NOTE TO USERS

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Pathways to Resilience in First Nations Youth from a Remote Community: A Case for the

Ameliorative Effects of Intelligence and Social Perspective Coordination

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Abstract

Variables that promote resilience, adaptive functioning despite adversity, were examined in 37 First Nations adolescents from a remote region in Northern-Quebec. Intelligence, and social perspective coordination, the ability to negotiate the self's and other's points of view in social situations, were offered as moderators of the effect of stress on competence. Competence was defined as developmentally-appropriate functioning in academic, behavioural, and social domains, and stress was operationalized as a combination of negative life events and demographic stressors. Better intellectual functioning and perspective coordination abilities were commensurate with elevated levels of academic performance and positive classroom behaviours. Additionally, intelligence served a protective function in the relationship between stress and fighting behaviour. In the context of high stress, students with high levels of intelligence were involved in significantly fewer physical fights than their less intelligent peers. These results highlight the potential for adaptation in First Nations youths, and suggest a direction for future research that accentuates adaptation instead of pathology.

Résumé

Des variables qui ont pour but de promouvoir la résilience, un fonctionnement adaptif malgré

l'adversité, ont été examiné chez 37 adolescents des Premières Nations d'une region eloignée du

Nord du Québec. L'intelligence et la coordination de perspectives sociales, la compétence de

négotier le point de vue de soi et d'un autre dans des situations sociales, ont été offert come

modérateurs des effets du stress sur la compétence. La compétence a été défini comme un

functionnenment approprié au niveau du développement dans les domaines comportementaux,

académiques et sociaux. Le stress fût défini comme une combinaison de faits vécus negatifs ainsi

que des désavantages démographiques. Un meilleur fonctionnement intellectuel et la compétence

à coordonner des perspectives fûrent associées avec de bons résultats académiques et des

comportements positives dans la salle de classe. De plus, l'intelligence fonctionnat comme un

factor protectif dans la relation entre le stress et un comportement batailleur. Dans le contexte

d'un niveau de stress élevé, les élèves avec un haut niveau d'intelligence fûrent impliqués dans

moins de baguarres physique que leurs confrères moins intelligents. Ses resultats accentuent le

potentiel d'adaptation des jeunes des Premières Nations, et suggèrent une direction pour des

recherches futures accentuées sur l'adaptation plutôt que la pathologie.

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Pathways to Resilience in First Nations Youth from a Remote Community: A Case for the

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Psychological resources that promote resilience, successful adaptation despite adversity,

are a current focal point in developmental psychology and psychopathology (Masten &

Coatsworth, 1998; Rutter & Sroufe, 2000; Sroufe & Rutter, 1984). However, the pathways to

resilience are not well understood as varied definitions of competence and adversity abound

(Luthar, 1993; Luthar, Cicchetti & Becker, 2000; Masten et al., 1999), and adaptive pathways

appear to differ depending on the at-risk group under investigation (Luthar, 1995; 1997; Luthar

& Burack, 2000). Considering that adaptive processes may be group-specific, and that the

majority of the resilience literature focuses on children from urban industrialized societies,

researchers need to explore other "developmental niches" designating the interchange between

child, culture, and resilience (Super & Harkness, 1986; 1993). In this study, risk and resilience

are examined in a unique "developmental niche," a group of First Nations adolescents from a

remote community in Northern Canada.

Pathways toward resilience are largely unexplored in this group despite the many risk

factors facing these youths (Beiser, Sack, Manson, Redshirt & Dion, 1998; Cummins, Ireland,

Resnick & Blum, 1998; Garrett, 1999). First Nations youths are at-risk for suicide (Kirmayer,

1994; Lester, 1999; Range et al., 1999), substance abuse (Laframboise & Low, 1989; Oetting &

Beauvais, 1990), and school dropout (Government of Canada, 1989; Larose, 1991; Mackay &

Myles, 1989; Perley, 1993). The situation is further exacerbated for First Nations communities

in remote regions, as children from these communities achieve substantially lower levels of

education than their peers from rural and urban locales (Hull, 1990).

Since youth from remote communities fare worse than others, the primary aim of this paper is to inform the theoretical base surrounding First Nations youth from isolated locales by investigating variables that promote resilience in this population. In particular, intelligence and social perspective coordination abilities, the capability to coordinate the self's and other points of view in social situations, are offered as possible moderators of the relationship between adversity and social competence. Particular attention will be paid to research with inner-city minority youth as this group and First Nations youth from a remote community face many congruous challenges such as academic difficulties, limited employment opportunities (Arroyo & Zigler, 1995; Hull, 1990; Luthar & Burack, 2000), and stress associated with acculturation—the amendment of cultural values and beliefs to satisfy the majority culture (Arroyo & Zigler, 1995; Mosley-Howard, 1995; Ogbu, 1991).

Overview of the Present Study

Resilience research with inner-city minority youth is used as a framework for studying intelligence and social perspective coordination as moderators of the effect of stress on social competence in First Nations youth from a remote region in Northern Canada. The recent guidelines for resilience research that emphasize requisite detailed operationalizations of adverse conditions, adaptive outcomes, and possible moderator variables (Luthar, Cicchetti & Becker, 2000) were considered. Adverse , or stressful, conditions are events or situations that may pose a threat to typical development (e.g., low socioeconomic status). In this study, adverse conditions were defined as a combination of the number of recent negative life events experienced and the presence of two sociodemographic stressors. Adaptive outcomes are acceptable levels of functioning on developmentally-appropriate measures of competence (e.g., attachment to caregiver for infants, academic success for older children and adolescents, adequate job

performance for adults). In this study, adaptive outcomes were considered to be relative success in academics, conduct, and peer acceptance, three spheres of social competence that index later adaptation in adulthood (Masten et al., 1995). Moderators are inter-individual or intra-individual factors that affect the relationship between two other variables by either increasing or decreasing their correlations. Intelligence and social perspective coordination ability, two intra-individual variables, were examined as moderators of the relationship between stress and competence.

The need to explore pathways toward resilience in First Nations youth will be exposed through an account of the specific risks these youths face. Social competence, defined within a structural-organizational framework, will be discussed with reference to the manner it was measured in this study. Extant evidence regarding the influence of intelligence and social perspective coordination on the process of resilience will be considered and both are presented as possible moderators of the influence of stress on social competence. Finally, the affiliations between adversity, competence, and the moderators will be discussed in terms of regression models, and the terminology specific to each model will be highlighted.

