to come up with at least three categories of dropouts  
- Provide who, how, why and potentially when  
1. Ask the groups to share the categories they came up with.  
2. Ask the groups to identify their own theory of school dropouts.  
3. Explain implications of this knowledge. | Group discussion          | Have teachers contemplate the different types of students who leave school.                                                         |
<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
<th>Instructor Guide</th>
<th>Student Activity</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| Presentation | 15 minutes | Explain dropout typologies:  
  - Past research considered dropouts homogenous group, rather than a mixture of heterogeneous subgroups that leave school for different reasons  
  - Research has begun to develop typologies of dropouts that focuses on the differences among dropouts, rather than differences between graduates and those who drop out!  
  - Explain Bowers and Sprott’s (2012) analysis of four typology systems and their three-category model. Explain Jaded, Quiets, and Involved (see PowerPoint). Discuss with groups:  
    1. What are the implications of understanding these categories? Participants should come up with prevention as the best answer.  
    2. Which category would be the hardest to help graduate?  
    3. How would you try to keep these different categories in school? | Listen Reflect & Discuss | Have teachers contemplate how knowing different typologies leads to different strategies to retain students. |
| Discussion  | 10 minutes | 1. Ask the participants what are the implications of understanding the types of students who drop out. Participants should come up with prevention as the best answer.  
    2. Ask the groups to identify how they would keep the different types of dropouts in school if they were in charge of the school, i.e. the Principal. What would a good plan look like for each type of student? | Reflect & Discuss | Have teachers contemplate how knowing different theories leads to different strategies to retain students. |
<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
<th>Instructor Guide</th>
<th>Student Activity</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| Presentation | 15 minutes | Explain the effects of developmental changes during adolescence. Provide insight into how these changes relate to dropouts. Students who struggle and who lack belonging and acceptance are increasingly affected by stress during adolescence.  
- Social imperatives emerge.  
- Lack of social acceptance or inappropriate social behaviours create stress.  
- Stress levels further complicate/inhibit learning  
- Typologies emerge (see PowerPoint).  
Discussion:  
1. What are the implications of understanding developmental changes during adolescence?  
2. How can this understanding be used to prevent or intervene in the lives of students who are at risk?  
3. Tips for dealing with at-risk students. | Listen Reflect & Discuss | Have teachers understand how development during adolescence affects learning and leads to understanding dropouts. |
Understanding Why Students Drop Out
Why Do Students Drop Out? (Slide 1)

Reflect: (think to yourself) What are the causes?
How do students get to the point in their life that they decide “I’m done”?
Write as many reasons/factors down as you can!

Why Do Students Drop Out? (Slide 2)

Share with a partner: The factors you came up with related to dropping out

Share/Discuss with group: What are the factors related to why students drop out?

Divide factors between those that are school-related and non-school-related factors. Write these down.
Top Non-School-Related Factors

- Low SES
- Minority status
- Gender
- “Place”
- Youth culture - influences
- Immigration/Resettlement
- Family
- Lack of School-Home Link

Top School-Related Factors

- Ineffective discipline
- Lack of referral, counselling, or outreach
- Negative school culture
- School structure flaws

- Lack of assessment for disabilities
- School culture conflicts
- Low level of engagement
- Suspensions/Retentions

Reasons expressed by students - Early School Leavers: Understanding the Lived Reality of Student Disengagement from Secondary School (Ferguson et al., 2005)
Understanding Why Student Dropout is Complicated: Because there are many factors related to dropping out!

Factors can be Categorized as:
1. Personal
2. Family-Related
3. Environmental
4. School-Related

Making Sense of all the Factors!

Risk & Resilience

Push-out, Pull-out, & Fall-out

Engagement Theory

Dropout Typologies
Risk & Resilience

Resilience is the ability to successfully adapt to the varying tasks of life in the face of social disadvantage and multiple adversities.

Factors related to dropping out can be categorized as either increasing risk or aiding resilience.

Reflect:

Think of students you know who are or were ‘at risk’ but who were resilient. What made these students different?
Five Key Qualities of Resilient Students

1. They have developed a sense of self-efficacy - they believe they can succeed when they try hard.
2. They demonstrate self-control - they are able to deny their immediate desires.
3. They are persistent - they have learned to work to overcome the varying challenges they face.
4. They have learned to plan ahead - they set goals and attempt to regulate their behaviours to reach these goals.
5. They regulate their anxieties, i.e., they have learned to cope with their fears by increasing efforts and applying coping strategies.

(Martin & Marsh, 2006)

Reflect

What are the Implications of Understanding the Qualities of Resilient Students?

