A SINGLE CASE COHORT ANALYSIS: THE VISION 180 PROGRAM
FOR ABORIGINAL CHILDREN AT RISK FOR ACADEMIC VULNERABILITY AND
MENTAL HEALTH CONCERNS

by
Natasha Alexandria Wawrykow
B.A., University of Victoria, 2010

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Abstract

Increased risks in behavioural difficulties have been found for Aboriginal children that contribute to academic vulnerability and mental health concerns. This study examined the relation between an after-school-program (i.e., Vision 180), levels of academic vulnerability (i.e., student school attendance and student tardies), and mental health concerns, in an experimental intervention study of Aboriginal elementary school children, aged 9-11. Vision 180 Program was designed to strengthen urban children’s commitment to school activities and school attendance. A withdrawal design across one cohort (N = 18) was used. The design included seven phases: baseline, intervention, withdrawal, intervention, withdrawal, intervention, and withdrawal (i.e., ABABABA design). Consistent with a withdrawal design, onset and subsequent withdrawal of the intervention was made. Withdrawal phases occurred due to natural breaks in Vision 180 programing, scheduled by the elementary school, and not by experimental manipulation. Visual and statistical analysis was used to evaluate experimental effect (i.e., decrease in desired behaviors when intervention was withdrawn and increase when re-instated). Results reveal that implementation of the intervention was associated with no statistically significant improvement in academic vulnerability for Aboriginal children in a school-based environment. The social validity of the intervention, however, was rated highly by parents indicating that parents were able to observe positive behavioural changes associated with the intervention. Inception of this project came from collaboration with a First Nations group, who identified these topics as problem areas for children in their community. Knowledge translation was upheld through collaboration between the community and this researcher.
Preface

Inception of this research topic came from collaboration between the author and a local First Nations group, who identified these topics as problem areas for children in their community.

The research design for this study was constructed from collaboration between the author, Dr. L. Miller, and Dr. J. Lucyshyn. My contribution to this research study included collaborating with the local First Nations group, design of study research questions, contacting and collaboration with the participating elementary school, data collection, data analysis, and primary writer of this master’s thesis. Ethics approval for this study was granted by the University of British Columbia: Behavioural Research Ethics Board, under certificate number: H13-03357
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Dedication

To my family
Chapter 1: Introduction

In Canada, 3.8% of the national population, or approximately one million people, self-identify as First Nations, Inuit, or Métis (Statistics Canada, 2006), of whom approximately half are children and young adults under the age of 24. These ethnic classifications comprise the three main groups of Aboriginal people in Canada. The term Aboriginal is used when collectively referring to this diverse population (Reading & Wien, 2009). However, it is important to note that this population includes 614 band nations, each of which has its own form of self-governance, culture, and language or dialect.

Substantial health disparities exist between Aboriginal and non-Aboriginal peoples. In part these disparities exist as a result of current and past colonial practices, racism, and intergenerational trauma (Kirmayer, Simpson, & Cargo, 2003). In 1844, the Bagot Commission Report stated that Canadian Aboriginal reserves were operating in a non-civilized manner. In order to achieve civility, the report suggested that Aboriginal people should be immersed in a formal British Canadian education system. This shift toward assimilation was reinforced by a confidential report, written by Nicholas Flood Davin, submitted to the Canadian Government, and known as the Davin Report (Davin, 1879, p. 9). The report recommended “aggressive civilisation.”

Haig-Brown (1998) reported that following recommendations from the Davin Report, residential schools were created for Aboriginal children, in 1982. To achieve civilization, Aboriginal children were separated from their parents, were housed away from their families, and subjected to a foreign curriculum that encouraged thinking, acting, and speaking like British Canadians. Cultural expression (e.g., language, beliefs, food, dress) was actively discouraged through severe forms of punishment. While not the expressed intent of the residential school
system, many pupils were subjected to neglect, and emotional, physical, and sexual abuse (Haig-Brown, 1988). These practices of forced assimilation contributed to the development of internalised racism in the students (Milloy, 1999).

The negative impact of the residential school system has been intergenerational (Milloy, 1999). Aboriginal people today are still affected at the community, family, and individual level by practices instituted more than a century ago (Haig-Brown, 1988; Kirmayer, Simpson, & Cargo, 2003; Milloy, 1999). At the community level, there is currently a loss of cultural identity (e.g., loss of tradition, protocol, language), which stems from a disconnection between Aboriginal people and their home community (Haig-Brown, 1988; Milloy, 1999). At the family level, neglectful and abusive parenting ideologies endure, learned first-hand through the residential school experience (Kirmayer, Simpson, & Cargo, 2003). During a 104-year-period, over 10,000 aboriginal children were exposed to the systematic and structural flaws of the residential school system (Elias, Mignone, Hall, Hong, Hart, & Sareen, 2012). The last residential school closed in 1996.

Today, at the individual level, research shows that Aboriginal people’s learning style (e.g., holistic, tactile, visual) preferences are not embraced by or responded to in schools or by mainstream society (Castagno & Brayboy, 2008). Canadian studies show that discrepancies between teaching styles and characteristic Aboriginal learning styles can contribute to decreases in academic success (Cherubini, 2010; Lea, Wegner, McRae-Williams, Chenhall, & Holmes, 2011). These various researchers have suggested that the preferred learning style of Aboriginal people places them at a disadvantage in the western-based school setting. These learning difficulties may contribute to Aboriginal children’s mental health issues (e.g., anxiety), which may further affect academic development (Hadfield, Martin, & Wooden, 1992). The incongruity
between a teacher’s instruction and a student’s manner of learning can create a problem in the school environment. Current teaching styles are considered to be non-culturally responsive for Aboriginal students because they do not emphasize the following areas: (a) holistic curriculum; (b) visual approaches; (c) hands-on activities; (d) collaborative engagement; and (e) naturalistic settings (Gay, 2000).

Studies have noted increased risks in behavioural difficulties for Aboriginal children (Gotowiec & Beiser, 1993) which contribute to: decreased academic achievement; mental health problems (Beavon, & Cooke, 2003); family violence (Fallon, Chabot, Fluke, Blackstock, MacLaurin, & Tonmyr, 2013); obesity prevalence (McShane, Smylie, & Adomako, 2009); substance abuse (Currie, & Wild, 2012); interaction with the criminal justice system (Department of Justice Canada, 2011); and suicide attempts or increased early mortality (MacNeil, 2008). These risks indicate that Aboriginal children are vulnerable to a host of deleterious outcomes (Reading & Wien, 2009).

Compared to their non-Aboriginal counterparts, Canadian Aboriginal children experience elevated rates of school difficulty (i.e., lower grades, conduct issues, and higher drop-out rates), which is referred to as academic vulnerability (Janus & Duku, 2007). Aboriginal children also display elevated rates of mental health problems (Beavon & Cooke, 2003). Generally speaking, children who demonstrate higher levels of mental health symptoms (Parker, Saklofske, Shaughnessy, Huang, Wood, & Eastabrook, 2005), are more likely to have decreased academic achievement (Rasmussen, Sherman, & Baydala, 2004), and impairments in social competence (Parker et al., 2005). Cherubini (2010) reported a predictive link between North American classroom teaching styles (i.e., oral teaching style, and non-holistic part-whole instruction) and increased self-reported mental health symptoms (e.g., anxiety) in Aboriginal children.
Anxiety disorders (AD) are currently the most commonly reported mental health problem of all children, adolescents and adults (Kessler, Berglund, Demler, Jin, Merikangas, & Walters, 2005). Research indicates that anxiety is universally found across ethnic groups and cultures (Costello, Farmer, Angold, Burns, & Erkanli, 1997). An epidemiological study, which specifically addressed anxiety disorders, suggested prevalence rates for Canadian Aboriginal children at 7.6% (Trocmé, Knoke, & Blackstock, 2004). Studies for the United States (Costello et al., 1997) have suggested prevalence rates for American Indian children, between the ages of nine and thirteen, at 5.3% for anxiety disorders. Populations with stress provoking environments, such as Aboriginal populations, are more likely to develop higher rates of anxiety symptoms (Costello et al., 2003). When childhood anxiety disorders (ADs) are untreated, significant negative consequences may follow including: decreased academic achievement, depression, family stress, substance abuse, and an increase in suicide (Öst & Treffers, 2001).

Due to the high prevalence of ADs, their early onset, and the significant effects elevated anxiety can have on a child’s life, AD reduction strategies need to be developed and identified. Data from the Western Australian Aboriginal Child Survey (Zubrick et al., 2005) suggests that of the Aboriginal young people aged four to seventeen who participated, over a quarter were at risk of experiencing significant behavioural and emotional difficulties, which may lead to decreases in academic success and increases in the presence of anxiety symptoms.

With the potential for the development of academic vulnerability, the high prevalence of anxiety symptoms in Aboriginal populations, and the negative reciprocal influence of these two conditions, this research project will investigate levels of academic vulnerability and self-reported levels of mental health concerns in Canadian Aboriginal children. The next chapters of
this study will be composed of a Literature Review (2), a description of the research methods (3), study findings (4), and a summary chapter including recommendations for future research (5).
Chapter 2: Review of the Literature

This section begins with a discussion of factors that contribute to academic vulnerability in children. This is followed by a discussion of interventions that have been successful at reducing levels of academic vulnerability in child populations. The third section will explore factors that contribute to anxiety symptoms in children, followed by a discussion of successful interventions. The fifth section summarizes literature on cultural responsiveness, and finally, an overview of the Vision 180 Program, which is a school-based program that incorporates cultural responsiveness into an after school curriculum.

Academic Vulnerability

Academic vulnerability refers to the circumstances of individuals who demonstrate increasing academic difficulties during primary school and beyond (Janus & Duku, 2007). Students labelled as academically vulnerable meet the following criteria: (a) low grades, (b) low class attendance record, (c) high tardy record, (d) high classroom disturbance record, and (e) high office discipline referral rate. This term refers to those who, without additional care and support, may experience future difficulties (Janus & Duku, 2007). Academic vulnerability has a bidirectional relationship with low academic performance (Langenkamp, 2010). This means as academic vulnerability increases, academic performance decreases, and as academic vulnerability decreases, academic performance increases.

Many factors are associated with Aboriginal children that may increase their vulnerability to academic failure (Rothman, 2009). Low socioeconomic status (SES) is rated as one of the strongest predictors of academic vulnerability for all children (Cushon, Vu, Janzen, & Muhajarine, 2011). When raised in lower economic environments, children may be exposed to higher rates of dysfunction (e.g., family violence, improper nourishment, neglect), which can
contribute to lower levels of physical, psychological, and social development (Phipps & Lethbridge, 2006; Rothman, 2009). This under-development is often detrimental to academic performance. In Canada, poverty significantly increases among ethnic minority groups, with 40% of Aboriginal children growing up in poverty compared with 20% of non-Aboriginal children (Rothman, 2009).

**School-Based Interventions for Academic Vulnerability**

Academic vulnerability is being targeted by school-based interventions in several ways with a view to increase academic success in children. Examples include: (a) incorporation of social and emotional learning programs (Collaborative for Academic, Social, and Emotional Learning, 2005); (b) emphasis on development of school engagement (Finn & Rock, 1997); and (c) adherence to culturally responsive practices (Castagno, & Brayboy, 2008). Social and emotional learning (SEL) refers to the process of acquiring the necessary skills to recognize and handle emotions, plan and achieve positive goals, understand the perspective of others, create and sustain positive relationships, make thoughtful decisions, and manage interpersonal conflicts constructively (Collaborative for Academic, Social, and Emotional Learning, 2005). A meta-analysis by Durlak et al. (2011) reviewed school-based SEL programs and found that compared to control groups, participants in SEL programs demonstrated significant improvement in social and emotional skills, academic performance, and lower levels of emotional distress and problem behaviors.

School engagement, one aspect of school-based interventions for academic vulnerability, is comprised of three subcomponents: (a) behavioural engagement (i.e., involvement in academic, extracurricular, and social activities), (b) emotional engagement (i.e., emotional connectedness to classmates, teachers, school, and academics, which impact a student’s
willingness to engage in class work), and (c) cognitive engagement (i.e., mental investment required to comprehend abstract tasks and obtain required completion skills) (Fredricks, Blumenfeld, & Paris, 2004). Research has found that a lack of school engagement can be associated with a decrease in academic achievement and motivation.

Cultural responsiveness, another aspect of school-based interventions for academic vulnerability, includes consideration and incorporation of the beliefs, values, and learning styles of the knowledge receivers (i.e., classroom students; Gay, 2000). Research has found that lack of culturally responsiveness can be associated with a decrease in academic achievement and motivation.

An example of a school-based intervention that fosters development in the three target areas (i.e., SEL, school engagement, and cultural responsiveness) for increasing academic success is Positive Youth Development (PYD; Eccles & Gootman, 2002) programs. PYD is a philosophy rooted in developmental systems theory and refers to a broad range of youth development programs, as opposed to one unified program. PYD believes positive outcomes (i.e., academic success and healthy lifestyle) can be enabled by social contexts that offer opportunities and resources for achievement and self-determination (Damon, 2004; Holt, 2008). As opposed to focusing on specific deficits (e.g., self-control), PYD programs are designed to foster holistic abilities such as pro-social behaviour, competence, and self-esteem (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2004). Studies have found that PYD programs have success with low-income populations, groups who tend to have limited social and material resources, people with limited access to physical activity, children with greater academic vulnerability, and populations associated with higher rates of physical, mental, and greater health problems (e.g., obesity, anxiety, and autoimmune respectively) (Yang, Lynch, Schulenberg, Diez
PYD programs that incorporate physical activity have been found to foster the development of social relationships because sports involve social and emotional interaction (Hellison, 2000). PYD programs provide an environment for teambuilding, leadership, cooperation, and conflict resolution. As a result, social responsibility is both a goal and product of PYD programs. Social responsibility is an attitude that individuals hold toward the rights of others, which includes avoiding destructive and violent behaviors. After-school programs are optimal environments for PYD type programs, especially when they incorporate a culturally appropriate framework (Hishinuma, et al., 2009). Few school-based studies of academic vulnerability reduction have been conducted with Aboriginal students, and as a result, there is very little known about Aboriginal children’s performance in PYD programs within a school-based setting (Catalano, et al., 2004).