Resilience in First Nations Youth

First Nations Youth: A Group At- Risk

Pathways toward resilience were explored in First Nations adolescents from a remote region since these youths face considerable risks. First Nations youth are susceptible to a variety of negative outcomes including substance abuse (Edwards & Edwards, 1990; Laframboise & Low, 1989), suicide (Kirmayer, 1994; Laframboise & Low, 1989; Lester, 1999; Range et al., 1999), and school dropout (Government of Canada, 1989; Larose, 1991; Mackay & Myles, 1989; Perley, 1993). First Nations youth are also confronted with the additional risk posed by acculturation. Acculturation is classically defined as "those phenomena which result when

groups of individuals having different cultures come into continuous first-hand contact with subsequent changes in the original culture patterns of either or both groups" (Redfield, Linton & Herskovits, 1936, p.149). Within the original definition of acculturation, cultural amendments were considered likely to occur in either cultural group whereas current evidence reveals that the majority of change occurs within the non-dominant group (Berry, 1990). Therefore, acculturation is presently defined as the degree to which values associated with one's culture of origin are modified or discarded to adopt those of the dominant culture (Mosley-Howard, 1995).

The acculturation process is largely determined by the way two main issues are handled by the non-dominant group, as delineated in Berry's acculturation framework (Berry, 1997). The first is "cultural maintenance," the extent to which cultural beliefs are valued and preserved, and the second, "contact and participation," is the extent to which involvement with the dominant culture is appreciated. The non-dominant group's "acculturation strategy" is determined by how these two issues are negotiated. According to Berry's acculturation framework, the non-dominant group may espouse one of four orientations. "Assimilation" is the adopted strategy of groups who reject their cultural heritage and identify wholly with the majority culture, whereas groups who refuse the dominant culture and affiliate solely with their culture of origin embrace "separation." "Integration," the harmonious balance between retaining cultural values and participating in the majority culture, is associated with positive outcomes (Luthar & Burack, 2000; Luthar & McMahon, 1996). Conversely, the fourth option, "marginalisation," is associated with negative outcomes such as poor academic performance (Arroyo & Zigler, 1995), depression (Fordham & Ogbu, 1986; Hovey & King, 1996), and suicidal ideation (Hovey & King, 1996). This strategy, adopted when there is disengagement from both the culture of

origin and the majority culture, is often dictated by imposed cultural loss and discrimination (Berry, 1997).

A history of enforced cultural loss (e.g., residential schools), and discrimination place First Nations groups at risk for "marginalisation"(Berry, 1997; Berry & Kalin, 1995; Garrett & Pichette, 2000), an orientation that is associated with substance abuse (Thomason, 2000; Young, 1988), and suicide (Lester, 1999) in this population. The risk of "marginalisation" and the negative outcomes associated with this strategy of acculturation may be aggravated for First Nations youth from a remote region where resources are restricted. These numerous adverse factors, encompassing a wide range of negative outcomes associated with geographical isolation, minority status, and acculturation, accentuate the need for an investigation of the patterns of resilience in First Nations youth from an isolated locale.

Social Competence

An examination of the pathways toward resilience in First Nations youth shifts the focus from pathology, the negative outcomes associated with risk, to adaptation, competent outcomes despite adversity (LaFramboise & Low, 1989). Social competence is broadly understood as developmentally-appropriate functioning in relation to societal expectations (Masten & Coatsworth, 1995; Sroufe & Rutter, 1984; Zigler & Trickett, 1978), and is measured with developmental tasks that are considered appropriate within the context of societal norms. For example, a socially competent toddler would display proficient daily living skills such as independent walking and eating (Luthar & Burack, 2000). Prospective evidence supports a tri-domain definition of social competence for adolescents, where successful negotiation of developmentally-appropriate tasks in academic, conduct, and social realms connote adaptation (Masten & Coatsworth, 1998; Masten et al., 1995). Accordingly, the pathways to successful

adaptation in these three domains of social competence were examined in this study as they are considered appropriate indicators of adaptation in adolescence.

<u>Possible Moderators of the Effect of Adversity on Social Competence</u>

<u>Intelligence: A protective or vulnerability factor?</u> Intelligence is associated with competence in academic, conduct, and social domains (Masten & Coatsworth, 1998). However, the precise role of intelligence in the pathway toward adaptation is unclear. Resilience theorists present intelligence as a moderator that serves both "protective,"(Tiet et al., 1998) and "vulnerability"(Vaillant & Davis, 2000) functions. Masten et al.(1988; 1999) determined that intelligence and stressful life events interacted to predict competence in the domain of conduct among a group of children from low and middle socioeconomic backgrounds. Intelligence was construed as a "protective factor," insulating children with high levels of intelligence against the deleterious effects of stress since children with high levels of intelligence were unaffected, but children with low levels of intelligence displayed declines in positive behaviours in the context of stress. However, Luthar (1991; 1997) found that the moderating effects of intelligence were consistent with a "vulnerability model" whereby high levels of intelligence placed adolescents at greater risk for negative outcomes. Inner-city minority adolescents with high levels of intelligence experienced significant declines in their school grades in stressful contexts, whereas students with low levels of intelligence were comparatively unaffected (Luthar, 1991; 1997).

The inconsistent findings regarding intelligence as a moderator in the resilience literature underscore the need to investigate the role that intelligence plays in the resilient pathways of various groups. However, the use of intelligence tests is problematic in research involving First Nations groups since these tests are often culturally biased and lead to poor scores that serve to promote negative stereotypes (Common & Frost, 1988; Senior, 1993). Thus,

intelligence was operationalized in this study with a relatively culture-free test, in order to examine resilient outcomes among First Nations youth from a remote community.

Social perspective coordination as a possible protective factor. In their review of the literature on competence, Masten and Coatsworth (1998) note that resilient children and adolescents are characteristically interpersonally adept. Social skills serve a protective function in insulating at-risk children and adolescents against adversity (Garmezy, 1991; Luthar, 1991; Reynolds, 1998), and social skills training can form the bedrock for intervention programs aimed at promoting resilience (Gager, & Elias, 1997; Meyer & Farrell, 1998).

Resilience may also be promoted by perspective coordination, the ability to recognize the self's and other perspectives, or points of view, and is considered a fundamental aspect in the development of appropriate relational competence (Chandler, 1973; Schultz & Selman, 1998; 2000; Selman, 1990). Both Chandler (1973) and Selman (1980) developed perspective coordination models within a structural-organizational framework, where perspective coordination is viewed as an emerging ability. Chandler's (1973) model accents abilities that correspond with elementary school aged children's understanding of social perspectives, whereas Selman's (1980) model encompasses perspective coordination capabilities that accrue into adulthood. Selman's model was implemented in this study to account for a wide range of perspective coordination abilities within the sample of First Nations youth.

