THE EFFECTS OF PARENT-CHILD AND TEACHER-CHILD RELATIONSHIPS ON DIVERSE CHILDREN’S TRANSITION TO SCHOOL

by

Julaine Brent

A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy
Graduate Department of Human Development and Applied Psychology
Ontario Institute for Studies in Education
University of Toronto

© Copyright by Julaine Brent (2010)
THE EFFECTS OF PARENT-CHILD AND TEACHER-CHILD RELATIONSHIPS ON DIVERSE CHILDREN’S TRANSITION TO SCHOOL

Doctor of Philosophy, 2010
Julaine Brent
Graduate Department of Human Development and Applied Psychology
University of Toronto

Abstract

The transition to school marks an important developmental step for children and families. Coping and competence during such a transition begin long before the child enters the classroom and effects last for many years. Although children are born with the capacity to learn, it is the quality of relationships, particularly the relationship with the primary caregiver that shapes early learning experiences. This study examined the links between the attachment relationship between mother and child on the developing teacher-child relationship, the effects of the adult-child relationships on child outcomes and on children’s perspectives of their kindergarten experience. Contextual factors were considered in relation to adult-child relationships and child outcomes.

Despite a robust literature on mother-child relationships and teacher-child relationships, no empirical studies have examined these relationships with parallel instruments and few studies include the children’s voices. For this study, participants included mothers and their kindergarten children (N= 74) and kindergarten teachers (N=7) from five schools that differed in linguistic and socio-economic profiles. Mothers and teachers completed a Q-Sort measure of child attachment security and dependency, and children participated in three early literacy tasks and a child interview.

The lack of significant association between mother-child attachment quality and dependency and direct child literacy outcomes was a surprising finding. Nevertheless,
child interviews revealed that children who were less secure and more dependent with their mothers expressed difficulties with the academic aspects of school. The quality of teacher-child relationships was positively related to children’s early literacy outcomes. These findings were interpreted in light of contextual factors as suggested by Bronfenbrenner’s social-ecological theory. Adult reports of children’s attachment security and dependency were related to children’s participation in childcare or in a preschool program for more than 10 hours a week and to attendance in a private school that offered a full day preschool and kindergarten program.

The implications of these findings point to the important role of high quality early childhood experiences that support attachment relationships with caregivers as children make the transition to school.
Acknowledgements

I would like to acknowledge and thank the many people who have supported, guided, inspired, and cared for me during the inception, development, and completion of my dissertation.

I am particularly grateful to my thesis supervisor and mentor, Dr. Janette Pelletier, for her academic integrity, for the curiosity and enthusiasm that drive her research, for sharing her expertise on early child development and education, and for her enduring patience, generosity of spirit, and editing skills. She has been my intellectual secure base throughout this process and working with her has been a deeply rewarding experience.

I would like to extend special thanks to the other members of my examining committee. I am grateful to Dr. Carl Corter for sharing his vast knowledge of early child development, attachment, and the transition to school and for his continuing patience, support, and encouragement to “sprint to the finish line!” I would also like to thank Dr. Nancy Cohen for her patience, thoughtful feedback, encouragement, for sharing her expertise on attachment and for giving me the opportunity to be involved in her attachment research. A very special thank you also goes to my external examiner, Dr. Mark Pancer, for his thoughtful evaluation and for making our discussion a meaningful and integrative experience.

Many thanks to John Morgan for sharing his statistical expertise, his support, enthusiasm, patience, and positive attitude always made the most difficult tasks seem “easy peasy.” Thank you to my friends and colleagues at the Institute of Child Study who have continued to support me and to cheer me on. Thank you to Christine Davidson
for her technical wizardry and for sharing her knowledge of how everything works at
ICS. I would like to extend a very special thank you to the mothers who shared their time
and knowledge about their children, to the dedicated teachers who gave willingly of their
time and expertise, and to the children who make our research worthwhile. Thank you to
my wonderful circle of friends for their encouragement and support, especially Mary
Carmichael who never asked “are you finished yet?” but who always believed that I
would.