- Benchmarks to guide learning.
- Information can be passed on to students and parents.
- It is important for children to know they can learn (belief).
- Teachers can pass on that outcomes are related to persistence and self-discipline.
- Understand the potential for anxiety. Help students cope by reassuring them when they struggle.
- Teach executive functions. Importance of managing oneself and the learning environment.
Push-outs, Pull-outs, & Fall-outs are categorized by the antecedent factors related to the decision to leave school and differentiates them based on those who:

1. Were pushed out by their interactions at school
2. Pulled out by factors unrelated to school
3. Fall out because of poor academic outcomes

(Doll, Eslami, & Walters, 2013)

Push-outs

Are students who have traditionally struggled academically and act out behaviourally. Their struggles lead them to reject school and the context of school itself. Their inappropriate behaviours cause conflict resulting in discipline/punishment that results in their leaving.
**Pull-outs**

Are students who have made the decision to leave school because of an outside factor unrelated to school. There are two categories of pull-outs:
1. Students who leave in response to personal or family circumstances, and
2. Students who are lured away from school by opportunities deemed more likely to benefit the student than school itself.

---

**Fall-outs**

Are students who choose to leave in the later years of their schooling as a result of their academic struggles.

- These students leave school because they believe that graduating from school will not change the outcomes of their lives, and thus completing school is not worth the effort that will be required.

Push- Pull- & Fall-outs can be defined by who makes the decision to leave.
- Pull-outs & Fall-outs choose to leave.
- Push-outs are not wanted in the environment and are subtly forced out.
Understanding the Differences

Push- Pull- & Fall-outs can be defined by who makes the decision to leave.
- Pull-outs & Fall-outs choose to leave.
- Push-outs are not wanted in the environment and are subtly forced out.

Fall-outs struggle academically and leave in the later years of their education, because they have a low expectation of a return for their efforts in school.

Unique Insights (Slide 1)

- Push factors have replaced pull factors as the predominant reasons for dropping out.
- There are differences between perception of schools and what students report. Schools place blame on outside factors, e.g., on families, while students fault schools.
- Most students who drop out, regardless of category, struggle academically.

(Doll et al., 2013)
Unique Insights (Slide 2)

There are Gender Differences:
- Most male dropouts are push-outs, regardless of whether they leave school in the early or later years. They usually attribute not liking school and poor academic results as reasons for their decisions.
- Females are likely to be pull-outs. In the earlier grades, they leave because of family-related reasons, whereas, in the later stages of school, employment becomes the key motivator (Doll et al., 2013).

Reflect

What are the implications of understanding Push-, Pull-, Fall-out typologies if you want to keep students in school?

- Better understanding of who, how, & when to intervene
- Likelihood of successful intervention

Who is to blame when students leave school?
Engagement Theory (Part 1)

- Academic success is the most important factor related to students leaving school.

- Schools should focus on changing that which they can change, e.g., the amount of time a student focuses on what is being taught.

- The vast majority of dropouts are academic dropouts that have been failed by the school system!

Engagement Theory (Part 2)

Engaged students are:
- Attentive to the task at hand
- Complete their homework
- Attend school both regularly and on time
- Follow behavioural expectations
- Participate in sports or other extracurricular activities

Disengaged students are not always obvious:
- Behavioural students are obvious
- Watch out for quiet students
Engagement Theory (Part 3)

Student engagement is seen as an inner quality of concentration, effort, interest, and enthusiasm.

Disengaged students are not always obvious:
- Behavioural students are obvious
- Watch out for quiet students

More Unique Insights

- Patterns of engagement in early elementary school are predictive of future academic success and healthy behaviours.
- Students who show signs of disengagement at an early age are at risk!
- Effects of disengagement accumulate.

- The decision to leave school prior to graduation comes about as a process of disengagement rather than as an event.
- Pattern changes are a warning sign.
Reflect

What are the implications of Engagement Theory for keeping students in school?

- The task of teachers and schools is to increase student engagement!
- Recognize and start early
- Beware of changes
- Create sense of belonging
- Schools need to recognize the importance of teaching executive functions & engaging students

Group Task

Create your own dropout theory.

- Given your own experiences and your new knowledge, create a dropout typology theory that explains why students drop out.
- Try to come up with at least three categories of dropouts.
- Provide who, how, why, and potentially when.
- Explain implications of this knowledge.
Analyzing Dropout Typologies (Slide 2)

Bowers and Sprott (2012) analyzed existing typology systems and came up with four common typologies:

1. Students who chronically struggled with academics
2. Students who were bored with the process
3. Students who disrupted school
4. Students described as quiets

Quantitative Analysis of the four category models revealed three categories: Jaded, Quiet, and Involved

Jaded Students

- Students usually conceived as high school dropouts.
- Had the most absences, lowest grades, lowest amount of homework completed, and the least involvement in school.
- Were in trouble the most often (Bowers & Sprott, 2012).
- Felt rules were unevenly applied and that classes were uninteresting.
- Considered the most problematic of the sub-groups.
- Were often pushed out of school because they behaved in manners that disrupted the proper functioning of both the classroom and school.
Quiets

- Struggled academically but were rarely problematic.
- Believed that out-of-school turmoil interferes with their ability to focus on the requirements of school.
- Are unexpected dropouts.
- The invisible majority that systems are unaware of.
- Leave school because of their low academic results and feelings that they cannot succeed in school or do not belong.

