EXAMINING THE RELATIONSHIP BETWEEN MOTHER AND TEACHER RATINGS OF KINDERGARTEN STUDENTS' BEHAVIOUR USING A STRENGTH-BASED MEASURE

by

Jillian Popovic

B.A., McMaster University, 2005

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

in

The Faculty of Graduate Studies

(School Psychology)

THE UNIVERSITY OF BRITISH COLUMBIA

(Vancouver)

August 2008

© Jillian Popovic, 2008

Abstract

The Devereux Early Childhood Assessment (DECA; LeBuffe & Naglieri, 1999), a standardized strength-based measure, was used with 125 kindergarten children from two different regions in British Columbia to investigate the relationship between mother and teacher ratings of students' strengths and behaviour problems. Results suggest that the level of agreement between mother and teacher ratings for children's strengths is similar to the level of agreement between mother and teacher ratings for children's problem behaviours. The level of agreement between motherreported and teacher-reported scores was found to be low for all DECA scales and most DECA items, with some differences found upon examination of the sample by gender. The findings revealed three main trends: first, a higher degree of correspondence and a lower degree of difference was found between mother and teacher ratings for the Self-Control scale and items, compared to the other scales and items; second, a lower degree of correspondence and a higher degree of difference was found between mother and teacher ratings for the Attachment scale and items, compared to other scales and items; third, the level of agreement between mothers and teachers ratings was higher for boys than for girls. These patterns of cross-informant correspondences and differences are discussed in the context of the need for practitioners to obtain rating information from both mothers and teachers, since each rater provides a unique perspective. Furthermore, the importance of highlighting children's strengths in the assessment process is emphasized.

Abstract	ii
Table of Contents	iii
List of Tables	v
List of Figures	vii
Acknowledgements	viii
CHAPTER I: Introduction	1
Definition of Key Terms	
Purpose of Study and Research Questions	
CHAPTER II: Literature Review	6
Social-Emotional Development in Young Children	6
Resilience in Childhood: Considering Risk and Protective Factors	
Assessment of Young Children	10
Strength-Based Assessment	
Discrepancies in Patings by Different Informants and Easters Associated	
with the Discremencies	1
Child Characteristics	10
Derent Characteristics	
Teacher Characteristics	
CHAPTER III: Method	
Overview	24
Purpose of Study and Research Questions	24
Participants	25
Recruitment Process	25
Setting	
Description of Sample	
Measures	
Data Collection Procedure	
Parent Data	
Teacher Data	
Data Scoring	
Data Analysis	
CHAPTER IV. Results	20
Overview	
Dreliminary Analysis	
Descriptive Statistics	
Assumptions	

Table of Contents

Research Question 1: Correspondence between Raters for DECA Scales	45
Research Question 2: Differences between Raters for DECA Scales	46
Research Question 3: Correspondence between Raters for DECA Items	49
Initiative Scale	. 49
Self-Control Scale	. 51
Attachment Scale	. 52
Behavioral Concerns Scale	54
Research Question 4: Differences between Raters for DECA Items	. 56
Initiative Scale	. 56
Self-Control Scale	. 59
Attachment Scale	. 60
Behavioral Concerns Scale	62
CHAPTER V: Discussion	65
Overview	. 65
Correspondence between Mother and Teacher Ratings for Scales and Items	65
Scale-Level Correspondence	. 65
Item-Level Correspondence	65
Differences between Mother and Teacher Ratings for Scales and Items	67
Scale-Level Differences	. 67
Item-Level Differences	. 68
Limitations of the Study	71
Strengths of the Study	. 72
Ethical Considerations	. 73
Implications for School Psychologists and Future Research	. 74
Conclusions	. 78
References	79
Appendix A: DECA Scale Descriptions	. 89
Appendix B: DECA Item Descriptions	91
Appendix C: Normality Plots for DECA Scales not Meeting Assumption of Normality.	93
Appendix D: Correlations Tables for Correspondence Between Mother-Reported and Teacher-Reported Ranks for Items on the DECA Scales for the Total Sample and by Gender	99

List of Tables

Table 3.1 Demographic Characteristics of Mother Respondents
Table 3.2 Cronbach's Alpha Values of the DECA Scales for Mothers and Teachers 33
Table 4.1 Mean Values, Standard Deviations and Ranges for Mother and TeacherDECA Scale Scores
Table 4.2 Mean Values, Standard Deviations and Ranges for Mother and TeacherDECA Scale Scores by Gender
Table 4.3 Intercorrelations for Mother- and Teacher-Rated DECA Scale Scores for the Total Sample
Table 4.4 Intercorrelations for Mother- and Teacher-Rated DECA Scale Scores for Boys
Table 4.5 Intercorrelations for Mother - and Teacher-Rated DECA Scale Scores for Girls
Table 4.6 Correlations between Mother - and Teacher-Rated DECA Scale Scores forthe Total Sample and by Gender
Table 4.7 Paired-Samples t-tests for DECA Scale Scores for the Total Sample and by Gender
Table 4.8 Kendall's Tau Correlations for Items on the Initiative Scale for the TotalSample and by Gender
Table 4.9 Kendall's Tau Correlations for Items on the Self-Control Scale for theTotal Sample and by Gender
Table 4.10 Kendall's Tau Correlations for Items on the Attachment Scale for the Total Sample and by Gender
Table 4.11 Kendall's Tau Correlations for Items on the Behavioral Concerns Scale forThe Total Sample and by Gender
Table 4.12 Wilcoxon Signed Rank Tests for Items on the Initiative Scale for the TotalSample and by Gender
Table 4.13 Wilcoxon Signed Rank Tests for Items on the Self-Control Scale for theTotal Sample and by Gender

Table 4.14 Wilcoxon Signed Rank Tests for Items on the Attachment Scale for theTotal Sample and by Gender
Table 4.15 Wilcoxon Signed Rank Tests for Items on the Behavioral Concerns for the Total Sample and by Gender
Table D1 Correlations Between Mother- and Teacher-Reported Ranks for Items on the Initiative Scale for the Total Sample
Table D2 Correlations Between Mother- and Teacher-Reported Ranks for Items on the Initiative Scale for Boys 100
Table D3 Correlations Between Mother- and Teacher-Reported Ranks for Items on the Initiative Scale for Girls
Table D4 Correlations Between Mother- and Teacher-Reported Ranks for Items on the Self-Control Scale for the Total Sample
Table D5 Correlations Between Mother- and Teacher-Reported Ranks for Items on the Self-Control Scale for Boys
Table D6 Correlations Between Mother- and Teacher-Reported Ranks for Items on the Self-Control Scale for Girls
Table D7 Correlations Between Mother- and Teacher-Reported Ranks for Items on the Attachment Scale for the Total Sample
Table D8 Correlations Between Mother- and Teacher-Reported Ranks for Items on the Attachment Scale for Boys
Table D9 Correlations Between Mother- and Teacher-Reported Ranks for Items on the Attachment Scale for Girls
Table D10 Correlations Between Mother- and Teacher-Reported Ranks for Items on the Behavior Concerns Scale for the Total Sample
Table D11 Correlations Between Mother- and Teacher-Reported Ranks for Items on the Behavior Concerns Scale for Boys
Table D12 Correlations Between Mother- and Teacher-Reported Ranks for Items on theBehavior Concerns Scale for Girls

List of Figures

Figure C.1	Histogram for the Mother-Rated Initiative Scale	93
Figure C.2	Histogram for the Mother-Rated Self-Control Scale	94
Figure C.3	Histogram for the Mother-Rated Attachment Scale	95
Figure C.4	Histogram for the Teacher-Rated Initiative Scale	96
Figure C.5	Histogram for the Teacher-Rated Attachment Scale	97
Figure C.6	Histogram for the Teacher-Rated Behavioral Concerns Scale	98

Acknowledgements

I would like to acknowledge a number of groups and people who made the timely completion of my thesis possible.

I would like to recognize the Human Early Learning Partnership (HELP), the Consortium for Health, Intervention, Learning and Development (CHILD) Project and the Social Science and Humanities Research Council of Canada (SSHRC) for their support of the research projects from which the data for this thesis was obtained. The CHILD Project was housed in, and funded in part, by both HELP and SSHRC. The data used for this study came from two projects: The CHILD Project and The EDI Project funded by HELP.

I would like to thank Dr. Laurie Ford and Dr. Susan Dahinten for your thoughtful questioning and valuable feedback at each step of the process. Thanks Laurie, for helping me to establish the idea that "anchored" my study. Also, thanks Susan for your help with the statistics.

I would also like to thank Debbie Amaral, for your support as I worked to complete my thesis and internship at the same time. With your flexibility, I was able to complete both. In addition, I would like to acknowledge and thank the entire District Support Services team and Special Education staff at the Sunshine Coast School District. Working in the district, with such amazing staff and students, helped me not only to stay driven to complete my thesis, but provided me with constant reminders of my purpose.

I would like to express my heartfelt appreciation for each one of my family members and friends. Through thick and thin, I could always count on your support and encouragement. Thanks especially to:

- Dad you instilled in me the value of clarity of thought and insight, and your continual guidance helped me to stay on track toward a goal that at one time, had no end in sight, and Tracey and Sam, thanks for cheering me on toward that goal
- Mom you provided me with constant reminders that I was capable of accomplishing anything and you always made me laugh, which was quite the task this year!
- Nanny you are an incredible model of strength and independence
- Justin and Jessica you were both there for me in any and every way and Justin, thank you for offering guidance through example, probably without even knowing it; and Thomas, just thinking about you made me smile
- Lauren you reminded me that I had it in me to rise to the challenge
- Nicole, Rachel and Renee you were always there for me and thanks for always checking-in

I owe a special thanks to Kendahl and Jhod for consistently opening your home, ears and hearts to me during a very challenging year. I feel so grateful to have both of you in my life.

Last but certainly not least I would like to thank Alex, my inspiration. Your understanding, deep reflection and patience helped me to persevere. Even from a distance, you were right beside me every step of the way.

Chapter One: Introduction

Within the literature around third party ratings of child behaviour, numerous suggestions have been made that multi-informant assessment allows for a more accurate understanding of the nature and current state of a child's behavioural functioning (Kagan, Snidman, McManus, Woodward, & Hardway, 2002; Kerr, Lunkenheimer, & Olsen, 2007; Kraemer et al., 2003; Merrell, 1999; Offord et al., 1996). In the assessment of young children's behaviour in research and practical settings, reliance is placed primarily on teachers and parents to provide accurate rating information about the child's functional and dysfunctional behaviour (Achenbach, 1999). A substantial amount of research has been conducted using measures that assess children's problematic or maladaptive behaviours, known as problem-based assessments. Within this literature, many studies have looked at the relationship between parent and teacher ratings of problem behaviour in children and have consistently found that discrepancies exist (Achenbach, McConaughy & Howell, 1987; Firmin, Proemmel & Hwang, 2005; Kerr, Lukenheimer & Olsen, 2007; Verhulst & Akkerhuis, 1989). Wright and Piersel (1992) point out that it is necessary to develop a process of combining different information from different informants in a way that can facilitate meaningful and consistent decision-making. One approach they suggest is to establish the agreement (reliability) coefficients between similar informants (e.g., two teachers or two parents) and the agreement between different informants (e.g., parent and teacher). They describe that when the interrater reliability coefficients are known, then it is possible to determine the level of agreement one should expect and how much disagreement one could tolerate.

Measures of children's deficits are widely available and possess very good psychometric properties. Reliance on such measures has lead to professionals becoming quite skilled at documenting what is wrong with a child's functioning. More recently, there has been increasing

interest in positive psychology and an emerging shift away from the traditional deficit-based model of mental health towards a framework that emphasizes social-emotional strengths (Jimerson, Sharkey, Nyborg & Furlong, 2004). Problem- and strength-based assessments are two sides of the same coin. Although both are used to accomplish the same broad goal of identifying and implementing appropriate intervention strategies for a child in need, the focus for intervention is much different with each method, with one being more positively oriented than the other.

Psychologists, social workers and counsellors have developed different informal approaches for strength-based assessment but the empirical validation of formal assessments examining children's strengths is in its early stages (Jimerson et al., 2004). The Devereux Early Childhood Assessment (DECA; LeBuffe & Naglieri, 1999) is one such strength-based measure that was developed to provide a method for assessing within-child protective factors and behaviours from the perspective of parents and teachers. The results of parent and teacher ratings together, serve as a basis for development of home- and school-based intervention strategies to foster resilience in children, and for long-term follow-up of children's social and emotional health. Interrater reliability across settings is rather low and some authors have suggested that further research on reliability and validity of the DECA be carried out by independent sources (Reddy, 2007; Chittooran, 2004). Considering the utility of developing reliability coefficients between parents and teachers, the general need for further empirical validation of measures that assess children's strengths, and the suggestion by the DECA authors that additional reliability research be conducted, it is important to further examine the relationship between parent and teacher ratings of children's strengths and behaviour problems on this instrument.

Definition of Key Terms

Social-Emotional Development. Social-emotional development involves the ability to form close, secure relationships and to experience, regulate, and express emotions. Social-emotional growth is affected by a variety of factors, such as an individual's unique biology and temperament, as well as life experiences. "Social" refers to how individuals interact with others. "Emotional" refers to how individuals feel about themselves, others, and the world (Downs, Blagojevic, Labas, Kendrick, & Maeverde, 2005).

Vulnerability. Vulnerable children are those exposed to poverty, biological risks, and family instability, and reared by parents with little education or serious mental health problems (Werner & Smith, 1982).

Risk Factors. Biological or psychosocial hazards that increase the likelihood of a negative developmental outcome in a group of people are considered risk factors (Werner & Smith, 1992). The concept of risk has been common in the medical field and because it has only more recently entered the language of education (Jens & Gordon, 1991), it is not as well understood. While risk implies the potential for negative outcomes, it also suggests that negative outcomes may be avoided (Rak & Patterson, 1996).

Resilience. The positive counterparts to both vulnerability and risk factors are commonly referred to as resilience (Werner & Smith, 1992). It is the capacity of those who are exposed to identifiable risk factors to overcome those risks and avoid negative outcomes such as delinquency and behavioural problems, psychological maladjustment, academic difficulties, and physical complications (Hauser, Vieyra, Jacobseon, & Wertreib, 1985).

Protective Factors. Protective factors are processes through which resiliency operates. These processes modify (ameliorate, buffer) a person's reaction to a situation that in ordinary

circumstances leads to maladaptive outcomes. A protective factor has no effect in low risk populations, or its effect is magnified in the presence of the risk variable (Werner & Smith, 1992).

Kindergarten. The first year of children's formal schooling is typically kindergarten. In British Columbia, children must be five years old by December 31 to begin kindergarten in September of the same year. For the purposes of this study kindergarten will refer to children 5 or 6 years of age in their first year of formal schooling in British Columbia.

Purpose of Study and Research Questions

The purpose of this study was to examine the relationship between mother and teacher ratings of kindergarten children's resiliency using the DECA, a strength-based measure. The relationship between mother and teacher ratings of kindergarten children's problem behaviour was also examined, using the Behavioral Concerns scale of the DECA. Results were obtained to increase the understanding about whether or not children's resiliency is viewed similarly by parents and teachers.

Existing data that were collected from two Canadian samples of kindergarten age children were used in the analyses. Specifically, four research questions were examined:

Research Question 1. What is the correspondence of mean standard scores of mother and teacher ratings of children's strengths and problem behaviours using the five scales of the DECA?

Research Question 2. Are there differences between mean standard scores for mothers and teachers on the five DECA scales?

Research Question 3. What is the correspondence of mother and teacher ratings of children's strengths and behaviour problems on the individual ranked items of the DECA?

Research Question 4. Are there differences between ranked scores for mothers and teachers on the individual items of the DECA?

Chapter Two: Review of the Literature

Social Emotional Development in Young Children

Over the past several decades, the developmental psychology literature has been increasingly focused on the critical nature of a person's first five years on his or her later development (Zeanah, Stafford, Nagle, & Rice, 2005). In response to this, there has been an increase in attention to the importance of healthy social-emotional development in the early years as an essential foundation upon which school readiness, later academic achievement and general life adjustment is built (Raver & Knitze, 2002). Based on prevalence rates from data collected in the U.S., it has been estimated that as many as a third of the children in preschool settings could have significant problem behaviours and there are even more who are at risk for problem behaviour (U.S. Department of Education, 2001; Hemmeter, Ostrosky, & Fox, 2006). Considering the link between social-emotional competence and academic achievement, it is important to determine sound methods through which these problem behaviours can be prevented or ameliorated as early as possible. One way that this can be accomplished is to assess the problem behaviours and focus on interventions that aid in preventing the manifestation of such behaviours. Another way is to assess children's strengths and capitalize on competencies and skills in the development of treatment plans. This approach helps the child and those working with the child to have expectations for consistent success in demonstrating such strengths and abilities, rather than being aware of only the child's problem behaviour, hence increasing the likelihood that the problem behaviour will manifest.

Critical social-emotional skills that are important for children to have upon school entry include self-confidence, the capacity to develop positive relationships with peers and adults, concentration and persistence on challenging tasks, an ability to effectively communicate

emotions, an ability to listen to instructions and be attentive, and skills in solving social problems (Bowman, Donovan, Burns, et al., 2000; Shonkoff & Phillips, 2000). Some factors that may contribute to behaviour difficulties at the individual child level include temperamental difficulties, aggression, language difficulties, and noncompliance (Stormont, 2002). The academic outcomes of children with social-emotional difficulties will vary depending on the support they receive from adults in their lives, such as parents, caregivers and teachers. The psychology literature provides a theoretical framework that facilitates an understanding of development as a dynamic relationship between a child's context and a child's skills and abilities (Thornberry, Ireland, & Smith, 2001). Healthy social-emotional development is critical not only to academic success but also to general life adjustment. It is important to have a thorough understanding of the challenges that face a child and the internal and external resources that he or she possesses, particularly for those children who are faced with unusually adverse life circumstances.