Selman (1980) proposed a five-stage progression from egocentric to societal strategies of social perspective coordination. The egocentric stage is characteristically seen in pre-school-aged children who experience difficulties recognizing other perspectives. By the time children reach school-age, they are able to understand that other perspectives may stem from access to different sources of information, thus entering the differentiated perspective stage. The

reciprocal perspective stage emerges during pre-adolescence when children are able to view their own thoughts and feelings from another's perspective.   The mutual perspective stage is apparent in adolescence when the ability to view how a third party might construe theirs and another's perspective emerges. The societal perspective stage is typical of adult functioning and suggests an appreciation that third party perspectives can be influenced by societal norms. The measure of perspective coordination used in this study was formulated for use with pre-adolescents and adolescents, and therefore encompasses egocentric through mutual perspective coordination abilities.

The rationale for exploring social perspective coordination as a possible moderator of the relationship between stress and social competence in First Nations youth from a remote community is two-fold. One, developmentally-appropriate perspective coordination abilities are positively related to academic, behavioural, and interpersonal competence (Schultz & Selman, 1998; Vernberg, Ewell, Beery & Abwender, 1994; Yeates, Shultz & Selman, 1991), and protect at-risk adolescents from the deleterious effects of adversity (Beardslee, Schultz & Selman, 1987; Parker, Cowen, Work & Wyman, 1990). Thus, social perspective coordination may be related to social competence and might serve as an insulating factor against adversity in First Nations youth from a remote region. Two, an exploration of successful social perspective coordination in First Nations youth may advance the understanding of successful acculturation, the coordination of two cultural perspectives, in this group.

Putting it all Together: Relating the Relationship Between Adversity,

Social Competence, and the Moderators

Masten et al. (1988) delineate specific regression models by which the pathways to resilience may be tested and described, and each takes into consideration alternative

relationships among adversity, competence, and the potential moderators. The first is a simple positive and linear relationship between the moderator and competence, where the moderator is a significant main effect and serves an ameliorative function. The second is a simple negative and linear relationship between the measures of adversity and competence, where adversity is a significant main effect and serves to undermine competence. The third is the "compensatory model" where the moderator and adversity interact to stabilize competence levels in stressful contexts. The fourth is the "vulnerability model" in which a significant interaction effect is apparent between adversity and the moderator where high levels of the moderator subvert competence. The fifth is the "protective model" where significant interactions between adversity and the moderator promote competent outcomes despite stress. In this study, the affiliations among stress, measures of social competence, intelligence, and social perspective coordination were examined, and resilient pathways were described in accordance with Masten et al.'s (1988) guidelines .

<center>The Present Study</center>

<u>Resilience in First Nations Youth</u>

<u>Defining adversity</u>. The definition of adversity in this study replicates the one that Luthar (1991; 1993) employed in her research with inner-city minority youth. Adversity was indexed through a combination of negative life events and the presence of sociodemographic variables found to be associated with stress. These include one-parent households, and the presence of two or more siblings (Carson, Chowdhury, Perry & Pati, 1999; Luthar, 1993; Matlack, McGreevy, Rouse, Flatter, & Marcus, 1994; Seifer, Sameroff, Baldwin & Baldwin, 1992).

Defining competence. Social competence was also defined in accordance with Luthar's (1991) notion that it should be measured within academic, conduct, and social domains. Competence in the academic sphere (Academic Competence) was indexed through composite grades. Competent conduct was measured by both teacher-rated positive classroom behaviour (Classroom Adjustment) and self-reported fighting behaviour (Fighting). Competent peer reputation (Peer Acceptance) was indexed by having students choose peers whom they liked most and least from a list of names. Adaptation in these three spheres of competence reflect developmentally-appropriate functioning in adolescence (Masten & Coatsworth, 1998).

Defining the possible moderators. Intelligence, defined through a culture-neutral test, and perspective coordination, operationalized through a developmental measure, are offered as possible moderators of the relationship between stress and competence.

Hypotheses

The present study borrows from the resilience literature formulated on at-risk youth from urban industrialized locations to explore the pathways toward resilience in a group of First Nations youth from a remote region. Parallel pathways were expected to emerge as First Nations and inner-city youths face congruous challenges to successful adaptation, despite extensive cultural and ethnic differences (Arroyo & Zigler, 1995; Luthar & Burack, 2000). Within this context, the following hypotheses were examined. In light of the conflicting results regarding the role of intelligence in the resilience literature, both vulnerability and protective functions were explored. In accordance with Luthar's (1991) findings that intelligent students suffer significant declines in academic performance in stress-laden environments, high levels of intelligence were expected to subvert academic competence. However, consistent with Masten et al.'s findings (1988; 1999) that high levels of intelligence protect against negative outcomes in

the domain of conduct, intelligence was expected to serve a protective function in the relation between adversity and conduct. In accordance with previous research (Schultz & Selman, 1998; Yeates, Schultz & Selman, 1991; Vernberg, Ewell, Beery & Abwender, 1994), social perspective coordination abilities will be a positively related to the three measures of competence and serve to ameliorate the relation between risk and competence (Beardslee, Schultz & Selman, 1987).

Method

Participants

The participants in this study included 39 students (15 female) attending classes in a school on a remote First Nations reserve in Northern Quebec. All participants defined their culture as First Nations.   Their ages ranged from 11 to 17 years with a mean age of 13.2 years (SD = 1.91). The number of students by age group is presented in Table 1.

Measures

Measure of Academic Competence

Composite grades. Grades for all participants were obtained from school transcripts. A cumulative grade was calculated for each student by computing the mean of all their academic subjects.

Measure of Peer Preference

Peer ratings. The peer nomination method of sociometric assessment (Terry & Coie, 1991) was utilized to index peer preference. According to preliminary evidence (Dodge, 1985; Parke, 1992), the peer nomination method is appropriate for examining social preferences in older children and adolescents .

In this study, students were asked to identify a maximum of three peers whom they liked most and least from a list of names presented alphabetically and grouped according to grade. The number of students listed as liked most (LM) and liked least (LL) were summed separately and converted to z scores. Peer preference (PP) was calculated by subtracting the number of liked least nominations from the number of liked most nominations (PP=LM-LL) (Terry & Coie, 1991) .