Involved Students

- Are engaged in school
- Performed better academically than both the Jaded and Quiet students.
- Participated in extracurricular activities most often.
- Reported liking school more often than either the Jaded or Quiet categories.
- Most like graduating students but were in trouble more often than either Quiet or graduating students.
Further Unique Insights

- There are different types of dropouts.
- Quiets are the largest group with over 50% of dropouts.
- Quiet category included students who had struggled academically for many years.
- Jaded were 2nd largest group at 35%.
- Involved students are surprising category in that they leave very late in school career.
- Involved students are most likely to graduate in future.
- All categories struggled academically.

Reflect: Dropout Typologies

What are the implications of understanding these categories?

Which category would be the hardest to help graduate?

How would you try to keep each of these categories of dropouts in school?
Adolescent Development & Neurocognition

New Insights into Dropout Trajectories

- The brain undergoes synaptic reorganization during adolescence.
- The hippocampus, amygdala, and prefrontal cortex of the brain see the most changes, but all portions of the brain go through changes.
- Neurons are pruned, and myelination of pathways between regions of the brain is developed.

(Blakemore & Choudary, 2006)

Adolescent Development & Neurocognition

A Social Imperative Emerges

- The ability to understand, associate, and integrate knowledge dramatically increases the capacity for higher-order thinking.
- The rewiring of the brain also increases feelings of self-consciousness and attunes adolescent development toward social interactions with their peers (Blakemore & Choudary, 2006).
- Self-identity and social acceptance become important moderators of adolescent motivation and behaviours.
Adolescent Development & Neurocognition

The Body Prepares to Compete

- Neuromuscular systems develop.
- Reproductive capabilities emerge.
- The emerging need/desire to procreate and compete for mates becomes a motivating factor.
- The autonomic nervous system begins a period of hyper-activation.
- Hypothalamic-Pituitary-Axis (HPA) increases the level and duration of responses to physiological and psychological stress.

(Ellis et al., 2012)

Adolescent Development & Neurocognition

Behaviour Change & Stress Increases

- The desire for acceptance becomes an imperative.
- Poor academic results become increasingly problematic and embarrassing.
- Students look for peers to accept them. Some students will act inappropriately to gain social standing among peers who also struggle.
- Not belonging and not feeling accepted increase stress.
- Social hierarchies become entrenched.

Need for Social Acceptance X Not Being Accepted by Peers = STRESS
Adolescent Development & Neurocognition

Stress Affects Learning

- The implications of how stress affects adolescents cannot be understated because every system of neurocognition is rewired during adolescence.
- Stress responses affect attention, encoding, and retrieval of memory.
- Stress also increases anxiety levels, affects sleeping patterns, and inhibits the ability to pay attention to details that are not considered important for survival and/or acceptance.

Adolescent Development & Neurocognition

Stressed/Struggling Students React

- Increased disengagement from school
- Skipping patterns emerge
- Anxiety and depression levels of adolescent girls increase
- Inappropriate male behaviour increases
- Sleep patterns change
- Patterns react to changes
- Poor parent-child interactions exacerbate problems
Adolescent Development & Neurocognition

Dropout Typologies Emerge

- Students react to the stress of their lives by developing coping behaviours that exacerbate the problems and further inhibit learning.
- Withdrawal, disengagement, struggle to stay awake, inappropriate behaviours, negative influence of peers, drugs and alcohol, anxiety, depression, and ultimately not wanting to attend school become patterns.

Reflect

What are the implications of understanding developmental changes during adolescence?

How can this understanding be used to prevent or intervene in the lives of students who are at risk?
At-Risk Students Have Different Needs

- Recognize what each particular student needs
- Address emotions
- Try to help connect students
- Recognize students’ perceptions about acceptance
- Make students feel like they belong

How can this understanding be used to prevent or intervene in the lives of students who are at risk?

Address Negative Thoughts

Most at-risk students have tried to change before and have failed

- Find out what students are thinking, i.e., self-talk
- Address negative or faulty self-talk
- Ask students to commit to change
- Reinforce their positive behaviours
Support Efforts to Change

Address Student Engagement & Personal Management

Teach executive functions, e.g., on-task behaviours, planning & organization
Find activities that engage students
Recognize evolutionary & developmental needs/desires
Recognize students make cost-benefit analysis of their efforts
Address the iatrogenic effect
Recognize that change is lonely

STUDENTS NEED TO SEE SOME SUCCESS QUICKLY. THEY MUST FEEL THEY CAN LEARN.
Workshop 2: Understanding the Deficits of Children who Grow Up in Poverty