**After-school programs.** After-school programs can be used to address children’s well-being and health (e.g., educational achievement, physical health, emotional development) (Hishinuma et al., 2009). Unstructured, out-of-school free time can contribute to greater exposure to dangerous environments, such as participation in gangs and engaging in substance use (Shernoff & Vandell, 2007). Research on after-school programs which focus on influencing academic vulnerability in children, collect data across many subject areas including: school readiness, social skills, academic achievement, school attendance, nutrition and physical health, and perception regarding school (Bandy, Moore, & Child, 2011). Research within each subject area is expanded upon in the following sub-sections.

**School readiness.** School readiness refers to aptitude of school-entry academic, socio-emotional, and attention skills (Duncan, et al., 2007). Research on intervention programs for school readiness in children found two elements to be effective in increasing school readiness
levels in children (Campbell & Ramey, 1994; Muennig, Schweinhart, Montie, & Neidell, 2009): high-dosage programs (i.e., attend the program for a minimum for 4 months and meet 2 or more times per week), and supervised instruction.

Studies suggest Aboriginal children are an at-risk group for adverse developmental outcomes due to low school readiness levels (Kershaw et al., 2007). A study by Lloyd (2006) analysed the Early Development Instrument (EDI), a measure for school readiness in children living in British Columbia. Analysis revealed approximately 40% of Aboriginal students received a low score on at least one of the five EDI domains (social competence, emotional maturity, physical health and well-being, language and cognitive development, and communication skills and general knowledge). Low scores were most often found for communication skills and general knowledge, and language and cognitive development.

**Social skills.** Social skills refer to behaviours that contribute to positive social outcomes (Gresham, & Elliott, 1987). In the school environment, social outcomes include peer acceptance, judgment of social skills from significant others, and academic achievement. Research on social intervention programs for social skills in children found two elements to be effective in increasing social skill levels (Bierman et al., 2013; Villares, Brigman, & Peluso, 2008): multifaceted programs (i.e., academic skills training along with social skills training), and high-dosage programs.

**Academic achievement.** Academic achievement refers to proficiency in skills related to reading, writing, mathematics, science, and social studies (Fan & Chen, 2001). Research on intervention programs for academic achievement in children found two elements to be effective in increasing academic achievement levels (Posner & Vandell, 1994): formal after-school programs (i.e., academic and enriched activities), and social interaction (i.e., structured activities
with peers and adults). Research by Jenner and Jenner (2007) found that intensity of attendance to an after-school program was positively correlated with academic achievement.

**School attendance.** School attendance refers to the number of days that a student attends school (Reisner, White, Russell, & Birmingham, 2004). Research on intervention programs for school attendance in children found five elements to be effective in increasing school attendance levels: high-dosage programs focused on cognitive and academic development; activities focusing on sports, fitness, and recreation; a program coordinator with a teaching license; requirement that after-school instructors submit activity plans to the program coordinator; and a minimum of 25% of program staff holds a four-year college degree. Based on these findings, effective after-school programs are organized and staffed to promote academic learning through interdisciplinary activities that engage students in ways that are different from the way students are engaged during the school day.

**Nutrition and physical health.** Nutrition and physical health refer to dietary and exercise habits of the individual (Fitzgibbon et al., 2011). Research on a social intervention program for nutrition and physical health in children found three elements to be effective in increasing levels of health and nutrition: providing children with health and nutritional information; providing families with health and nutritional information; and incorporating physical exercise in school programming.

**Perceptions regarding school.** Perception regarding school refers to the mental opinion a student has of his or her school, teachers, and classmates (Rodney, Johnson, & Srivastava, 2005). Research on social intervention programs for school perception in children found two elements to be effective in increasing school perception levels: personal development activities (i.e., learning to solve problems, developing negotiation skills, and working on interpersonal
aggression); and family and community bonding activities (i.e., team building, mentoring, and stress-management coping skills). Children who participated in this program were less likely to be involved in abusive or violent behaviors, and more likely to score highly on three factors in the School Bonding Index-Revised (SBI-R; Rodney, Johnson, & Srivastava, 2005): school involvement, school pride, and school experience.

The variables listed above have been thematically grouped across studies assessing educational success; three broad themes associated with program success are: (a) high-dosage programs, which meet on a regular basis, (b) programs with built-in family involvement, and (c) programs that develop partnerships between the school and community. One additional variable related to student success in school that is not addressed above are mental health needs of children. More recently studies have focused on mental health evaluations of children in naturalistic settings such as schools.

**Anxiety in Children**

Anxiety disorders, a prevalent mental health problem, are characterized by excessive stress or worry which limit an individual’s daily functioning (Kendall, et al., 2010). Of the described 7 anxiety disorders (American Psychiatric Association, 2013), the most common types of anxiety disorders (ADs) in children are generalized anxiety disorder (GAD), separation anxiety disorder (SAD), and social phobia (SoP) (Merikangas, et al., 2010). GAD is characterized by severe distress presented in numerous areas (e.g., academic or family problems) (Kendall, et al., 2010). SAD is characterized by the occurrence of disproportionate distress when separated from a primary care giver (Merikangas, et al., 2010). SoP is characterized by the occurrence of deliberate and persistent distress when in a social situation or performance evaluation environment.
Anxiety, fear, and worry are significantly prevalent during childhood (Muris, Merckelbach, Gadet, & Moulaert, 2000). These symptoms cause distress that can lead to interferences with day-to-day functioning. Anxiety problems in childhood are usually chronic and associated with the development of psychopathological sequelae (Bittner, Egger, Erkanli, Costello, Foley, & Angold, 2007).

**School-Based Interventions for Anxiety**

The vast majority of childhood anxiety research has targeted individual cognitive behavioural treatments, which are delivered in a clinical setting to individuals (In-Albon, & Schneider, 2007). The consequences of ADs place a sizable financial burden on health care systems (Meltzer, Gatward, Goodman, & Ford, 2000). As a result, anxiety treatment programs have become a critical area for research. In this environment, cognitive behavioural therapy (CBT) has been shown to be the most effective form of treatment. However, when CBT interventions for anxiety are transferred into a school-based setting, support for the effectiveness of CBT is mixed (Miller, Short, Garland, & Clark, 2010).

A systematic review by Neil and Christensen (2009) investigated the effectiveness of anxiety prevention and intervention programs for children and adolescents within a school-based setting. Results indicated that many selective (i.e., targeting participants at risk of developing the disorder), indicated (i.e., comprising participants with mild symptoms of the disorder), and universal programs (i.e., for all participants regardless of symptom presence) were effective at reducing anxiety symptoms in children and adolescents. Symptom reduction across program type did not seem to depend on intervention type (e.g., cognitive behaviour therapy), or type of program instructor (e.g., teacher). Neil and Christensen believe anxiety programs are suited for school-based environments because the classroom teacher can implement the programs and thus
reduce symptoms in the classroom. Additionally, the incorporation of a concurrent parent program and booster sessions (i.e., allowing for refinement of skills taught in intervention) may increase the effectiveness of school-based anxiety reduction programs. Although firm conclusions cannot be drawn on the effectiveness of anxiety programs in school settings (Masia, Klein, Storch, & Corda, 2001; Rose, Miller, & Martinez, 2009; Shochet, Dadds, Holland, Whitefield, Harnett, & Osgarby, 2001), four factors have been identified within the school-based environment, which may support anxiety reduction programs in the future (Miller, Short, Garland, & Clark, 2010). First, classroom teachers have the ability to engage in early anxiety intervention. Since they monitor students on a day-to-day basis, teachers may have an advantage over other health providers (e.g., school counsellor) in recognizing anxiety. Second, as teachers monitor students’ day-to-day progress, they can provide opportunities to practice and strengthen anxiety reduction skills depending on the child’s individual progress. Third, the school setting is a natural environment for the child; therefore this environment would provide a setting that is optimal for meaningful change. Finally, by having interventions in a school setting, children will have direct access to peer support.

Few school-based studies of anxiety symptom reduction have been conducted with Aboriginal students. One published study by Miller et al. (2011) found that exposure to a culturally enhanced cognitive behavioural program (i.e., FRIENDS) did not effectively reduce anxiety levels for Aboriginal children. Students did however consistently self-report a decrease in anxiety feelings during the 6-month intervention phase. As a result, there is very little known about Aboriginal children’s performance in SEL programs within a school-based setting (Miller, et al., 2011).
Cultural Responsiveness

Cultural responsiveness refers to the ability to recognize, respect, and incorporate elements of another person’s culture in order to create an optimal learning environment (Gay, 2000). Cultural responsiveness is being addressed in schools through pedagogical techniques and curricular materials (Castagno & Brayboy, 2008). An example of a pedagogical technique includes construction of a visual learning environment for students in the classroom. Visual learning environments can be achieved through the incorporation of more visual art activities in the curriculum such as learning activities which allow students to observe and use tools such as graphic design, 3-D models (e.g., diorama, carving, sculpting), and videos (Cleary & Peacock, 1997; Gilliland, 1995). An example of cultural responsiveness in curricular material is one with a greater emphasis on learning about nature through observation (i.e., outdoor fieldtrip, listening to an Aboriginal medicine person, or hands-on science activity). Cultural responsiveness towards Aboriginal children is addressed when classroom activities incorporate the following learning style preferences: holistic; visual; whole-to-part; hands-on/direct experience; collaborative; naturalistic; observation precedes performance; and reflective (Hilberg & Tharp, 2002; More, 1994; Sparks, 2000).

Research principles. Research involving Aboriginal participants requires particular consideration to Aboriginal principles of ethical research and practice (Kirkness & Barnhardt, 1991). To begin to engage and understand Aboriginal research ethics the following principles need to be adhered to: (a) reciprocity, (b) relevance, (c) respect, and (d) responsibility. Reciprocity is upheld through a two-way exchange of learning and research knowledge. Both the Aboriginal community and academia benefit from effective research relationships and ethical training. Relevance is achieved when culture and community needs are the catalyst for research.
This ensures the success of Aboriginal health research and training. Respect is fostered when Aboriginal Peoples' diverse knowledge of health matters and health science is valued. Responsibility, a necessary requirement for empowerment, is maintained when active and rigorous engagement and participation is sought from the Aboriginal community.

**Culturally competent intervention.** Research on culturally competent health interventions for Aboriginal People supports models that integrate holistic concepts of health (Greenwood, & Leeuw, 2012). This model differs from a biomedical model of health because an integrative approach focuses on the social determinants (e.g., culture, education, socioeconomic status, employment, and housing) of health. This is an advantageous model because it looks beyond health symptom presence and analyses social factors holistically to address health concerns in relation to their originating sources (Le Bon & Boddy, 2010).

**Learning styles.** Learning style is the approach one uses to acquire skills, knowledge, and understanding. For example, learning styles can include the incorporation of visual elements, auditory reinforcement, or movement into a child’s learning routine to strengthen acquisition of skills, knowledge, and understanding (Hodgson-Smith, 2000). Researchers have found that when learning style preference corresponds with the method of classroom instruction, children display higher levels of academic success (Brown, 2003) and lower levels of mental health problems (Hodgson-Smith, 2000). However, a note of caution is required as the majority of studies analysing the link between learning style and teaching methods have relied on anecdotal information (McDowell Group, 2001) as opposed to empirical data. Thus, ideas about learning style have not been confirmed by research studies.

**Aboriginal learning style.** Research on an Aboriginal learning style indicates three main learning style preferences: holistic (Browne, & Bordeaux, 1991; Irvine, & Darlene, 1995;
Moore, 1993; Nuby, & Oxford, 1997; Nuby, Ehle, & Thrower, 2001; Robinson-Zanartu, 1996; Stairs, 1994), visual (Bates, 1997; Kearins, 1981; Lipinski, 1989, 1990; Peacock & Cleary, 1997; Wilcox, 1996), and kinesthetic (Lea et al., 2011; Swisher, & Pavel, 1994). Whole-to-part comprehension of the world starts with the “whole” picture; other relationships are established in relation to this “whole”. For example, when creating a story, the overall plot of the story would be described first, followed by details for each character. Individuals who use a holistic learning style conceptualize and analyse ideas and problems in a whole-to-part manner (Browne, & Bordeaux, 1991; Irvine, & Darlene, 1995; Moore, 1993; Nuby, Ehle, & Thrower, 2001; Wawrykow, 2010). Individuals who use a visual learning style benefit from learning with the incorporation of visual aids, such as pictures, graphs, and charts. Individuals who use a kinesthetic learning style benefit from learning through movement, such as hands-on activities.

Vision 180 Program

The Vision 180 Program (D. Taylor, personal communication, 2013) is a school-based after-school-program, designed to strengthen student school attendance. It offers school-based, after-school extra-curricular programming to Greater Vancouver (GV) inner-city children in grades three to seven. The program is provided to students from marginalized communities including children from urban Aboriginal households, single parent households, and English Language Learner (ELL) households.

The Vision 180 Program consists of nine specific sub-programs: (a) performing art; (b) visual arts; (c) sports; (d) computer instruction; (e) leadership/mentoring; (f) music; (g) environmental studies; (h) science; and (i) nutrition. The Vision 180 Program was created in response to the lack of access to after-school programming for children in the inner-city environment. Because of the geographical location of the target elementary school, students are
isolated from community centres and neighbourhood houses, which would normally provide low-cost extracurricular activities. Specific sub-programs were created in response to identified needs of children in the inner-city environment such as: (a) long term health and well-being (e.g., nutrition, science, sports), (b) inaccessible resources (e.g., computer instruction, music, performing arts, visual arts), and (c) positive environment within the school and community (e.g., environmental studies and leadership).

At the beginning of the school year, children select which sub-programs they want to participate in after each school day, from September to June. Students have the flexibility to participate in the same or a different activity, or club, each day of the week. During the school year, children are allowed to change their club selection if they did not enjoy the club’s activities.