Measures of Conduct

Teacher ratings. The Teacher-Child Rating Scale (T-CRS; Hightower et al., 1986) was used to assess each student's classroom conduct. The T-CRS was completed by the two classroom teachers who spent the most hours instructing each student's grade level.

The T-CRS is a 36 item questionnaire used to assess observable behaviours concerning classroom adjustment. Classroom behaviors are assessed within two areas that are comprised of three sub-domains. Adjustment includes Frustration Tolerance, Assertive Social Skills, and Task Orientation, and the area of Problems consists of Acting Out, Shy-Anxious, and Learning Problems. High scores within the Adjustment domain denote appropriate classroom conduct, whereas low scores within the Problems domain reflect the same. Hightower and colleagues (1986) reported appropriate psychometric properties for this measure.   In the present study, scores in the Problems domain were subtracted from scores in the Adjustment domain to index overall classroom adjustment.

Fighting. Participants completed question 25 of the 4+Rel-Q, "During the past six months, how many times, if any, were you in a physical fight?," to index fighting behaviour (4+Rel-Q; Shultz & Selman, 1997). This question is considered independent of questions 1

through 24 of the 4+Rel-Q, and is not included in the calculation of the social perspective coordination score. See Appendix A for the entire measure.

Measures of Adversity

Sociodemographic stress. Participants completed a self-report questionnaire used to assess sociodemographic variables associated with stress (Luthar, 1993). Students provided information regarding the number of siblings and adults living within the same residence. One-parent households, and the presence of two or more siblings were considered indices of stress. In this study, the presence of a stressor was given a value of one and its absence was given the value of zero. Sociodemographic stress was indexed in a cumulative fashion by summing the presence of each of the two sociodemographic stressors (maximum possible   value = 2).

Life event stress. Each participant completed a modified version of the Life Events Checklist (LEC; Johnson & McCutcheon, 1980). The Life Events Checklist is composed of 46 controllable (e.g. failing a grade) and uncontrollable (e.g. death of a parent, moving to a new home) events. Respondents were asked to indicate the events that they experienced in the last twelve months as well as to note whether these were perceived as positive or negative experiences.

The modified version of the checklist used in this study only included uncontrollable life events, since controllable life events may be confounded with measures of adjustment (Luthar, 1993; Masten et al., 1988). The version used in the present study included 18 events over which the participant could exercise little control. Simple counts of negative life events were used as an index of stress (Johnson & Bradlyn, 1988). Appropriate psychometric properties were reported for this measure (Johnson & McCutcheon, 1980). See Appendix A for the modified version of this measure.

Possible Moderators Between Adversity and Competence

Intelligence. The Raven's Standard Progressive Matrices (SPM; Raven, Court, & Raven, 1977), was used to assess intelligence. The SPM is psychometrically sound and is considered to measure general intelligence adequately (Kaplan & Saccuzzo, 1997). The SPM is an appropriate measure for assessing intelligence in First Nations children as it is considered to be culturally fair (Mills & Tissot, 1995; Raven et al., 1977), while the utility of other standardized tests of intelligence is questioned (Persi & Brunatti, 1987; Senior, 1993).

The SPM is comprised of five sets of matrices (A through E), each containing a logical design with a missing part. Participants were asked to select the missing part from up to eight choices. Sets A and B and the easier problems in Sets C and D are considered appropriate for children (Raven et al., 1977). In the present study Sets A through D were administered to encompass a wide range of abilities.

Social perspective coordination abilities. Each participant completed the grade 4+ version of the GSID Relationship Questionnaires (4+Rel-Q; Schultz & Selman, 1997). The 4+Rel-Q is a measure of social competence based on the developmental theory of perspective coordination, the capability to recognize and reconcile the self's and other's perspectives. The measure consists of 24 questions assessing relationship maturity with peers and adults in three areas, Interpersonal Understanding, Interpersonal Skills, and Personal Meaning.
The 4+Rel-Q is comprised of 5 subscales, Interpersonal Understanding, Hypothetical Negotiation, Perspective-Taking (or Perspective Coordination), Interpersonal Meaning, and Real-Life Negotiation. Each question on the 4+Rel-Q consists of 4 multiple-choice responses (rated by the respondent as poor, average, good, or excellent) and a best choice response.

Multiple-choice and best choice responses are assigned ratings of 0, 1, 2, or 3, based on their maturity level with regard to social perspective coordination within each specific subscale. Both subscale and composite scores were calculated for each participant. Subscale scores were created by averaging across item and best choice responses within each domain. An index of overall social perspective coordination ability was produced by taking the mean of the five subscales (Schultz & Selman, 2000). Appropriate psychometric properties were reported for this measure (Schultz & Selman, 1998). The entire measure is presented in Appendix A .

Procedure

A team of research assistants visited the school daily for one week near the end of November. The participants completed the questionnaires in a classroom with their peers over a period of two to four days, with one to three sessions a day depending on the class schedule. The questionnaires were read aloud by research assistants to avoid confounds associated with reading level. The demographics questionnaire was presented first followed by the Life Events Checklist, the GSID 4+ RelQ, Raven's Standard Progressive Matrices, and the peer ratings. The questionnaires were presented in the same order for each grade level.

Results

Descriptive Statistics

Intercorrelations among the measures of competence, adversity, and the moderators are presented in Table 2. These simple correlations indicate that high competence was generally related to low stress levels and high IQ and high perspective coordination abilities. Intelligence was positively related to academic competence, peer acceptance, and positive classroom conduct. Social perspective coordination abilities were positively related to academic competence, positive classroom conduct, and negatively related to fighting behaviour and stress.

<u>Hierarchical Multiple Regressions</u>

In accordance with previous studies (Luther, 1991; Masten et. al., 1988; 1999), this study uses hierarchical multiple regression to examine pathways to resilience in a specific sample of disadvantaged youths. Four sets of hierarchical multiple regressions were conducted to test the affiliations between adversity, resources (intelligence and social perspective coordination abilities), and competence (see Luthar, 1991; Masten et al., 1988; 1999 for similar designs). Hierarchical multiple regression accounts for the intercorrelations among the predictors and indexes each predictor's unique contribution to explaining the variability within the criterion (Cohen & Cohen, 1983).

An ordered series of predictors was regressed on to each of the four measures of competence (academic competence, peer preference, classroom behaviour, and fighting behaviour) separately. In accordance with Tabachnick and Fidell's (1989) suggestion for an appropriate participant to variable ratio, approximately 8 participants per variable were included. Predictors were entered in five steps beginning with intelligence followed by perspective coordination (steps1 and 2), and adversity (step 3).