Workshop 2 Lesson Plan

<table>
<thead>
<tr>
<th>Essential Question:</th>
<th>To provide teachers insight about the real ramifications of growing up in poverty: developmentally, emotionally, and educationally.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective:</td>
<td>I want the teachers and administrators to be able to a) identify their potential biases about children and families in poverty, b) understand how poverty affects development, c) create understanding about the ramifications of multiple deficits of children in poverty, and d) give teachers ideas about what they can do to support children from these environments.</td>
</tr>
<tr>
<td>Activity</td>
<td>Time</td>
</tr>
<tr>
<td>----------</td>
<td>---------</td>
</tr>
</tbody>
</table>
| **Introduction** | 2/3 minutes | Hand out a playing card to the participants as they come in the room. Tell them to hold on to it. Have the conference attendees choose one of the coloured sheets of papers to make a 3-fold name tag that also identifies where they are coming from.  
  - Introduce myself: Explain who I am and where I’m coming from. Mention a little bit about my background and qualifications to establish expertise for the lesson.  
  - Give everyone an idea about what we are covering today, i.e., understanding how poverty affects children and what poverty means for learning. | Prepare name tags  
**Materials Needed:**  
Coloured sheets and different coloured markers | Establish authority/expertise for delivering the lesson |
| **Icebreaker** | 15 minutes | Divide the meeting participants into groups of four or five using the coloured sheets of papers that people wrote their names on as different groups.  
  - Tell everyone that you would like them to reflect (silently) for a minute about:  
    1. Question: What stops children from families that live in poverty from learning like children who have wealthy parents?  
  Prompt: Try to come up with at least five answers in your head.  
  - Ask participants to write their five answers on their group’s chart paper.  
  - Tell everyone: Take a look at what everyone in your group has written. Has your group missed any factors? If you have, write down the factors you think are missing.  
  Prompt: Try to identify all of the factors that affect a child living in poverty that a child from a wealthy family will not have to face.  
  Watch for activity of group and check time. Prompt them to choose the top five barriers for children in poverty in order of importance. Instruct the groups to write these down on their chart paper.  
  - Ask for a volunteer to explain the group’s choices. | Solitary reflection followed by Group Discussion.  
**Materials Needed:**  
Chart paper & various coloured markers | Have the conference attendees ease into meeting each other and ease into their discussion groups.  
Begin having the teachers reflect on what the qualities are of a great teacher. |
<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
<th>Instructor Guide</th>
<th>Student Activity</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation/</td>
<td>10</td>
<td>Explain how it is common for people to misinterpret the true roadblocks that children in poverty have when trying to learn.</td>
<td>Listen</td>
<td>Have teachers reflect on their potential misconceptions</td>
</tr>
<tr>
<td>Discussion</td>
<td>minutes</td>
<td>Use PowerPoint to show the five myths of poverty.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Ask the groups to cross off their sheets any of the answers that fall under the myths of poverty.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Explain differences</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Top 5 differences between low and high SES children.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Stress, poverty, and neurocognitive development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presentation</td>
<td>15</td>
<td>Reveal PowerPoint of: Countdown of Top Five Reasons: 5) lack of exposure to enrichment experiences; 4) language deficits (face-to-face interactions, number of exposures, and range of vocabulary); 3) parenting (fewer face-to-face interactions; fewer positive to negative interactions) 2) exposure to stress during childhood affects the neurocognitive development of children ; 1) unmediated stress affects attempts to learn</td>
<td>Watch, Listen,</td>
<td>Have teachers sort through new information and reflect on missing factors</td>
</tr>
<tr>
<td>&amp; Discussion</td>
<td>minutes</td>
<td>• Explain that parent-child interactions mediate: language development and exposure to enrichment experiences. These in turn affect the neurocognitive development of children.</td>
<td>&amp; Reflect</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Tell everyone: Before we get into the neurocognitive development of children, we’re going to move to different groups but before we do I want you to reflect for a second and ask yourself</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Question: What is the missing factor that affects all of the rest of these factors?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Give the teachers 20 seconds and tell them the answer is not poverty!</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Question: Who thinks he or she knows the answer?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Take responses and comment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Time</td>
<td>Instructor Guide</td>
<td>Student Activity</td>
<td>Purpose</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
<td>------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>Presentation</td>
<td>15 minutes</td>
<td>Show PowerPoints Stress &amp; Poverty: Neurocognitive deficits of stressed children</td>
<td>Listen &amp; Reflect</td>
<td>Provide unique information re: neuroscience.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Explain research about how neurocognitive deficits of children in poverty are affected by stress, e.g., shorter working memory, problems sorting relevant and non-relevant information, hearing deficits re: audiology &amp; word recognition, executive control deficits, and lack of previous exposure to enrichment experiences. These factors create barriers and gaps in learning in the everyday lives of children who have been exposed to unmediated stress during development, more often than not children living in poverty.</td>
<td></td>
<td>Reflect on what affects neurocognitive development</td>
</tr>
<tr>
<td>Group Activity</td>
<td>2/3 minutes</td>
<td>1st Experiment:</td>
<td>Solve, Practice Working-Memory</td>
<td>Teach difference between those who have strategies/experience &amp; better working memories</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Explain: We’re going to try some experiments so we can relate with what these deficits mean: I am going to show you nine letters for 20 seconds on screen that I want you to memorize. Show letters on PowerPoint: sdrawkcab</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• After showing the letters for 20 seconds, tell participants to hold the letters in their memory for 20 more seconds. After 20 more seconds, ask participants to raise their hands if they think they know the answer. Most will have rehearsed the letters and think they know the answer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Explain: Ok, good. Let’s move on and solve another puzzle and come back.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transition</td>
<td>15-minute break</td>
<td>Change Groups: Ask people to change their groups to match the card given to them when they came in the room.</td>
<td>Transition</td>
<td>15-minute break</td>
</tr>
<tr>
<td>Activity</td>
<td>Time</td>
<td>Instructor Guide</td>
<td>Student Activity</td>
<td>Purpose</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td><strong>Group Discussion</strong></td>
<td>5 minutes</td>
<td>When people return:</td>
<td>Reflect</td>
<td>Teach the importance of memory &amp; strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Ask: how many people know the answer to the letters they were asked to remember? Raise your hands if you do!</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This activity should not be hard for most people.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>If you know the answer, don’t say anything and don’t write it down. We’ll come back to it later. Some people will not have recognized backwards but will have used other memorization strategies. Comment to them that strategies are important mechanisms children need to know! And we’ll see why!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Time</td>
<td>Instructor Guide</td>
<td>Student Activity</td>
<td>Purpose</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Group activity & discussion      | 10 minutes | 2<sup>nd</sup> Experiment:  
  - Explain that everyone is going to need a partner. Pairs will have to decide who is going to be the reader and who is going to solve.  
  