Given that researchers are becoming increasingly aware of the specific factors that will both positively and negatively affect children's emotional and behavioural adjustment, it is important to have means to monitor their problems and strengths. Currently, practitioners and researchers in psychology and education are experienced at detecting problem behaviours in children. The benefit of having knowledge about a child's problem is that interventions and strategies can be put into place that will help to prevent the increasing severity of the problem. The downfall of being problem-based when looking at children's social-emotional functioning is that the problems are the focus. Therefore, the danger is that individuals in the child's life, such as parents, teachers or other caregivers, may go through a shift from knowing that the child displays problematic behaviour under certain circumstances only, to a generalization that the

child displays problematic behaviour under many circumstances. Once it is assumed that the child's problem behaviour is not context specific, individuals working with the child are less likely to alter characteristics of the environment, assuming that the problem lies within the child.

With strength-based assessment, there is a focus on children's social-emotional strengths and interventions developed for the child involve capitalizing on these strengths. The intention is that the focus on strengths will eliminate the need to focus on the problems. Although in some cases problems may be very apparent, using a strength-based approach sets up the foundation for individuals to view the child in a more positive light. In contrast, problem-based assessment increases awareness of the child's problems. It is also very possible though that with this heightened awareness comes an increased expectation by parents and teachers for the problem to occur, although this expectation may not be intentional. With strength-based assessment, the opposite may happen. Others are more aware of the child's strengths and have greater expectations that these strengths will manifest.

Resilience in Childhood: Considering Risk and Protective Factors

It is appropriate to discuss the concept of resilience in concordance with the concept of risk. The concepts of resilience and protective factors are the positive counterparts to the constructs of vulnerability, which denotes an individual's susceptibility to a negative outcome, and risk factors, which denote biological or psychosocial hazards that increase the likelihood of a negative developmental outcome (Werner, 1990). Children can be identified as at risk because of both biological and environmental factors, although biology and environment are not completely independent (Honig, 1984). Biological factors that can contribute to developmental risk in childhood include congenital defects and low birth weight. Environmental risk factors include poverty, family discord and disorganization (Rak & Patterson, 1996). More exclusive and

systematic research has been conducted with children who received inadequate care giving in their immediate family, but still proved resilient. Specifically, there have been numerous research investigations of resilient children of psychotic parents (e.g., Garmezy, 1987), alcoholic parents (e.g., Werner, 1986), divorced parents (e.g., Wallerstein & Kelley, 1980; Hetherington & Stanley-Hagan, 1999), teenage parents (e.g., Crockenberg, 1981), and children from povertystricken environments (Garmezy, 1993). The large body of research devoted to studying resilient children who have faced varying life challenges provides the opportunity to detect the common elements among these resilient children. As Werner (1990) points out, the task for future research is to systematically examine the developmental processes that underlie the manifestations of resilient behaviour in children. It might be assumed that the ameliorating effects of protective factors are directly proportionate to the damaging effects of risk factors. However, this is not the case. There is a complex interaction between risk and protective factors. Frequency, duration and intensity of exposure to risk factors must be counterbalanced with the child's internal and external resources in determining the likelihood that a resilient individual will emerge.

The term resiliency arose primarily from the work of Emmy Werner (1982, 1992) and Michael Rutter (1985), whose investigations focused on determining the characteristics of children who overcame severely adverse life circumstances. Resiliency in children is the capacity of those who are exposed to identifiable risk factors to overcome those risks and avoid negative outcomes such as delinquency and behaviour problems, psychological maladjustment, academic difficulties, and physical complications (Hauser, Vieyra, Jacobson, & Wertreib, 1985). The term implies that the child will experience consistent successful adaptation to the risk factors and will gradually build a stronger resistance to the negative effects of future exposures to

adversity. Whereas resiliency is a characteristic of an individual, protective factors include both individual and environmental features that ameliorate or buffer a person's response to risk factors and stressful life events (Masten & Garmezy, 1985).

Garmezy, Masten, and Tellegen (1984) describe a 3-model approach to stress resistance that provides three possible explanations for the mechanisms through which protective factors operate. These are the compensation, challenge, and protective factor models. In the compensatory model, stress factors and personal attributes are seen as combining additively in the prediction of competence, indicating that personal qualities of strength can counteract or compensate for severe stress. The challenge model treats stress as a potential enhancer of competence provided that the degree of stress is not excessive. In the protective factor model, there is a conditional relationship between stress and personal attributes with respect to adaptation. When certain protective factors are present, they will serve as a kind of "immunity" against stress.

This 3-model approach is important when exploring possible explanations for manifestations of resiliency, or maladaptive social-emotional functioning. It is important to have an understanding of this 3-model approach because it provides a framework for thinking about the interplay between risk and protective factors. Instead of relying solely on identifying correlates of adaptive behaviour, it provides the beginning steps to systematically searching for the processes and mechanisms that underlie the manifestations of such stress-resistant behaviour in children.

Assessment of Young Children

Parents and teachers play a primary role in providing information about children's socialemotional and behavioural functioning. Whereas adults are generally more aware of their

maladaptive thought and behaviours and able to refer themselves for assessment, support or intervention, parents and teachers routinely initiate these services for young children. Parents are familiar with their child's functioning across time and situations. On the other hand, teachers have the opportunity to compare a child with large groups of peers. Academic and social difficulties that do not necessarily manifest in the home setting may be revealed in the classroom or the school (Verhulst & Akkerhuis, 1989). Multi-informant assessment of children may contribute to a better understanding of problem severity and future risk (Kagan, Snidman, McManis, Woodward, & Hardway, 2002). Given that adults provide the primary data with respect to children's social-emotional functioning, considerable interest exists among researchers and practitioners in discovering the degree of correspondence in ratings of children's behaviour among various adult informants (Hinshaw, Han, Erhardt, & Huber, 1992). Although the body of literature devoted to determining methods of handling parent and teacher rating discrepancies is growing, many questions remain unanswered.

It is important to consider the advantages of using behaviour rating scales. This facilitates an understanding of the reasons this type of assessment data is heavily relied upon in research and clinical settings. Merrell (1999) describes six such advantages. First, behaviour rating scales are less expensive in terms of professional time involved, and amount of training required to use the assessment system. Second, data can be provided on low frequency but important behaviours that might not be seen in a limited number of direct observation sessions. Third, behaviour rating scales provide quantitative data that may be considered to have a higher degree of reliability compared to qualitative data that is obtained from unstructured interviews. Rating scales provide quantitative data whereas unstructured interviews provide qualitative information. Fourth, rating scales can be used to assess subjects who cannot readily provide information about themselves.

Fifth, rating scales capitalize on observations over a period of time in a child's natural environment (i.e., home or school settings). Sixth, these scales capitalize on the judgments and observations of persons who are highly familiar with the child's behaviour and can be considered to be "expert" informants. In sum, behaviour rating scales are less expensive in terms of time and money and capitalize on informants who have a large amount of knowledge about the child's behaviour across time and settings.

One of the most important considerations in the assessment of young children's functional and dysfunctional behaviour using rating scales is the lack of a "gold standard" (Richters, 1992). As De Los Reyes and Kazdin (2005) highlight, it is critical to be aware of the fact that this lack of a "gold standard" results in an inability of the researcher or clinician to gauge the child's true level of dysfunction. Therefore, there is no opportunity to determine whether the informant is providing accurate information about the child's true traits. Without this gold standard, heavy reliance is placed on the practitioner's technical skills to determine a child's current state of social-emotional functioning from rating scales completed by significant adults in the child's life. There is always at least a slight degree of subjectivity in the interpretation of results from assessment instruments though. Such subjectivity may lend itself to inaccurate conclusions being made, which may further lead to a breakdown in the direct link of appropriate recommendations.

At the same time, Achenbach, McConaughy and Howell (1987) point out that because definitive criteria against which to validate measures of childhood problems are missing, it is essential to preserve the contributions of different informants, despite the fact that there is low agreement between them. They suggest that low correspondence between informants may indicate that the child's behaviour differs from one situation to another, rather than it being a

result of the informants' reports being invalid or unreliable. Clearly, parents and teachers offer unique perspectives toward children's behaviour and both perspectives are essential to the assessment process. From assessment to interpretation, a large degree of professional judgment is required upon receipt of data from multiple informants. The practitioner's decision-making skills are very important. Further research into methods of amalgamating data from parents and teachers, for example the development of a flow-chart that guides the practitioner with simple 'yes' and 'no' questions, may reduce the need for a sole reliance on independent interpretation. It is clear that conclusions drawn from combined results of parent and teacher ratings may provide the opportunity to be more objective when making a service delivery decision for the child.

Strength-Based Assessment

Strength-based assessment is an emerging topic of professional and research interest and it warrants further consideration and research attention for two reasons. First, it is a response to the pervasive use of deficit- or problem-based assessment strategies. Second, it is a potential mechanism to enhance understanding of the factors that underlie healthy child development and promote school success (Jimerson, Sharkey, Nyborg, & Furlong, 2004). Strength-based assessment is a less stigmatizing approach to children's mental health treatment than models focused on problems or pathology because it emphasizes that even the most troubled youth have unique talents, skills, and other resources that can be the foundation for the development of interventions that result in recovery and development (Cox, 2006).

Problem-based assessment has historically been the approach taken once a child is referred for services, and although this approach aids in the diagnosis of disabilities, it offers little in terms of intervention and treatment development. However, a strength-based assessment approach reinforces the idea that all children have strengths and it removes the need to solely

focus on observable problems. When mental health practitioners recognize and articulate strengths and capacities of an individual, it is more likely that a sense of genuine respect is communicated to the client, whether that client is the child, parent, or teacher. This has the potential to increase motivation toward the attainment of positive changes (Weick, 1992; Weick & Chamberlain, 2002). Epstein and Sharma (1998, p. 3) define strength-based assessment as:

The measurement of those emotional and behavioural skills, competencies and characteristics that create a sense of personal accomplishment; contribute to satisfying relationships with family members, peers and adults; enhance one's ability to deal with adversity and stress; and promote one's personal, social, and academic development.

There are several strength-based measures currently available that allow for both parent and teacher ratings. In addition to the Devereux Early Childhood Assessment (DECA, LeBuffe & Naglieri, 1999), there is the Behavioral and Emotional Rating Scale (BERS, Epstein & Sharma, 1998), and the Social Skills Rating Scale (SSRS, Gresham & Elliot, 1988). The BERS includes a primary caregiver form and a self-report form and on each form, interpersonal strengths, affective strength, family involvement, school functioning, and intrapersonal strengths are measured. The SSRS includes a separate parent, teacher and self-report form and on all forms there is a Social Skill Scale that includes items that measure cooperation, assertion, responsibility, empathy, and self-control. On the teacher form only, there is an Academic Competence Scale that measures reading and math performance, general cognitive functioning, as well as motivation and parental support. In terms of reliability and validity work carried out on these measures, subscales on the BERS and the Teacher Report Form (TRF) of the Achenbach System of Empirically Based Assessment (ASEBA) have a correlation of .29 to .73 and correlations between the BERS and the SRSS Social Skills correlations ranged from .46 to

.73. For the SSRS, moderate to high correlations have been found between the SSRS and the teacher, parent and self-report forms of the ASEBA. These values suggest that convergent validity varies depending on the strength-based measures that are being compared. While some empirical validation has been done with strength-based measures validation of problem-based measures is much more extensive, which is not surprising given that strength-based assessment field is still in its infancy.

It is difficult to understand developmental trajectories without focusing on both pathology and competency (Masten & Coatsworth, 1995) and research has emphasized that children's strengths are as important to consider as their weaknesses in understanding the potential for succeeding in all areas of functioning (Garmezy, 1993). By highlighting children's strengths during the assessment process after a child is referred for services, it is likely that there will be a greater focus on successes. Furthermore, endorsing strengths can empower children and families to take responsibility and navigate their own life experiences (Rhee, Furlong, Turner, & Harari, 2001). The strength-based perspective integrates concepts related to resilience, empowerment, and hope. Rather than focusing on deficits, labels, and problems, a strength-based approach explores within-person resources and skills by using language that is positive and possibility focused.

Another advantage of highlighting children's strengths is that the focus on problems is reduced and the assessment process is more balanced. However, an exclusive focus on a child's strengths might ignore the risks, which could lead to the development of an intervention that was counterproductive, failing to address the main concern. At present, there are a limited number of validation studies with strength-based measures and a lack of research describing the value of assessing strengths, and the models, paradigms or theories that drive their use. In addition,

further evidence is needed that an assessment that considers students strengths and skills as well as their needs provides more comprehensive and meaningful information than the traditional model that is focused primarily on deficits (Jimerson, Sharkey, Nyborg, & Furlong, 2004). For the time being, it is important for researchers and practitioners to be aware of the current state of empirical work around strength-based assessment. Incorporating a strength-based measure into a deficit-focused assessment process will likely prove useful. It will help practitioners to accurately identify and communicate the child's competencies, skills and positive attributes to the family, teachers and to the child him or herself.

Discrepancies in Ratings of Children's Behaviour by Different Informants and Factors Associated with the Discrepancies

Considering that parents and teachers are heavily relied upon to provide information about a child's deficits and competencies, particularly for social-emotional development, having knowledge about the way that parent and teacher ratings contribute is essential. Campbell (1990) and Achenbach (1999) have suggested that in young children particularly, problem behaviour should be observed in different contexts as rated by both parents and teachers, to be deemed abnormally persistent and pervasive, and not a transient problem that will be outgrown. However, in general, there has been low agreement between parent and teacher ratings on behaviour rating scales, which makes it difficult to determine which children are truly at risk.

De Los Reyes and Kazdin (2005) describe three key factors that highlight the importance of studying discrepancies between informants when looking at child psychopathology. First, there is not one measure or method of assessing psychopathology in children that provides a definitive answer to the actual presence or absence of a disorder. Second, there is documentation that some efforts have been made by clinicians to confront informants with existing discrepancies in ratings, and that this may lead to the creation of expectancies for informants to

provide concordant information rather than correct information. Third, recent work suggests that informant discrepancies may relate to critical aspects of parent, child, and family functioning. Informant discrepancies may have a significant impact on the assessment, classification, and treatment of child psychopathology. Reliance on different informants sometimes leads to identifying different children in a given population as meeting criteria for a disorder or for a comorbid disorder (Boyle et al., 1996; MacLeod, McNamee, Boyle, Offord & Friedrich, 1999; Offord et al., 1996; Rubio-Stipec, Youngstrom, Findling & Calabrese, 2003). Although the body of literature around informant discrepancies is growing, more research is required to delineate methods of combining and interpreting discrepant parent and teacher rating data and developing conclusions and interventions from the data.

A substantial amount of research supports the idea that discrepancies exist between parent and teacher ratings of children's behaviour, and much of this research has examined parent and teacher ratings of children's externalizing and internalizing behaviour (Achenbach, Dumenci, & Rescorla, 2002; El-Hassan Al-Awad & Sonuga-Barke, 2002; Firmin, Proemmel, & Hwang, 2005; Garvey, & Julion, 2004; Gross, Fogg, Stanger & Lewis, 1993; Hinshaw, Han, Erhardt & Huber, 1992; Kerr, Lunkenheimer, & Olson, 2007; Verhulst & Akkerhuis, 1989). Findings from this research suggests that when parent and teacher ratings are compared to actual observations of child behaviour, that teachers ratings are better predictors of externalizing behaviour problems, whereas parents' ratings of internalizing behaviour correlate more strongly with the child's internalizing behaviour. Also, the findings suggest that parents and teachers agree more on ratings of externalizing behaviour than on ratings of internalizing behaviour and on ratings of children receiving special education. Research findings are inconsistent for parent and teacher rating differences when considering the child's age as a factor.

The following research findings are discussed to detail levels of agreement between parent and teacher ratings on measures that assess child behaviour problems. One widely-cited research investigation that was conducted by Achenbach, McConaughy and Howell (1987) involved a meta-analysis of 119 research studies that included 226 different samples correlating ratings of children's (ages 1.5 to 19 years) behavioural and emotional problems by parents, teachers, mental health workers, observers, peers and the subjects themselves. Using Pearson correlation coefficients for comparison, the authors found a mean correlation of .28 between different types of informants in their meta-analysis of 26 studies that included 41 samples. The mean correlation between parent and teacher ratings of children's behavioural and emotional problems was .27. Another study looked at cross-informant correlations of parent and teacher reports of children's behaviour between 1989 and 1999 and found a mean correlation of .36 (Achenbach, Dumenci, & Rescorla, 2002). This research investigation included a very large sample size (N = 687) of students who were involved in the study across the 10-year period and who had parents and teacher complete the forms at both time periods. Another study found lowto-moderate agreement between parent and teacher ratings of behavioural and emotional problems for 1162 4-12 year-old children (Verhulst & Akkerhuis, 1989). Regarding crossinformation agreement in young children, Gross, Fogg, Garvey, and Julion (2004) found a low correlation of .17 between parent and teacher ratings of child behaviour for 241 2-4-year old children. Collectively, these results suggest a general low-to-moderate agreement for parent and teacher ratings of children's behaviour problems. Factors associated with differences in parent and teacher ratings are discussed below.

The discrepancies that are often detected between parent and teacher ratings of children's behaviour were once thought of as discouraging. Practitioners often operated under the

assumption that a treatment plan could not be deemed warranted unless there was convergence among different informant's ratings of a child's behaviour, and that any divergence detected was a sign of informant bias or inadequacy of measurement tools. However, researchers are becoming increasingly aware that discrepancies in ratings across informants likely signify true differences in children's behaviour across contexts (Stanger & Lewis, 1993; Merrell, 1999). With this comes the need for more research investigations that are geared toward determining the factors that contribute to the lack of agreement. Fergusson and Horwood (1987) highlight that the variance in maternal and teacher ratings of conduct-disturbed children reflects the presence of three sources of variation: (a) variation due to true trait factors; (b) variation due to methodspecific factors; and (c) variation due to random errors of measurement. This suggests that variation is either due to actual differences in child behaviour across home and school settings, differences in the way that the measure is operating for one informant compared to another, or it is due to a random error, such as the informant not having adequate reading abilities or applying an incorrect scoring procedure.

Research investigating causes that underlie informant discrepancies for ratings of childhood psychopathology is extensive. In a broad sense, these studies have focused either on characteristics of the child being rated or characteristics of the informants providing the ratings of the child (De Los Reyes & Kazdin, 2005). Child, parent and teacher characteristics are examined separately below.