Steps 1 through 3 were used to test the main effects of each predictor on the criterion. Interactions between stress and IQ, and stress and perspective coordination were created in order to test the possible moderating effect of IQ and social perspective coordination on measures of competence. Scores on intelligence, perspective coordination, and stress measures were centered prior to creating these interaction terms (Aiken & West, 1991). The interaction between stress and IQ was entered at step 4 followed by the interaction between social perspective coordination and stress (step 5) to preserve the order of the main effects.

The incremental change in the predicted variance that each predictor adds is denoted by ΔR^2. The criterion for significance is $p<.05$.

Academic competence. The results of the regressions on academic competence as the dependent variable are presented in Table 3. Intelligence and social perspective coordination significantly predicted academic competence. The entire regression model accounted for 34 % of the variability within the grades. Intelligence explained approximately 23% of this, while social perspective coordination accounted for an additional 11 %.

Preference with peers. The results of the regressions on peer social competence as the dependent variable are presented in Table 4. The entire regression model significantly accounted for 26% of the variability within peer preference. Intelligence and stress significantly predicted peer preference. Intelligence explained 11% of this, while stress accounted for an additional 10%. Adolescents with higher intelligence, and those experiencing less stress were preferred by their peers.

Classroom conduct. The results of the regressions with teacher-rated positive classroom conduct as the dependent variable are presented in Table 5. 48% of the variability within classroom conduct was predicted by the entire regression model. Intelligence and social perspective coordination were significant predictors of positive classroom conduct. Intelligence accounted for 21% of the explained variability, and perspective coordination abilities accounted for an additional 21%. Increases in intelligence and perspective coordination levels were related to increases in appropriate classroom conduct.

Fighting behaviour. The results of the regressions with self-reported fighting behaviour as the dependent variable are presented in Table 6. The entire regression model was significant and explained 45% of the variability within fighting. Intelligence and perspective coordination

were significant predictors of fighting behaviour, as those with higher levels of each reported

lower levels of fighting. Intelligence predicted approximately 22 % of the explained variability

within fighting while perspective coordination abilities explained an additional 8%. The

interaction between stress and IQ was also a significant predictor of fighting behaviour,

explaining another 8% of the variability in the criterion.

The significant interaction effect was interpreted by running four simultaneous regression

equations with high and low combinations of intelligence and stress (½ $\underline{SD}$, above and below

the mean of zero on each) with all other values at the mean of zero (see Luthar, 1991; Masten et

al., 1988; 1999 for similar methods). These were solved and plotted at step 6 before the other

interaction effect was entered, but after the main effects were removed.   Figure 1 is a depiction

of IQ as a moderator in the relationship between adversity and fighting behaviour. Students with

high and low IQs engaged in similar levels of fighting behaviour when stress was minimal,

and both groups experienced increases in fighting behaviour under high levels of stress.

However, students with low IQs were involved in considerably more physical fights than

students with high IQs within the context of stress, a pattern consistent with the protective

function of intelligence.

Discussion

Pathways toward resilience, competent functioning despite adversity, were examined in

First Nations youths from a remote region. Competence was defined in terms of

developmentally-appropriate academic performance, conduct, and social functioning with peers,

and stress was operationalized as a combination of negative life events and demographic

stressors.

Intelligence and social perspective coordination abilities were presented as possible moderators in the pathway toward resilience. The exploration of variables involved in the promotion of resilience is paramount as these youths are exposed to many adverse conditions associated with minority status, geographical isolation, and acculturation. However, most investigations involving First Nations groups emphasize a framework of pathology, where negative outcomes associated with risk are highlighted (LaFramboise & Low, 1989). The primary aim of this study was to shift the focus from pathology to adaptation, through the examination of psychological resources.

Intelligence as a Moderator

The construct of intelligence is rarely presented as a resource in First Nations groups, and is often associated with negative outcomes (Common & Frost, 1988; Senior, 1993). Thus, this study borrowed from extant research involving disadvantaged youth from industrialized communities to investigate the effects of intelligence as a moderator between adversity and competence. The evidence is mixed with regard to the specific role intelligence plays in the pathway to resilience as it serves both "protective" and "vulnerability" functions. Masten et al. (1988; 1999) promote the protective effect of intelligence since high cognitive functioning levels served to increase behavioral competence in stress-laden environments among children from low and middle socioeconomic backgrounds. However, Luthar (1991; 1997) provides evidence of an association with vulnerability as inner-city minority youth with high levels of intelligence suffered decreases in academic competence within stressful contexts. The inconsistent findings regarding intelligence as a moderator in the resilience literature underscore the need to examine the role of intelligence in the pathways to resilience in other groups.

The findings from this investigation supported the significance of intellectual functioning as a marker of adaptation in First Nations youth from a remote region. Higher non-verbal IQs were associated with elevated levels of academic performance, positive classroom behaviours, and peer preference. These results are consistent with research involving normally-developing adolescents from nurturing environments (Masten & Coatsworth, 1998), and suggest that competence is promoted in a parallel fashion among this group of First Nations youth from a remote region and youths faced with minimal risks.

In accordance with findings that promote the insulating role of intelligence in the domain of conduct, (Masten et al., 1988; 1999), intelligence served a protective function in the relationship between stress and fighting behaviour. In the context of high stress, students with high levels of intelligence were involved in significantly fewer physical fights than their less intelligent peers. High levels of non-verbal IQ protected these youths from the possible deleterious effects of stress. This suggests that higher intellectual functioning may be beneficial in sustaining developmentally-appropriate levels of competence in unfavorable conditions.

The moderating effects of intelligence were also examined in the context of earlier research on inner-city minority youth, since First Nations youth share many parallel challenges with this group such as acculturation, academic failure, and the perception of job ceilings (Arroyo & Zigler, 1995; Luthar & Burack, 2000). Luthar (1991) found that intelligence was a vulnerability factor in its relationship with academic competence, where high levels of intelligence and stress were associated with decreased academic functioning in inner-city minority youths. The current results are not consistent with those presented by Luthar (1991). This suggests that cultural and geographical nuances may promote differing pathways toward

resilience among inner-city minority and First Nations youth, although the two groups may share some congruous challenges.

Perspective Coordination as a Moderator

Perspective coordination is the ability to negotiate the self's and other's points of view in a social situation, and is a fundamental aspect of competent relational functioning. This ability is associated with academic, behavioural, and interpersonal competence (Schultz & Selman, 1998; Yeates, Schultz & Selman, 1991), and is implicated in pathways to resilience by insulating at-risk adolescents from the rigors of adversity (Beardslee, Schultz & Selman, 1987; Parker, Cowen, Work & Wyman, 1990). Thus, social perspective coordination was explored as a moderator between stress and adversity in this group of First Nations youth from a remote region.