  Hand out word puzzle sheets to groups as follows:  
  - One group will have a word puzzle with everything they need to solve the puzzle (yellow sheet).  
  - The 2<sup>nd</sup> group will have the words “determine” and “describes” excluded from the puzzle and replaced with blanks (orange sheet).  
  - 3rd group: If there are people at each table who do not have a partner, give them the orange sheet word problem with the words “determine” and “describes” excluded from the puzzle and replaced with blanks. Let them solve the problem on their own.  
  
  You have four cards, each with a number on one side and a letter on the other side. The cards are displayed with 4, 7, E, and X showing. Determine whether the following rule describes these four cards: If a card has an even number on one side, it has a vowel on the other side. Which cards need to be turned over to test the rule? (Cowan, 2012, p. 112)  
  - Tell participants they have 1 minute. Let them work on the puzzle. They will not have enough time to complete task. After one minute ask participants who needs more time. Give them one more minute,  
  
  The room should be very loud, and people should struggle with this puzzle.  
  - After two minutes, ask people to raise their hand if they know the answer. If they don’t, stop anyway.  
  - Ask the solvers to write down their answer on the sheet. Show the answer and ask people to raise their hands if they got it right. | Group activity & discussion | Consolidate learning about deficits of learning deficits of children in poverty. | 2 types of coloured sheets with word puzzles printed on them. | working memory, word recognition, hearing deficits, sorting relevant & non-relevant information |
### Activity: Discussion