The Vision 180 afterschool programming has five phases: (a) sign-in; (b) announcements and snack break; (c) outdoor physical activity; (d) club time; and (e) home time. During the sign-in phase, students assemble in the school cafeteria (or other large school venue) and sign-in at the check-in desk for their designated club. During the announcements and snack break, general announcements are given to all the students while they engage in an afterschool snack break. During the outdoor physical activity phase, students are given a time to play outdoors before their club program begun. During the club time, students are led by their instructors to their designated club area within the school and given the objective for their daily club activity. During the home time phase, students are led by their instructors to the school cafeteria, where they remain until they are signed-out by their parent or legal guardian.

The Vision 180 Program, while not specifically targeting the mental health needs of children, is composed of program elements that may influence the overall mental health of children. However, the Vision 180 Program may affect levels of mental health concerns because
it offers two of the three factors identified in other PYD programs: (a) incorporation of social and emotional learning programs; and (b) emphasis on development of school engagement. Vision 180 incorporates the following culturally responsive features in their sub-programs: visual, hands-on and direct experience, collaborative, observation precedes performance; reflective, and explains program activities in a whole-to-part (i.e., holistic) manner.

The Vision 180 Program is an after-school care program, which has not been modified to incorporate culturally responsive features of Aboriginal people, such as cultural identity or cultural awareness. Vision 180 programming does however cater to the following Aboriginal learning style preferences: (a) visual (e.g., performing and visual arts); (b) hands-on (e.g., sports and computer instruction); (c) collaborative (e.g., leadership/mentoring and music); and (d) naturalistic (e.g., environmental studies, science, nutrition). Although the program includes these Aboriginal learning style preferences, it is not considered to be nor does it claim to be a culturally competent intervention.

**Research Questions**

The purpose of this study was to evaluate the effectiveness and social validity of the Vision 180 Program, and to evaluate its influence on academic vulnerability and mental health concerns in Aboriginal children in a school-based environment. This study addressed the following questions:

1) Is there a functional relation between implementation of the Vision 180 Program and increases in attendance rates for Aboriginal children in a school-based environment?

2) Is there a functional relation between implementation of the Vision 180 Program and decreases in tardiness rates for Aboriginal children in a school-based environment?
3) Is there a functional relation between implementation of the Vision 180 Program and decreases in anxiety levels for Aboriginal children in a school-based environment?

4) Is there a functional relation between implementation of the Vision 180 Program and increases in prosocial behavior rates for Aboriginal children in a school-based environment?

5) How do participating teachers and parents rate the social validity of the Vision 180 Program?

This chapter has provided a brief review of the literature on factors that contribute to: academic vulnerability in children, interventions that have been successful at reducing levels of academic vulnerability in child populations, anxiety symptoms in children, and interventions that have been successful at reducing levels of anxiety symptoms. The needs for culturally tailored therapy, and examples of culturally competent intervention were also covered in this chapter. Finally, the research questions that guided this study were elucidated.

The next chapter will describe the method used in this study. It will begin with a description of the study participants, including the recruitment strategy, description of participants, and overview of ethical considerations adhered to for working with this population. The next section discusses the research setting, followed by a description of the measurements used. The last section will explore the research design, followed by a description of the research procedure used.
Chapter 3: Method

This chapter will begin with a description of the study participants, including the recruitment strategy, description of participants, and overview of ethical considerations adhered to for working with this population. The next section discusses the research setting, followed by a description of the measurements used. The last section will explore the research design, followed by a description of the research procedure used.

The Vision 180 Program, an after-school-program designed to mitigate academic vulnerabilities of Aboriginal children, was evaluated over a nine-month period, September - June, using a single case withdrawal research design.

Participants

Participant recruitment. Access to the research sample was obtained in collaboration with the Aboriginal Education Learning Services within a large, urban school Board of Education. Recruitment was also facilitated by research agreements between the University and the School District. One school was recruited for this study. The school was scheduled to teach the Vision 180 Program for students in grade four and five during the 2013-2014 academic year. The Vision 180 Program was a voluntary curriculum offered to all students enrolled in the elementary school. Ethics approval was received from University Ethics Board and the school district research review panel. A school package addressing the purpose of the study and study requirements for participation was sent to the school principal. School package (see Appendix A) information included: (a) consent forms for parents (see Appendix B) and teachers (see Appendix C); and (b) a brief description of potential benefits from the study’s results (i.e., empirical evidence of the effects of the Vision 180 Program on academic vulnerability and mental health concerns). After the school principal and Vision 180 teachers provided their
informed consent for study participation, all grade four and five classrooms (n = 2) within the selected elementary school were invited to participate in the study by the school principal. The classroom teachers distributed consent forms to all parents of children enrolled in their classroom. All children in the selected classrooms were offered to participate in the study (n = 41). Teachers provided information on children who met the inclusion (n= 40) or exclusion (n = 1) criteria, and study participates were selected based on this information (N = 18; males = 9, and females = 9). A meeting then was arranged to: (a) answer any additional questions teachers had about the study; (b) arrange for collection of parental consent; and (c) discuss procedures for collecting data.

Teachers (n = 2; males = 2) who agreed to participate in the study signed a teacher participation consent form. The teacher participants met the following inclusion criteria: (a) was the grade 4 or 5 teacher for a child in the study, (b) had given consent to participate in the study, and (c) had committed to completing the social validity questionnaire at 3 points throughout the study. Informed consent from parents and child informed assent (see Appendix D) also was required for child participation in the study. Arrangements were made with the classroom teacher to have parental consent forms collected prior to intervention. Students for whom parental consent was not obtained, or who did not provide their assent, did not participate in the study. Parents (n = 18) who agreed to participate in the study signed a parent informed consent form and committed to completing the social validity questionnaire at 3 points throughout the study.

Participants. Eighteen Aboriginal children in grades four and five participated in the study. The participants met the following inclusion criteria: (a) children were enrolled at the selected elementary school, (b) children were between the ages of nine and eleven, (c) children
were of Aboriginal heritage, and (d) children had obtained parental consent to participate in the study. Children ages nine to eleven were selected because this is perceived to be an opportune developmental stage to improve health and cognitive development (Eccles, Lord, Roeser, Barber, & Jozefowicz, 1997). The elementary school that study participants attended was selected because it is the only elementary school in the geographic area that was implementing the Vision 180 Program. The exclusion criteria for the study include the following: (a) children with a disability that may have precluded participation in all assessment activities, and (b) children who were not able to comprehend English at a grade four level.

One male adult Vision 180 Program staff of 10 staff also participated in the study. The participant met the following inclusion criteria: (a) was an instructor for the Vision 180 Program sub-programs, or clubs, (b) had given consent to participate in the study, and (c) had committed to completing the social validity questionnaire at 3 points throughout the study.

Ten parents (n = 10, all female) participated in the study. The participants met the following inclusion criteria: (a) were a legal guardian of one of the children in the study, (b) had given consent to participate in the study, and (c) had committed to completing the social validity questionnaire at 3 points throughout the study. Eighteen parents had originally committed to participating in the study, and completing the social validity questionnaires. However, when questionnaires were sent home and returned to the classroom teacher, only ten parents returned social validity questionnaires. The eight parents who did not complete the social validity questionnaires were removed from the parent study sample.

**Ethical considerations.** There are a number of ethical issues pertinent to the recruitment of participants of Aboriginal heritage that had to be taken into consideration (Castellano, 2004). Conducting research with Aboriginal populations demanded attention to cultural norms for
consent procedures, data collection, and the dissemination of results. When a researcher wishes to conduct research with an Aboriginal population, it is essential to first develop a relationship with that community. The main Aboriginal community located in this urban area is the Musqueam First Nation. In preparation for this thesis, I completed a three month community internship with the Musqueam First Nation’s Health Department in order to: (a) get to know their culture, (b) develop a working relationship with their Elders, and (c) volunteer my time in a community project. When researchers wish to work with an Aboriginal community, it is important to first give to the community before asking them to participate in research (C. Paul, personal communication, June 25, 2013). Academic research goals should not be the drive of an Aboriginal research project; instead, community driven initiatives should be employed (C. Paul, personal communication, June 25, 2013). After developing ties with this community, educational staff from the Musqueam First Nations Band offered assistance and support for this research project. Although the research project took place off reserve, Aboriginal protocol required verbal approval from the resident First Nations community. Verbal approval from the Musqueam First Nation Health Department was given for this project (C. Paul, personal communication, June 25, 2013).

**Setting**

The Vision 180 Program was implemented in classrooms at the elementary school during after school hours from 3:30 p.m. to 6:00 p.m. every school day, from September to June, with the exception of three one-week Vision 180 Program breaks. The first and second program break occurred during the first week back-to-school from two major school breaks (i.e., winter and spring). The last program break occurred during the final week of school (i.e., June).
Assessment of children’s levels of academic vulnerability and mental health concerns took place in the classroom at the elementary school during school hours.

**Measurement**

This study evaluated two constructs: first, academic vulnerability, which consisted of two dependent variables, student school attendance and student tardies. Second, mental health concerns were evaluated, which consisted of one dependent variable evaluated by two separate measures. The study used multiple measurement procedures (i.e., self-report and teacher-report) to monitor the dependent variables and evaluate change in study participants. A definition of each dependent variable and the procedures that were used to measure each dependent variable is described below.

**Academic vulnerability.** Each of the eighteen participants was tracked during the school year to record two academic vulnerability dependent variables, student school attendance and student tardiness, during the study (i.e., September to June). These data were collected by the two participating classroom teachers, and took between 3 to 5 minutes to gather each school day. Attendance and tardiness within the after-school Vision 180 Program was not collected.

**Student school attendance.** School attendance was defined as the act of attending class (i.e., present, or not present). School attendance data were collected daily, once in the morning and afternoon, by the classroom teacher and given to the student researcher once a week in an excel spreadsheet format. School attendance was scored nominally for each day (i.e., 1 = attended school for the full day, or 2 = did not attend school for the full day). These data were gathered each school day from September to June. The unit of measurement was the total number of students participating in the study that attended school each day. This was calculated by the count of the number of students attending school each day.
**Student tardies.** Tardy was defined as the act of arriving late to class (i.e., late, or not late). Tardy record data were collected daily by the classroom teacher, once in the morning and once in the afternoon, and given to the researcher once a week in an excel spreadsheet format. These data were gathered each school day from September to June. The unit of measurement was the percentage of tardies across all students participating in the study per school day, taking into account morning and afternoon tardies. This was calculated by counting the number of tardies in the morning and in the afternoon divided by the number of students in attendance during the morning (i.e., 18) and during the afternoon (i.e., 18). Tardies were scored as a percentage of tardies for each day that a student was in attendance (i.e., present at school for the day).

**Mental health concerns.** Each of the classroom teachers scheduled three 60-minute sessions for students to fill out two mental health measures during the intervention phases (i.e., March, April, and May). Completing the measures took between 30 to 60 minutes including distribution, instructions, reading the measures aloud, and measure collection. These measures were administered only during the second and third intervention phases of this study because ethics approval did not occur until January of the school year; however, the academic vulnerability variables (i.e., attendance and tardies) were available to gather retrospectively back to September of the school year for the baseline, intervention, and withdrawal phases.

The two mental health measures were: (a) Multidimensional Anxiety Scale for Children (MASC; March, 1997); and (b) the Strength and Difficulties Questionnaire (SDQ; Goodman, 1997). These standardized measures were used to examine the following mental health areas: (a) anxiety, (b) emotional symptoms, (c) conduct problems, (d) hyperactivity/inattention, (e) peer relationship problems, and (f) prosocial behaviour. Anxiety symptoms were defined as the
presence of excessive stress or worry (Mychailyszyn et al., 2011). Emotional symptoms were defined as the presence of headaches, stomach aches, worry, unhappiness, crying, nervousness, loss of confidence, or fear (Goodman, Meltzer, & Bailey, 1998). Conduct problems were defined as the presence of anger, loss of temper, fighting, difficulty following direction, lying, cheating, stealing, or manipulation of others. Hyperactivity/inattention were defined as the presence of restlessness, fidgeting/squirming, or concentration difficulties. Peer relationship problems were defined as the presence of preference for isolated play, limited number of acquaintances, limited peer acceptance from same-age counterparts, bullying from same-age or younger peers, or preference to interact with adults versus same-age peers. Prosocial behaviour was defined as the presence of attention to others’ feelings, sharing, helpfulness, caring, altruism, or kindness to younger peers.

**Multidimensional Anxiety Scale.** The Multidimensional Anxiety Scale for Children (MASC; March, 1997) was used to monitor anxiety symptoms for the dependent variable of mental health concerns. The MASC is a 39-item self-report instrument designed to assess a wide range of common anxiety symptoms in children ages eight to nineteen. This measure has four scales (i.e., physical symptoms, harm avoidance, social anxiety, and separation/panic), two major indexes (i.e., anxiety disorder and inconsistency of responding), and an overall scale of total anxiety. To reduce irregular responding, all items are written in a positive direction. The MASC can either be administered individually or in a group format. The reading level required for the MASC is reported to reflect a grade four reading level. The MASC is often used to obtain a profile of a child’s current level of anxiety. To evaluate anxiety levels the MASC-Overall scale of total anxiety was examined.
MASC-Overall scale. The MASC-Overall scale calculates an encompassing score for the four MASC scales (i.e., physical symptoms, harm avoidance, social anxiety, and separation/panic). The Physical Symptoms Scale measures tense and somatic symptoms associated with anxiety (March, 1997). The Harm Avoidance Scale measures perfectionism and anxious coping symptoms associated with anxiety. The Social Anxiety Scale measures humiliation fears and performance fears associated with anxiety. The Separation/Panic Scale measures panic behaviors associated with separation. Administration of the entire MASC takes approximately 15 minutes. Item responses are in a four-point, Likert-type response format, never true about me = 0; rarely true about me = 1; sometimes true about me = 2; and often true about me = 3. A raw score is generated from each participant’s response, which is converted into a T-score and percentile rank for comparison between participants.