The findings supported the significance of social perspective coordination as an index of adaptation as higher social perspective coordination abilities were associated with increased levels of both academic and behavioural competence. Consistent with previous research, (Schultz & Selman, 1998; Yeates, Schultz & Selman, 1991), adolescents with better social perspective coordination abilities displayed commensurate increases in grades and positive classroom behaviours, and decreases in fighting behaviour. Thus, social perspective coordination abilities serve to promote adaptive outcomes in this group of First Nations youth from an isolated community. Although the domains of competence examined in this study included only school-based measures, these findings may be extrapolated to include competent functioning in other areas such as acculturation.

Limitations

Certain limitations of this study necessitate caution in interpreting the findings. First

Nations youth from a remote community are unique in terms of cultural background, and

geographical location. The findings from this study may not even generalize to other remote

First Nations communities as each region has specific resources that may be associated with

resilient pathways. Also, the relatively small sample size limits the statistical power of the

present analyses.

In addition to methodological limitations, the measures of stress and competence

employed in this study may also present concerns. Current evidence suggests that the peer

nomination method may not be an adequate measure of social functioning in adolescence

(Englund, Levy, Hyson, & Sroufe, 2000). Relationships at this stage of development are

complex and a simple index of liked most minus liked least nominations does not adequately

represent the processes underlying relational functioning. Thus, a measure of social competence

that considers the complex nature of adolescent relationships would be more appropriate.

Likewise, measures should be sensitive to the complexities involved in minority, and more

specifically, First Nations status. The measures of stress and competence in this study were

based on research from other groups, and may not reflect the domains of competence and stress

specific to First Nations youth.

Implications and Conclusions

The results of this study highlight the potential for adaptation among First Nations

youths, as they evidenced competent outcomes despite risk. Increased levels of intelligence and

perspective coordination abilities promoted competent functioning in academic, social, and

behavioural realms. The pattern of findings from this study differs from previous work with

inner-city minority youth (Luthar 1991;1997; Luthar & Burack, 2000). Thus, the construct of resilience must be considered within specific cultural and geographical contexts.

According to Masten and Coatsworth (1998), studies of risk and resilience form the bedrock of intervention programs that both foster competence and prevent problems. This study offers some guidance for those seeking to improve the odds of competent functioning in First Nations youths from remote communities. Within the context of adversity, the adolescents in this sample displayed developmentally-appropriate levels of functioning in academics, conduct, and peer relations when social perspective coordination and non-verbal cognitive processing skills were intact. Thus, programs that promote these fundamental skills may ameliorate adverse situations and prevent negative outcomes. One such program developed by Chalmers and Townsend (1990) accentuated the applicability of social perspective coordination training to improving behavioral competence in disadvantaged adolescents involved in frequent delinquent activity. In light of the previous success with other populations, social perspective coordination training programs may have a place in interventions aimed at First Nations youth. However, practitioners should consider that the success of such training programs has yet to be established in this population.

In conclusion, the present findings highlight the contribution of a unique minority population to the discussion of resilience. This study accentuates the capacity toward resilience in First Nations youth from remote communities and suggests a direction for future research that highlights adaptation instead of pathology. Future researchers should investigate the extent to which these findings generalize to other First Nations groups, and to culture-specific operationalizations of stress and competence.

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Table 1

The Number of Students by Age

Age	n
11 Years	6
12 Years	14
13 Years	1
14 Years	6
15 Years	3
16 Years	4
17 Years	3

Table 2

Intercorrelations Among the Possible Moderators, Measures of Competence, and Adversity

	1	2	3	4	5	6
1. Intelligence						
2. Perspective Coordination	0.28					
3. Peer Preference	0.33*	0.17				
4. Grades	0.49**	0.45**	0.32			
5. Classroom Conduct	0.42**	0.39*	0.17	0.77**		
6. Fighting	-0.25	-0.35*	-0.24	-0.45**	-0.24	
7. Stress	-0.18	-0.36*	-0.39*	-0.21	-0.14	0.21

Note: * $p < .05$, ** $p < .01$

Table 3

Results of Hierarchical Regression Analyses for the Prediction of Grades

Step and Predictor	Multiple R	F	Rsquared	ΔRsquared
1. Intelligence	0.23	10.18**	0.225	0.225**
2. PC	0.33	8.50***	0.333	0.108*
3. Stress	0.33	5.51**	0.334	0.000
4. Stress by IQ	0.33	4.01**	0.334	0.000
5. Stress by PC	0.33	3.11*	0.334	0.000

Note. PC denotes social perspective coordination.

* p<.05, ** p<.01, ***p<.001

Table 4

Results of Hierarchical Regression Analyses for the Prediction of Peer Preference

Step and Predictor	Multiple R	F	Rsquared	ΔRsquared
1. Intelligence	0.33	4.12*	0.105	0.105*
2. PC	0.34	2.16	0.113	0.007
3. Stress	0.46	2.90	0.212	0.099*
4. Stress by IQ	0.50	1.73	0.246	0.034
5. Stress by PC	0.50	2.09	0.252	0.006

Note. PC denotes social perspective coordination.

*p<.05

Table 5

Results of Hierarchical Regression Analyses for the Prediction of Conduct Based on Teacher

Ratings of Classroom Behaviour

Step and Predictor	Multiple R	F	Rsquared	ΔRsquared
1. Intelligence	0.46	3.00*	0.214	0.212**
2. PC	0.66	6.03***	0.430	0.216**
3. Stress	0.66	4.77**	0.435	0.005
4. Stress by IQ	0.66	3.92**	0.439	0.004
5. Stress by PC	0.69	3.81**	0.479	0.040

Note. PC denotes social perspective coordination.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6

Results of Hierarchical Regression Analyses for the Prediction of Conduct Based on Self-

Reported Fighting Behaviour

Step and Predictor	Multiple R	F	Rsquared	ΔRsquared
1. Intelligence	0.47	9.94**	0.221	0.221** [a]
2. PC	0.55	5.89**	0.303	0.082* [a]
3. Stress	0.55	2.75*	0.307	0.004
4. Stress by IQ	0.62	3.13*	0.387	0.080*
5. Stress by PC	0.67	3.43**	0.456	0.069