<table>
<thead>
<tr>
<th>Time</th>
<th>Instructor Guide</th>
<th>Student Activity</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 minutes</td>
<td>2nd Experiment continued: Group Discussion</td>
<td>Group exercise &amp; discussion</td>
<td>Consolidate learning through association, reflect</td>
</tr>
<tr>
<td></td>
<td>1. Question: How many of the people on their own got the problem right?</td>
<td>Materials Needed:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Question: Does it make a difference if you were a reader or a solver?</td>
<td>pen &amp; paper</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Question: What makes this problem hard to solve?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Working memory must be used to hold in place instructions and associations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Question: Was not being able to solve the puzzle stressful at all?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Question: How many people were missing words in your puzzle? How did missing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>words affect you?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Question: How many people felt rushed?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Question: How many people were distracted by the noise in the room?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Question: Take a moment and reflect. Can anyone remember the letter sequence</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>from the previous quiz? Write down what you think it is! Show the word</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>sequence answer on PowerPoint: sdrawkcab</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Question: Did you get it right?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Question: If some people got it right, ask how they remembered it, i.e., what</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>strategies they used. Let people describe their strategies.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Question: Sdrawkcab is backwards spelled backwards. Did anyone notice this?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. Question: Is solving a puzzle harder when you don’t have any experience with it?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Why?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Time</td>
<td>Instructor Guide</td>
<td>Student Activity</td>
</tr>
<tr>
<td>------------------</td>
<td>--------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| Group Activity   | 10 minutes | Previous experience with information makes a big difference! We’ll try one last experiment to demonstrate this fact.  
3rd experiment: Hand out word puzzle sheets to groups as follows: have two groups; those who read on their own and those who have a partner read to them. Choose different tables.  
A certain car repair shop services Hondas and Buicks (as has been the case in Columbia, Missouri). A recall announcement indicates that the accelerator pedals on the Hondas can stick, potentially leading to accidents and therefore warranting repair. Four customer cards are sitting on the desk. Each one indicates the customer’s name and the brand of car on one side and, on the other side, whether or not the accelerator pedal has been checked. The four cards as placed on the desk show Honda, Buick, checked, and not checked. Which cards need to be turned over?” (Cowan, 2012, p. 113).  
1. Ask: Raise your hand if you think you know the answer.  
2. Ask: Is anyone absolutely certain they know the answer? What is it?  
3. Question: Does previous experience/information make understanding and solving problems easier? Absolutely! | Group exercise & discussion  
Materials Needed:  
Word puzzle sheets | Consolidate learning through association, reflect  
Provide insight into why previous knowledge makes future learning easier because working memory is not taxed when information has been stored previously. |
<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
<th>Instructor Guide</th>
<th>Student Activity</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Activity</td>
<td>10 minutes</td>
<td>What is the point? The neurocognitive deficits of children in poverty have dramatic effects on their ability to learn. &lt;br&gt;Is it the poverty? It is not the poverty itself. It’s the stress and its effects on the neurocognitive development of children. &lt;br&gt;The neurocognitive deficits of children in poverty are: &lt;br&gt;• shorter working memory &lt;br&gt;• problems sorting relevant and non-relevant information &lt;br&gt;• hearing deficits re: audiology &amp; word recognition &lt;br&gt;• executive control deficits &lt;br&gt;• encoding and retrieval problems &lt;br&gt;• noisy neural wave patterns</td>
<td>Listen</td>
<td>Consolidate learning through association with experiments</td>
</tr>
<tr>
<td>Group Discussion</td>
<td>20 minutes</td>
<td>Ask the groups to reflect: What are the implications of understanding poverty for teachers and schools? &lt;br&gt;1. What can be done in the classroom and in the school to help children who have these deficits? &lt;br&gt;2. How can you change your practice to reflect these understandings? &lt;br&gt;Write down your group’s ideas on chart paper. &lt;br&gt;• Ask for a volunteer to explain the group’s strategies &lt;br&gt;• Discuss ideas &lt;br&gt;• Present classroom strategies</td>
<td>Reflect &amp; discuss</td>
<td>Consolidate learning through association, reflect</td>
</tr>
<tr>
<td>Activity</td>
<td>Time</td>
<td>Instructor Guide</td>
<td>Student Activity</td>
<td>Purpose</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------</td>
<td>------------------------------------------------------------------------------------------------------------</td>
<td>------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>Transition</td>
<td>15-minute break</td>
<td>Change Groups: Ask people to change their groups back to their starting group</td>
<td>Transition</td>
<td>15-minute break</td>
</tr>
<tr>
<td>Presentation</td>
<td>10 minutes</td>
<td>Presentation</td>
<td>Listen</td>
<td>Provide insight into strategies &amp; future research re: effective practice!</td>
</tr>
</tbody>
</table>
|                                  |                 | • There is an emotional barrier and stigma attached to poverty, and children are aware of it. Children must feel like they belong and are not judged. To lower anxiety:  
|                                  |                 | • Children in poverty must believe that they can learn the needed strategies.  
|                                  |                 | • Teachers must be aware that children from poor families may experience feelings of shame and self-doubt.  
<p>|                                  |                 | • Use: Carol Dweck’s growth mindset (fixed vs. growth)                                                   |                  |                                              |
| Video                            | 5 minutes       | Have everyone watch this video: <a href="http://www.youtube.com/watch?v=7bIQ4-3XsSU">http://www.youtube.com/watch?v=7bIQ4-3XsSU</a>                               | Watch, listen, &amp; reflect                  | Have teachers contemplate the qualities of effective teachers of children in poverty |
|                                  |                 | Teachers can make a difference!                                                                         | Materials Needed: | Access to internet for presentation           |
|                                  |                 | This video is about what makes a great classroom teacher. It has two basic concepts: 1) Good teachers check for understanding, re flexible, and adjust their plans if the plans are not working; 2) Good teachers have high expectations. |                  |                                              |
| Create a resource list to share amongst attendees | 5 minutes       | Tell the teachers that if they fill in a resource sheet providing their email address that you will send links to information about Carol Dweck’s mindset, research on executive functions, and research about how to teach executive functions. | Personal reflection Handout | Provide information on future directions for knowledge and teaching strategies |
|                                  |                 | <a href="https://www.google.ca/webhp?sourceid=chrome-instant&amp;ion=1&amp;espv=2&amp;ie=UTF-8#q=feldman-baruch%20executive%20functioning">https://www.google.ca/webhp?sourceid=chrome-instant&amp;ion=1&amp;espv=2&amp;ie=UTF-8#q=feldman-baruch%20executive%20functioning</a> |                  |                                              |</p>
<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
<th>Instructor Guide</th>
<th>Student Activity</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conclusion</td>
<td></td>
<td>Ask if there are any final questions and thank everyone for coming!</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Understanding the Effects of Poverty

What stops children from families that live in poverty from learning like children who have wealthy parents?
The Myths of Poverty: Myth Number 1

**MYTH:** Poor people are unmotivated and have weak work ethics.

**REALITY:** Poor working adults often have multiple jobs and spend more hours at work than their wealthier counterparts.

(Gorski, 2008)

The Myths of Poverty: Myth Number 2

**MYTH:** Poor parents are uninvolved in their children's learning, largely because they do not value education.

**REALITY:** Low-income parents hold the same attitudes about education that wealthy parents do.

- Poor parents often work multiple jobs and later shifts, cannot afford transportation, lack childcare, or cannot afford to take time off to attend school functions.
- Low SES parents may feel uncomfortable in school because of their own childhood experiences and/or because they feel judged.

(Gorski, 2008)
The Myths of Poverty: Myth Number 3

MYTH: Poor people are linguistically deficient.