Child Characteristics. Some characteristics of the child that can impact informant agreement or disagreement are age and gender of the child, social desirability, and problem type (De Los Reyes & Kazdin, 2005). Also, children may differ greatly in their response to an environment that is often much more structured at school than at home. True informant

discrepancies would be particularly evident for a child who is not able to adapt between a structured and non-structured environment on a daily basis

Parent Characteristics. According to Kagan, Snidman, McManis, Woodward, and Hardway (2002), there are several factors that may influence parents when they are providing responses to questions on a rating scale. First, responses from parents reflect their notion of the ideal in their society. Second, they are sensitive to the logical consistency of their answers to a series of questions. Third, parents are limited to the circling of a number, which neither encourages or allows for elaboration. Fourth, every question assumes a comparison referent and the referent of one parent may be very different from another. For example, the question, "My child is easily distracted" could be answered very differently, depending on the distractibility of other children the parent knows. Fifth, parents who have more children will be better at judging the third or fourth child than they would the first child. Finally, parents differ in their understanding of the meanings of words on ratings scales. If one parent interprets the word "patience" as indicating that the child is able to play, work or wait for a reward for 20 minutes, the response provided for the question, "Does your child show patience?" would be answered differently by the parent described above than the parent who assumes "patience" means playing, working or waiting for a reward for hours.

Another factor that may influence parents' ratings of children behaviour is parent level of stress and depression, although it is unclear whether this relationship is evidence of (a) informant bias caused by irritability and a depressive affect, (b) true behaviour problems that is possibly linked to living with a stressed or depressed parent, or (c) the effect on the parent of raising a behaviourally difficult child (Downey & Coyne, 1990; Friedlander, Weiss, & Traylor, 1986; Gross, Conrad, Fogg, Willis, & Garvey, 1995; Lee & Gotlib, 1989; Rogers & Forehand, 1983).

There are many factors that play a role when parents provide information about their child. If more than one of these factors is at play, the interaction between them can be complex and it may be difficult to tease apart the factors that interfere with rating the child's true behaviour.

Teacher Characteristics. Teachers might be expected to make judgements about what behaviours are problematic based on their education, range of experience with children and years of teaching, how well they know the child, and how a particular child's behaviour compares with other children in their classroom (Gross, Fogg, Garvey & Julion, 2004). Another factor that may influence a teacher's rating of a child's behaviour is how well the teacher knows the parent. When this is the case, a teacher may provide information that reflects their perception of the child's functioning within the classroom in conjunction with their knowledge of the child's behaviour in the home.

Clearly, there are numerous characteristics of the child, parent and teacher that influence informant discrepancies and as already discussed, variations can also be caused by true trait differences, method-specific factors and random errors of measurement. All of these factors need to be taken into consideration when determining how to analyze and interpret discrepant information. The complexities of separating the specific factors at play in a given case highlight the need for further research investigations that focus on determining steps to take after assessment results are obtained in making a decision about appropriate interventions for a child. In addition, the importance of interpreting any results with caution is emphasized, regardless of whether the data was collected from one or more informants.

Some empirical findings have been obtained that have looked at parent and teacher rating differences using a strength-based approach. For example, Friedman, Leone, & Friedman (1999)

used the Behavioral and Emotional Rating Scale (BERS) to look at differences between parent and teacher ratings for 20 children diagnosed with an emotional, behavioural, or mental disorder. The children ranged in age from 7 to 16, with a mean of 12.5 years. The BERS has five subscales including family involvement, interpersonal strengths, intrapersonal strengths, school functioning, and affective strengths. These authors found significant convergent validity between informants and relatively strong relationships between parent and teacher ratings except on personal strengths. They also highlight that if both respondents complete the BERS, parents provide important information that may be missed in other, more formal situations. However, consistent with research by Fergusson and Horwood (1987), there were large method effects found in this study, rendering it difficult to separate actual convergence or divergence in ratings by parents and teachers from differences in how the measurement tool operates with parents and teachers. Their sample size was also small. Furthermore, the sample included only children who had serious emotional disturbance. It would be informative to determine how the BERS functioned in a sample that included children who were and were not emotionally disturbed. Another study used the Social Skills Rating System (SSRS) and the Conners Ratings Scales (CRS, Goyette, Conners, & Ulrich, 1978) to examine perceptions of teachers and parents of the frequency and importance of social skills in addition to problem behaviours in preschool children (Treuting & Elliot, 1997). Forty-three children were included in the typical group and 52 children were considered to be at risk for educationally disabling conditions. Findings pointed to both parents and teachers of at-risk children identifying significantly fewer social skills and more problem behaviours than did parents and teachers of typical children. These findings provide some evidence for the credibility of both teachers and parents as judges of social behaviour on a strength-based measure.

The current state of research that is dedicated to examining the differences between parent and teacher ratings of children's social-emotional behaviour has been examined. Although there are many advantages of using rating scales to assess children's social-emotional and behavioural functioning, there are also some disadvantages. Put generally, the major disadvantage is that it is very difficult to determine how closely related the child's true socialemotional or behavioural functioning is to a parent's or teacher's perception of the child's functioning. When differences across informants are detected, it is difficult to tease apart the causes of these differences. These disadvantages need to be considered in the interpretation of any overall score or scale score obtained from an informant completing a measure of socialemotional functioning. Furthermore, practitioners are often challenged by how to integrate discrepant ratings in terms of making a diagnostic or intervention decision. It is clear that much more focus has been placed on the usage of problem-based measures. Although some work still remains to be done with problem-based measures, even more needs to be done with strengthbased measures. Not only does this work need to further examine discrepancies in ratings across parents and teachers, it also needs to examine the utility of strength-based measures in general. Finally, it is important to highlight that most studies have included school-age participants. Very few studies have investigated the utility of a strength-based assessment instrument in a preschool sample.

Chapter Three: Method

Overview

This chapter details this study's design and methods. The purpose of the study and specific research questions that were under investigation are highlighted. Recruitment procedures and participant information are then described. Next, psychometric evidence from the DECA test manual, subsequent findings from independent research for the standardized assessment instrument, and the internal consistency reliability coefficients of the DECA for this sample are reported. The parent questionnaire used to obtain socio-demographic information is also described. This chapter concludes with a discussion of the statistical procedures that were used for data analysis.

Purpose of Study and Research Questions

The purpose of this study was to examine the relationship between mother and teacher ratings of young children's behaviour using a strength-based measure in a combined dataset that includes two Canadian samples of kindergarten age children. The following are the specific research questions that were investigated, with the anticipated outcomes.

- What is the correspondence of mean standard scores for mother and teacher ratings of children's strengths and problem behaviours using the five scales of the DECA? <u>Anticipated outcome 1:</u> Small to medium positive correlations were expected between mother-reported scores and teacher-reported scores for each DECA scale, including Initiative, Self-Control, Attachment, Total Protective Factors, and Behavioral Concerns.
- 2. Are there differences between mean standard scores for mother ratings and teacher ratings on the five DECA scales?

Anticipated outcome 2: It was predicted that a statistically significant difference between mother-reported scores and teacher-reported scores would be found for all scales. Furthermore, it was predicted that teachers would rate students higher on Behavioral Concerns, Initiative and Self-Control and mothers would rate students higher on Attachment.

- 3. What is the correspondence of mother and teacher ratings of children's strengths and behaviour problems on the individual ranked items of the DECA?
 <u>Anticipated outcome 3:</u> It was predicted that there would be more positive statistically significant correlations found between mother ratings and teacher ratings for items on the Behavioral Concerns and Self-Control scales than for items on the Initiative, Attachment and Total Protective Factors scales and the correlations will be small to medium.
- 4. Are there differences between rank-ordered scores for mothers and teachers on the individual items of the DECA?

Anticipated outcome 4: Given that research on strength-based assessment is still in its infancy, to the knowledge of the author there are no reported studies that examine mother and teacher rating differences at the item level on strength-based measures. Therefore, this question was more exploratory in nature. Theoretically however, it makes sense that differences would be detected between mother ratings and teacher ratings for most items, with the exception of those child behaviours that are easily observable.

Participants

Recruitment Process. The participants in the present study were recruited from two populations of kindergarten children in two different school districts in the lower mainland and southern coast of British Columbia. The participants were part of a larger study of early

screening and school readiness. In both school districts, kindergarten students were recruited as a non-probability sample from schools that were willing to participate in the study. An onsite coordinator was involved in the process of recruiting participants. It is difficult to know whether the sample is representative of the population in non-probability sampling. However, when conducting research in schools, probability sampling is often not feasible. It would require all schools in a district to agree to participate in the study and would also require consent from each parent, so schools (from high, medium and low vulnerability areas) and students could truly be selected at random.

Demographic information on communities provided by Statistics Canada was consulted as a way of assessing the representativeness of the sample in this study in comparison to the overall population in the two communities where data was collected. The parents in both communities in this study had higher levels of education and income than the larger population of the two communities. Also, the percentage of two-parent families was higher in the sample used for this study (Statistics Canada, 2005; 2007).

Setting. Students in sample A were recruited from seven classrooms in four schools in the coastal district of British Columbia. There are 10 elementary schools in this district. Students in sample B were recruited from eight classrooms in six schools in the lower mainland district of British Columbia. There are 20 elementary schools in this district.

Student Demographics. This sample of 125 kindergarten students was comprised of 61 boys and 64 girls, ranging in age from 5.2 to 6.7 years (M = 5.4). Most participants had one sibling (59%), some were the only child (16%) and the remainder (25%) had anywhere from two to six siblings. Most participants in the sample lived in a two-parent home (81%) and 64% of the sample lived in homes with an average annual income of \$40 000 or more.

Parent Demographics. There were 156 child participants who had DECA forms completed by parents and teachers. Altogether, 21 cases were removed from the dataset because it was indicated that the forms were filled out by either the child's father, mother and father together, grandparent or the rater information was missing. Out of these 156 participants, 135 had DECA forms completed by their mother. Ten outlying cases were also removed (described below); therefore, the final sample used for the analysis in this study included mothers and teachers of 125 participants. Of the 125 mother respondents, the majority was between the ages of 30 and 39 (60%). Regarding education level, most had either a diploma or some college or trades training (56%), with 25% working full-time, 44% working part-time, 28% not employed and 3% were either a full-time or part-time student.

Table 3.1

Demographic Characteristics of Mother Respondents (N = 125)

Family Structure		Employment Status		
Two parent family	81%	Working full-time	25%	
One parent family	8%	Working part-time	44%	
Blended family	4%	Full- and part-time student	3%	
Extended family	5%	Not employed	28%	
Other	2%	Household Income		
Age of Mother		Less than \$19 999	8%	
20-29	19%	\$20 000 - \$39 999	9%	
30-39	60%	\$40 000 - \$59 999	22%	
40 or older	21%	\$60 000 or more	42%	
Education Level for Mother				
Less than high school	7%			
High school	14%			
Some college, or trades	21%			
Diploma, trade school	35%			
Bachelor's degree	17%			
Graduate degree	6%			

Outliers. Outliers were explored by consulting boxplots and the 5 % trimmed mean statistic for each DECA scale for parent-reported and teacher-reported data. Outliers were explored on three separate occasions by looking at boxplots for each variable. DECA scores that
were more than 1.5 times the interquartile range away from the edges of the box (i.e., the 25th and 75th quartile) were considered outliers (n = 10) and were removed from the analysis. It is important to note that for each of these outliers, it was only one score (i.e. the parent or teacher score) that was an outlier. If both the parent and teacher had rated the child unusually high or unusually low, then the score would have been retained and considered an extreme score. The 5% trimmed mean statistic was also utilized to determine the impact that the outliers had on the means of each DECA scale for parent-reported and teacher-reported data. In SPSS, this value is obtained by removing the top and bottom 5 percent of the cases and recalculating a new mean value. A comparison of this new value to the original value was made to determine the size of the difference. After removing the ten outliers, the values for this statistic more closely matched the values of the actual mean for each scale that was affected by outliers.

Measures

Devereux Early Childhood Assessment (DECA). The DECA is a standardized, normreferenced strength-based behaviour rating scale evaluating within-child protective factors and behaviour concerns in preschool children aged two to five, though the measure can also be used with six year-olds (P. LeBuffe, personal communication, February 9, 2008). Items on the DECA were developed based on the resilience literature. The DECA system is a strength-based approach that links classroom and home-based strategies that promote children's personal assets and remediate behavioural concerns before they become entrenched, therefore having the potential to turn into behaviour disorders. There are five primary purposes of the DECA system. The DECA Individual Profile can be used to identify children who are low on the protective factors scales so that targeted classroom and family-based strategies can be implemented to strengthen these abilities. Secondly, the classroom profile indicates the relative strengths of all

children in one room. Third, behaviour concerns can be identified. Fourth, it can assist Head Start programs in meeting their Program Performance Standards and lastly, it can assist all early childhood programs to develop strength-based programs (LeBuffe & Shapiro, 2004). Additional uses are as an outcome measure, to compare scores obtained from different adults and therefore, different settings (i.e. home and school), and to provide a measure of protective factors for research purposes.

The DECA was selected for use in the present investigation of the relationship between parent and teacher ratings of within-child protective factors and behaviour concerns in 5 and 6 year-old kindergarten students. LeBuffe and Naglieri (1999) outline that the term protective factors falls under the broader category of resiliency:

The study of resilient children has revealed certain characteristics that they tend to have in common. Masten and Garmezy (1985) refer to these as protective factors and describe them as processes that moderate or buffer the negative effects of stress resulting in more positive behavioural and psychological outcomes in at-risk children than would have been possible in their absence. Garmezy (1985) suggests that protective factors can be divided into three categories: 1) a supportive family environment, 2) community support systems (e.g. quality childcare programs), and 3) child attributes (p. 218). The last category refers to characteristics of the child such as temperament, intelligence, personality, and behavioural traits. In relationship to the DECA, this third category is referred to as within-child characteristics. (LeBuffe & Naglieri, 1999, p. 2)

The items on the DECA were derived from the literature around resilience in childhood and through focus groups conducted with early care and education professionals and family members. The DECA includes two scales and three sub-scales. The Total Protective Factors

scale includes 27 items and incorporates scores from the Initiative, Self-Control and Attachment sub-scales, which have 11, 8 and 8 items, respectively. The Behavioral Concerns scale includes 10 items. In the context of the DECA, initiative is the child's ability to use independent thought and action to meet his or her needs. The Self-Control scale measures the child's ability to experience a range of feelings and express them using the words and actions that society considers appropriate. The Attachment scale measures a mutual, strong, and long-lasting relationship between a child and significant adults such as parents, family members, and teachers. Finally, the Behavioral Concerns scale measures a variety of problematic behaviours that some preschool children display (LeBuffe & Naglieri, 1999). The raters are not given a description of each of these scales.

Instructions are provided to the rater at the top of the DECA response form. The DECA takes approximately 20 minutes to complete. Ratings should be based on behaviours observed for the child "during the past 4 weeks". The rater is asked to indicate how often the child was observed to display a certain behaviour, which is either strength-focused or problem-focused. The items are answered by providing a response on a five-point Likert scale. The scoring is the same for items regarding positive and negative behaviours. Parents and teachers provide a score of 0 to indicate if the child was "never" observed to engage in the behaviour, 1 for "rarely", 2 for "occasionally", 3 for "frequently" and 4 for "very frequently". Therefore, a higher score for the Initiative, Self-Control, and Attachment subscales and the overall Total Protective Factor scale and lower score for Behaviour Concerns would represent a child who was well-behaved and who displayed more characteristics of resilience.

The type of score calculated for each DECA scale is called a T-score. T-scores fall under the broader category of standard scores, and indicate how many standard deviations a particular

raw score lies above or below the group mean. With T-scores, the original raw score mean and standard deviation are converted to 50 and 10, respectively (Huck, 2004). The descriptive statistics for each of the scales obtained from the parent- and teacher-completed DECA forms for this sample are presented in Table 4.4 in the Results section.

The norms for the DECA Protective Factors Scales are based on a national standardization sample in the U.S. of 2000 preschool children (1 017 teachers and 983 parents) and 1108 preschool children (567 teachers and 541 parents) for the Behaviour Concerns Scale. The DECA has very strong internal, test-retest, and interrater reliability. The authors used Cronbach's Alpha to evaluate internal reliability for the standardization sample. For the Total Protective Factors scales, Cronbach's Alpha was .91 for parents and .94 for teachers and for the Behavioral Concerns was.71 for parents and .80 for teachers. Test-retest reliabilities range from .55 to .80 for parents and .68 to .91 for teachers. In the standardization sample, Cronbach's Alpha for parent-to-parent comparisons ranged from .21 to .44, .57 to .77 for teacher-to-teacher comparisons and .19 to .34 for teacher-to-parent comparisons (Reddy, 2007).

Internal consistency reliability values were calculated for this sample before running the analyses for the research questions. Cronbach's (1990) Alpha was used to examine the consistency of results across items with the DECA for parent- and teacher-reported scores (see Table 3.2). Cronbach Alpha coefficients for parent-reported scores ranged from .72 to .91 across DECA scales, with the lowest value found for the Behavioral Concerns subscale and the highest values found for the Total Protective Factors composite scale. For teacher-reported scores, the internal reliability coefficients ranged from .74 to .92 across DECA scales, with the lowest value found for the Total Protective Factors scale. It has been suggested that the critical criteria should be set at .80 or greater for the median

subtest internal consistency and should be set at .90 or greater for the total test internal consistency (Bracken, 1987; Salvia & Ysseldyke, 1981). Considering this information together, the internal consistency values for the DECA in this sample are comparable to the values obtained in the normative sample (.71 to .94 for both parent-reported and teacher-reported date), and meet the critical criteria suggested by other authors.

Table 3.2

Cronbach's Alpha Values of DECA Scales for Parent- and Teacher-Reported Scores (N = 125)

	Cronbac	h's Alpha
Scale	Parents	Teachers
Initiative	.84	.75
Self-Control	.84	.90
Attachment	.77	.74
Total Protective Factors	.91	.92
Behavioral Concerns	.72	.79

Family Questionnaire. The primary investigators of the larger research study developed a family questionnaire. A subset of The Family Questionnaire was used in this study to obtain socio-demographic information about families of children that participated in the study.

Data Collection Procedure

The data for this study was obtained from a larger study that included a variety of measures administered to child participants, as well as their parents and teachers.