Note. [a] denotes a significant negative relationship

   PC denotes social perspective coordination

   * $p < .05$, ** $p < .01$

Figure 1
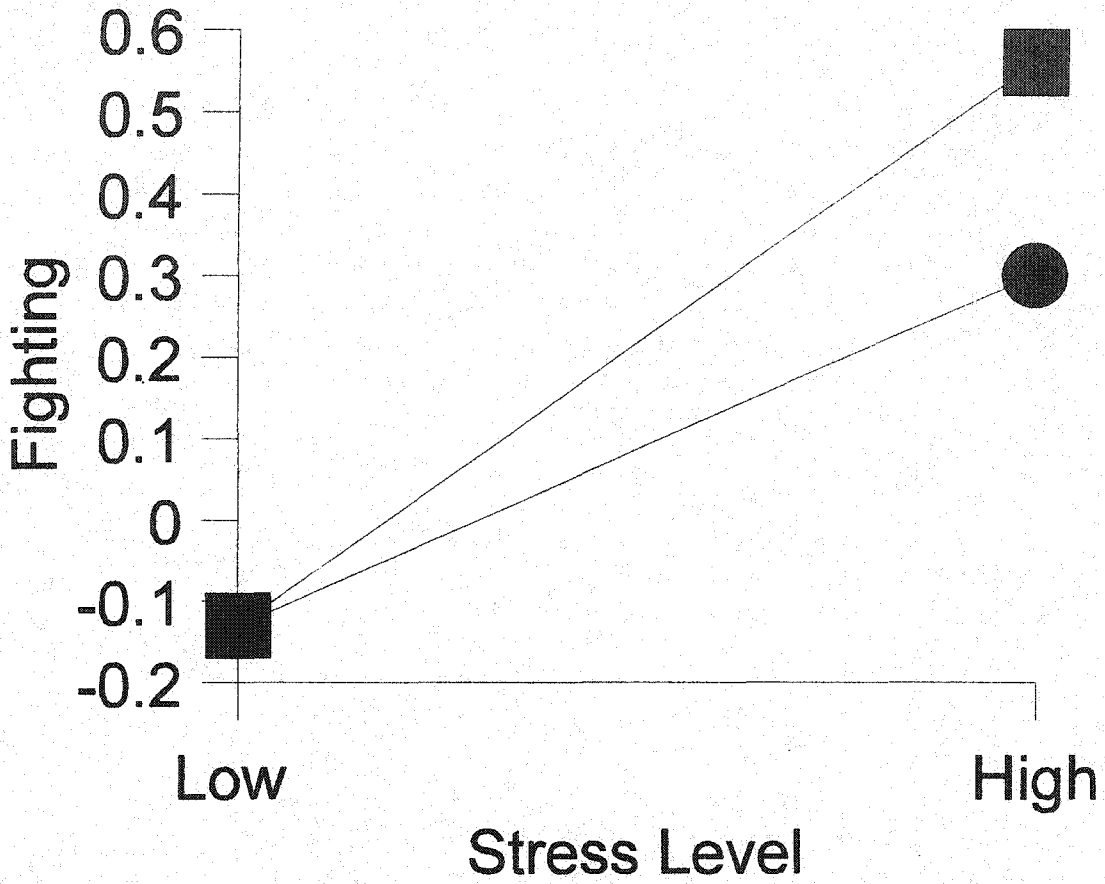
Appendix A: Measures

LEC

Below is a list of things that sometimes happen to people. For each of the events that has happened in your life during the last year, circle Yes. If that thing has not happened to you in the last 12 months, circle No.

For each of the things you circle Yes, move to the second set of columns and circle whether you see that event as a Good event or a Bad event. Please do not circle both good and bad for the same event.

1. Moving to a new home....................................	Yes / No	Good / Bad
2. New brother or sister.....................................	Yes / No	Good / Bad
3. Changing to new school.................................	Yes / No	Good / Bad
4. Serious illness or injury of family member........	Yes / No	Good / Bad
5. Parents divorced...	Yes / No	Good / Bad
6. A lot of arguments between parents.................	Yes / No	Good / Bad
7. Mother or father lost job...............................	Yes / No	Good / Bad
8. Death of family member.................................	Yes / No	Good / Bad
9. Parents separated..	Yes / No	Good / Bad
10. Death of close friend...................................	Yes / No	Good / Bad
11. Parent often absent from home......................	Yes / No	Good / Bad
12. Brother or sister leaving home.......................	Yes / No	Good / Bad
13. Serious illness or injury of close friend...........	Yes / No	Good / Bad
14. Parent getting into trouble with the law...........	Yes / No	Good / Bad
15. Parent getting a new job..............................	Yes / No	Good / Bad
16. New stepmother or stepfather.......................	Yes / No	Good / Bad
17. Parent going to jail......................................	Yes / No	Good / Bad
18. Change in how much money parents have........	Yes / No	Good / Bad

GSID Relationship Questionnaire

Grades 4+

* Version 4.0 *

This questionnaire is not a test and there are no right or wrong answers to any of the questions. Each student will have different opinions, thoughts, and feelings about different issues or situations. We are interested in your experiences and what you think about certain things. We hope you will find these questions interesting.

STUDENT INSTRUCTIONS:

☞ 1. For each incomplete sentence, indicate with a check mark whether you think that each sentence completion choice is POOR, OK, GOOD, or EXCELLENT.

☞ 2. Next, write the letter (a, b, c, or d) of the choice that you think is the best in the box provided.

EXAMPLE

It is good to work hard in school because

	Poor	OK	Good	Excellent
a. you might win an award	☐	☐	☐	☐
b. you don't have a choice about being there, so you might as well	☐	☐	☐	☐
c. you will feel good about yourself	☐	☐	☐	☐
d. it will make your parents happy	☐	☐	☐	☐

Write the letter (a, b, c, or d) of the choice that you think is the best in this box: ☐

I AM A GIRL ☐

I AM A BOY ☐

Jody doesn't like the idea of shoplifting or stealing things from stores. One day Jody's best friend Naomi says she is going to steal something from a store and asks Jody to go with her. Jody says she doesn't want to, and Naomi calls her a wimp. Jody could

	Poor	OK	Good	Excellent
a. tell Naomi not to steal.	☐	☐	☐	☐
b. explain to Naomi why she thinks stealing is wrong and talk her into not stealing.	☐	☐	☐	☐
c. persuade Naomi that stealing is not worth the risk of getting caught.	☐	☐	☐	☐
d. just walk away.	☐	☐	☐	☐

Write the letter (a, b, c, or d) of the choice that you think is the best in this box: ☐