REALITY: All people, regardless of the languages and language varieties they speak, use a full continuum of language registers that are equally complex.

(Gorski, 2008)

I disagree with Gorski here. There are differences in language. We will talk about them later!

The Myths of Poverty

MYTH: Poor people tend to abuse drugs and alcohol.

REALITY: Poor people are no more likely than their wealthier counterparts to abuse alcohol or drugs.

(Gorski, 2008)
The Myths of Poverty

Differences in values and behaviours among poor people are just as great as those between poor and wealthy people!

(Gorski, 2006)

Perceptions of poverty are often subject to misinterpretation and/or bias.

There Are Some Differences

- Poor people are exposed to more environmental stressors.
- They lack access to health care, living wage jobs, safe and affordable housing, and clean air and water.
- They work at suboptimal times.
- Their lives are based around their relationships.
- They experience more stress.
What Are the Top 5 Differences Between Low & High SES Children?

- Lack of exposure to enrichment experiences
- Language deficits (face-to-face interactions, number of exposures, and range of vocabulary)
- Parenting (fewer face-to-face interactions; fewer positive to negative interactions)
- Exposure to stress during childhood affects the neurocognitive development of children
- Unmediated stress continues to affect attempts to learn

Poverty Creates Stress

Parents who live in poverty have to cope with a pervasive finance-related stress that affects nearly every aspect of their lives, which then affects their interactions with their children.

(Parke et al., 2004)
Stress Affects Cognitive Development

REMEMBER: Children who come from low SES families are not all the same!

Lower SES students who have experienced less stressful lives do not have the same neurocognitive deficits as their counterparts.

Stress, not poverty, is related to neurocognitive deficits!

(Evans & Schamberg, 2006)

The Neurocognitive Deficits of Stressed Children (Slide 1)

1. Shorter working memory
2. Problems sorting relevant and non-relevant information
3. Hearing deficits re: audiology & word recognition
4. Executive control deficits
5. Encoding and retrieval problems
6. Noisy neural wave patterns

Lower SES students have neural wave-patterns that are noisier, more variable, and continually active in the absence of sound.

(Hackmann & Farrah, 2009)
The Neurocognitive Deficits of Stressed Children (Slide 2)

The neurocognitive deficits of children who have experienced unmediated stress are dramatic, yet not well understood.

We are going to try some experiments to see if we can replicate what it is like to learn with these deficits.

Experiment 1

You have 20 seconds. Remember these 9 letters:

sdrawkcab
Experiment 2

Solve the following puzzle:

You have four cards, each with a number on one side and a letter on the other side. The cards are displayed with 4, 7, E, and X showing. You wish to determine whether the following rule describes these four cards: If a card has an even number on one side, it has a vowel on the other side. Which cards need to be turned over to test the rule?

(Della Sala & Anderson, 2012)

Experiment 3

Solve the following puzzle:

A certain car repair shop services Hondas and Buicks (as has been the case in Columbia, Missouri). A recall announcement indicates that the accelerator pedals on the Hondas can stick, potentially leading to accidents and therefore warranting repair.

Four customer cards are sitting on the desk. Each one indicates the customer’s name and the brand of car on one side and, on the other side, whether or not the accelerator pedal has been checked. The four cards as placed on the desk show Honda, Buick, checked, and not checked. Which cards need to be turned over?

(Della Sala & Anderson, 2012)
Neurocognitive Deficits Need to be Addressed

The neurocognitive deficits of children in poverty have dramatic effects on their ability to learn.

Children who have experienced and who continue to experience stress have gaps in their memory.

What Can be Done?

How can you change your practice to address these deficits?

Remember

1. Shorter working memory
2. Problems sorting relevant and non-relevant information
3. Hearing deficits re: audiology & word recognition
4. Executive control deficits
5. Encoding and retrieval problems
6. Noisy neural wave patterns

(Hackmann & Farrah, 2009)
Classroom Strategies (Slide 1)

1. Make the task shorter
2. Make the steps explicit
3. Make the task close-ended instead of open-ended (e.g., fill-in-the-blanks/T/F, rather than essays; providing word banks)
4. Build in variety or choice with respect to the tasks to be done or the order in which the tasks are to be done

Classroom Strategies (Slide 2)

5. Offer bonus points for handing in homework and assignments on time instead of taking points away
6. Offer feedback and opportunities to revise writing assignments before grading them
7. Offer students choices for ways to demonstrate content knowledge
8. Offer credit for all efforts to correct work
Classroom Strategies (Slide 3)

9. Offer opportunities to retake failed tests
10. Offer multiple ways to participate in classroom activities, not just oral expression
11. Deduct no more than 5-10% of total points for minor detail errors
12. Teach note-taking, memory strategies, and study skills when necessary

Be Aware of Negative Feelings

Understand that there is no stigma nor shame attached to poverty. Children need to feel accepted and to belong.

Children will be stressed if/when they cannot learn like their peers. They feel like they can't learn.

Teach that learning is related to effort and experiences, not who the students are.