Parent Data. DECA rating scales, several other child measures, and family questionnaires were put together in packages and given to the teachers to distribute to parents of the children who participated in the study. The package included a return envelope with postage

paid. For sample A, these packages were sent out in late June for each school and therefore parents were asked to complete these forms during summer. Time of delivery may have been one contributing factor a lower response rate by parents in sample A, because they were asked to fill these forms out in the summertime, a time when many families travel. For sample B, parent packages were given to the teachers before data collection was completed at each school. For samples A and B, parents mailed completed forms to the investigators. The overall response rate for parents was 83%.

Teacher Data. DECA rating scales and several other measures were put together in packages and distributed to the teacher of each kindergarten classroom that had students in it who participated in the study. The package included a return envelope with postage paid. For sample A, teacher completed forms were mailed to the investigators and for sample B, these forms were collected by the project coordinator. The teachers from each school completed the forms for each student that participated in the study and mailed all of the forms as a package. For sample B, all teacher packages were collected by the time the child data collection was complete. The overall response rate for teachers was 97%.

Data Scoring. Parent-completed and teacher-completed measures were mailed to a specific location in sealed envelopes. The envelopes were opened and checked for completeness. If a form was incomplete or missing, research assistants made a follow-up phone call to parents and teachers and administered these items over the telephone. Research assistants who took part in the data collection also scored all parent and teacher data. Some measures required computer scoring and others required hand scoring. Every package was checked for accuracy once and a second and third check for scoring accuracy was carried out for 20% of all packages. All data were then entered into the *Statistical Packages for the Social Sciences, Version 12* (SPSS-12) for

data analysis. In addition, for the purposes of this study, item-level data from parent- and teacher-completed DECA forms were also entered into SPSS-12.

Data Analysis

Research Question One. Bivariate Pearson product-moment correlations were calculated to determine the relationship between the five scale scores on the mother DECA and the five scale scores on the teacher DECA scale scores. This type of correlation analysis is appropriate when both variables are quantitative in nature and measured on an interval scale. Simple correlations between mothers and teachers measuring the strengths and behaviour concerns of the students were examined. Before calculating the correspondence among the scales between mothers and teachers, the interrelationship between the five DECA scales were examined separately for mothers and teachers using bivariate Pearson product-moment correlations.

Several assumptions were checked to determine whether there were factors of the data that may have affected the size of correlation between mothers and teachers. These included outliers, linearity, independence of observations, normality (ensuring that each variable is normally distributed), and homoscedasticity (ensuring that the variability in scores for variable X is similar to all values of variable Y). Outliers, linearity and homoscedasticity were explored by examining scatterplots for each variable that was correlated. Outliers were also assessed by looking at boxplots for each variable. Cases with outlier values were deleted from the dataset before the analyses were conducted. Normality was explored by examining skewness and kurtosis, histograms and normal Q-Q plots for each variable under investigation.

Missing data wer excluded on a pairwise basis for this analysis, and for the three other research questions. The *exclude cases pairwise* option on SPSS was selected for data analyses to

account for missing data. This option excludes cases (mothers and teachers) only if they were missing the data required for the specific analysis. These cases were still included in any of the analyses for which the necessary information was available.

Research Question Two. Paired-samples t-tests were calculated to determine whether there was differences between mother-reported and teacher-reported mean scores on any of the DECA scales. Before running the t-tests, it was important to address whether the assumptions of independence of observations, normal distribution, and homogeneity of variance were met for each variable. This information was known after checking the assumptions for the first research question. For paired-samples t-tests, it was also important to determine if the difference scores between mother and teacher ratings were normally distributed. Violation of this assumption was unlikely to cause any serious problems though. After the t-tests were conducted, the effect size was calculated to determine the effect size in differences of mother and teacher ratings, using the following calculation:

Eta squared =
$$\frac{t^2}{t^2 - N - 1}$$

Research Question Three. Kendall's tau (τ) was calculated to assess the level of consistency between mother and teacher scores on individual DECA items. This kind of correlation is similar to Pearson's, however with Kendall's tau, each of the two variables is measured in such a way as to produce ranks.

Research Question Four. Wilcoxon Signed-Rank test was utilized to determine whether there were differences between mother and teacher ranked scores on the individual items of the DECA. Wilcoxon Signed-Rank test is the non-parametric alternative statistical test to the paired samples *t*-test and is ideal for use with data that are measured on ranked scales (Pallant, 2005).

Chapter Four: Results

Overview

This chapter details the results obtained from the analysis of data for the four research questions that were formulated (described above) to examine the relationship between mother and teacher ratings of kindergarten students' social-emotional behaviour, using a strength-based measure. Results of the preliminary analysis and the degree to which the mother-reported and teacher-reported data meet underlying assumptions are described. Also, detailed statistical results are reported for each research question, along with an examination of the degree to which the findings support anticipated outcomes.

Preliminary Analysis

Descriptive Statistics. Tables 4.1 and 4.2 present the univariate statistics for the motherand teacher-reported data for this sample. For mother-reported data, the mean scale t-scores for the total sample ranged from 48.57 (Attachment) to 53.80 (Behavioral Concerns). For teacherreported data, the mean scale T-scores for the total sample ranged from 36.50 (Attachment) to 52.07 (Self-Control). For teacher-reported data, the Initiative and Self-Control scales have mean scores that are close to 50. However, the mean scores for the Attachment, Total Protective Factors and Behavioral Concerns scales for teacher-reported scores were lower than these same mean scores for mother-reported data. This suggests that teachers rated the kindergarten student participants lower than mothers did in general on these three scales. Although this measure of central tendency helps to provide a better understanding of the nature of this data, they are not sufficient for determining whether the assumptions of normality and homogeneity. The skewness, kurtosis values and histograms were also checked in order to determine the normality of the distribution for this sample. In addition, the variability (i.e. homoscedasticity) among the

mother- and teacher-reported scores was assessed for this sample by examining scatterplots.

These methods of checking underlying assumptions for this sample are discussed below.

Table 4.1

Mean Values, Standard Deviations and Ranges for DECA Scale Scores for Mother- and Teacher-Reported Scales (N = 125)

	Mothe	er-Reported	l Data	Teache	er-Reported	l Data
Scale	Mean	SD	Range	Mean	SD	Range
Initiative	50.60	9.11	30-72	45.04	10.16	28-69
Self-Control	53.15	8.56	36-72	52.07	9.91	28-72
Attachment	48.57	10.99	28-72	36.50	7.33	28-56
Total Protective Factors	49.96	9.36	31-72	43.12	10.11	28-68
Behavioral Concerns	53.80	10.51	31-72	43.17	11.74	28-72

Note. SD = Standard Deviation

Mean Values, Standard Deviations and Ranges for DECA Scale Scores for Mother- and Teacher-Reported Scales by Gender

			Boys	(n = 61)		
-	Mothe	er-Reported	l Data	Teach	er-Reported	l Data
Scale	Mean	SD	Range	Mean	SD	Range
1. Initiative	49.48	10.19	30-72	42.49	11.42	28-69
2. Self-Control	51.27	8.83	36-72	49.03	10.49	28-72
3. Attachment	48.52	12.18	28-72	34.48	6.41	28-56
4. TPF	48.43	10.13	31-72	40.08	10.58	28-65
5. Behavioral Concerns	54.80	10.36	31-72	45.80	11.47	28-72
-			Girls	(n = 64)		
1	51.67	7.88	35-69	47.47	8.17	31-64
2	54.91	7.97	38-69	54.97	8.44	31-72
3	48.61	9.83	33-72	38.52	7.62	28-56
4	51.39	8.39	31-72	46.02	8.79	33-68
5	52.84	10.64	31-72	40.66	11.53	28-72

Note. TPF= Total Protective Factors scale

Assumptions. To examine the normal distributions of the DECA scores reported by mothers and teachers in this sample, skewness, kurtosis, the Kolmogorov-Smirnov values and normality plots were examined. The skewness value provides an indication of the symmetry of the distribution, while kurtosis provides information about the 'peakedness' of the distribution (Pallant, 2005). The skewness and kurtosis values for all scales for mother-reported and teacherreported scores in this sample are close to one. Upon consideration of the Kolmogorov-Smirnov values, there were only four of the ten scales that met the criteria for normality (a value of .05 or higher). These included the Total Protective Factors and Behavioral Concerns scales for mother-reported scores and the Self-Control and Total Protective Factors scales for teacher-reported scores. Correlations and t-tests are fairly robust to violations of assumptions but it is still important to highlight the scales that do not meet the criteria for normality. Normality plots for the Initiative, Self-Control and Attachment scales for mothers and the Initiative, Attachment and Behavioral Concerns scales for teachers are provided in Appendix B to provide a picture of where the scores are clustered. The assumptions of homoscedasticity and homogeneity of variance were also examined by consulting scatterplots for each scale. Although the scatterplots do not provide any definitive answers, they were used primarily to assess the linearity of each variable.

Pearson product-moment correlation matrices were calculated to describe the strength and direction of the linear relationship between scores on the mother-reported DECA scales and also between scores on the teacher-reported DECA scales. Correlation matrices are presented in tables 4.3 (total sample), 4.4 (boys) and 4.5 (girls). Three key differences were found. First, for boys, the negative intercorrelations between the Behavioral Concerns scale and the other DECA scales were larger for teacher-reported scores than they were for mother-reported. Secondly, conversely for girls, the negative intercorrelations between the Behavioral Concerns scale and the other DECA scales were larger for mother-reported scores than they were for teacherreported scores. Third, for mother-reported scores, a non-significant negative correlation was found between the Total Protective Factors and Behavioral Concerns scale for boys, where a statistically significant negative correlation was found between these two scales for girls.

52)	
Ĩ	
Ä	
le	
du	
Sa	
tal	
To	
he	•
or t	
s fc	
ore	
Sco	
le	
Sca	
Ā	
B	
D	
ted	
Ra	
er-	
ach	
Te	
3	
-Lo	
oth	
Ĭ	
or	
ns 1	
tiol	
ela	
ШC	
SrC	
Inté	
_	

	1	2	ε	4	5	9	7	×	6	10
1. MR Initiative	1	.65**	**69'	.92**	26**	.24**	.10	.10	.17	25**
2. MR Self-Control		1	.54**	.83**	55**	.23**	.20**	.11	.21*	30**
3. MR Attachment			1	.82**	16	.15	60.	90.	.12	12
4. MR TPF				1	37**	.26**	.15	.12	.20*	27**
5. MR BC					1	29**	30**	18*	31**	.27**
6. TR Initiative						1	.59**	.70**	.92**	43**
7. TR Self-Control							1	.59**	.81**	44**
8. TR Attachment								1	.85**	30**
9. TR TPF									1	44**
10. TR BC										1

Note. MR = Mother-reported scores; TR = Teacher-reported scores; TPF = Total Protective Factors; BC = Behavioral Concerns.

* *p* <.05. ** *p* < .01.

4.4
Table

1
9
Ë
S
o <u>y</u>
Ă
<u>o</u>
S 1
ore
Sc
ē
cal
S
S
Ĕ
<u> </u>
teo
Ra
Ŧ
che
eac
F
જ
er-
ţĥ
¥0
L L
fo D
SUG
tio
ela
LL(
ŭ
Ite
IL

	1	2	e E	4	5	6	7	8	6	10
1. MR Initiative		.68**	**02.	.93**	16	.22	.19	.10	.21	29*
2. MR Self-Control		1	.54**	.84**	47**	.17	.20	.13	.19	41**
3. MR Attachment			1	.82**	. 06	.23	.24	.17	.26**	21
4. MR TPF				1	25	.26*	.23	.13	.25	37**
5. MR BC					1	29*	34**	15	32*	.37**
6. TR Initiative						Ţ	.42**	.73**	.89**	56**
7. TR Self-Control							1	.56**	.83**	53**
8. TR Attachment								1	.81**	27*
9. TR TPF									1	52**
10. TR BC										1

Note. MR = Mother-reported scores; TR = Teacher-reported scores; TPF = Total Protective Factors; BC = Behavioral Concerns. The bolded cells are the

correlations of interest, discussed in text.

* *p* <.05. ** *p* < .01.

Ŧ
ő
1
Ξ
ls
5
ŗ
g
es
Ö
Sc
le
ca.
Ś
Y
Ш
Ā
ğ
ate
Ř
eŗ
ch
ea
H
ઝ
Ł
the
Io
2
<u>o</u>
s
on
ati
el
Ц
ĭ
Ite
Г

r T	1	2	e.	4	5	9	L	8	6	10
1. MR Initiative	-	.56**	.68**	**06'	36**	.21	13	.04	.06	15
2. MR Self-Control		1	.56**	.81**	61**	.20	80.	01	.11	12
3. MR Attachment			1	.84**	26*	.03	14	05	07	01
4. MR TPF				1	49**	.18	08	.02	.05	12
5. MR BC					1	27*	23	12	28*	.15
6. TR Initiative						1	.42**	.73**	.87**	21
7. TR Self-Control							1	.54**	.74**	26*
8. TR Attachment								1	**88.	25*
9. TR TPF									1	27*
10. TR BC										1

Note. MR = Mother-reported scores; TR = Teacher-reported scores; TPF = Total Protective Factors; BC = Behavioral Concerns. The bolded cells are the

correlations of interest, discussed in text.

* p < .05. ** p < .01.

Research Question #1: Correspondence between Mother and Teacher Scale Scores

Table 4.6 presents the correlations between mother- and teacher-reported scores for each DECA scale. Four statistically significant, but small, correlations between mother- and teacher-reported scores were found for the DECA scales for the total sample (Initiative, r = .24, p < .00; Self-Control, r = .20, p = .03; Total Protective Factors, r = .20, p = .02; Behavioral Concerns, r = .27, p < .00). For the boys, only for the Behavioral Concerns scale was a statistically significant correlation found between mother- and teacher-reported scale scores (r = .37, p = .01). There were no significant findings between mother- and teacher-reported scale scores for girls. This finding may suggest that mothers and teachers expectations for appropriate behaviour are more similar for boys than they are for girls or that girls do not display behaviours that may be considered to be problematic (i.e., obvious behaviours) to the same extent that boys do across the home and school settings.

These findings partially support the anticipated outcome, which stated that small to medium positive correlations were expected between mother-reported and teacher-reported scores for each DECA scale. The findings only partially support the anticipated outcome for two reasons. One, the correlation value found between mother-reported and teacher-reported scores for the Attachment scale was not significant (0.6). Cohen (1988) suggests the following guidelines for interpretation of correlation values: r = .10 to .29 or r = -.10 to -.29 are small; r = .30 to .49 or r = -.30 to -.49 are moderate; and r = .50 to 1.0 or r = -.50 to -1.0 are large. Secondly, all of the statistically significant correlation findings are small, with the exception of the Behavioral Concerns scale for boys. Therefore, there was only one value that supported the prediction of a medium correlation.

	Total Sample	Boys	Girls
	(N = 125)	(n = 61)	(n = 64)
Initiative	.24**	.22	.21
Self-Control	.20**	.20	.08
Attachment	.06	.17	05
TPF	.20*	.25	.05
BC	.27**	.38**	.15

Correlations Between Mother- and Teacher-Rated DECA Scale Scores for the Total Sample and by Gender

Note. TPF= Total Protective Factors scale; BC = Behavioral Concerns scale.

* *p* <.05 (2-tailed). ** *p* < .01 (2-tailed).

Research Question #2: Differences between Mother-Reported and Teacher-Reported Scale Scores

Paired-samples t-tests were calculated to investigate differences in mean standard scores for mother-reported and teacher-reported data across all five DECA scales. For the total sample, and male and female sub-samples, statistically significant differences (p < .01) were found between mean standard scores for mother-reported and teacher-reported data on four DECA scales, with the exception of the Self-Control scale. For all scales, the mean standard score for mother reports was higher than for teacher reports (as shown in table 4.1 above).

The eta squared statistic was hand-calculated to determine the effect size for each DECA scale score. The effect size is a statistic that indicates the relative magnitude of the differences between means. For the total sample, the eta squared statistic indicated a large effect size for

Initiative, Attachment, Total Protective Factors and Behavioral Concerns (0.18, 0.47, 0.24, and 0.38, respectively).

These findings do not, in part, support the outcome, which stated that there would be a statistically significant difference between mother and teacher ratings for all scales, as anticipated. Specifically, it was predicted that teachers would rate students higher on Behavioral Concerns, Initiative and Self-Control and mothers would rate students higher on Attachment with no directional prediction made for the Total Protective Factors scale. The findings did not support the predictions for several reasons. First, mothers rated students higher than teachers for the Initiative, Total Protective Factors and Behavioral Concerns scales. Second, a statistically significant difference was not found between mother and teacher ratings for the Self-Control scale. However the findings did support the anticipated outcome that mothers would rate students higher than teachers for the Attachment scale. Although gender specific predictions were not made, the findings are similar to those of the total sample. It appears that sex differences do influence differences between mother and teacher ratings, particularly for the Self-Control scale. The pattern of effect sizes was the same for the total sample, boys and girls, when eta squared was calculated for each group.

Paired-Samples t-tests for DECA Scale Scores for the	Total Sam	ple and by	y Gender
--	-----------	------------	----------

	MD	SD	t	df	<i>p</i> -value
Total Sample					
Initiative	5.56	11.92	5.22	124	.00
Self-Control	1.13	11.74	1.07	123	.29
Attachment	12.07	12.85	10.51	124	.00
Total Protective Factors	6.88	12.32	6.21	123	.00
Behavioral Concerns	10.52	13.49	8.65	122	.00
Boys					
Initiative	6.98	13.50	4.04	60	.00
Self-Control	2.40	12.31	1.51	59	.14
Attachment	14.15	12.75	8.67	60	.00
Total Protective Factors	8.47	12.71	5.16	59	.00
Behavioral Concerns	8.94	12.32	5.62	59	.00
Girls					
Initiative	4.20	10.11	3.32	63	.00
Self-Control	06	11.14	.05	63	.96
Attachment	10.10	12.73	6.34	63	.00
Total Protective Factors	5.38	11.85	3.63	63	.00
Behavioral Concerns	12.03	14.46	6.60	62	.00

Note. MD = Mean Difference. All Mean Difference scores equal the mother-reported scores minus teacher-reported scores.