Reliability for the MASC, for children aged 8-11, is moderate to high, with substantial coefficient alpha for all scales, with values ranging from 0.51 - 0.88 (March, Parker, Sullivan, Stallings, & Conners, 1997). Test-retest reliability for children ranged from 0.70 - 0.93. Measures of reliability were reported to be higher for adolescents. This difference was attributed to the fact that adolescents have a higher capacity for responding to questionnaires than children. The test-retest reliability calculated for this study was low to moderate, coefficients ranged from r = .45 to r = .81 for males, and r = .43 to r = .86 for females.

Validity was established for the MASC by examining its: (a) internal structure, and (b) relationship with other instruments. Through factor analysis, four underlying factors were identified: physical symptoms, harm avoidance, social anxiety, and separation/panic. Correlation between these subscales is high. Comparison of the MASC to other instruments such as the Revised Children’s Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978) and
Children’s Depression Scale (CDI-S; Kovacs, 1992) provided evidence of construct validity. Correlation between instruments was moderate to high. The MASC correlated (i.e., physical symptoms- \( r = 0.71 \); social anxiety scale- \( r= 0.55 \)) highly with the RCMAS for children. To determine sensitivity of the MASC, evidence of discriminant validity was found through group separation (March, 1997). A sample of children who met the criteria for an anxiety disorder and who did not meet the criteria for an anxiety disorder were studied. Results indicated that children who met criteria for an anxiety disorder diagnosis scored differently on the various scales, with expected elevations on corresponding scales, given the clinical diagnosis. Reported differences were statistically significant, with corresponding effect sizes ranging from medium to large, indicating the ability to distinguish between groups. The MASC is valuable in the present research project because it robustly assesses anxiety symptoms.

In this study, the unit of measurement for anxiety symptoms was the average MASC-Overall score (i.e., T-score) across the 18 participants. These scores range from 40 to 70 with a normative range of 40 to 59, and an elevated to very elevated range from 65 to 70+. The average MASC-Overall score was calculated for the 18 participants by taking the sum of each participants score and dividing by 18.

**Strengths and Difficulties Questionnaire.** The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997; see Appendix F) was used to monitor general mental health. The SDQ has been found to discriminate well between children with and without psychopathological symptoms, and has been found to be effective in screening child psychiatric disorders in community samples (Goodman, 1999). The SDQ is a 25-item scale that covers personal strengths (i.e., prosocial behaviour) and difficulty areas for contemporary youth (i.e., emotional symptoms, conduct problems, hyperactivity/inattention, and peer problems). The measure exists
in three versions (i.e., parent report, teacher report, and child self-report) to allow for a well-rounded assessment of the child. These measures have reliable psychometric properties, with satisfactory scores for internal consistency and test–retest stability (Goodman, 1999, 2001). Only the child self-report version was used in this study. Administration of the SDQ takes approximately 15 minutes. Items have a three-point Likert-type scale for responding (i.e., not true = 0; somewhat true = 1; certainly true = 2). A total raw score is generated by summing a participant’s responses across all items and sub-scales.

Reliability for the SDQ, for children aged 11-16, is moderate to high, with substantial coefficient alpha for all scales, with values ranging from 0.61 - 0.82 (Goodman, Meltzer, & Bailey, 1998). SDQ demonstrated an internal consistency score of 0.76, and test-retest reliability score of 0.62 (Goodman, & Scott, 1999). The test-retest reliability calculated for this study was low to moderate, coefficients ranged from $r = .53$ to $r = .82$.

Validity was established for the SDQ by examining its: (a) internal structure, and (b) relationship with other instruments (Goodman, 2001). Through factor analysis, five underlying factors were identified: emotional symptoms, conduct problems, hyperactivity-inattention, peer problems, and prosocial behaviour. Correlations between these subscales are high. Validity was further established through a high degree of association between independent DSM-IV disorders diagnosis, by psychologists, and high scores on the SDQ (i.e., correlation between symptom presence diagnosis and identification of symptom presence on questionnaire). Correlations among parent, teacher, and self-report SDQ scores are moderate. Comparison of the SDQ to other instruments such as the Child Behaviour Checklist (CBCL, Achenbach, 1991) and Rutter Questionnaire (Elander, & Rutter, 1996), were moderate to high, which provided evidence of construct validity.
In this study, the unit of measurement for the prosocial behaviour sub-scale of the SDQ was the average sub-scale score across the 18 participants. These scores range from 0 to 10. The normed average score on the prosocial behaviour sub-scale for children between the ages of 8 to 10 is 8.8 with a standard deviation of 1.7. Thus, children with a score of 7.1 fall one standard deviation below the normative mean score, and children with a score of 5.4 fall two standard deviations below the normative mean score. The average SDQ-Prosocial Behaviour score was calculated for the 18 participants by taking the sum of each participants score and dividing by 18.

**Social validity.** Social validity is defined as the extent to which the goal, procedures, and outcomes of an intervention are viewed by key stakeholders (e.g., teachers, parents, students) as important, acceptable, and viable (Schwartz & Baer, 1991). A 12-item social validity instrument comprised of eight 5-point Likert-type scale (i.e., 1= disagree; 5= agree) items and four semi-structured, open-ended questions (see Appendix E) was developed with the intention to administer the instrument with both participating teachers and parents. During the study, however teachers reported that they did not have enough information about the Vision 180 Program to complete the social validity questionnaires. Therefore, the social validity questionnaire was only administered to parents.

Parents (n = 18) who consented to child and parental participation in the study were contacted at three times during the intervention phases of the study to complete the social validity questionnaire. Each time parents were contacted, they were asked to complete the social validity questionnaire. Arrangements were made with the classroom teacher to distribute social validity questionnaires to the parents. Parents were given two weeks to complete and return the questionnaire. Arrangements also were made with the classroom teacher to collect the questionnaires from the parents. During each of the three administrations, the same ten parents
responded by completing and submitting the questionnaires. Thus, social validity data were limited to the responses of these 10 parents. Across the eight, 5-point Likert-type scale items, data were summarized for each parent in the form of an individual average rating of social validity. These individual averages were then summed and divided by 10 to generate an overall average social validity rating across the ten reporting parents. In addition, across the four semi-structured, open-ended questions parental responses were organized into common themes.

**Research Design**

To address the research questions presented in this study, a single-case withdrawal design was used. Gast (2010) describes single-case research design as a methodology used in the applied fields of education and psychology, which falls within the broader research paradigm known as single-subject research (SSR) design. SSR design allows researchers to document an experimental effect with a small number of participants, which is accomplished by comparing an individual’s data with themselves, versus comparison with a control group. SSR design is often used to evaluate the effect of an intervention in an applied setting. Two main benefits of SSR design include: sensitivity to understanding change in an individual’s behaviour versus averages of groups in group research designs; and the ability to conduct a true experiment that can investigate an experimental effect with low-incidence populations (e.g., Aboriginal people).

There are three requirements for SSR design: (a) continuous assessment (i.e., minimum collection of three data points) of dependent variables during each phase of the study; (b) baseline assessment, where repeated measures of dependent variables are taken prior to the implementation of an intervention to assess pre-treatment behavioural levels; and (c) the presence of variability in the data, necessary to evaluate the intervention’s effect on participant’s targeted behaviour. Typical phases in single case designs are baseline, intervention and follow-
up. For each phase, data are required to be stable at the expected level for the phase (i.e., steady level with low variability) before participants enter the next phase. SSR design can provide three levels of knowledge: descriptive, correlational, and causal.

**Withdrawal design.** A withdrawal design across one cohort of children (N = 18) was used. The design included seven phases: baseline, intervention, withdrawal, intervention, withdrawal, intervention, and withdrawal (i.e., ABABABA design). Consistent with a withdrawal design, onset and subsequent withdrawal of the intervention (i.e., Vision 180 Program) was made. The withdrawal of the intervention occurred during natural breaks in Vision 180 programming. These natural breaks were scheduled by the elementary school administration and not by the research team. These natural breaks in programming served as a unique opportunity to analyse potential changes in student performance when intervention was withdrawn and reinstated twice across the school year.

Participation in the Vision 180 Program for all children began in September. The first and second natural withdrawal phases occurred for one entire week during the first week of school after winter and spring breaks (i.e., January and March). The Vision 180 Program was re-initiated the first day of the second week after students returned from a break. The third natural withdrawal period occurred during the final week of the school year (i.e., June). During the final week that students attended school the Vision 180 Program was not implemented.

This design was selected for three reasons: (a) the flexible implementation of the design was the best fit for the school’s predetermined Vision 180 Program schedule; (b) the natural occurrences of the withdrawal of the Vision 180 Program for one week after students returned from spring and winter break; and (c) the design met the minimum requirements in single case withdrawal methodology for documenting a functional relation (i.e., an experimental effect).
between implementation of the Vision 180 Program and decreases in participants’ academic vulnerability and mental health concerns, which included a minimum of two withdrawal occurrences (i.e., ABAB design).

**Visual analysis.** SSR design uses visual analysis of graphed data to interpret experimental effects (Gast, 2010). Visual analysis is used to address two questions. First, do the data patterns change? Second, when change occurs, does it correspond with experimental manipulations? These questions are analysed within and between phases. In SSR design, three types of changes are analysed in the data pattern. These changes include: level (i.e., the relative value of the data pattern of the dependent variable), trend (i.e., the direction the data pattern progresses over time), and variability (i.e., the amount of difference in value between adjacent data points). The use of statistical analysis in SSR is problematic because it violates assumptions of traditional parametric tests (i.e., F-test or t-test). For example, serial dependency (i.e., the likelihood that each subsequent data point is predicted by the immediately previous data point during repeated measurement of a dependent variable) becomes present as the correlation coefficients approaches 1 (i.e., a perfect correlation), and cause a distortion in analysis (i.e., true F values are overestimated, variability is underestimated, and Type 1 errors can occur). Due to these distortions, statistical analysis is not well suited for developing experimental judgment in SSR.

Visual analysis is used in SSR to evaluate whether or not an experimental effect has occurred between an independent variable (i.e., intervention) and dependent variable for one participant or a small group of participants (Gast, 2010). One of the merits of SSR is that in using visual analysis to determine effects between baseline and intervention phases, only large differences in the levels of data between baseline and intervention phases are viewed as
meaningful documentations of a treatment effect. In a withdrawal design, interpretation of data is based on an analysis of changes in behaviour between adjacent baseline and intervention phases. A functional relation between the independent and dependent variables is demonstrated when a similar pattern of behaviours is found within each type of phase: (a) a pre-treatment level of target behaviour during the first baseline phase and then again during the second baseline phase (i.e., withdrawal phase); and (b) an improvement in target behaviour at the point of intervention during the first intervention phase, and a return to treatment levels of improvement in target behaviour during the second intervention phase.

**Research Procedures**

Following ethics approval in January 2014, the following procedures were implemented: (a) start-up procedures, (b) baseline phase, (c) intervention phase, which was repeated twice, and (d) withdrawal phase, which was repeated twice. Research procedures are described below:

**Start-up procedures.** A preliminary meeting was set-up with the school principal in February of the school year to determine the logistics of collecting data across the 18 participating students, both historical data on attendance and tardiness from September to December of the previous year, and current attendance and tardiness data through June of the current year. A secondary meeting was set-up with the teachers of the grade 4 and 5 classrooms to determine the logistics of collecting data for mental health concerns. During this meeting we discussed the measures that would be administered, agreed upon the setting in which they would be administered, the procedures that would be used during group testing, and the timing of administrations across the school year from February to June. In addition, we discussed and finalized the logistics for collecting data on social validity, including the purpose of the social
validity questionnaire, participants who would complete the questionnaire (i.e., parents), and the timing of questionnaire administration from February to June.

**Baseline.** Baseline is defined as the initial phase of observation that involves repeated measurement of the natural frequency of occurrence of the target behaviors (i.e., dependent variables) in the study (Gast, 2010). As research contact with the selected school did not occur until February 2014, the gathering of baseline data in real-time was not possible. Accordingly, baseline attendance and tardiness data were collected retrospectively from school records between September 3 and September 13. These data had been recorded in September by the two participating elementary school classroom teachers using the elementary school record system.

**Intervention.** Intervention is defined as the second phase of observation, where the intervention (i.e., independent variable) is introduced and data collection continues to occur across the targeted dependent variables (Gast, 2010). The intervention in this study was the Vision 180 Program, defined as a school-based after-school-program that was designed to strengthen school attendance. The intervention provided after-school extra-curricular programming to inner-city children in grades three to seven. The Vision 180 Program was implemented by school personnel independent of the researcher, and occurred at the school site after the school day, Monday through Friday from 3:00 – 6:00 pm from September to June. During the school year there were three one week long breaks in implementation. These breaks occurred during the first week of January, after the winter school holiday; during the fourth week of March, after the spring school holiday; and then lastly during the final week of the school year in June. The program fees were paid for by the research study for all study participants.

The Vision 180 Program consisted of five daily routines or activities: (a) sign-in; (b) announcements and snack break; (c) outdoor physical activity; (d) club time; and (e) going home
time. During the sign-in routine, students assembled in the school cafeteria and signed-in at the check-in desk for their designated club. During the announcements and snack break routine, general announcements were given to all of the students while they engaged in an after-school snack break. During the outdoor physical activity, students were given time to play outdoors before their club program began. During the club time activity, students were led by their instructors to their designated club area within the school and given the objective for their daily club activity. Each club (i.e., sub-program of the Vision 180 Program) consisted of the following five procedures: first, the instructor provided information on the daily activity (i.e., information on the history, use, and purpose of the activity were verbally presented to the students). Second, the instructor provided a demonstration of how to complete or engage in the daily activity (e.g., in the sports club, the instructor would model how to use the sporting equipment required for the game). Third, the instructor provided a verbal question and answer period for the daily activity. Fourth, students participated in the daily activity through hands-on use of the club equipment (e.g., during the visual arts club, students worked with moistened cedar strips to weave cedar bracelets.) Lastly, students were instructed to help clean-up their club area and prepare themselves to head home. During the final routine of the day, the going home routine, students were led by their instructors to the school cafeteria, where they remained until their parent or legal guardian arrived at the school and signed their child out using a daily sign-out sheet.