The more students try and the more they experience and engage, the more success they will have.
I began my master’s degree with the hope of understanding more about resilience so that I could be better at my job as an outreach educator in an alternative school. Indeed I have worked harder and learned more than I ever expected. My understanding about youth at risk has broadened considerably, and I have become better at what I do because of what I have learned. I have begun to understand more about the interplay of the environment on the psychosocial development of children and youth. I have learned about research into neurocognitive development and the dramatic effect this understanding can begin to play on how students learn. Understanding neurocognitive development also provides insight into the factors that inhibit learning and the children who are at risk because of their inability to learn.

Looking Back

I began thinking about making a change in my life when my father passed away in 2008. Reflecting on my father’s life made me think about who I am as a person and about what I’d like to become. With my father’s life and my own future in mind, I began to search for a master’s program where I could learn more about my work with youth at risk. I have grown up in Alberta; my education and work experience reflect my life in Western Canada. Thus I applied to attend Queen’s University with the expectation that I could get a different perspective about education in an environment that was foreign to me. When I started at Queen’s University, I began as a student in the Aboriginal World Indigenous Education Studies (AWIES) program. Although I am a treaty Indian, the
AWIES program was not a good fit for me because the program was not broad enough to cover the range of students with whom I had come to deal. My career has changed since I began at Queen’s. I was a teacher when I started in the summer of 2009 and now I am an Assistant Principal of an alternative school in Alberta. I am responsible for running a school and creating systems to help students who are at risk of not graduating. Travelling to Kingston each summer and taking classes while running an alternative school has been stressful. In the past three years, I have also run summer programs in our school system and thus the time I could commit to my master’s program has declined as my responsibilities have increased.

Moving across Canada and being immersed in a unique environment has changed me. I have worked hard. I have read, written, presented, created, and learned more in my time at Queen’s than I have learned in all my previous education and my work experiences. I have had new insights. I have broadened the depths of my knowledge and have experienced many unique understandings from the different classes I have taken. Surprisingly enough, the classes that I took that I felt were outside of the realm of what I needed to know, e.g., adult education and online learning, have been particularly useful for me.

**Moving Forward**

The knowledge I have gained during my time at Queen’s will allow me to affect change immediately in the school I run and the system in which I work through the changes I make personally, the presentations I give, and the conversations I have with administrators who have the power to change things. In the future, I would like to learn
more about neurocognition and epigenetics. I believe that understanding the biological nature of the interaction between stress and human neurocognitive development will provide insight into the limitations that must be addressed for students to learn. This knowledge may provide further ideas about how and why intergenerational poverty is passed on through mechanisms involving stress.

I have already begun to use the things I have learned about youth at risk to make changes in my work environment. I have used my understanding about how stress affects adolescents to explain how social acceptance is imperative for students and must be understood in the context of their psychosocial needs for development. Students need to feel safe, secure, and accepted before they can learn. This is especially the case for students who are contemplating dropping out because their unspoken needs inhibit their ability to learn. When teachers, schools, and school systems consider their jobs as educators as being limited to providing curricular instruction apart from understanding or attempting to nurture adolescents, they in effect set in place the conditions that further separate students who are struggling from those who are doing well. This separation causes students more stress and, in so doing, serves to disengage them from the process of learning. Schools must be mindful of social acceptance and development because, in essence, the Quiet dropouts in particular need this support. If schools acknowledge this need and begin to provide interventions and systems to support these students socially, their cognitive development will likely follow. Either way, their attachment to school and their engagement levels may well increase, thus increasing the likelihood of them graduating.
Additionally, the understanding that I have developed about neurocognition and executive functions allows me to pass on insights to my own teachers as well as others throughout the district in which I work. Neurocognitive deficits must be understood in light of neuroplasticity. Children can learn best when their teachers understand what children are experiencing when they have been and are affected by stressors in their environments.

Given the fact that stress dramatically limits a person’s ability to learn, understanding how to mediate the effects of this stress may be key to preventing students from dropping out of school. If the processes of stress are understood and mediated when students begin school, teachers can help at-risk children thrive. This approach should allow teachers to begin to address the executive function deficits that limit the ability of students who are at risk from being able to attend to, understand, encode, and retrieve what they are being taught. Conscientiousness about the true nature of the neurocognitive deficits that stem from impoverished and stressful environments can only help, because these students require differentiated instruction, enrichment, and environments that recognize their overarching need to feel secure and be socially accepted. Students who are at risk can be taught, although proper prevention and intervention systems must begin with the understanding of the nature of their struggles and how to address them.
Final Reflections

Helping students who are at risk has been a significant part of my life’s work. I have met many students and have tried to help them by imparting knowledge, care, and wisdom in the hope that their lives would be better. Learning about why students drop out has been part of my continuing efforts to become better at what I do, to affect more lives. There is a vast amount of information about why students drop out and there are many insights that could have been added to this project. It is hard to stop learning about these ideas, concepts, and strategies because each bit of information may help someone some day. There is more that can be done to prevent students from dropping out and intervene in the lives of children and youth who are seeking help. Thus I will continue to seek to understand more about children and youth who are at risk so that my efforts and interactions become more fruitful.
REFERENCES


*Neuroscience, 249*, 162–171.