Research Question #3: Correspondence between Mother- and Teacher-Ranked Items

Kendall's tau correlation statistic was utilized to determine the relationship between mother and teacher ranked scores for each item on the DECA, for the total sample, and for boys and girls. The results for the correspondence between items are presented in tables by scale in this section (tables 4.8 to 4.11).

Initiative Scale. The Initiative scale includes 11 items. Three statistically significant correlations were found for the total sample, and two were found for boys. Specifically, statistically significant correlations between mother-reported and teacher-reported ranks were found for items 16 ($\tau = .18$, p = .03), 20 ($\tau = .25$, p < .00) and 24 ($\tau = .17$, p = .03) for the total sample, and for items 20 ($\tau = .30$, p < .00) and 28 ($\tau = .33$, p < .00) for boys. There were no statistically significant correlations found for items on the Initiative scale for girls. This suggests that the correspondence between mother-reported data and teacher-reported data is higher when kindergarten students are rated on the frequency with which they are observed to try different ways to solve a problem, start or organize play with other children, and focus his or her attention or concentrate on an activity, compared to other items on the Initiative scale. Also, it is more likely that mother and teacher ratings of the frequency with which boys are observed to start or organize play with other children and to say positive things about the future are more similar than girls, when kindergarten students are being rated.

Kendall's Tau Correlations Between Mother and Teachers for Items on the Initiative Scale for the Total Sample and by Gender

	Total Sample	Boys	Girls
	(N = 125)	(n = 61)	(n = 64)
2. Do things for himself/herself	02	04	.05
3. Choose to do a task that was challenging	.01	00	.03
7. Participate in make-believe play with	.12	04	.21
others			
12. Keep trying when unsuccessful (act	.10	.18	.01
persistent)			
16. Try different ways to solve a problem	.18*	.16	.23
19. Try or ask to try new things	.03	05	.08
20. Start/organize play with other children	.25**	.30**	.14
24. Focus his/her attention or concentrate	.17*	.17	.15
on a task or activity			
28. Say positive things about the future	.09	.33**	21
32. Ask other children to play with him/her	.09	.09	.04
36. Make decisions for himself/herself	.06	01	.13

* *p* <.05 (2-tailed). ** *p* < .01 (2-tailed).

Self-Control Scale. The Self-Control scale includes eight items. Three statistically significant correlations were found for the total sample and for boys, and two were found for girls. Statistically significant correlations between mother and teacher ranked scores were found for items 4 ($\tau = .18$, p = .03), 21 ($\tau = .31$, p < .00) and 33 ($\tau = .27$, p < .00) for the total sample. There was a statistically significant correlation between mother and teacher ranked scores for items 13 ($\tau = .25$, p = .03), 21 ($\tau = .31$, p < .00) and 33 ($\tau = .29$, p = .01) for boys and for items 21 ($\tau = .24$, p = .04) and 33 ($\tau = .24$, p = 04.) for girls. This suggests that the correspondence between mother-reported data and teacher-reported data is higher when kindergarten students are rated on the frequency with which they are observed to listen to or respect others, show patience and cooperate with others, compared to other items on the Self-Control scale. Also, it is more likely that mother and teacher ratings of the frequency with which boys handle frustration well is more similar compared to girls, when kindergarten students are being rated.

The value obtained for items 21 and 33 after calculating Kendall's tau coefficient are the first two of three values out of all thirty-seven correlation coefficients calculated for individual items (comparing mother and teacher ranks) found to have a statistically significant correspondence for the total sample, boys and girls. This finding suggests that compared to other items on the DECA, mothers and teachers are more likely to agree on the frequency with children show that they have patience and cooperate with others, regardless of the sex of the child.

Kendall's Tau Correlations Between Mother and Teachers for Items on the Self-Control Scale for the Total Sample and by Gender

	Total Sample	Boys	Girls
	(N = 125)	(n = 61)	(n = 64)
4. Listen to or respect others	.18*	.10	.21
5. Control her/his anger	01	09	03
13. Handle frustration well	.15	.25*	00
21. Show patience	.31**	.31**	.24*
25. Share with other children	.12	.18	.00
30. Accept another choice when her/his	.15	.18	.09
first choice was unavailable			
33. Cooperate with others	.27**	.29*	.24*
34. Calm herself/himself down when upset	.00	.12	12

* *p* <.05 (2-tailed). ** *p* < .01 (2-tailed).

Attachment Scale. The Attachment scale includes eight items. There were no statistically significant correlations found for any of the items on the Attachment scale for the total sample, boys or girls.

Kendall's Tau Correlations Between Mother and Teachers for Items on the Attachment Scale for the Total Sample and by Gender

	Total Sample	Boys	Girls
	(N = 125)	(n = 61)	(n = 64)
1. Act is a way that made adults smile or	.04	.04	.03
show interest in her/him			
6. Respond positively to adult comforting	01	03	04
when upset			
10. Show affection for familiar adults	.03	.11	05
17. Act happy or excited when	.01	07	.09
mother/guardian returned			
22. Ask adults to play with or to him/her	.11	.20	05
29. Trust familiar adults and believe what	.11	.12	.10
they say			
31. Seek help from children/adults when	02	07	.07
necessary			
37. Show interest in what children/adults	.01	.13	.14
are doing			

* *p* <.05 (2-tailed). ** *p* < .01 (2-tailed).

Behavioral Concerns. The Behavioral Concerns scale includes 10 items. Statistically significant correlations between mother and teacher ranked scores were found for items 11 ($\tau = .22, p < .00$), 18 ($\tau = .18, p = .03$) and 23 ($\tau = .29, p = .01$) for the total sample. There was a statistically significant correlation between mother and teacher ranked scores for items 11 ($\tau = .29, p = .01$), 23 ($\tau = .23, p = .02$) and 35 ($\tau = .23, p = .04$) for boys and only for item 23 ($\tau = .27, p = .02$) for girls. This suggests that the correspondence between mother-reported data and teacher-reported data is higher when kindergarten students are rated on the frequency with which they are observed to have temper tantrums, destroy or damage property and fight with other children. Also, it is more likely that mother and teacher ratings of the frequency that boys are observed to have temper tantrums and get easily distracted are more similar to girls, when kindergarten students are being rated.

The value obtained for item 23 after calculating Kendall's tau coefficient is the third of three values out of all thirty-seven correlation coefficients calculated for individual items (comparing mother and teacher ranks) found to have a statistically significant correspondence for the total sample, boys and girls. This finding suggests that mothers and teachers are more likely to agree on the frequency with children show that they have a short attention span or difficulty concentrating, regardless of the sex of the child.

Kendall's Tau Correlations Between Mother and Teachers for Items on the Behavioral Concerns Scale for the Total Sample and by Gender

	Total Sample	Boys	Girls
	(N = 125)	(n = 61)	(n = 64)
8. Fail to show joy or gladness at a happy	.08	.11	.01
occasion			
9. Touch children/adults inappropriately	.04	.05	.03
11. Have temper tantrums	.22**	.29*	.13
14. Have no reaction to children/adults	.10	.18	01
15. Use obscene gestures or offensive	.15	.15	.15
language			
18. Destroy or damage property	.18*	.22	.13
23. Have a short attention span (difficulty	.29**	.25*	.27*
concentrating)			
26. Fight with other children	.04	.04	.06
27. Become upset of cry easily	.04	.10	03
35. Get easily distracted	.20*	.23*	.10

* *p* <.05 (2-tailed). ** *p* < .01 (2-tailed).

These findings fully support the anticipated outcome, which was that statistically significant correlations between mother and teacher ranked scores would be found for more items on the Self-Control and Behavioral Concerns scales (i.e. measuring behaviours that are more obvious, or observable) than there would be for items on the Initiative and Attachment scales (i.e. measuring behaviours that require a higher degree of judgment by the rater). As was

predicted, there were a greater number of statistically significant correlations found between mother and teacher ranked scores for the Self-Control and Behavioral Concerns scales than there was for the Initiative and Attachment scales. Specifically, for the Initiative scale, which is made up of 11 items, three statistically significant correlations were found for the total sample and two found for boys. For the Self-Control scale, which is made up of eight items, three statistically significant correlations were found for the total sample, three for boys and two for girls. For the Behavioral Concerns scale, which is made of 10 items, four statistically significant correlations were found for the total sample, three for boys and one for girls. Finally, no statistically significant correlations were found for the Attachment scale, which is made up of eight items. See Appendix D for correlation matrices for items on each scale for the total sample, girls and boys.

Research Question #4: Difference between Mother and Teacher Ranked Item Scores

A series of Wilcoxon signed rank tests were utilized to investigate whether there were differences between the number of mothers that provided higher ranked scores and the number of teacher that provided higher ranked scores for each item on the DECA. Similar to the way findings for research question three was organized, the findings that answer this question are organized in tables by scale (tables 4.12 to 4.15). Given that little research has been conducted that looks at mother and teacher differences at the item level, this question was more exploratory than confirmatory.

Initiative Scale. For the Initiative scale, eight items out of 11 were found to have statistically significant differences between the number of mothers that provided higher ranked scores and the number of teachers that provided higher ranked scores for the total sample (see table 4.12). The Wilcoxon signed-rank test showed that there were statistically significant

differences between mother and teacher ranks scores for items 2, 3, 7, 19, 20, 28, 32, and 36. Detailed information regarding the statistically significant results follow, with the number of mothers who ranked the kindergarten students higher described first, the number of teachers who ranked the kindergarten students higher described second and the number of ties (i.e. mothers and teachers who provided the same rank) described third: item 2 (64 mothers, 20 teachers, 41 ties,

p < .00; item 3 (58 mothers, 33 teachers, 34 ties p < .00); item 7 (57 mothers, 21 teachers, 47 times, p < .00); item 19 (56 mothers, 30 teachers, 39 ties, p = .02);

The Wilcoxon signed-rank test was also calculated for each item for this sample by gender to determine whether there were differences between mother and teacher ranked scores. For boys, items 2, 3, 7, 19, 20, 28, 32, and 36 were also found to have statistically significant differences between the number of mothers and teachers that provided higher ranks. In addition, a statistically significant difference was found for item 16. Mother rankings were higher for more children than teacher rankings for these items as well. For girls, the items that were statistically significantly different were 2, 3, 20, 28, 32, and 36. Again, for these items, mothers ranked more children higher than teachers did. Detailed information about the number of mothers and teacher providing higher ranks is not provided here.

Differences between mothers and teachers ranks were largest on items 2 and 28 for the total sample, and both genders. Items 12 and 24 were the only two on the Initiative scale that did not have statistically significant differences across the total sample, or for either gender.

Wilcoxon Signed Rank Tests for Items on the Initiative Scale for the Total Sample and by Gender

	Total Sample	Boys	Girls
	(N = 125)	(n = 61)	(n = 64)
2. Do things for himself/herself	-4.71** ^a	-3.34** ^a	-3.35** ^a
3. Choose to do a task that was challenging	-2.87** ^a	-2.03* ^a	-2.10* ^a
for her/him			2
7. Participate in make-believe play with	-4.36** ^a	-4.24** ^a	-1.45 ^a
others			
12. Keep trying when unsuccessful (act	-1.00 ^a	-1.58 ^a	26 ^b
persistent)			
16. Try different ways to solve a problem	-1.61 ^a	-2.31* ^a	62 ^b
19. Try or ask to try new things	-2.38* ^a	-1.98* ^a	-1.40 ^a
20. Start or organize play with other	-3.94** ^a	-3.04** ^a	-2.55* ^a
children			
24. Focus his/her attention or concentrate	-1.37 ^a	-1.33 ^a	56ª
on a task or activity			
28. Say positive things about the future	-5.51***	-4.63** ^a	-3.17** ^a
32. Ask other children to play with him/her	-4.08** ^a	-3.14** ^a	-2.62** ^a
36. Make decisions for himself/herself	-3.50** ^a	-2.71** ^a	-2.23* ^a

Note. Wilcoxon Signed Rank Test statistics equal teacher-reported scores minus mother-reported scores.

^aBased on positive ranks. ^bBased on negative ranks.

* *p* <.05 (2-tailed). ** *p* < .01 (2-tailed).

Self-Control Scale. For the Self-Control scale, four items out of eight were found to have statistically significant differences between the number of mothers that provided higher ranked scores and the number of teachers that provided higher ranked scores for the total sample (see table 4.12). The Wilcoxon signed rank test showed that there were statistically significant differences between mother and teacher ranked scores for items 21, 25, 30 and 34. Detailed information regarding the statistically significant results follow, with the number of mothers who ranked the kindergarten students higher described first, the number of teacher who ranked the kindergarten students higher described second, and the number of ties (i.e. mothers and teachers who provided the same rank) described third: item 21 (22 mothers, 49 teachers, 54 ties, p < .00); item 25 (48 mothers, 26 teachers, 51 ties, p < .00); item 30 (24 mothers, 39 teachers, 62 ties, p = .03); and item 34 (58 mothers, 32 teachers, 34 ties, p < .00).

The Wilcoxon signed-rank test was also calculated for each item for this sample by gender to determine whether there were differences between mother and teacher ranked scores. For boys, items 21, 25, and 34 were found to have statistically significant differences between the number of mothers and teachers that provided higher ranks. Mothers provided higher ranks for more participants than teachers for items 25 and 34, but vice versa for item 21. For girls, only items 21 and 30 showed statistically significantly differences between mother and teacher ranked score, with teachers providing higher ranks for more participants than mothers for both of these items. Detailed information about the number of mothers and teacher providing higher ranks is not provided here.

Differences between mothers and teachers ranks were largest on the item 34 for the total sample and boys. Items 4, 5, 13 and 33 were the four items of the Self-Control scale that did not have statistically significant differences across the total sample, or for either gender group.

Wilcoxon Signed Rank Test for Items on the Self-Control Scale for the Total Sample and by Gender

	Total Sample	Boys	Girls
	(N = 125)	(n = 61)	(n = 64)
4. Listen to or respect others	80 ^a	-1.03ª	-0.16 ^a
5. Control her/his anger	-1.81 ^a	-1.47 ^a	-1.00 ^a
13. Handle frustration well	-1.76 ^b	79 ^a	-1.62 ^a
21. Show patience	-3.22** ^b	-2.32* ^b	-2.22* ^b
25. Share with other children	-2.63** ^a	-2.56* ^a	-1.07 ^a
30. Accept another choice when her/his	-2.21* ^b	93 ^b	-2.36* ^b
first choice was unavailable			
33. Cooperate with others	25ª	-1.25 ^a	98 ^b
34. Calm herself/himself down when upset	-3.91** ^a	-3.66**	-1.87 ^a

Note. Wilcoxon Signed Rank Test statistics equal teacher-reported scores minus mother-reported scores. ^aBased on positive ranks. ^bBased on negative ranks.

* *p* <.05 (2-tailed). ** *p* < .01 (2-tailed).

Attachment Scale. For the Attachment scale, all eight items were found to have statistically significant differences between the number of mothers that provided higher ranked scores and the number of teachers that provided higher ranked scores (see table 4.13). This scale is made up of items 1, 6, 10, 17, 22, 29, 31 and 37 and statistically significant differences were found for each of these items for the total sample and both gender groups. For the total sample only, detailed information regarding the statistically significant results follow, with the number of mothers who ranked the kindergarten students higher described first, the number of teacher

who ranked the kindergarten students higher described second, and the number of ties (i.e. mothers and teachers who provided the same rank) described third: item 1 (63 mothers, 13 teachers, 44 ties, p < .00); item 6 (72 mothers, 16 teachers, 37 ties, p < .00); item 10 (63 mothers, 16 teachers, 46 ties, p < .00); item 17 (71 mothers, 12 teachers, 42 ties, p < .00); item 22 (88 mothers, 8 teachers, 29 ties, p < .00); item 29 (46 mothers, 16 teachers, 63 ties, p < .00); item 31 (61 mothers, 14 teachers, 50 ties, p < .00); and item 37 (61 mothers, 21 teachers, 43 ties, p < .00). Differences between mother- and teachers ranks were largest on the items 6, 17 and 22 for the total sample and both gender groups, with more mothers providing higher ranks than teachers.

Wilcoxon Signed Rank for Items on the Attachment Scale for the Total Sample and by Gender

	Total Sample	Boys	Girls
	(N = 125)	(n = 61)	(n = 64)
1. Act is a way that made adults smile or	-5.99** ^a	-4.34** ^a	-4.14** ^a
show interest in her/him			
6. Respond positively to adult comforting	-6.06** ^a	-5.46** ^a	2.88** ^a
10. Show affection for familiar adults	-4.69** ^a	-4.15** ^a	-2.41* ^a
17. Happy/excited when mother returned	-6.54** ^a	-5.00** ^a	-4.21** ^a
22. Ask adults to play with or to him/her	-7.93** ^a	-5.74** ^a	-5.52** ^a
29. Trust familiar adults	-3.43** ^a	-2.67** ^a	-2.19* ^a
31. Seek help from children/adults	-5.32** ^a	-3.83** ^a	-3.75** ^a
37. Show interest in what children/adults	-4.40** ^a	-3.93** ^a	-2.30* ^a
are doing			

Note. Wilcoxon Signed Rank Test statistics equal teacher-reported scores minus mother-reported scores.

^aBased on positive ranks. ^bBased on negative ranks.

p <.05 (2-tailed). ** *p* < .01 (2-tailed).

Behavioral Concerns. For the Behavioral Concerns scale, seven items out of 10 were found to have statistically significant differences between the number of mothers that provided higher ranked scores and the number of teachers that provided higher ranked scores for the total sample (see table 4.14). The Wilcoxon signed rank test showed that there were statistically significant differences between mother and teacher ranked scores for items 9, 11, 14, 15, 18, 26, and 27. Detailed information regarding the statistically significant results follow, with the number of mothers who ranked the kindergarten students higher described first, the number of teacher who ranked the kindergarten students higher described second, and the number of ties (i.e. mothers and teachers who provided the same rank) described third: item 9 (28 mothers, 12 teachers, 84 ties, p = .04); item 11 (84 mothers, 4 teachers, 37 ties, p < .00); item 14 (36 mothers, 13 teachers, 76 ties, p < .00); item 15 (29 mothers, 3 teachers, 93 ties, p < .00); item 18 (31 mothers, 9 teachers, 85 ties, p < .00); item 26 (75 mothers, 17 teachers, 32 ties, p < .00); and item 27 (78 mothers, 18 teachers, 29 ties, p < .00).