Following baseline data collection in early September, the Vision 180 Program was implemented across the school year in the following sequence: (a) the first intervention phase was initiated on September 18th and continued until December 20th; (b) the second intervention
phase began on January 13th and continued until March 14th; and (c) the third intervention phase began on April 7th and continued until May 30th.

During intervention from September to February data were collected retrospectively for daily student school attendance and tardies. From March to June, data were collected in real-time for: (a) student school attendance, (b) student tardies, (c) mental health concerns, and (d) social validity. The classroom teacher collected data for student school attendance and tardies for each participant on a daily basis using the elementary school record system each day from the beginning of the school year (i.e., September) to the end (i.e., June). I collected data for mental health concerns for each participant on a monthly basis using the MASC (March, 1997) and SDQ (Goodman, 1997). Parent social validity data were completed by parents at home and were collected by the classroom teacher three times during the intervention phase.

**Withdrawal.** Withdrawal is defined as the third phase of a SSR withdrawal design (i.e., ABAB) in which the independent variable is withdrawn for a period of time, and data is collected on target behaviour in the absence of the intervention (Gast, 2010). This withdrawal of intervention provides an opportunity to examine whether or not the patterns of data within the design begin to evidence experimental control by the independent variable. If target behaviour during the withdrawal phase returns to baseline levels this provides preliminary evidence of a potential experimental effect. Withdrawal of the intervention for all students occurred during natural breaks in the Vision 180 Program, scheduled by the elementary school.

Each withdrawal period lasted for one week. The first withdrawal period occurred during the first week back-to-school after the winter break (i.e., January 6th to January 10th). The second withdrawal period occurred during the first week back-to-school after the spring break (i.e., March 31st to April 4th). The last withdrawal period occurred during the final week of school.
(i.e., June 2\textsuperscript{nd} to June 6\textsuperscript{th}). During this time, participants received the same academic programming during the school day; however, no after-school programming (i.e., Vision 180 Program) was offered.

This chapter has provided a description of study participants and an overview of ethical considerations adhered to while working with this population. In addition, the research setting, dependent measures and measurement procedures also were described. Finally, the research design and the research procedures that guided the conduct of the study were elucidated. The next chapter describes the results of the study. It will begin with a discussion of the results for variables relating to academic vulnerability (i.e., student school attendance and student tardies), and mental health concerns (i.e., anxiety symptoms and pro-social behaviour). The last section will describe results for social validity questionnaires.
Chapter 4: Results

This chapter begins with a summary of study results, including indicators of academic vulnerability (i.e., student school attendance and tardy behaviour), and mental health concerns (i.e., anxiety symptoms and pro-social behaviour levels). The last section summarizes social validity results.

Withdrawal Design

Results across baseline and intervention phases within the withdrawal design are presented in Figures 1-4.

Student school attendance. Figure 1 displays the results of cohort attendance (N = 18). Attendance at school for study participants was calculated by the count of the number of students attending school each day, for a duration of 172 days. Across four baseline/withdrawal phases and three intervention phases the baseline/withdrawal overall average level of school attendance was 16.22, and the intervention overall average level of school attendance was 15.97. During baseline, cohort attendance had an average count of 16.66 per day (range, 14 - 18), with a decreasing trend and moderate variability. During the first intervention phase in the fall term (i.e., onset of the Vision 180 Program), cohort attendance had an average count of 16.09 students (range, 13 - 18) over a 64 day period with a slight overall decreasing trend (i.e., deterioration) in student attendance. Following the first withdrawal of the intervention, cohort attendance increased slightly to an average count of 16.60 (range, 16 – 18), with a decreasing trend (i.e., deterioration) over a one week time period and little variability. During the second intervention phase in the winter term (i.e., re-initiation of Vision 180 Program), there was another slight decrease in overall attendance level to an average count of 15.47 (range, 7 - 18) students per day.
Although an analysis of trend across the second intervention phase (split-middle test; Gast, 2010) showed an increasing trend across winter term, analysis within the phase revealed two trends. During the first two-thirds of winter term, the data showed an increasing trend (i.e., improvement) of attendance; however, during the final one-third of the term, the data showed a decreasing trend with high variability. Following the second withdrawal of intervention, cohort attendance increased slightly to an average count of 15.60 (range, 15 – 17), with a slight decreasing trend and little variability. During the third intervention phase (i.e., second re-initiation of the Vision 180 Program) in the spring term, there was a slight increase in attendance level compared to the previous withdrawal phase, with an average count of 16.34 (range, 14 - 18). A modest increasing trend in student attendance with a gradual decrease in variability across the term also can be seen. Following the third and final withdrawal of intervention, cohort attendance decreased slightly to an average count of 16 students (range, 14 – 18), with a decreasing trend and moderate variability. Overall, there was an average 1.54% decrease in cohort attendance during intervention phases when compared to baseline/withdrawal phases,
indicating that students were slightly less likely to attend school during exposure to the intervention, and slightly more likely to attend school during intervention withdrawal, contrary to the study hypothesis.

**Student tardies.** Figure 2 displays the results of the percentage of cohort tardiness (i.e., to morning or afternoon class). Across four baseline/withdrawal phases and three intervention phases the baseline/withdrawal overall average level of tardies was 7%, and the intervention overall average level of tardies was 13%. During baseline, cohort tardiness showed an average level of 4% (range, 0% - 12%), with an increasing trend (i.e., deterioration). Following intervention, there was a moderate increase in tardiness to an average level of 13% (range, 0% - 40%). In addition there was a slightly increasing trend from September to December with moderate variability. Following the first withdrawal of the intervention in January, cohort tardiness fell to an average level of 6% (range, 0% – 12%), but also showed an increasing trend across five days of measurement. When the Vision 180 Program was re-initiated in the second week of January through to the second week of March tardiness levels rose to an average level of 15% (range, 0% - 75%). Across the three months of intervention a marked increasing trend was apparent with a moderate to high level of variability in these data.
Following the second withdrawal of the intervention in March cohort tardiness decreased to an average level of 10% (range, 0% – 24%), with an overall decreasing trend across five days of measurement. Following the second re-initiation of the Vision 180 Program, which continued from the first week of April to the last week of May, there was a minimal increase in average tardiness level to 11% (range, 0% - 27%). These data showed a slightly increasing trend across the two month intervention period. During the final withdrawal phase in June, cohort tardiness decreased slightly to an average level of 8% (range, 0% – 13%) with a decreasing trend across five days of measurement. Overall, there was an average increase of 6% in cohort tardiness across intervention phases when compared to baseline/withdrawal phases, indicating that students were slightly more likely to be tardy during exposure to the intervention, and slightly less likely to be tardy during intervention withdrawal, contrary to the study hypothesis.

**MASC overall score.** Figure 3 displays the results of MASC-Overall scores for the cohort of 18 students. The MASC was administered once during the second intervention phase and twice during the third intervention phase. As noted above, baseline measurement of the MASC did not occur due to the delay in ethics approval of the study until January, 2014. Consequently these results are descriptive in nature. The absence of pre-intervention measurement precludes interpretation of these data in terms of change across study phases. As a result, change was examined within intervention phases. Three data points (i.e., Time 1, 2, and 3) were used during visual analysis of MASC scores. Two data points (i.e., Time 1 and 3) were used for statistical analysis of MASC scores. To be consistent with the reporting format in the MASC manual and for later comparison with the normative sample, MASC scores were analysed separately for males and females. Across the second and third intervention phases, MASC-Overall scores had an average score of 44.33 (range 35 – 51) for males, with a slightly
decreasing trend (i.e., improvement), and an average score of 57.66 (range, 48 – 63) for females, with a decreasing trend across the three administrations of the MASC.

A non-independent samples paired t-test was conducted to compare anxiety symptom levels on the MASC-Overall scores for males at Time 1 during the second intervention phase and Time 3 during the third intervention phase. Results showed no significant difference in scores from Time 1 \( (M = 51.73, SD = 16.58) \) to Time 3 \( (M = 42.11, SD = 25.91) \); \( t(7) = 1.31, p = 0.2318 \). These results suggest that continued exposure to the intervention was not associated with changes in anxiety symptom levels for male students from Time 1 to Time 3.

An independent-samples unpaired t-test also was conducted to compare anxiety symptom levels in the study sample for males with a normative sample provided in the MASC (March, 1997) manual on the MASC-Overall scores for males. Results showed no significant difference in scores for the study sample \( (M = 48.25, SD = 21.05) \) compared to the normative sample \( (M = \)
42.06, \(SD = 15.83\); \(t(224) = 1.13, p = 0.26\). These results indicate that the male study participants can be described as similar to the normative sample in anxiety symptom levels.

A non-independent samples paired t-test also was conducted to compare anxiety symptom levels on the MASC-Overall scores for females at Time 1 during the second intervention phase and Time 3 during the third intervention phase. Results showed a statistically significant difference in scores from Time 1 (\(M = 63.19, SD = 15.49\)) to Time 3 (\(M = 50.20, SD = 20.22\)); \(t(7) = 3.73, p = 0.0074\). Overall, these results suggest that continued exposure to the intervention was correlated with a reduction in anxiety symptom levels for female students from Time 1 to Time 3. However, without a baseline comparison assessment, the meaning of this change in anxiety symptom levels during the two intervention phases cannot be discerned.

An independent-samples unpaired t-test was conducted to compare anxiety symptom levels for females in the study sample against a normative sample provided in the MASC (March, 1997) manual on the MASC-Overall scores for females. Results showed no significant difference in the scores for the study sample (\(M = 55.46, SD = 17.90\)) compared to the normative sample (\(M = 49.11, SD = 16.05\)); \(t(238) = 1.16, p = 0.25\). These results indicate that the female study participants can be described as similar to the normative sample for anxiety symptom levels.

**SDQ.** Figure 4 displays the results of SDQ-Prosocial Behaviour scores for the cohort of 18 students. The SDQ was administered once during the second intervention phase and twice during the third intervention phase. As noted above, baseline measurement of the SDQ did not occur due to the delay in ethics approval of the study until January, 2014. Consequently these results are descriptive in nature. The absence of pre-intervention measurement precludes interpretation of these data in terms of change across study phases. As a result, change was
examined within intervention phases. Three data points (i.e., Time 1, 2, and 3) were used during visual analysis of SDQ scores. Two data points (i.e., Time 1 and 3) were used for statistical analysis of SDQ scores. Data were not analysed by gender. Across the two intervention phases, SDQ-Prosocial Behaviour scores had an average score of 7.21 (range, 6.47 – 8.40), with a decreasing trend (i.e., deterioration) across the three administrations of the SDQ.

A non-independent samples paired t-test was conducted to compare prosocial behaviour levels on the SDQ-Prosocial Behaviour scores at Time 1 during the second intervention phase and Time 3 during the third intervention phase. Results showed no significant difference in scores for Time 1 ($M = 6.94$, $SD = 2.05$) and Time 3 ($M = 6.72$, $SD = 2.19$); $t(15) = 0.54$, $p = 0.5365$. These results suggest that continued exposure to the intervention was not correlated with any change in prosocial behaviour levels for students from Time 1 to Time 3. However, without a baseline comparison measure, the meaning of this absence of change between Time 1 and Time 3 during intervention cannot be discerned.
An independent-samples unpaired t-test also was conducted to compare prosocial behaviour levels in the current study sample with a normative sample provided in the SDQ (Goodman, 1997) manual on the SDQ-Prosocial Behaviour scores. Results showed a statistically significant difference in mean scores for the study sample ($M = 6.83, SD = 2.12$) compared to the normative sample ($M = 8.80, SD = 1.70$); $t(2079) = 4.75$, $p = 0.0001$. These results indicate that the study participants were described by self-reports as having less prosocial behaviour compared to the normative sample.

Social validity. Across the three social validity assessments returned by ten parents of the 18 student participants, the Vision 180 Program was rated highly. Across the second and third intervention phases, the ten parents rated the social validity of the Vision 180 Program at an overall average of 4.25 (range, 3 – 5) on a 5-point scale (higher numbers indicate greater social validity). In addition to these Likert-type items, the parents also responded to four semi-structured, opened-ended questions. Parents reported that they identified with their cultural heritage through ceremonial protocol (e.g., powwows, regalia, drumming), language (e.g., oral dialogue, stories, song), and family (e.g., Elders in their community). Parent comments included, “we smudge every morning and attend sweats”, “we go to powwows and wear regalia”, and “we listen to stories and songs from our Elders”.

Parents reported that respect, recognition (e.g., acknowledgement of where traditional teachings come from), and tradition are values from their culture that they would like to have woven into the Vision 180 Program. Parents wrote, for example, “it is important for everyone to be respectful of each other”, “children should learn where traditions come from and recognize those specific tribes”, and “children should engage in protocols from their own nation.”
Parents identified the following strengths in their culture and community: reciprocity (e.g., mentorship, accountability, altruism); arts (e.g., dancing, singing, crafting); and a sense of community. Parent reported that, “our communities are based on mentorship and reciprocity”; “dancing and singing is what keeps us together as a community”; and “art is one of the greatest strengths of our people, it expresses who we are”.

Parents reported that they would like the following activities incorporated into the Vision 180 Program: performing and fine arts (e.g., painting, drawing, singing); structured sports (e.g., yoga); cultural awareness activities (e.g., genealogy project); and parent engagement (e.g., suggestion box, information night, parent participation). Parent comments included, “I feel the Vision 180 Program has a wonderful variety of activities”; “I would like to see more fine arts like painting and singing in the curriculum”, “I would like to see more structured sports programs”; and “I really like the program but at times I feel left out. I would like to have more parent participation in the program, maybe a parent’s night and parent suggestion box”.