Steve and Carlos are friends. One day at school, they try to decide what they want to do that night. Steve wants to invite a new kid in school to go the movies with him and Carlos. Carlos wants to go to the movies alone with Steve. Carlos could

	Poor	OK	Good	Excellent
a. tell Steve that he can't go because he's sick	☐	☐	☐	☐
b. tell Steve he won't go	☐	☐	☐	☐
c. explain to Steve why he wants the two of them to go alone, ask Steve to explain his position, and then figure out what to do	☐	☐	☐	☐
d. tell Steve he'll go to the movies with Steve and the new kid if he and Steve can do something alone together later	☐	☐	☐	☐

Write the letter (a, b, c, or d) of the choice that you think is the best in this box: ☐

11. Amy is very athletic and likes sports. She particularly likes baseball and decides to try out for the neighborhood Little League team one spring, even though there are no other girls on the team. During the tryouts, some of the boys start "dissing" her, saying that baseball is for boys and that they don't want her on the team. Amy tries out anyway, but the next day when the coach announces who made the team, Amy is not chosen. Amy could

	Poor	OK	Good	Excellent
a. tell the coach "I know I played better than some of the boys who made the team and you know I deserve to be on it."	☐	☐	☐	☐
b. say to the coach what she thinks about not making the team.	☐	☐	☐	☐
c. slam her locker door and tell her friends what she thinks of the coach.	☐	☐	☐	☐
d. go to the coach to hear his reasons for not putting her on the team and explain her point of view to him.	☐	☐	☐	☐

Write the letter (a, b, c, or d) of the choice that you think is the best in this box: ☐

14. Dan's grandfather doesn't speak English and needs to find a job. Dan, who <u>does</u> speak English, goes out with his grandfather to help him find work. Dan sees a restaurant with a Help Wanted sign in the window and goes inside to speak with the owner. Because his family needs money so badly, Dan lies to the man, telling him that his grandfather knows how to cook. Dan also lies to his grandfather, telling him the owner has hired him even though he *knows* he isn't a cook. Dan lies to his grandfather because he

	Poor	OK	Good	Excellent
a. is thinking only about himself and not about how his grandfather might feel.	☐	☐	☐	☐
b. is thinking about earning money to feed his family, and so he didn't think about how his grandfather might feel.	☐	☐	☐	☐
c. thought that once he had time to explain the situation to his grandfather, he'd understand and forgive him.	☐	☐	☐	☐
d. thought his grandfather would be upset if he knew Dan had lied to the man hiring cooks.	☐	☐	☐	☐

Write the letter (a, b, c, or d) of the choice that you think is the best in this box: ☐

15. My closest friends are important to me because:

	Poor	OK	Good	Excellent
a. they make me feel better about myself	☐	☐	☐	☐
b. they like me	☐	☐	☐	☐
c. they help me stay out of trouble	☐	☐	☐	☐
d. we can talk to each other about anything	☐	☐	☐	☐

Write the letter (a, b, c, or d) of the choice that you think is the best in this box: ☐

19. If someone calls my mother a name or insults me
n school I would FIGHT THEM because:

	Poor	OK	Good	Excellent
a. if I let them get away with it once they'll do it again	☐	☐	☐	☒
b. it gets me mad	☐	☐	☐	☐
c. even though I know that fighting is not always in my best interest, sometimes there's no other way to deal with disrespect	☐	☐	☐	☐
d. you don't let anybody mess with you or your family	☐	☐	☐	☐

Write the letter (a, b, c, or d) of the choice that you think is the best in this box: ☐

0. If someone calls my mother a name or insults me
n school I would NOT FIGHT THEM because:

	Poor	OK	Good	Excellent
a. I could get hurt	☐	☐	☐	☒
b. I don't want to get into trouble	☐	☐	☐	☐
c. I only fight when someone hits me	☐	☐	☐	☒
d. fighting's not going to make me feel better or solve anything	☐	☐	☐	☐

Write the letter (a, b, c, or d) of the choice that you think is the best in this box: ☐

21. My best friend and I do things separately
sometimes because:

	Poor	OK	Good	Excellent
a. we ignore each other when we've had a fight	☐	☐	☐	☒
b. we can't agree about what to do	☐	☐	☐	☐
c. we like to do different things	☒	☐	☐	☒
d. our friendship is secure without always being together	☐	☐	☐	☐

Write the letter (a, b, c, or d) of the choice that you think is the best in this box: ☐

5. During the past SIX MONTHS, how many times, if any, were you in a physical fight?

     a. 0 times ☐
     b. 1 time ☐
     c. 2 or 3 times ☐
     d. 4 or 5 times ☐
     e. 6 or 7 times ☐
     f. 8 or 9 times ☐
     g. 10 or 11 times ☐
     h. 12 or more times ☐

Appendix B: Sample Consent Form and Certificate of Ethical Acceptability

Informed Consent Form

- I allow my child to participate in this study of social and school based ability. I have been advised that my child will be asked to complete some questionnaires. These questionnaires present no known risk, and have been used before with children of the same age as my child.

- I understand that my child will be given a task that will assess his or her general ability to reason. I understand that my child will be seen in approximately three sessions that will last between 30 and 45 minutes.

- I understand that my child's homeroom teacher will be asked to fill out a short questionnaire on my child's school behavior.

- I understand that the information gathered from my child will be used to further knowledge in the area of social and school based ability. All the information collected about my child will be stored in a locked room. In addition, I consent to allowing the researchers access to my child's school files so long as the information is kept in strict confidence and never made public.

- I understand that my child may refuse to answer any questions and may end his or her participation in the study at any time.

- I understand that my child's performance on this study, and the teacher's responses to the questionnaire will in no way affect my child's educational status at school.

- Any specific information collected is confidential and is protected under the Freedom of Information and Protection of Privacy Act 1989 (Bill 49), and, unless compelled by law, will only be seen by the researchers directly involved in this project.

- I understand that the investigator will be glad to answer any questions in regard to the procedures of this study.

- I understand that the data gathered may provide answers to important questions about the development of school and social abilities in children and that the aim of the study is to obtain data about children in general. The data will not provide a specific evaluation of my child, nor will it be used to provide any diagnosis of problems or disabilities.

- I have been advised that the data will be used for research purposes only. I consent to the publication of the study results so long as they are presented in a manner that does not identify my child.

I have read and understand the above explanations and voluntarily consent for my child to participate in this study.

_____   _____
Date   Signature of Parent or Authorized Representative

Name of Student:_____