The Wilcoxon signed-rank test was also calculated for each item for this sample by gender to determine whether there were differences between mother and teacher ranked scores. For boys, items 4, 5, and 13 were found to have statistically significant differences between the number of mothers and teachers that provided higher ranks. Mothers provided higher ranks for more participants than teachers for items 25 and 34, but vice versa for item 21. For girls, items 9, 11, 14, 15, 18, 26, and 27 showed statistically significantly differences between mother and teacher ranked score, with teachers providing higher ranks for more participants than mothers for both of these items. Detailed information about the number of mothers and teacher providing higher ranks is not provided here. For each of these items across the total sample, and both gender groups, mothers provided higher ranks for more participants than teachers provided. Differences between mothers and teachers ranks were largest on the items 11, 26 and 27. There were three items on the Behavioral Concerns scale that did not have statistically significant differences for the total sample, or for both gender groups. These were items 8, 23 and 35.

Given that this research question was more exploratory, a statement around the degree to which the findings support the prediction is not provided.

-

Wilcoxon Signed Rank Tests for Items on the Behavioral Concerns Scale for the Total Sample and by Gender

	Total Sample	Boys	Girls
	(N = 125)	(n = 61)	(n = 64)
8. Fail to show joy at a happy occasion	-1.20 ^a	43ª	-1.37 ^a
9. Touch children/adults inappropriately	-2.05* ^a	59 ^a	-2.43* ^a
11. Have temper tantrums	-7.82** ^a	-5.71** ^a	-5.37** ^a
14. Have no reaction to children/adults	-2.91** ^a	-1.76 ^a	-2.36* ^a
15. Use obscene gestures/bad language	-3.84** ^a	-2.69* ^a	-2.77* ^a
18. Destroy or damage property	-2.90** ^a	-2.22* ^a	-1.91 ^a
23. Have a short attention span	93 ^b	-1.21 ^b	01 ^b
26. Fight with other children	-5.83** ^a	-3.67** ^a	-4.41** ^a
27. Become upset of cry easily	-6.33** ^a	-4.22** ^a	4.71** ^a
35. Get easily distracted	-1.66 ^a	75ª	-1.54 ^a

Note. Wilcoxon Signed Rank Test statistics equal teacher-reported scores minus mother-reported scores.

^aBased on positive ranks. ^bBased on negative ranks.

* *p* <.05 (2-tailed). ** *p* < .01 (2-tailed).
Chapter Five: Discussion

Overview

In this chapter, a summary and interpretation of the findings presented in the results section are provided. First, the findings for the correspondence and then the differences between parent and teacher ratings on the DECA scales and items are discussed. Next, the limitations and strengths of this study are highlighted. Some ethical considerations are then described. A large section of this chapter is then devoted to a consideration of the implications for school psychologists before the conclusions are stated.

Correspondence between Parent and Teacher Ratings on the DECA Scales and Items

Scale-Level Correspondence. As anticipated, small correlations were found between mother and teacher ratings across the DECA scales for the total sample and girls. For boys, one moderate statistically significant correlation was found, which was for the Behavioural Concerns scale. In the literature, low correlations have consistently been found between parent and teacher ratings for problem based measures in samples that include children of all ages (e.g. Achenbach, McConaughy, & Howell, 1987) as well as in samples that include preschool age children only (e.g. Gross, Fogg, Garvey & Julion, 2004). The results obtained from this study, in which a strength-based assessment tool was utilized to examine the correspondence between mother and teacher ratings, are similar to results obtained in studies that use problem-based measures to compare parent and teacher ratings. These findings suggest that similar factors that impact the low correspondence detected between parent and teacher ratings for children's problems also may impact the relationship between parent and teacher ratings for children's strengths.

Item-Level Correspondence. For individual items, small correlations were found between mother and teacher ratings within all scales for the total sample, as well as for both

gender groups. Across all subscales, there were four statistically significant correlations that met the criteria of a moderate relationship, ranging from .30 to .33. This criterion was met for items 20 (start or organize play with other children) and 28 (say positive things about the future) on the Initiative scale and 21 (show patience) on the Behavioral Concerns scale for boys, and item 21 for girls. There were no statistically significant relationships found for items on the Attachment scale. The finding that there were few statistically significant correlations between motherreported and teacher-reported ranks at the item level is not surprising, considering that correlations between mother-reported and teacher-reported scores at the scale level is small. As anticipated though, there were more items on the Self-Control and Behavioral Concerns scale that had a significant relationship. Specifically, eight items on each scale were found to have significant correlations. There were five items on the Initiative scale that demonstrated a significant positive relationship between mother and teacher ratings considering the total sample and boys' sub-sample together. Three items in particular had statistically significant correlations across the total sample and both gender groups, and were not found to have statistically significant differences between parent and teacher ratings (upon examination of the Wilcoxon signed-rank values). These items were "show patience", "cooperate with others" and "have a short attention span (difficulty concentrating)" and are found on the Self-Control and Behavioral Concerns scales, respectively. Perhaps because these two behaviours can be considered more obvious and observable, they are rated more similarly across settings than the other items that make up the DECA. Given that research that has examined parent and teacher rating differences for behaviour problems in children has consistently found higher agreement for externalizing problems, the findings for this research question are not surprising. Items on the Self-Control and Behavioral Concerns scale can be considered to measure behaviours that are more externalizing

(i.e. obvious) in nature. However, behaviours measured by the items on the Initiative and Attachment scales can be said to occur more internal to the child and therefore are not as easily observable and require a greater degree of judgment by the rater. Perhaps strengths can be viewed as falling under the broader categories of externalizing and internalizing behaviours, just as problem behaviours can (i.e. these behaviours can perhaps be considered internalized strengths and externalized strengths). Also, the fact that there were no statistically significant differences found between mother and teacher ratings for the Self-Control scale suggests that perhaps behaviours falling under the broader category of self-control are less influenced by the type of environment the child is in than are other behaviours characteristic of initiative, attachment and general behaviour 'problems'.

Differences between Parent and Teacher Ratings on the DECA Scales and Items

Scale-Level Differences. It was predicted that statistically significant differences would be found for each scale and that the Attachment scale would be the only scale in which mothers would rate students higher than teachers. It was predicted that all other scales would show that teachers rated students higher. The findings were somewhat surprising. There were statistically significant differences found for all scales except Self-Control, for the total sample and both sex groups. However, mothers rated students higher than teachers did for each scale on those that were significant, which was contrary to the anticipated outcome. Upon examination of the mean values for mothers and teachers for each scale though, this finding is not alarming. This suggests that mothers may generally rate children higher on strengths and behaviour concerns that are measured by the DECA. Perhaps mothers and teachers have a different frame of reference of what constitutes typical levels of such strengths and problem behaviours from which to compare kindergarten students' social-emotional and behavioural functioning as measured by the DECA.

More specifically, perhaps for mothers the bar is set lower than for teachers for a child to receive a higher rating for strengths and behaviour concerns that are measured by the DECA. The reason for this could be that teachers observe a wide variety of behaviours from many different students on a daily basis. To receive a high rating for strengths, and a low rating for behaviour concerns from teachers then, the student's display of appropriate behaviour would have to differ greatly from many students. Indications of high rating for strengths or low rating for behaviour concerns from parents might result from the use of a frame of reference that incorporates fewer experiences with children compared to their own. Perhaps the parent assumes that the child is behaving appropriately and frequently displays strengths, whereas it is likely that the teacher does not assume this to the same extent.

Item-Level Differences. At the item level, statistically significant differences were found between the number of mothers that provided higher ranks and the number of teachers that provided higher ranks for all items on the Attachment scale, most items on the Initiative and Behavioral Concerns scale and half of the items on the Self-Control scale. Considering inconsistencies across groups (by scale), there were some items that had statistically significant differences for only one of the total sample, boys and girls groups. For example, on the Initiative scale, for item 16 (try different ways to solve a problem), differences were found for boys and for item 19 (try or ask to try new things or activities), differences were found for the total sample and girls. On the Self-Control scale, differences were found for items 25 (share with other children) and 34 (calm herself/himself down when upset) for the total sample and the girls' subsample and item 30 (accept another choice when her/his first choice was unavailable) showed differences for the total sample and the boy's subsample. On the Behavioral Concerns scale, differences were found for items 9 (touch children/adults inappropriately) and 14 (have no

reaction to children/adults) for the total sample and girls and for item 18 (destroy or damage property), for the total sample and boys. These findings perhaps provide further evidence that items on the Self-Control scale are more observable. Therefore, there is less likelihood that mothers and teachers will rate students differently on these items, in comparison to items on other scales, because rating an overt behaviour requires less interpretation (i.e. guessing) by parents and teachers than rating behaviours that cannot be blatantly observed.

There are three important points to consider from the findings in general. First, five scatterplots were examined to determine the strength of the relationship between mother-reported scores and teacher-reported scores (i.e. for each scatterplot, the two variables were parentreported scores and teacher-reported scores for the Initiative, Self-Control, Attachment, Behavioral Concerns, and Total Protective Factors scales). It was determined that all variables were related in a positive, linear fashion. However, with the exception of the Total Protective Factors scale, the scatterplots showed a weak relationship because the data points were not clumped together around an imaginary straight line, as Pallant (2005) suggests they should be. Second, considering the low mean standard score for teachers for the Attachment scale (M = 36.50) compared to mothers (M = 48.57) as well as to the average DECA T-score of 50, it is not surprising that this scale as well as items making up this scale were found to have low correspondence and high difference values. Third, the low correlations found between mother and teacher ratings for the DECA scales and items in this study were likely not impacted by reliability of the DECA. The reliability values obtained for this sample very closely match those found in the test manual and the test-rest values obtained for the standardization sample are considered to be excellent. For mothers, the test-retest values range from .55 (i.e., Attachment

and Behavioral Concerns) to .80 (Initiative). For teachers, test-retest coefficients ranged from .68 (Behavioural Concerns) to .91 (i.e. Initiative and Self-Control).

Also, there appears to be evidence for the notion that differences between parent and teacher ratings may always exist regardless of the type of social-emotional functioning or behaviours being rated (i.e. strengths or problems). Further research investigations are needed to examine the relationship between parent and teacher ratings of children's strengths. If weak relationships were consistently found, there would be more reason to safely assume that ratings may actually have more to do with factors associated with the rater as opposed to traits of the child.

Finally, it is also notable that more statistically significant correlations were found between mother-reported and teacher-reported scores for DECA scales and items for boys than for girls. From their longitudinal studies following infants from birth to maturity, Werner and Smith (1982) highlight that at each developmental stage, there is a shifting balance between stressful life events that heighten children's vulnerability and protective factors that enhance their resilience. This balance changes not only with the stages of the life cycle, but also varies with the sex of the individual and the cultural context in which he or she grows up. Furthermore, Werner (1990) points out from the studies reviewed in her chapter, there is a consistent finding that boys are more vulnerable than girls to the effects of biological insults or care giving deficits in infancy and childhood. This trend is reversed in the second decade and then appears to shift back again in young adulthood in favour of women. Perhaps displays of resilient behaviour (or lack thereof) are more observable in preschool-aged boys, compared to preschool-aged girls. More specifically, if Werner's conclusion holds merit, then maybe it is that boys vulnerability is shown through very infrequent or nonexistent displays of resilient behaviour (i.e. low on

protective factors but high on behaviour concerns) and that agreement between mothers and teachers is stronger when both raters can draw a conclusion in their mind that the behaviour is never seen or very frequently seen, as opposed to indicating one of the middle ratings (i.e. "rarely", "occasionally" and "frequently"). More subjectivity applies to these middle ratings than to a rating of "never" or "very frequently". In other words, perhaps mothers and teachers provide ratings that are more differentiated for boys social-emotional behaviour than for girls'.

Limitations of the Study

Some limitations should be taken into consideration upon examination of the results of this study. First, random sampling techniques were not employed to obtain this sample. The participants in this study consisted primarily of Caucasian children, teachers and parents from only two school districts in British Columbia. Also, the age of the children ranged from 5.2 to 6.7, therefore excluding other age groups for which the DECA was designed. Therefore, results of this study are not generalizable to other regions of the country or to children from different ethnic backgrounds, nor to preschool children of all ages. Secondly, some of the items were originally missing upon receiving the parent and teacher packages. Research assistants working on the two projects made telephone calls to parents and teachers to obtain responses that would lead to a complete DECA form. Parents and teachers may have responded differently to the research assistant over the phone than they would have had they completed it on their own. However, there were very few DECA forms that had items requiring follow-up relative to the number of forms used in the analyses. Therefore, this limitation most likely played a very small role, if any, on the results. Third, for Sample A only, there was a wider time frame of when the form was completed across home and school. Thus, the low correlations detected could have been the result of the child being rated at different times (e.g. for Sample A, most teachers

completed DECA forms in June and most parents completed the DECA forms during the summer months, which is a time when children may or may not behave differently in the home). This confound may have impacted the results particularly because the DECA does ask the respondent to provide ratings based on the frequency with which the child behaved in a certain manner "over the past four weeks".

Strengths of the Study

Although there are various limitations that need to be considered when interpreting the findings from this study, there are several strengths that are important to highlight. First, the overall sample includes kindergarten students from two different regions in British Columbia, Canada. There have been very few studies that investigate differences in parent and teacher ratings using a Canadian sample. Another strength of this study is that the same measure was used to obtain mother and teacher ratings. In the majority of studies that investigate the correspondence and differences between parent and teacher ratings, there are different forms used for parents and teachers. For example, the Child Behaviour Checklist (CBCL) and the Teacher Report From (TRF) of the Achenbach System of Emotional and Behaviour Assessment (ASEBA, Achenbach & Edelbrock, 1983) are often used. These two forms measure the same scales but in slightly different ways (i.e. items are worded differently or there are a different number of items making up a scale). Also, sometimes in studies that investigate the relationship between parent and teacher ratings, there are completely different measures used. For example, in a research investigation that compares parent and teacher ratings of internalizing and externalizing behaviour problems in preschool children, the CBCL (Achenbach et al., 1983) was used to collect rating data from parents and the Preschool Behavior Questionnaire (PBO; Behar, 1977; Behar & Stringfield, 1974; was used to collect rating data from teachers. Although the

scales on two different forms may be the same or very similar, there is no guarantee that the slight differences across items or scales would not limit the correspondence values obtained. Only when the exact same measure is used for each group of raters can this be guaranteed.

Ethical Considerations

Some ethical concerns were considered for this study. First and foremost, there is a lot of sensitivity inherent in the assessment of children's development. Although this study was conducted solely for research purposes, it was an ethical obligation to communicate findings that suggest concerns about a student's development to parents. Secondly, before consenting to their child's participation in the study, it was highlighted for parents that all information was going to be kept confidential and they would have the right to withdraw their child from the study at any point. Third, in the collection phase of the study, it was important to ensure that all research assistants who were conducting assessments with the students were highly trained so as to produce reliable results. This ensures test integrity. Reliability was achieved in this study by having all research assistants complete a check out with the coordinators of the project or the primary investigators. Fourth, regarding the rating scales used with parents and teachers in this study, it is important to determine whether these measures are appropriate for the sample of individuals it is being administered to. Specifically, it is important to determine if the test being used is reliable and valid for the sample it is used with. This was achieved by exploring the demographics of the standardization sample and determining whether or not those demographics were similar enough to this study's sample. Also, it is important to determine whether the rating scales are appropriate for the rater's language preferences. In this study, there was no confirmation that all parents and teachers had adequate English language proficiency to fill out a DECA form, it was only assumed. A final ethical consideration was compensation. In this study,

parents and teachers were offered a fair reward, in the form of money for teachers and gift certificates for parents. The amount of compensation was fair, so not to coerce the parents and teachers to consent to their child's participation.

Implications for School Psychologists and Future Research

There are several implications that can be drawn from the findings of this study, which evidences a weak relationship between mother and teacher ratings of young children's behaviour using a strength-based assessment. These findings are consistent with findings from other research investigations comparing parent and teacher ratings using problem-based measures. First, there are no clearly defined guidelines for interpreting scores from rating scales completed by parents and teachers. Therefore, drawing final interpretations about a child's social-emotional functioning might be considered a difficult task, particularly when rating scale data from these two raters is different. This consistent finding of a weak relationship between parent and teacher ratings underscores the need for practitioners to engage in multi-informant assessment when managing a child's case, whether social-emotional or behavioural functioning is a primary or secondary concern. The low correspondence and high difference values that were found are a further indication that different raters provide a unique and different perspective of the child's functioning. Therefore, obtaining a perspective from only the parent or only the teacher would leave in question the child's functioning in the other setting. When a child's social-emotional functioning profile is perceived to be similar for parents and teachers, it is likely that the traits are more stable across contexts. Even if the profile pattern is similar but parents and teachers are indicating different degrees of the behaviour (eg., higher frequency in one setting), this lends even further to the notion that the types of behaviours that the child is displaying are consistent across settings. However, social-emotional or behavioural strengths and concerns may be rated

as very different in one setting compared to the other. For example, a child may show a high level of self-control in the home, but not in the classroom. Characteristics or triggers that are unique to one environment may pull certain behaviours out that lie dormant in the child's socialemotional or behavioural repertoire. Although these are not the only options for interpretation of parent and teacher rating results from the DECA, they are viable options.