This chapter has provided a review of the study results, including academic vulnerability (i.e., student school attendance and tardy behaviour), and mental health concerns (i.e., anxiety symptoms and pro-social behaviour). All variables of interest regarding academic vulnerability demonstrated no functional relation to the intervention, the Vision 180 program, contrary to study hypotheses. School attendance and classroom tardiness slightly worsened as the program was implemented, while attendance and tardy behaviour improved when the program was withdrawn. All mental health variables were not able to be interpreted in terms of change due to the absence of a pre-intervention baseline measure. Lastly, social validity results were presented. Parents reported enjoying the program and finding it appropriate for their children, beneficial to their home, clear and helpful to follow, and a positive contributor to their children’s skills.
The next chapter will provide an overall discussion of the research study. It will begin with a description of the implications and conclusions drawn by this study. The next section discusses the limitations of the study. The last section will explore recommendations for future research.
Chapter 5: Discussion

This study evaluated the effectiveness and social validity of the Vision 180 Program, an after-school program, by evaluating its influence on academic vulnerability and mental health concerns in 18 Aboriginal children in a school-based environment. This chapter begins with a summary and interpretation of the results in light of the research questions posed. This is followed by a discussion of the results in the context of the extant literature on interventions to decrease academic vulnerability and improve the mental health of students of Aboriginal heritage attending public school. This is followed by a discussion of the implications of study results. The chapter concludes with a discussion of study limitations and recommendations for future research.

Discussion

The study addressed the following questions:

1) Is there a functional relation between implementation of the Vision 180 Program and increases in attendance rates for Aboriginal children in a school-based environment?

2) Is there a functional relation between implementation of the Vision 180 Program and decreases in tardiness rates for Aboriginal children in a school-based environment?

3) Is there a functional relation between implementation of the Vision 180 Program and decreases in anxiety levels for Aboriginal children in a school-based environment?

4) Is there a functional relation between implementation of the Vision 180 Program and increases in prosocial behavior rates for Aboriginal children in a school-based environment?

5) How do participating teachers and parents rate the social validity of the Vision 180 Program?
To address the research questions presented in this study, a single-case (N = 18) withdrawal design was used. The design included seven phases: baseline, intervention, withdrawal, intervention, withdrawal, intervention, and withdrawal (i.e., ABABABA design). Consistent with a withdrawal design, onset and subsequent withdrawal of the intervention (i.e., Vision 180 Program) was made. The withdrawal of the intervention occurred during natural breaks in the Vision 180 Program. These natural breaks were scheduled by the elementary school and not by the research team. These one-week breaks in programming served as a unique opportunity to analyse potential changes in student behavioural performance when intervention the Vision 180 Program was withdrawn.

Visual analysis, the primary method of analysis in Single Subject Research (SSR) design, was used to interpret experimental effects. Visual analysis was used to address the following questions. First, did the data patterns change across phases? Second, if changes did occur, did they correspond to the onset and offset of the intervention and withdrawal phases? These questions were analysed within and between phases. Three types of changes were analysed in the data pattern: level (i.e., relative value of the data pattern on the dependent variable), trend (i.e., direction the data pattern progresses), and variability (i.e., the magnitude of change across adjacent data points within a phase). Three data points (i.e., Time 1, 2, and 3) were used for visual analysis of change in Multidimensional Anxiety Scale for Children (MASC; March, 1997) and Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) scores. Two data points (i.e., Time 1, and 3) were used for statistical analysis of change in MASC and SDQ scores. A t-test was used to investigate the statistical significance of changes in MASC-Overall scores at Time 1 and Time 3, and of differences in study sample’s MASC scores compared to normative MASC scores reported in the manual. In addition, a t-test also was used to investigate the
statistical significance of changes in SDQ-Prosocial Behaviour scores at Time 1 and Time 3, and of differences in study sample’s SDQ scores compared to normative SDQ scores reported in the manual.

The results from this study of eighteen children enrolled in the Vision 180 Program, an after-school program, using a single-case withdrawal design, was comprised of four dependent measures (i.e., student school attendance, student tardy behaviour, MASC [March, 1997]-Overall scores, and Strengths and Difficulties Questionnaire [Goodman, 1997]-Prosocial Behaviour). Results indicated that there was no association between the Vision 180 Program and variables related to academic vulnerability, specifically student school attendance and school tardiness. In regard to student school attendance, the average level across baseline and intervention was virtually the same, with an average of 16.22 during baseline/withdrawal phases and 15.97 during the intervention phases. In regard to school tardiness, the average level across baseline and intervention showed a moderate decrease, with an average of 7% in the baseline/withdrawal phases compared to 13% in the intervention phases. Overall, visual analysis of academic vulnerability showed a decrease of 1.54% in attendance and an increase of 6% in school tardies during the intervention phases compared to the baseline/withdrawal phases.

Results for student school attendance and tardies were counter to what was hypothesized for intervention effects. These results suggest that exposure to the Vision 180 Program did not have a significant effect on improving academic vulnerability variables, and in fact may have had a modest negative effect on one of these two academic student behaviours (i.e., tardiness). The timing of study phases (i.e., baseline, intervention, and withdrawal) need to be examined for the effect they may have had on results for participants. Study phases were scheduled according to pre-determined times by school administration and staff of the Vision 180 Program. For
example, the baseline phase occurred during the first two weeks of the school year, the first intervention phase occurred from mid-September to winter break, and the first withdrawal phase occurred during the first week back to school following the winter break. Baseline results for student tardies may have been lower compared to the first intervention phase due to participants experiencing a “honeymoon” effect during their first two weeks of school. Students may have been on time more often due to excitement of the new school year. Study withdrawal phases also were scheduled according to pre-determined times (i.e., natural transition breaks) by the school administration and staff of the Vision 180 program. These natural intervention withdrawals occurred for one week each, immediately following two major school breaks (winter break and spring break), and during the final week of school. The lower levels of student tardy behaviour during the withdrawal phases also may have been due to participants’ experiencing a “honeymoon” during their first week back at school following winter or spring break. Analysing participant performance across the entire school year (i.e., September to June), academic vulnerability (i.e., student school attendance and school tardiness) levels showed a high degree of overlap in data between baseline/withdrawal phases and intervention phases, further suggesting the absence of any effect of the Vision 180 Program.

In regard to MASC-Overall scores and SDQ-Prosocial Behaviour scores, without a baseline comparison measure the relationship between intervention and changes in mental health concerns cannot be discerned. In lieu of such an analysis, visual and statistical analyses examined changes in mental health concerns (i.e., anxiety symptoms and prosocial behaviour) within the intervention phases. Visual analysis of anxiety concerns during the school’s second and third implementation of the Vision 180 Program was associated with an improvement in anxiety symptoms for males and females across an 8-week period. However, statistical analyses
of change from Time 1 to Time 3 showed that improvement in anxiety symptom levels were statistically significant for females but were not statistically significant for males. Visual analysis of prosocial behaviour for both genders during the school’s second and third implementation of the Vision 180 Program was associated with a slight decrease in prosocial behaviour across an 8-week period. However, statistical analysis of the decline in prosocial behaviour from Time 1 to Time 3 showed that this deterioration was not statistically significant. Aboriginal students in the program, when compared to the normative samples, were comparable to the performance of the MASC normative sample, but performed worse when compared to the SDQ normative sample.

Social validity results indicated that the ten parents completing the questionnaire viewed the Vision 180 Program as acceptable and important in terms of its goals, procedures, and outcomes. These results need to be interpreted with caution due to shortcomings in the social validity measure, as well as the indirect benefit parents may have received from the structure of the Vision 180 Program.

The social validity questionnaire was constructed based on the common categories of items that are traditionally in a social validity assessment tool; that is, items that evaluate the acceptability, importance, and viability of the goals, procedures, and outcomes of an intervention. Items related to the cultural responsiveness of the Vision 180 Program were not included in the questionnaire. Items related to culturally informed goals, procedures, and outcomes were not also included. For these reasons the opportunity for parents to more critically assess the Vision 180 Program in terms of their own cultural traditions and values was not available.
In addition, parents’ high average social validity rating (i.e., 4.25 on a 5-point scale) may have reflected the benefit of having their child participate in a safe, daily, after-school care program located at their child’s school that was available for no charge. This program structure may have introduced a positive response bias in parent social validity.

Although the rating scale portion of the social validity questionnaire had limitations, the semi-structured, open-ended question portion of the questionnaire gave parents an opportunity to express their perspectives. These questions yielded a rich set of verbal report data which may prove useful in the redesign of the Vision 180 Program in regard to its cultural responsiveness. Parents offered concrete suggestions for how cultural heritage, community strengths, and parent engagement can be woven into the Vision 180 Program.

**Limitations**

The study had a number of limitations which need to be discussed. These limitations fall within four categories: (a) outcomes, (b) research design, (c) measurement, and (d) the independent variable. These are discussed in turn below.

**Outcomes.** Results did not show a functional relationship between the Vision 180 Program and changes in academic vulnerability due to little to no change observed in the data across baseline/withdrawal and intervention phases. This suggests that the Vision 180 Program was not an effective intervention for improving student school attendance and tardy behaviour across the school year.

**Research design.** Two limitations in the study design warrant consideration. First, I as the research did not have control over phase changes within the withdrawal design. In single-subject research (SSR), movement between phases in a research design occurs when the data are stable at a pre-treatment level. Otherwise, phase length is prolonged until the data pattern
becomes stable. Because movement between phases was controlled by the school, and not me, this SSR design requirement was not met. This was problematic because it limited my ability to react to unexpected trends in the pattern of data within phases. For example, an increasing trend in student tardies was observed in the baseline phase across two weeks of measurement. Given this data pattern the baseline phase should have been extend for an additional week to see if the data stabilized prior to movement into the first intervention phase. However, because I could not make this data base decision the Vision 180 Program was implemented irrespective to this baseline data pattern. Thus, the ability to document a change in level in the direction of treatment in relationship to the first intervention phase was obviated. Second, a related limitation was that I did not have control over the withdrawal phase length. These phases were always one week in length as stipulated by the school administration. However, this may have not been a long enough period of time to diminish any positive carryover effects of the Vision 180 Program. Gast (2010) stated that brief phase lengths can contribute to treatment carryover effects, which is a threat to internal validity.

**Measurement.** Four limitations in measurement warrant discussion. First, baseline measurement of the two mental health concerns was not conducted. This limitation prevented any analysis of change in anxiety symptom and prosocial behaviour levels for the 18 student participants. Although these data were gathered across the second and third intervention phases and showed that participants were within normative levels for anxiety symptoms and below normative levels for prosocial behaviour levels these results are merely descriptive. Without a baseline comparative phase these data cannot be interpreted in terms of change due to intervention exposure. Second, the social validity questionnaire’s Likert-type questions did not address items related to cultural elements of the Vision 180 program. Consequently, social
validity ratings may have been inflated because the questions were not specific to aspects of Aboriginal culture that may or may not have been included in the Vision 180 Program, such as cultural identity and cultural awareness. The generic nature of the questions may have led parents to rate the items about the Vision 180 Program more positively (e.g., the goals of the Vision 180 Program are appropriate for my child; the procedures and activities used in the program are helpful to my child; overall, the program efforts have strengthen the skill set of my child). The third limitation was the absence of any measurement of fidelity of implementation of the Vision 180 Program. Fidelity of implementation refers to how closely a program was implemented to its structured guidelines and objectives (Gast, 2010). Without direct measurement of the independent variable (i.e., intervention) claims about the effectiveness of an intervention are hindered. In addition, because implementation fidelity data was not gathered there is no information available about the dosage level of intervention (i.e., the strength of the intervention). According to Gresham (2005), the strength of an intervention reflects the intervention’s ability to positively change behaviour. Strong interventions may produce a higher degree of behaviour change versus a weak intervention. Because dosage level was not assessed, I am not able to determine whether the absence of results is due to poor implementation of fidelity or low dosage level. A fourth and final limitation is the limited range of dependent variables measured to evaluate the effectiveness of the Vision 180 Program. Given this, it is reasonable to consider that other dependent variables, if gathered, may have revealed positive effects of the Vision 180 Program. For example, measures of academic achievement were not gathered but may have been influenced by the Vision 180 Program’s contribution to the participating’s sense of attachment to the school. School attachment has been shown to be an important variable in the academic success of students (Eccles & Gootman, 2002). In this light,
a second dependent variable that may have shown improvement across baseline and intervention conditions is student’s attachment to their school. Measures of student attachment are available, such as the Student Attachment to School Questionnaire (SAQ, Mouton & DeWitt, 1995), could have been collected pre- and post-intervention. A third variable that may have been influenced by the Vision 180 Program is student self-efficacy, in terms of their sense of social and academic competence within the school (Sherer et al., 1982).