Another implication of the findings from this study for future research is that the importance of considering factors that impact parent and teacher ratings are highlighted. First of all, it is important to highlight that all parents included in the study were mothers and all of the teachers were also female. Perhaps it is the case that gender differences were detected because only females provided ratings. It is important to consider the rater's gender when interpretaing assessment data. Also, when the school psychologist is cognizant of the parent's health, level of education, level of English proficiency, and number of children in the family, and of the teacher's level of education, years of teaching, time spent teaching the child, relationship with the child's parents, number of students in the classroom, level of self-esteem and teaching style, then more information is available for her to make a conclusion about the child's actual socialemotional or behavioural functioning. Teacher and parent training could be employed to help the practitioner recognize sources of discrepancies in rating children's behaviour. This training may include disseminating a handout that detailed specific instructions on how to complete the instrument, practice observing and rating behaviour, or discussions lead with the different groups of raters about discrepancies and possible reasons for such discrepancies (Nickerson & Nagle, 2001). For example, Foster-Gaitskell and Pratt (1989) found that once the method of administration and familiarity with the instrument were controlled, that group differences did not exist between parent and teacher ratings of adaptive behaviour of children with mental

retardation. However, the sample included only students from schools where there was a great emphasis on the importance of teaching the children functional living skills rather than academics. Teachers were also expected to participate in activities that were not school-based. Therefore, the range of behaviours that teachers had the opportunity to observe may have been more similar to the behaviours that parents observe, which could have impacted the high agreement. Since the training techniques would place high demands on already scarce resources in the school system, this option does not seem very practical. Even if teacher education programs incorporated this type of training into their learning models, the need for parent training would remain. One final possible solution may be to have parents and teachers read a short description or fill out a short form that helps keep the frame of reference similar across raters.

Third, the importance of robust practitioner training is underscored with the findings of this study. Professional training programs should ensure that all examiners have acquired solid measurement skills. In acquiring these measurement skills, it should be stressed over and over that scores obtained from social-emotional functioning (and other) measures do not automatically translate to a specific meaning across all children. Instead, the scores should act as a piece of the puzzle for which it is the job of the practitioner to put together. As Bracken (1987) points out, the sophistication of training of practitioners needs to be increased to protect the child from misdiagnosis and the examiner from malpractice litigation. Bracken (1987) also highlights the need for training programs to focus more energy on the assessment of preschool children. This suggestion is warranted considering the many advantages of detecting areas of strength and weakness early in a child's life, to reduce the risk of development of maladaptive patterns of functioning.

Fourth, school psychologists play the primary role in managing the assessment process, and making diagnostic and service delivery decisions. When data about the child are obtained from both home and school settings (i.e. by parents and teachers), the practitioner has more information, or pieces of the puzzle, to base a conclusion about the child's actual current functioning on. Furthermore, intervention or program-placement decisions can be considered optimal by being highly targeted to the child's actual areas of weakness (to reduce or eliminate behaviour problems) or areas of strength (to build further upon existing strengths). Ideally, both problems and strengths would be addressed during the assessment process. In this way, the child's strengths may serve as the highlight of the child's profile, with the problems still being acknowledged, but not being the main focus. During the school-based team meeting, which is the first time that the child's parent(s) and teacher(s) it would be particularly important for the school psychologist to really draw attention to the child's strengths. Perhaps it is advisable to begin the meeting by communicating what the child can do and then move into areas where the child experiences challenges, according to the assessment results obtained. Also, after sharing the results of the assessment, it might be beneficial to give both the parent(s) and teacher(s) the opportunity to share their comments and concerns about the assessment results and to clarify any information that they either really agree with or do not agree with at all. This is likely to set a much more positive tone not only during the actual meeting, but also in future encounters between the parents and teachers, as well as other school staff as the child continues his or her education in the school building.

The DECA may be considered ideal for use with teachers and parents because it is a brief screening tool that provides the practitioner with the opportunity to see both sides of the coin, a child's strengths as well as their problem behaviours.

Conclusions

The purpose of this study was to examine the relationship between parent and teacher ratings of 125 kindergarten students' behaviour using a strength-based measure. A weak relationship was found between parent and teacher ratings of children's strengths as measured by the Devereux Early Childhood Assessment (DECA; LeBuffe & Naglieri, 1999) scales as well as the individual items, upon examination of correspondence and difference values. The DECA is widely used for assessing resilience in preschool-aged children and parents and teachers are relied upon to gather information to allow for program planning. The relationship between parent and teacher ratings appears too small to rely on looking for similar rating results by parents and teachers to serve as the basis for instructional planning and overall service delivery. However, the results of this study do suggest that scores obtained from both types of raters (i.e. parents and teachers) on this strength-based measure are not only useful, but necessary. Parent and teacher ratings provide two unique perspectives of the child's social-emotional and behavioural functioning. These combined scores from parents and teachers provide the practitioner with the opportunity to develop remedial plans for the child that build upon existing social-emotional strengths and fortify other important strength areas. Also, intervention strategies to reduce problem behaviours can be more targeted and sound diagnostic, intervention and programplacement decisions are more likely.

References

- American Educational Research Association, American Psychological Association, & National Council on Measurement in Education (1999). *Standards for educational and psychological testing*. Washington, DC: Author.
- Achenbach, T. M. (1999). The child behaviour checklist and related instruments. In M. Maruish (Ed.), *The use of psychological testing for treatment planning and outcomes assessment* (pp. 429-466). Mahwah, NJ: Lawrence Erlbaum.
- Achenbach, T. M., & Edelbrock, C. (1983). Manual for the Child Behaviour Checklist and Revised Child Behavior Profile. Burlington, VT: University of Vermont, Department of Psychiatry.
- Achenbach, T. M., McConaughy, S. H., & Howell, C. T. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situational specificity. *Psychological Bulletin*, 101, 213-232.
- Achenbach, T. M., Dumenci, L., Rescorla, L.A. (1999). Ten-year comparisons of problems and competencies for national samples of youth: Self, parent, and teacher reports. *Journal of* . *Emotional and Behavioral Disorders*, 10, 194-203.
- Behar, L. B. (1977). The Preschool Behaviour Questionnaire. Journal of Abnormal Child Psychology, 5, 265-275.
- Behar, L., & Stringfield, S. (1974). A behavior rating scale for the preschool child. Developmental Psychology, 10, 601-610.
- Bowman, B., Donovan, M., Burns, S. (Eds.), & the Committee on Early Childhood Pedagogy of the National Research Council, (2000). *Eager to learn: Educating our preschoolers*.
 Washington, DC: National Academy Press.

- Boyle, M. H., Offord, D. R., Racine, Y., Szatmari, P., Fleming, J. E., & Sanford, M. (1996).
 Identifying thresholds for classifying childhood psychiatric disorder. Issues and prospects.
 Journal of American Academy of Child & Adolescent Psychiatry, 35, 1440-1448.
- Bracken, B. (1987). Limitations of preschool instruments and standards for minimal levels of technical adequacy. *Journal of Psychoeducational Assessment*, *4*, 313-326.
- Chittooran, M. M. (2004). Test review of the Devereux Early Childhood Assessment. From B. S.
 Plake, J. C. Impara, & R. A. Spies (Eds.), The fifteenth *mental measurements yearbook*[Electronic version]. Retrieved January 15, 2008, from the Buro's Institute *Test Reviews Online* website: <u>http://www.unl.edu/buros</u>.
- Cohen, J. W. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Cox, K. F. (2006). Investigating the impact of strength-based assessment on youth with emotional or Behavioral disorders. *Journal of Child and Family Studies*, *15*, 287-301.
- Crockenberg, S. B. (1981). Infant irritability, mother responsiveness, and social support influences on the security of infant-mother attachment. *Child Development*, 52, 857-865.

Cronbach, L. J. (1990). Essentials of Psychological Testing (5th ed.). New York: Harper Collins.

- De Los Reyes, A., & Kazdin, A. E. (2005). Informant discrepancies in the assessment of childhood psychopathology: A critical review, theoretical framework, and recommendations for further study. *Psychological Bulletin, 131*, 483-509.
- Downey, G., & Coyne, J. C. (1990). Children of depressed parents: An integrative review. *Psychological Bulletin, 108*, 50-76.
- Downs, J., Blagojevic, B., Labas, L., Kendrick, M., & Maeverde, J. (2005). Friends and feelings: Social-emotional development in young children. *In Growing Ideas Toolkit* (pp. 23-24).

Orono, ME: The University of Maine Center for Community Inclusion and Disability Studies. Retrieved January 13, 2008, from

http://www.ccids.umaine.edu/ec/growingideas/socemotip.htm.

- El-Hassan Al-Awad, A. M., & Sonuga-Barke, E. J. (2002). The application of the Conners' Rating Scales to a Sudanese sample: An analysis of parents' and teachers' ratings of childhood behaviour problems. *Psychology and Psychotherapy: Theory, Research and Practice, 75*, 177-187.
- Epstein, M. H., & Sharma, J. M. (1998). Behavioral and emotional rating scale. Austin, TX: Pro-Ed.
- Fergusson, D. M., & Horwood, L. J. (1987). The trait and method components of ratings of conduct disorder: Part I. Maternal and teacher evaluations of conduct disorder in young children. *Journal of Child Psychology and Psychiatry*, 27, 249-260.
- Firmin, M. W., Proemmel, E., & Hwang, C. (2005). A comparison of parent and teacher ratings of children behaviour. *Educational Research Quarterly*, 29, 18-28.
- Foster-Gaitskell, D., & Pratt, C. (1989). Comparison of parent and teacher ratings of adaptive behavior of children with mental retardation. *American Journal on Mental Retardation*, 94, 177-181.
- Fox, L., Dunlap, G., Hemmeter, M. L., Joseph, G., & Strain, P. (2003). The teaching pyramid: A model for supporting social competence and preventing challenging behaviour in young children. *Young Children*, 58, 48-53.
- Friedlander, S., Weiss, D. S., & Traylor, J. (1986). Assessing the influence of maternal depression on the validity of the child behaviour checklist. *Journal of Abnormal Child Psychology, 14*, 123-133.

- Friedman, K. A., Leone, P. E., & Friedman, P. (1999). Strengths-based assessment of children with SED: Consistency of reporting by teachers and parents. *Journal of Child and Family Studies*, 8, 169-180.
- Garmezy, N. (1985). Stress-resistant children: The search for protective factors. In J. E. Stevenson (Ed.), *Recent Research in Developmental Psychology* (pp.213-233). Oxford: Pergamon Press.
- Garmezy, N. (1987). Stress, competence, and development: Continuities in the study of schizophrenic adults, children vulnerable to psychopathology, and the search for stress resistant children. *American Journal of Orthopsychiatry*, *57*, 159-174.
- Garmezy, N. (1993). Children in poverty: Resilience despite risk. Psychiatry, 56, 127-136.
- Goyette, C. H., Conners, C. K., & Ulrich, R. F. (1978). Normal data on revised Conners Parent and Teachers Rating Scales. *Journal of Abnormal Child Psychology*, 70, 376-405.
- Gresham, F. M., & Elliot, S. N. (1998). Teachers' social validity ratings of social skills: Comparisons between mildly handicapped and nonhandicapped children. *Journal of Psychoeducational Assessment*, 6, 225-234.
- Gross, D., Conrad, B., Fogg, L., Willis, L., & Garvey, C. (1995). A longitudinal study of maternal depression and preschool children's mental health. *Nursing Research*, 44, 96-101.
- Gross, D., Fogg, L., Garvey, C., & Julion, W. (2004). Behaviour problems in young children: An analysis of cross-informant agreements and disagreements. *Research in Nursing & Health*, 2004, 413-425.

- Hauser, S. T., Vierya, M. A., Jacobson, A. M., & Wertreib, D. (1985). Vulnerability and resilience in adolescence: Views from the family. *Journal of Early Adolescence*, 5, 81-100.
- Hemmeter, M. L., Ostrosky, M., & Fox, L. (2006). Social and emotional foundations for early learning: A conceptual model for intervention. *School Psychology Review*, *35*, 583-601.
- Hetherington, E. M., & Stanley-Hagan, M. (1999). The adjustment of children with divorced parents: A risk and resiliency perspective. *Journal of Child Psychology and Psychiatry*, 40, 129-140.
- Hinshaw, S. P., Han, S. S., Erhardt, D., & Huber, A. (1992). Internalizing and externalizing behaviour problems in preschool children: Correspondence among parent and teacher ratings and behaviour observations. *Journal of Clinical Child Psychology*, 21, 143-150.
- Honig, A. (1984) Research in review: Risk factors in infants and young children. Young Children, 38, 60-73.
- Huck, S. W. (2004). *Reading Statistics and Research*, (4TH ed). Boston, MA: Pearson Education Inc.
- Jens, K. G., & Gordon, B. N. (1991). Understanding risk: Implications for tracking high-risk infants and making early service decisions. International Journal of Disability, 38, 211-224.
- Jimerson, S. R., Sharkey, J. D., Nyborg, V., & Furlong, M. J. (2004). Strength-based assessment and school psychology: A summary and synthesis. *The California School Psychologist*, 9, 9-19.

- Kagan, J., Snidman, N., McManis, M., Woodward, S., & Hardway, C. (2002). One measure, one meaning: Multiple measures, clearer meaning. *Development and Psychopathology*, 14, 463-475.
- Kerr, D. C., Lunkenheimer, E. S., & Olson, S. L. (2007). Assessment of child problem behaviours by multiple informants: A longitudinal study from preschool to school entry. *Journal of Child Psychology and Psychiatry*, 48, 967-975.
- Kraemer, H. C., Measelle, J. R., Ablow, J. C., Essex, M. J., Boyce, W. T., & Kupfer, D. J. (2003). A new approach to integrating data from multiple informants in psychiatric assessment and research: Mixing and matching contexts and perspectives. *The American Journal of Psychiatry*, 160, 1566-1577.
- LeBuffe, P.A., & Naglieri, J.A. (1999). Devereux Early Childhood Assessment: User's Guide. Lewisville, NC: Kaplan Press.
- LeBuffe, P. A., & Naglieri, J. A. (2004). Leading strength to assessment of preschool socialemotional health. *California School Psychologist*, *9*, 51-61.
- Lee, C. M., & Gotlib, I. H. (1989). Maternal depression and child adjustment: A longitudinal analysis. *Journal of Abnormal Psychology*, 98, 78-85.
- Masten, A. (2001). Ordinary magic: Resilience processes in development. American Psychologist, 56, 227-238.
- Masten, A., & Garmezy, N. (1985). Risk, vulnerability, and protective factors in developmental psychopathology. In B. Lahey, & A. Kazdin, (Eds.) Advances in Clinical Child Psychology (pp. 1-52). New York: Plenum Press.

- Masten, A. S., & Coatsworth, D. (1995). Competence, resilience, and psychopathology. In D. Cicchetti & D. Cohen (Eds.), *Developmental psychopathology, Volume 2: Risk, disorder,* and adaptation (pp. 715-752). New York: Wiley.
- MacLeod, R. J., McNamee, J. E., Boyle, M. H., Offord, D. R., & Friedrich, M. (1999).
 Identification of childhood psychiatric disorder by informant: Comparisons of clinic and community samples. *Canadian Journal of Psychiatry*, 44, 144-150.
- Merrell, K. W. (1999). Behavioral, social, and emotional assessment of children and adolescents. Mahwah, NJ: Lawrence Erlbaum Associates.
- Nickerson, A. B., & Nagle, R. J. (2001). Interrater reliability of the Devereux Behavior Rating Scale – School Form: The influence of teacher frame of reference. *Journal of Psychoeducational Assessment, 19*, 299-316.
- Offord, D. R., Boyle, M. H., Racine, Y., Szatmari, P., Fleming, J. E., Sanford, M., & Lipman, E.
 L. (1996). Integrating assessment data from multiple informants. *Journal of American* Academy of Child and Adolescent Psychiatry, 35, 1078-1085.

Pallant, J. (2005). SPSS survival manual (2nd ed.). New York: Open University Press.

- Raver, C. C., & Knitze, J. (2002). Ready to enter: What research tells policymakers about strategies to promote social and emotional school readiness among three- and four-year-old children. New York: National Center for Children in Poverty.
- Reddy, L. (2007). Test Review: The Devereux Early Childhood Assessment. Canadian Journal of School Psychology, 22, 121-127.
- Rhee, S., Furlong, M., Turner, J., & Harari, L. (2001). Integrating strength-based perspectives in psychoeducational evaluations. *The California School Psychologist*, *6*, 5-17.

- Rogers, T., & Forehand, R. (1983). The role of parent depression in interactions between mothers and their clinic-referred children. *Cognitive Therapy and Research*, 7, 315-324.
- Rubio-Stipec, M., Fitzmaurice, G., Murphy, J., & Walker, A. (2003). The use of multiple informants in identifying the risk factors of depressive and disruptive disorders: Are they interchangeable? *Social Psychiatry and Psychiatric Epidemiology*, *38*, 51-58.
- Rutter, M. (1985). Resilience in the face of adversity: Protective factors and resilience to psychiatric disorder. *British Journal of Psychiatry*, 147, 598-611.
- Salvia, J., & Ysseldyke, J. E. (1981). Assessment in special remedial education. Boston, MA: Houghton Mifflin.
- Saudino, K. J., Ronald, A., & Plomin, R. (2005). The etiology of behaviour problems in 7 yearold twins: Substantial genetic influence and negligible shared environmental influence for parent ratings and ratings by same and different teachers. *Journal of Abnormal Child Psychology, 33*, 113-130.
- Shonkoff, J. P., & Philips, D. A. (Eds.). (2000). From neurons to neighborhood: The science of early childhood development. Washington, DC: National Academy Press.
- Stanger, C., & Lewis, M. (1993). Agreement among parents, teachers, and children on internalizing and externalizing behaviour problems. *Journal of Clinical Child Psychology*, 22, 107-115.
- Statistics Canada. (2005). 2001 Census Profile of British Columbia's Regions. (Geographic Classification number. 59029000). Retrieved July 13, 2008 from www.bcstats.gov.bc.ca/data/cen01/profiles/59029000.pdf.
- Statistics Canada. (2007). Community Highlights. Retrieved July 13, 2008 from http://www12.statcan.ca/english/profil01/cp01/details/page.cfm?lang=e&geo1=csd&code

1=5909020&geo2=pr&code2=59&data=count&searchtext=chilliwack&searchtype=begin s&searchpr=59&b1=all&custom=.