Independent variable. The study and its results suggest that there are at least three limitations to the design of the independent variable (i.e., Vision 180 Program). First, unlike other Positive Youth Development (PYD) programs, the Vision 180 Program did not have a culturally responsive curriculum component, which is one of the three targeted areas for increasing academic success in PYD programs. While the Vision 180 Program did include school engagement, and social and emotional learning activities, two of the targeted areas for PYD programs, few of these activities reflected traditional Aboriginal specific cultural content such as Aboriginal song, dance, or language. Second, the Vision 180 Program was not operationally defined in regard to its active components. This is problematic because without a sufficient description of program practices, it will be difficult to replicate the intervention with fidelity. Specific shortcoming in the definition of the independent variable included the absence of a description of: (a) the overall contexts in which the intervention practices were to be used; (b) the population with which the program was expected to be effective; (c) the standards at which program components should be implemented; (d) the qualification levels required for program implementers; and (e) the operational definitions of outcomes expected.
Implications

The major implication of the study is that the Vision 180 Program, although promising, does not appear to have a positive effect on academic vulnerability as measured by student school attendance and tardy behaviour. The program appears to be benign in relation to these two academic vulnerability variables. This suggests the value of improving the Vision 180 Program so that its components are necessary and sufficient to have a positive effect on student school attendance and tardy behaviour. The qualitative portion of the social validity questionnaire may offer direction for enhancement of the Vision 180 Program. Parents recommended three areas of enhancement for the Vision 180 Program. First, parents expressed a desire to have more elements of their Aboriginal heritage woven into the program curriculum. Parents discussed how the Vision 180 Program could provide teaching on the history of Aboriginal peoples – through drumming, singing, crafting, and oral storytelling. Parents reported that Elders in their Aboriginal community are the traditional knowledge keepers of these teachings, and that through invitation could be invited to help facilitate these activities during the program. Parents discussed how traditional values from their Aboriginal culture, such as respect, recognition, and reciprocity, could also be taught during the Vision 180 Program. For example, during the announcement phase of the Vision 180 Program, a formal acknowledgement of the Aboriginal territory on which the Vision 180 Program takes place could be provided. In addition, as Aboriginal teachings are incorporated into the program, an acknowledgement of where the traditions originated from could be provided. During club activities, teachers could embed lessons in respect, recognition, and reciprocity in the activities and interactions between students with each other and between teachers and students. Second, parents reported their desire for the inclusion of the following structured activities in the Vision 180 Program:
performing and fine arts (e.g., painting, drawing, singing), mindfulness activities (e.g., yoga, meditation, nature walks), and cultural awareness activities (e.g., genealogy project, cultural show-and-tell, cross-cultural celebration). Third, parents described an interest in having more parent engagement opportunities, such as a parent participation night or a parent suggestion box. Parents reported that they would like to learn more about the program’s objectives, and that through immersion in the program they could learn more about the program’s goals while spending time with their children.

Perhaps one of the most important implications of the parent recommendations is the value of including members of the Aboriginal community in the re-design of the Vision 180 Program to increase the likelihood that Aboriginal content, such as described above, may be infused into the program.

**Future Research**

Future research should consider the following directions. First, an evaluation of the Vision 180 Program enhanced with Aboriginal content should be conducted in collaboration with schools that have a large population of Aboriginal children, within a research design that lends itself to the examination of an experimental effect. An alternative single-case research design may lend itself to this aim and be feasible to implement in a school setting. This would be a single-case, multiple-baseline design across three cohorts of students in one school. The enhanced Vision 180 Program would be introduced across the three cohorts in a lagged manner consistent with a multiple-baseline design across participants. Following a September baseline phase the intervention would first be introduced to the first cohort of students in the fall term, introduced to the second cohort in the winter term, and introduced to the third cohort in the spring term. This would allow for an evaluation of whether meaningful improvements occurred
in academic vulnerability and mental health concern variables at the point of intervention for each cohort. A follow-up phase would gather data in the fall of the next academic year to assess the durability of any improvements observed.

A second, related consideration in regard to next steps would be for the research team to have greater control over the implementation over the independent variable over the context of a multiple-baseline design. An essential feature of single-case research methodology is that the researcher is able to implement the phases of the study and introduce the independent variable based on the pattern of data that emerges within the research design being used. This feature of single-case methods is particularly important when using a multiple-baseline design across participants because the introduction of the independent variable (i.e., the Vision 180 Program) needs to be introduced to student cohorts in lagged fashion across the school year.

A third, related consideration in regard to next steps is the necessity of actively collaborating with school administration and staff in the enhancement of the Vision 180 Program. This would include collaboratively defining its key components, scheduling its introduction across the school-year to the three student cohorts, and gathering multiple dependent variables that the researchers and the school believe would be affected by the enhanced program.

Fourth, mental health measures should be gathered across baseline and intervention conditions so that effects of the Vision 180 Program on mental health concerns can be evaluated. Repeated measurement of mental health concerns such as anxiety symptoms and prosocial behaviour using the MASC and SDQ across phases throughout the school year (i.e., monthly measurement) would allow for both a visual and statistical analysis of change in these dependent variables. In addition to student self-assessment of mental health concerns, it also will be
important for parents to complete psychometrically sound assessments of their child’s anxiety symptoms and prosocial behaviour levels.

Fifth, fidelity of implementation of the Vision 180 Program by school staff needs to be assessed throughout the intervention phase. To this end, a checklist of key steps and features of the Vision 180 Program needs to be developed, with operational definitions of each step and feature so that they can be objectively evaluated.

Sixth, the social validity questionnaire needs to be revised to include Likert-type scale items that address the cultural content and responsiveness of the Vision 180 Program. These items should specifically include an evaluation of the extent to which the Vision 180 Program enhances student’s cultural awareness and sense of cultural identity. In addition, the administration of the social validity questionnaire should be completed during the end of each school term and used formatively to further improve the structure and content of the Vision 180 Program.

Finally, if future intervention research on the enhanced Vision 180 Program shows it to be effective at decreasing student academic vulnerability and enhancing mental health, then additional research should replicate the program at different schools with Aboriginal children of different age levels and socio-economic backgrounds. If positive results are obtained during this systematic replication, it would contribute to the external validity of the enhanced Vision 180 Program.
**References**


Hishinuma, E. S., Chang, J. Y., Sy, A., Greaney, M. F., Morris, K. A., Scronce, A. C., & ...


Liu X., (2007), Elementary to high school students’ growth over an academic year in understanding the concept of matter, *Journal of Chemical Education.*, 84, 1853-1856.


Appendices

Appendix A: School Package

Research Study of the Vision 180 Program

A School-Based Project

Rationale for School Participation:

1. Up to 7.6% of Aboriginal children suffer from anxiety prevalence.
2. Untreated childhood anxiety disorders can lead to negative consequences, including: decreased academic achievement, depression, family stress, substance abuse, and an increase in suicide.
3. Children who demonstrate higher levels of mental health concerns are known to have decreased academic achievement and impairments in social competence.
4. Canadian Aboriginal children experience elevated rates of school difficulty (i.e., lower grades, conduct issues, and higher drop-out rates) which is referred to as academic vulnerability, as well as elevated rates of mental health problems.
5. Preventative interventions have been shown to decrease levels of academic vulnerability and mental health concerns.
6. Schools are in a unique position to help address academic vulnerability and treat anxiety problems because they provide regular contact with students.
7. Working in schools with children has been shown to be important in prevention and early intervention of academic vulnerability and anxiety problems.
**Purpose of the Project:**

1. To determine if participation in the Vision 180 Program is effective at decreasing levels of academic vulnerability in children compared to children who did not experience this program.
2. To determine if participation in the Vision 180 Program is effective at decreasing levels of mental health concerns in children compared to children who did not experience this program.

Studies have noted increased risks in behavioural difficulties for Aboriginal children (Gotowiec & Beiser, 1993) which contribute to: (a) decreased academic achievement; (b) mental health problems (Beavon, & Cooke, 2003); (c) family violence (Fallon, Chabot, Fluke, Blackstock, MacLaurin, & Tonmyr, 2013); (d) obesity prevalence (McShane, Smylie, & Adomako, 2009); (e) substance abuse (Currie, & Wild, 2012); (f) interaction with the criminal justice system (Department of Justice Canada, 2011); and (g) suicide attempts or increased early mortality (MacNeil, 2008). Due to these risks, Aboriginal children are vulnerable to a host of deleterious outcomes (Reading & Wien, 2009).

Childhood anxiety disorders often go undetected and untreated (Barrett, Duffy, dads, & Rapee, 2011), even though they're the most common mental health disorder in children (Ost & Treffers, 2003). Anxiety disorders are associated with many psychosocial issues including lower academic achievement, school avoidance, adolescent suicide, high rates of depression, alcohol misuse, increased tobacco use, impairments in social functioning, and poor social relationships.

After-school programs can be used to address children’s well-being and health (e.g., educational achievement, physical health, emotional development) (Hishinuma, et al., 2009). Research has shown that high intensity afterschool programs, such as through that run every school day, show positive correlation with academic achievement (Jenner & 2007).

**School Responsibilities:**

1. Assistance with the dissemination of and collection of consent forms and information to students and parents.
2. Provision of class time and school space for the 60 minute questionnaire on 6 occasions throughout the school year.
**Procedure:**

Students will be asked to fill in the Multidimensional Anxiety Scale for Children, and Strengths and Difficulties questionnaires at 6 points throughout the year:

Time 1: January 2014, before the Vision 180 Program for Cohort 2 and 3.
Time 2: February 2014, during the Vision 180 Program.
Time 3: March 2014, during the Vision 180 Program.
Time 4: April 2014, during the Vision 180 Program.
Time 5: May 2014, during the Vision 180 Program.
Time 6: June 2014, after the completion of the Vision 180 Program.

**Project Schedule:**

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethics approval</td>
<td>January 2014</td>
</tr>
<tr>
<td>Invitation to elementary principal</td>
<td>January 2014</td>
</tr>
<tr>
<td>Consent forms to parents</td>
<td>January 2014</td>
</tr>
<tr>
<td>Time 1 Questionnaire</td>
<td>January 2014</td>
</tr>
<tr>
<td>Time 2 Questionnaire</td>
<td>February 2014</td>
</tr>
<tr>
<td>Time 3 Questionnaire</td>
<td>March 2014</td>
</tr>
<tr>
<td>Time 4 Questionnaire</td>
<td>April 2014</td>
</tr>
<tr>
<td>Time 5 Questionnaire</td>
<td>May 2014</td>
</tr>
<tr>
<td>Time 6 Questionnaire</td>
<td>June 2014</td>
</tr>
</tbody>
</table>

The research team for this project is as follows:

Lynn Miller, PhD., R.Psych, Associate Professor, Counselling Psychology
Natasha Wawrykow, M.A. Student, Project Coordinator

Please do not hesitate to contact any of the research staff at the project office.
Appendix B: Teacher Consent Form

Consent Form - Teacher

Title: Research Study of the Vision 180 Program

Principal Investigator: Lynn Miller, Ph.D., R. Psych., Department of Educational and Counselling Psychology, and Special Education, University of British Columbia, Tel.

Dear Grade 4/5 Teacher,

You and the students in your classroom are invited to participate in the Research Study of the Vision 180 Program. Lack of participation in the study will not affect your student’s ability to participate in the Vision 180 Program. Participation in the study will, however, enhance our understanding of how the program benefits students. The purpose of this research project is to assess the effectiveness of the Vision 180 Program at reducing academic vulnerability and anxiety symptoms. Afterschool programs have demonstrated efficacy in treating these academic vulnerabilities. However, no research has been done to evaluate the effectiveness of the Vision 180 Program in these areas. Anxiety disorders (worries) are the most common mental health concern in children and can negatively impact children’s social relationships, academic achievements, as well as family functioning. Research has demonstrated that early education and intervention efforts can be extremely successful in helping children learn to manage anxiety.

Study Procedure:
Please complete the teacher consent form attached, and return it in the envelope provided. The parents of all of the students in your class will also be asked to consent to their child’s participation in this project.

Starting in January, your class will participate in 6 class assessments that we expect will take place during regular class time, in place of other social emotional educational activities (which is expected during the social responsibility standards curriculum at each grade level in British Columbia).

All class meetings will be supervised by a trained graduate student placed in the school building with the classroom teacher present. All assessments will be completed during the school day in large group format, administered by the same trained graduate student.
**Your role:**
You will be asked to distribute consent forms to your students to take home to their parents, distribute a prepared reminder notice to return consent forms after one week, collect and mail returned consent forms to our lab via a prepaid package. Please communicate to parents that lack of participation in the study will not affect their child’s ability to participate in the Vision 180 Program. Participation in the study will, however, enhance their understanding of how the program benefits their child. We are looking for the participation of all students in your class, not just the students who parents may feel exhibit anxiety symptoms. Please refer any inquiries from parents to the research team. You will be required to be present in all class assessments; however, the research team will develop and deliver all classroom content.

Total time involved in participation in project: 6 hours

**Compensation:**
We would like to offer you a $100 stipend to compensate you for your help in distributing and collecting consent forms, and more generally for allowing us to utilize your classroom and class time for our program. This will be awarded at the end of the project. The students in your class will also receive a pizza party at the end of the project in recognition of student efforts in conducting research.

**Confidentiality:**
Any information resulting from the research study will be kept strictly confidential. All documents will be identified only by code number and kept in a locked filing cabinet. Participants will not be identified by name in any study reports. Electronic data stored on the computer will be password protected.

**Inquiries:**
If you have any further questions or concerns, please feel free to contact Dr. Miller’s Anxiety Projects Research Lab. If you have any concerns about your treatment or rights as a research participant, please contact the Research Subject Information Line in the UBC Office of Research Services at the University of British Columbia.

Sincerely,

Lynn Miller, PhD., R.Psych, Associate Professor, Counselling Psychology
Natasha Wawrykow, M.A. Student, Project Coordinator
Teacher Consent Form

Title: Research Study of the Vision 180 Program

I understand that my participation in this study is entirely voluntary and that I may refuse to participate or withdraw from the study at any time without jeopardy to my teaching position within my school.

I have received a copy of this consent form for my own records.

- I agree to distribute consent forms to my Grade 4 or 5 students, collect them once returned, and forward them to the research team.
  
  ______ Yes ______ No

- I agree to forward parent inquiries to the research team.
  
  ______ Yes ______ No

- I will not disclose the identity of the students/parents participating in this study with other school staff (School principal exempt), parents, or students.
  
  ______ Yes ______ No

Teacher’s Name: ________________________________ (please print)

Signature: ___________________________ Date: ______________________________

School: ________________________________

Best time to implement 6 classroom assessments: ______________________________

Best week ___________________ Best time of day ________________________

School Telephone Number: ______________________________

School Address: ______________________________

Number of Gr. 4 or 5 students in your class:____________________

Please complete this consent form and return with your student consent forms in the prepaid package.

*All responses will be held confidential*
THIS COPY IS FOR YOU TO KEEP FOR YOUR OWN RECORDS.

Teacher Consent Form

Title: Research Study of the Vision 180 Program

I understand that my participation in this study is entirely voluntary and that I may refuse to participate or withdraw from the study at any time without jeopardy to my teaching position within my school.

I have received a copy of this consent form for my own records.