- Stormont, M. (2002). Externalizing behaviour problems in young children: Contributing factors and early intervention. *Psychology in the Schools*, 39, 127-138.
- Thornberry, T., Ireland, T., & Smith, C. (2001). The importance of timing: The varying impact of childhood and adolescent maltreatment on multiple problem outcomes. *Development and Psychopathology, 13*, 957-979.
- Treuting, M. V., & Elliot, S. N. (1997). Social behaviour ratings of at-risk preschool children: Comparisons with typical preschool children by parents and teachers. *Canadian Journal* of School Psychology, 13, 68-84.
- U.S. Department of Education. (2001). To assure the free appropriate public education of all children with disabilities. Individual with Disabilities Act, Section 618. Twenty-third Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act.
- Verhulst, F, C., & Akkerhuis, G. W. (1989). Agreement between parents' and teachers' ratings of behavioral/emotional problems of children aged 4-12. Journal of Child Psychology and Psychiatry and Allied Disciplines, 30, 123-136.
- Wallerstein, J. S., & Kelley, J. B. (1980). Surviving the breakup: How children and parents cope with divorce. New York: Basic Books.
- Werner, E. E. (1990). Protective factors and individual resilience. In S. L. Meisels & J. P.
 Shonkoff (Eds.), *Handbook of early childhood intervention* (pp. 97-116). New York:
 Cambridge University Press.

- Werner, E. E., & Smith, R. S. (1982). Vulnerable but invincible: A longitudinal study of resilient children and youth. New York: McGraw-Hill Book Company.
- Werner, E. E. (1986). Resilient offspring of alcoholics: A longitudinal study from birth to age 18. Journal of Studies on Alcohol, 47, 34-40.
- Werner, E. E., & Smith, R. S. (1992). Overcoming the odds: High risk children from birth to adulthood. Ithaca: Cornell University Press.
- Wright, D. & Piersel, W. C. (1992). Components of variance in behaviour ratings from parents and teachers. *Journal of Psychoeducational Assessment*, 10, 310-318.
- Youngstrom, E., Findling, R. L., & Calabrese, J. R. (2003). Who are the comorbid adolescents? Agreement between psychiatric diagnosis, youth, parent, and teacher report. *Journal of Abnormal Child Psychology, 31*, 231-245.
- Zeanah, P. D., Stafford, B. S., Nagle, G. A., & Rice, T. (2005). Addressing social-emotional development and infant mental health in early childhood systems. Los Angeles: National Center for Infant and Early Childhood Health Policy.

Appendix A:

DECA Scale Descriptions

Scale	Description						
Initiative	The child's ability to use independent thought and action to meet his						
	or her needs; somewhat independent, active learners who will start						
	and organize activities with other children, tend to be optimistic						
	children who are good problem solvers and enjoy challenges.						
Self-Control	The child's ability to experience a range of feelings and express them						
	using the words and actions that society considers appropriate;						
	generally able to handle frustration and negative emotions without						
	acting out, tend to be cooperative, patient, and respectful of others,						
	share well and are able to calm down and recover quickly when						
	upset.						
Attachment	The mutual, strong, long-lasting relationship between a child and						
	significant adults such as parents, family members, and teachers;						
	actively seek out adults and other children, are effective in gaining						
	positive attention from others, tend to be affectionate, trust familiar						
	adults, and respond to adult comforting when upset.						
Total Protective Factors	Includes the Initiative, Self-Control and Attachment scale scores.						
	Gives an overall indication of the child's strengths related to						
	resilience. This scale is the most reliable and valid overall indicator of						
	protective factors within the DECA. Because it characterizes the						
	child's strengths related to resilience with a single number, this scale						
	is particularly useful in outcome measurement and program						
	evaluation. However, a child can receive an Average (although not an						
	Above Average) rating on this scale and still receive a Below						
	Average rating (indicating a concern) on a specific Protective Factor						
	Scale.						
Behavioral Concerns	The items on this scale measure a wide variety of problem or						
	challenging behaviours. The behaviours included on this scale are						

typical of children who have problems with aggression, withdrawal,
attention, and extreme emotions. Children who have known
emotional and behavioural problems, such as children in therapeutic
preschools, receive high scores on this scale.

Appendix B:

DECA Item Descriptions

Scale	Item #	Item							
Initiative	2	choose to do things for himself/herself?							
	3	choose to do a task that was challenging for her/him?							
	7	participate actively in make-believe play with others (dress-up, etc.).?							
	12	keep trying when unsuccessful (act persistent)?							
	16	try different ways to solve a problem?							
	19	ry or ask to try new things or activities?							
:	20	start or organize play with other children?							
	24	focus his/her attention of concentration on a task or activity?							
	28	say positive things about the future (act optimistic)?							
	32	ask other children to play with him/her?							
	36	make decisions for himself/herself?							
Self-Control	4	isten to or respect others?							
	5	control her/his anger?							
	13	handle frustration well?							
	21	show patience?							
	25	share with other children?							
	30	accept another choice when her/his first choice was unavailable?							
	33	cooperate with others?							
	34	calm herself/himself down when upset?							
Attachment	1	act in a way that made adults smile or show interest in her/him?							
	6	respond positively to adult comforting when upset?							
	10	show affection for familiar adults?							
	17	act happy or excited when parent/guardian returned?							
	22	ask adults to play with or read to him/her?							
22	29	trust familiar adults and believe what they say?							
	31	seek help from children/adults when necessary?							

•

	37	show an interest in what children/adults are doing?						
BC ^a	8	fail to show joy or gladness at a happy occasion?						
	9	touch children/adults inappropriately?						
	11	have temper tantrums?						
	14	have no reaction to children/adults?						
	15	use obscene gestures or offensive language?						
	18	destroy or damage property?						
	23	have a short attention span (difficulty concentrating)?						
	26	fight with other children?						
	27	become upset or cry easily?						
	35	get easily distracted?						

^aBC = Behavioral Concerns scale

Appendix C:

DECA Scales Not Meeting the Assumption of Normality for this Sample

Figure C1

Histogram for the Mother-Rated Initiative Scale



Histogram for the Mother-Rated Self-Control Scale.







Histogram for the Teacher-Rated Initiative Scale.



Figure C5

Histogram for the Teacher-Rated Attachment Scale.







Appendix D

Correlation Tables for Correspondence Between Mother-Reported and Teacher-Reported Ranks

for Items on the DECA Scales

Table D1

Correlations Between Mother- and Teacher-Reported Ranks for Items on the Initiative Scale for the Total Sample (N = 125)

		MRR										
		2	3	7	12	16	19	20	24	28	32	36
TRR	2	02	.08	.03	23**	.12	.09	.16*	.20*	.08	.01	.05
	3	.03	.01	.04	.21	.10	.09	.15	.13	.12	02	01
	7	.23*	.10	.12	.09	.11	.06	.21**	.15	03	.10	.05
	12	.07	02	.01	.11	.15	.06	.19*	.08	.16*	.01	01
	16	.13	.09	.11	.09	.18*	.14	.27**	.19*	.07	.05	41
	19	.05	.00	.07	.06	.07	.03	.19*	.10	.10	.01	05
	20	.09	.01	.16*	.15	.20*	.13	.25**	.20*	.13	.11	.00
	24	.02	.04	.08	.11	.09	.04	.14	.17*	.09	04	01
	28	03	10	.05	.16*	.21*	.05	.19*	.20*	.09	02	02
	32	.10	.10	.13	.15	.20*	.16*	.22**	.25**	.07	.09	.13
	36	.07	.04	.11	.18*	.16	.03	.16*	.21*	.11	02	.06

Note. MRR = Mother-Reported Ranks. TRR = Teacher-Reported Ranks

* *p* <.05 (2-tailed). ** *p* < .01 (2-tailed).

Table D2

Correlations Between Mother- and Teacher-Reported Ranks for Items on the Initiative Scale for Boys (n = 61)

		MRR										
		2	3	7	12	16	19	20	24	28	32	36
	2	04	.08	03	.25*	.05	.03	.10	.13	.15	06	.07
	3	01	00	01	.26*	01	03	.10	.04	.08	10	65
	7	.36*	.22	04	.06	.16	.02	.18	.17	.09	.03	.12
	12	.06	.05	01	.18	.12	.08	.26*	.13	.15	.04	05
	16	.14	.12	.05	.14	.16	.13	.35**	.17	.16	.00	08
TRR	19	.12	03	01	.15	.01	05	.19	.12	.11	07	02
	20	.16	.13	.04	.29**	.27*	.12	.30**	.26*	.26*	.05	.01
	24	03	.01	.10	.20	.14	.00	.23*	.17	.12	10	04
	28	.02	03	.12	.24*	.29*	02	.19	.21	.33**	09	.01
	32	.20	.24*	.04	.23*	.23*	.19	.23*	.34**	.19	.09	.16
	36	.08	.10	.12	.21	.15	.01	.10	.11	.17	10	01

Note. MRR = Mother-Reported Ranks. TRR = Teacher-Reported Ranks

* *p* <.05 (2-tailed). ** *p* < .01 (2-tailed).
| | | | | | | | MRR | | | | | |
|-----|----|-----|-----|------|-----|------|------|-----|------|-----|-----|------|
| | | 2 | 3 | 7 | 12 | 16 | 19 | 20 | 24 | 28 | 32 | 36 |
| | 2 | .05 | .06 | .06 | .19 | .22 | .13 | .17 | .26* | 02 | .05 | .04 |
| | 3 | .09 | .03 | .09 | .14 | .24* | .24* | .20 | .26* | .17 | .11 | .06 |
| | 7 | .03 | 04 | .21 | .11 | .13 | .01 | .05 | .08 | 19 | .08 | 05 |
| | 12 | .05 | 11 | 00 | .01 | .21 | .00 | .06 | .01 | .16 | .05 | .04 |
| | 16 | .07 | .01 | .12 | .03 | .23 | .13 | .11 | .21 | 04 | .03 | .03 |
| TRR | 19 | 09 | .03 | .14 | 03 | .13 | .08 | .13 | .07 | .12 | .06 | 07 |
| | 20 | 04 | 13 | .25* | .02 | .17 | .13 | .14 | .10 | 03 | .13 | 02 |
| | 24 | .06 | .06 | 02 | 04 | .04 | .07 | 02 | .15 | .07 | .00 | .02 |
| | 28 | 13 | 20 | 07 | .09 | .13 | 12 | .16 | .14 | 21 | .03 | -,07 |
| | 32 | 08 | 08 | .17 | .06 | .19 | .09 | .15 | .12 | 04 | .04 | .11 |
| | 36 | .04 | 03 | .06 | .12 | .19 | .03 | .19 | .30* | .02 | .07 | .13 |

Correlations Between Mother- and Teacher-Reported Ranks for Items on the Initiative Scale for Girls (n = 64)

Note. MRR = Mother-Reported Ranks. TRR = Teacher-Reported Ranks

					MI	RR			
		4	5	13	21	25	30	33	34
<u>.</u>	4	.18*	.11	.10	.16*	.09	.09	.18	04
	5	10	01	09	.03	09	.09	.02	05
	13	.08	.13	.15	.24**	.15	.15	.21**	.05
TRR	21	.14	.11	.15	.31**	.12	.10	.18*	02
	25	.14	.13	.17*	.26**	.12	.10	.17*	00
	30	.20*	.18	.18*	.23**	.13	.15	.20	04
	33	.18*	.14	.19*	.23**	.20*	.22**	.27**	02
	34	12	.04	.03	.06	15	.07	01	.00

Correlations Between Mother- and Teacher-Reported Ranks for Items on the Self-Control Scale for the Total Sample (N = 125)

Note. MRR = Mother-Reported Ranks. TRR = Teacher-Reported Ranks

					M	RR			
		4	5	13	21	25	30	33	34
·	4	.10	.11	.06	.13	.01	.10	.12	02
	5	25*	09	08	.02	23*	.05	07	06
	13	.05	.10	.25*	.24*	.13	.26*	.22	.04
TRR	21	.15	.06	.19	.31**	.16	.13	.17	.01
	25	.21	.08	.19	.23	.18	.17	.24*	05
	30	.12	.04	.18	.21	.13	.18	.21	06
	33	.18	.16	.23*	.17	.23*	.27	.29*	04
	34	19	.02	.06	.02	14	.16	.06	.12

Correlations Between Mother- and Teacher-Reported Ranks for Items on the Self-Control Scale for Boys (n = 61)

Note. MRR = Mother-Reported Ranks. TRR = Teacher-Reported Ranks

					M	RR			
		4	5	13	21	25	30	33	34
	4	.21	.02	.10	.14	.15	.08	.23	08
	5	02	03	17	07	01	.12	.09	07
	13	.05	.06	.00	.17	.12	.02	.20	.02
TRR	21	.06	.07	.05	.24*	.01	.05	.20	09
	25	.00	.05	.12	.23*	.00	.03	.08	.01
	30	.23*	.14	.14	.22	.09	.09	.18	03
	33	.12	.02	.08	.20	.14	.15	.24*	03
	34	11	04	04	.01	22	04	07	12

Correlations Between Mother- and Teacher- Reported Ranks for Items on the Self-Control Scale for Girls (n = 64)

Note. MRR = Mother-Reported Ranks. TRR = Teacher-Reported Ranks

					M	RR			
		1	6	10	17	22	29	31	37
	1	.04	.04	.10	06	.03	.13	21	.00
	6	04	01	01	14	07	.01	.00	06
	10	.10	.22**	.03	04	.23**	.05	.07	06
TRR	17	.08	.20**	.05	.01	.23**	.07	.01	.03
	22	.05	.05	.02	19*	.11	08	.04	10
	29	.04	.14	.16	.12	.13	.11	.06	04
	31	01	05	07	05	.22**	.06	02	.04
	37	.08	09	.08	.06	.19*	.20*	.09	.01

Correlations Between Mother- and Teacher-Reported Ranks for Items on the Attachment Scale for the Total Sample (N = 125)

Note. MRR = Mother-Reported Ranks. TRR = Teacher-Reported Ranks

			MRR										
		1	6	10	17	22	29	31	37				
	1	.04	.09	.11	05	.08	.11	06	.07				
	6	02	03	.08	13	.09	.02	.06	05				
	10	.12	.39**	.11	16	.23	.08	.02	01				
TRR	17	.25*	.32**	.20	07	.26*	.21	02	.21				
	22	.14	.07	.00	15	.20	.11	02	.05				
	29	.04	.25*	.20	12	.09	.12	.05	.14				
	31	.06	.04	04	04	.32**	.08	07	.06				
	37	.17	07	.14	.23	.17	.40**	.12	.13				

Correlations Between Mother- and Teacher-Reported Ranks for Items on the Attachment Scale for Boys (n = 61)

Note. MRR = Mother-Reported Ranks. TRR = Teacher-Reported Ranks

<u> </u>					M	RR		- · · · · - · · · · · · ·	
		1	6	10	17	22	29	31	37
	1	.03	01	.09	06	07	10	01	08
	6	08	04	09	15	06	.03	08	09
	10	.03	.07	05	.10	.21	.01	.12	13
TRR	17	11	.07	10	.09	.15	06	.03	16
	22	09	.04	.05	24*	05	25*	.10	26
	29	.03	.01	.13	.15	.16	.10	.06	22
	31	10	16	09	05	.07	.02	.07	.04
	37	04	.09	.04	07	.18	.02	.06	14

Correlations Between Mother- and Teacher-Reported Ranks for Items on the Attachment Scale for Girls (n = 64)

Note. MRR = Mother-Reported Ranks. TRR = Teacher-Reported Ranks

						Μ	RR				
		8	9	11	14	15	18	23	26	27	35
	8	.08	11	.09	.13	.14	.02	02	.10	05	.01
	9	.03	.04	.18*	.07	.12	.23**	.26**	.14	.01	.18*
	11	.09	.04	.22**	.12	.13	.16	.13	03	.09	.11
	14	.08	.02	.06	.10	.09	.15	.05	.07	00	01
TRR	15	.13	.10	.04	.13	.15	.08	.06	08	04	.03
	18	.14	01	.19*	.07	.09	.18*	.25*	.16	.17*	.20
	23	.00	.14	.18*	.11	.15	.16*	.29**	.05	07	.27**
	26	09	.05	.12	05	.01	.00	.21**	.04	.02	.09
	27	.17	.03	.07	.01	.11	.07	.15	.03	.04	.01
	35	02	.11	.07	.18*	.14	.13	.25**	.09	05	.20*

Correlations Between Mother- and Teacher-Reported Ranks for Items on the Behavioral Concerns Scale for the Total Sample (N = 125)

Note. MRR = Mother-Reported Ranks. TRR = Teacher-Reported Ranks

						М	RR				
		8	9	1,1	14	15	18	23	26	27	35
	8	.11	14	.08	.17	.07	02	.04	.04	.05	00
	9	.08	.05	.19	02	.17	.16	.21	.25*	.04	.10
	11	.07	.08	.29*	.14	.08	.14	.10	.00	.21	.12
	14	.03	04	07	.18	.03	.16	02	.01	02	04
TRR	15	.12	.11	.12	.19	.15	.07	.03	11	03	06
	18	.23	04	.32**	.02	.13	.22	.25*	.25*	.33**	.24*
	23	.02	.16	.23*	.14	.12	.20	.25*	.10	05	.36**
	26	07	.15	.06	.04	02	09	.10	.04	.17	.06
	27	.08	.12	.03	.04	.08	.11	.08	.08	.10	02
	35	.03	.08	.12	.22	.20	.15	.18	.11	03	.23*

Correlations Between Mother- and Teacher-Reported Ranks for Items on the Behavioral Concerns Scale for Boys (n = 61)

Note. MRR = Mother-Reported Ranks. TRR = Teacher-Reported Ranks

						Mo	thers		<u> </u>		
		8	9	11	14	15	18	23	26	27	35
	8	.10	07	.07	.09	.20	.04	17	.19	.20	05
	9	07	.03	.18	.18	.04	.38*	.32*	.01	01	.27*
Teachers	11	.11	.00	.13	.09	.19	.16	.09	03	07	.07
	14	.12	.11	.21	01	.16	.14	.09	.19	.03	01
	15	.15	.08	04	.06	.15	.09	.10	04	05	00
	18	00	.11	.00	.12	.04	.13	.24*	.04	08	.13
	23	05	.15	.09	.04	.17	.09	.27*	.02	10	.12
	26	10	02	.16	13	.04	.06	.27*	.06	13	.09
	27	.26*	04	.10	04	.13	.03	.20	03	03	.02
	35	08	.16	.00	.12	.07	.09	.26*	.09	10	.11

Correlations Between Mother- and Teacher-Reported Ranks for Items on the Behavioral Concerns Scale for Girls (n = 64)

Note. MRR = Mother-Reported Ranks. TRR = Teacher-Reported Ranks