➤ I agree to distribute consent forms to my Grade 4 or 5 students, collect them once returned, and forward them to the research team.
   _____ Yes  _____ No

➤ I agree to forward parent inquiries to the research team.
   _____ Yes  _____ No

➤ I will not disclose the identity of the students/parents participating in this study with other school staff (School principal exempt), parents, or students.
   _____ Yes  _____ No

Teacher’s Name: ___________________________________________________(please print)

Signature: __________________________ Date: __________________________

School: _____________________________________________________________

Best time to implement 6 classroom assessments: __________________________
Best week _________________ Best time of day __________________________

School Telephone Number: __________________________

School Address: ______________________________________________________

Number of Gr. 4 or 5 students in your class: __________________________

*All responses will be held confidential*
Appendix C: Parent Consent Form

CONSENT FORM - Parent

Title: Research Study of the Vision 180 Program

Principal Investigator: Lynn Miller, Ph.D., R. Psych., Department of Educational and Counselling Psychology, and Special Education, University of British Columbia
Tel.

Dear Parent,

Your child, as a part of his/her Grade 4/5 classroom is invited to participate in the Research Study of the Vision 180 Program. Lack of participation in the study will not affect your child’s ability to participate in the Vision 180 Program. Participation in the study will, however, enhance your understanding of how the program benefits your child. The purpose of this project is to assess the effectiveness of the Vision 180 Program at reducing academic vulnerability and anxiety symptoms. Afterschool programs have demonstrated efficacy in treating these academic vulnerabilities. However, no research has been done to evaluate the effectiveness of Vision 180 Program in these areas.

Anxiety disorders (worries) are the most common mental health concern in children, and can negatively impact children’s social relationships, academic achievements, as well as family functioning. Research has demonstrated that early education and intervention efforts can be extremely successful in helping children learn to manage anxiety.

Study Procedure:
Please complete the parent consent form and return it in the envelope provided. Your child will submit to their Grade 4/5 homeroom teacher within two weeks.

In January, your child will be invited to participate in six 60 minute questionnaires, spread over 6 classroom visits, which will take place during regular class time in place of other social emotional educational activities (proscribed curriculum at each grade level in British Columbia).

Total study time for child participants: 6 hours
Risks and Benefits:
Lack of participation in the study will not affect your child’s ability to participate in the Vision 180 Program. Participation in the study will, however, enhance your understanding of how the program benefits your child. It is not anticipated that the questionnaire used in this study will pose any risk. A significant potential benefit of the study will be the identification of a program that reduces academic vulnerability and anxiety symptoms.

Your Role:
You will be asked at 3 times throughout the study to complete a brief social validity questionnaire.

Total study time for parent participants: 3 hours

Confidentiality:
Any information resulting from the research study will be kept strictly confidential. All documents will be identified only by code number and kept in a locked filing cabinet. Participants will not be identified by name in any study reports. Electronic data stored on the computer will be password protected.

Compensation:
All children who participate in the study will receive free admission to the Vision 180 Program, for the school year. All students in your child’s class will receive a pizza party at the end of the project in recognition of student efforts in conducting research.

Inquiries:
If you have any further questions or concerns, please feel free to contact Dr. Miller’s Anxiety Projects Research Lab. If you have any concerns about you or your child’s treatment or rights as a research participant, please contact the Research Subject Information Line in the UBC Office of Research Services.

Sincerely,

Lynn Miller, PhD., R.Psych, Associate Professor, Counselling Psychology
Natasha Wawrykow, M.A. Student, Project Coordinator
Parent Consent Form

Title: Research Study of the Vision 180 Program

I understand that my child’s participation in this study is entirely voluntary and that I may withdraw my child from the study at any time.

I have received a copy of this consent form for my own records.

Parent/Guardian Name: ________________________________ (please print)

Signature: ________________________________

Date: ________________________________

Home Telephone Number: ________________________________

E-mail: ________________________________

Mailing Address: ________________________________

____________________________________________________

Child’s Name: ________________________________ Date of Birth: ___________

Teacher’s Name: ________________________________

School: ________________________________

Yes  You may contact me in the future in the event that Dr. Miller’s lab receives additional funding for research on childhood anxiety.

No

Please complete this consent form and place it in the enclosed envelope, seal, and return to your child’s homeroom teacher. Keep the second copy on this form for own records.

*All responses will be held confidential*
Title: Research Study of the Vision 180 Program

I understand that my child’s participation in this study is entirely voluntary and that I may withdraw my child from the study at any time.

I have received a copy of this consent form for my own records.

Parent/Guardian Name: ________________________________ (please print)

Signature: ________________________________

Date: ________________________________

Home Telephone Number: ________________________________

E-mail: ________________________________

Mailing Address: __________________________________________

_____________________________________________________

Child’s Name: ________________________________ Date of Birth: _________

Teacher’s Name: __________________________________________

School: __________________________________________

Yes You may contact me in the future in the event that Dr. Miller’s
No lab obtains additional funding for research on childhood anxiety.

*All responses will be held confidential*
Appendix D: Child Assent Form

Assent Form - Child

Title: Research Study of the Vision 180 Program

Principal Investigator: Lynn Miller, Ph.D., R. Psych., Department of Educational and Counselling Psychology, and Special Education, University of British Columbia

Insert Date:_______________

Dear Student,

You are invited to participate in the Research Study of the Vision 180 Program. Lack of participation in the study will not affect your ability to participate in the Vision 180 Program. Participation in the study will, however, enhance your understanding of how the program benefits you. The purpose of the project is to investigate if the Vision 180 afterschool program is effective at decreasing academic vulnerability and to detecting if the program is effective at decreasing anxiety symptoms.

Participants have been recruited from your school from grade 4 or 5 classes. Students with permission will be asked to fill in a questionnaire at 6 points throughout the year.

Risks and Benefits:
Lack of participation in the study will not affect your ability to participate in the Vision 180 Program. Participation in the study will, however, enhance your understanding of how the program benefits you. It is not anticipated that the questionnaire used in this study will pose any risk. A significant potential benefit of the study will be the identification of a program that reduces academic vulnerability and anxiety symptoms.

Confidentiality:
Any information resulting from the research study will be kept strictly confidential. All documents will be identified only by code number and kept in a locked filing cabinet. Participants will not be identified by name in any study reports. Electronic data stored on the computer will be password protected.
Compensation:
All children who participate in the study will receive free admission to the Vision 180 Program, for the school year. All students in your class will receive a pizza party at the end of the project in recognition of student efforts in conducting research.

Inquiries:
If you have any further questions or concerns, please feel free to contact Dr. Miller’s Anxiety Projects Research Lab. If you have any concerns about you or your child’s treatment or rights as a research participant, please contact the Research Subject Information Line in the UBC Office of Research Services.

Sincerely,

Lynn Miller, PhD., R.Psych, Associate Professor, Counselling Psychology
Natasha Wawrykow, M.A. Student, Project Coordinator
Child Asent Form

Title: Research Study of the Vision 180 Program

I understand that my child’s participation in this study is entirely voluntary and that I may withdraw my child from the study at any time.

I have received a copy of this consent form for my own records.

Child’s Name: ________________________________ (please print)

Age: _______________ School: ______________________

Teacher’s Name: ________________________________ (please print)

Date: ________________________________

Home Telephone Number: ______________________

*All responses will be held confidential*
Child Assent Form

Title: Research Study of the Vision 180 Program

I understand that my child’s participation in this study is entirely voluntary and that I may withdraw my child from the study at any time.

I have received a copy of this consent form for my own records.

Child’s Name: _________________________________ (please print)

Age: _______________  School: ___________________________

Teacher’s Name: ________________________________ (please print)

Date: ________________________________

Home Telephone Number: ______________________

*All responses will be held confidential*
Appendix E: Social Validity Questionnaire

**Project Office:**
Department of Educational and Counselling Psychology, and Special Education
2125 Main Mall
Vancouver, BC Canada V6T 1Z4

**Principal Investigator:**
Lynn Miller, Ph.D., R. Psych.,
Associate Professor

Date:___________________

<table>
<thead>
<tr>
<th>Parents &amp; Teachers</th>
<th>Disagree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The goals of the Vision 180 Program are appropriate for my child/ student.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>2. The procedures and activities used in the program are helpful to my child/ student.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>3. The procedures and activities used in the program are harmful to my child/ student.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>4. The outcomes of the program efforts are beneficial to my child/ student.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>5. The outcomes of the program efforts are beneficial to my home/ classroom.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>6. The outcomes of the program efforts have caused problems to my home/ classroom.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>7. Program activities are clear and helpful to my child/ student.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>8. Overall, the program efforts have strengthen the skill set of my child/ student.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>
Parents Only

9. How do you identify with your cultural heritage?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

10. What knowledge or protocols from your culture/community would you like to have incorporated in an afterschool program?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

11. What are strengths associated with your culture/community?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

12. What are suggestions you have for the Vision 180 Program?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Please complete this form and place it in the enclosed envelope, seal, and return to your student’s/child’s homeroom teacher.
Appendix F: Strength and Difficulties Questionnaire

Self-Report Questionnaire

Strengths and Difficulties Questionnaire

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of how things have been for you over the last six months.

<table>
<thead>
<tr>
<th>Item</th>
<th>Not True</th>
<th>Somewhat True</th>
<th>Certainly True</th>
</tr>
</thead>
<tbody>
<tr>
<td>I try to be nice to other people. I care about their feelings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am restless, I cannot stay still for long</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I get a lot of headaches, stomach-aches or sickness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I usually share with others, for example CD’s, games, food</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I get very angry and often lose my temper</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would rather be alone than with people of my age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I usually do as I am told</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I worry a lot</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am helpful if someone is hurt, upset or feeling ill</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am constantly fidgeting or squirming</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have one good friend or more</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I fight a lot. I can make other people do what I want</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am often unhappy, depressed or fearful</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other people my age generally like me</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am easily distracted, I find it difficult to concentrate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am nervous in new situations. I easily lose confidence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am kind to younger children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am often accused of lying or cheating</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other children or young people pick on me or bully me</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I often offer to help others (parents, teachers, children)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I think before I do things</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I take things that are not mine from home, school or elsewhere</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I get along better with adults than with people my own age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have many fears, I am easily scared</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I finish the work I'm doing. My attention is good</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Do you have any other comments or concerns?

Please turn over - there are a few more questions on the other side
Overall, do you think that you have difficulties in any of the following areas: emotions, concentration, behavior or being able to get on with other people?

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Yes-minor difficulties</th>
<th>Yes-definite difficulties</th>
<th>Yes-severe difficulties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

If you have answered "Yes", please answer the following questions about these difficulties:

- How long have these difficulties been present?

  - Less than a month
  - 1-3 months
  - 6-12 months
  - Over a year

- Do the difficulties upset or distress you?

  - Not at all
  - Only a little
  - Quite a lot
  - A great deal

- Do the difficulties interfere with your everyday life in the following areas?

  - HOME LIFE
  - FRIENDSHIPS
  - CLASSROOM LEARNING
  - LEISURE ACTIVITIES

- Do the difficulties make it harder for those around you (family, friends, teachers, etc.)?

  - Not at all
  - Only a little
  - Quite a lot
  - A great deal

Your Signature ..................................................................................................................

Today's Date ..................................................................................................................

Thank you very much for your help
Follow-Up Self-Report Questionnaire

Strengths and Difficulties Questionnaire

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of how things have been for you over the last month.

Your name: ........................................................................................................ Male/Female

Date of birth:..........................................................

<table>
<thead>
<tr>
<th></th>
<th>Not True</th>
<th>Somewhat True</th>
<th>Certainly True</th>
</tr>
</thead>
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</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>I get a lot of headaches, stomach-aches or sickness</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I usually share with others, for example CD’s, games, food</td>
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<td></td>
<td></td>
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<tr>
<td>I get very angry and often lose my temper</td>
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<td></td>
<td></td>
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<tr>
<td>I would rather be alone than with people of my age</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I usually do as I am told</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I worry a lot</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am helpful if someone is hurt, upset or feeling ill</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am constantly fidgeting or squirming</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have one good friend or more</td>
<td></td>
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<tr>
<td>I fight a lot. I can make other people do what I want</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I am often unhappy, depressed or tearful</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Other people my age generally like me</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am easily distracted, I find it difficult to concentrate</td>
<td></td>
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<tr>
<td>I am nervous in new situations. I easily lose confidence</td>
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<td></td>
<td></td>
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<tr>
<td>I am kind to younger children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am often accused of lying or cheating</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Other children or young people pick on me or bully me</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I often offer to help others (parents, teachers, children)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I think before I do things</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I take things that are not mine from home, school or elsewhere</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I get along better with adults than with people my own age</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I have many fears, I am easily scared</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I finish the work I'm doing. My attention is good</td>
<td></td>
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</tr>
</tbody>
</table>

Do you have any other comments or concerns?

Please turn over - there are a few more questions on the other side
Since coming to the clinic, are your child's problems:

<table>
<thead>
<tr>
<th>Much worse</th>
<th>A bit worse</th>
<th>About the same</th>
<th>A bit better</th>
<th>Much better</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Has coming to the clinic been helpful in other ways, e.g. providing information or making the problems more bearable?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Only a little</th>
<th>Quite a lot</th>
<th>A great deal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

Over the last month, has your child had difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?

<table>
<thead>
<tr>
<th>No</th>
<th>Yes-manner difficulties</th>
<th>Yes-definite difficulties</th>
<th>Yes-severe difficulties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

If you have answered "Yes", please answer the following questions about these difficulties:

- Do the difficulties upset or distress your child?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Only a little</th>
<th>Quite a lot</th>
<th>A great deal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

- Do the difficulties interfere with your child's everyday life in the following areas?

<table>
<thead>
<tr>
<th>HOME LIFE</th>
<th>FRIENDSHIPS</th>
<th>LEARNING</th>
<th>LEISURE ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

- Do the difficulties put a burden on you or the family as a whole?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Only a little</th>
<th>Quite a lot</th>
<th>A great deal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

Signature ........................................................................................................ Date ..........................................

Mother/Father/Other (please specify):

Thank you very much for your help © Robert Goodman, 2005