Finally, thank you to my family: to my Mother and Father, Norine and Patrick
Brophy, who reared me in a loving and secure home and encouraged learning for its own
sake, to my brother, Sean, and sister, Moira, whose accomplishments continue to awe
and inspire me, to my children John, Jennifer, and Paula who have made being a parent a
joy, to my daughter-in-law Robin who together with John are loving parents rearing two
beautiful and secure boys, Liam and Owen, and to my husband, Peter, whose
unconditional love, support and blossoming domestic skills have made this journey
possible.
Table of Contents

Chapter 1: Introduction ....................................................................................................... 1
  My Personal Interest ....................................................................................................... 3

Chapter 2: The Literature Review ....................................................................................... 8
  The Sociopolitical Context ............................................................................................. 8
  Theoretical framework for the study: A Social Ecological Model .................................. 13
  An Ecological Model of the Transition to School ........................................................ 23
  Contextual Factors Affecting the Transition to School and Child Outcomes .............. 27
    Adult Beliefs and Practices .......................................................................................... 27
    Individual Level Factors for Children ....................................................................... 37
    Family Factors .......................................................................................................... 48
  School Level Factors: Public or Private School ....................................................... 51
  Demographic Factors Affecting School Transition and Child Outcomes ............... 54
    Poverty ...................................................................................................................... 54
  Attachment Theory, an overview ............................................................................... 58
    The Development of a Theory .................................................................................. 58
    The Development of a Mother-Child Attachment Relationship ......................... 67
    Attachment and the Transition to School ............................................................... 71
    Assessment of Mother-Child Attachment Relationships ...................................... 72
    The Development of Teacher-Child Relationships ............................................... 79

Chapter 3: Methods ........................................................................................................... 85
  Participants .................................................................................................................... 85
    Public School Participants ........................................................................................ 88
    University Laboratory School Participants ............................................................ 89
  Parents ....................................................................................................................... 89
  Children ..................................................................................................................... 90
  Teachers .................................................................................................................... 94
  Procedures .................................................................................................................. 94
    Participant recruitment ............................................................................................ 94
    Data Collection ....................................................................................................... 95
  Measures .................................................................................................................... 97
    Parent-child Attachment Measure ......................................................................... 97
    Teacher-child Attachment Measure ....................................................................... 104
    Creating a Comparable Parent-child and Teacher-child Measure ...................... 105
    The Test of Early Reading Ability-2 and 3 (TERA-2 and TERA-3) ..................... 106
    Peabody Picture Vocabulary Test III (PPVT-III) .................................................. 108
    Print Task ............................................................................................................... 109
    Child Interview ...................................................................................................... 109
    Direct classroom observations .............................................................................. 110
    Reliability Procedures .......................................................................................... 111
Chapter 4: Results ........................................................................................................... 112

Research question 1: What is the relation between mothers’ reports of dependency & security and teachers’ reports of dependency & security? .................................................. 113

Research question 2: What is the relation between diversity in contextual factors and mothers’ reports of dependency and security and teachers’ reports of dependency and security? ...................................................................................................................... 116

What is the effect size for the diversity in contextual factor comparisons with the AQS and TQS? ........................................................................................................ 119

Research question 3: Are there differences in child outcomes based on mothers’ reports of dependency and security and teachers’ reports of dependency and security? ....... 121

Child outcome measures ............................................................................................. 121

Intercorrelations between the AQS, TQS and child outcome measures ... 122

Research question 4: Are there differences in child outcomes based on diversity in contextual factors? ...................................................................................................................... 122

Research question 5: What is the relation between what children say about kindergarten and mothers’ reports of dependency and security and teachers’ reports of dependency and security? ........................................................................................... 125

Child interviews ........................................................................................................... 125

A Summary of Results .................................................................................................. 127

Chapter 5: Discussion ..................................................................................................... 129

Implications .................................................................................................................. 140

Limitations, Considerations and Future Directions in Research.............................. 142

Conclusion .................................................................................................................. 144

List of Tables

Table 1: Participant Contextual Factors by School Type (Frequency and Percent) ..... 87
Table 2: Frequencies – Contextual Factors (Frequency and Percent)....................... 93
Table 3: Intercorrelations – Contextual Factors ........................................................... 93
Table 4: Summary of research questions, instruments & variables, and analyses..... 112
Table 5: AQS & TQS Scores: Correlations between participant sorts for security and dependency and expert criterion sorts for AQS & TQS .................................................. 114
Table 6: Descriptive Statistics – AQS and TQS .......................................................... 115
Table 7: Intercorrelations between AQS and TQS ..................................................... 116
Table 8: Mean Scores (and Standard Deviations) – Contextual Factor Comparisons – AQS and TQS .................................................................................................................. 118
Table 9: Effect Sizes – AQS and TQS Mean Scores and Contextual Factors .......... 120
Table 10: Descriptive Statistics – Child Outcome Measures ........................................ 121
Table 11: Intercorrelations between AQS, TQS and Child Outcome Measures ........ 122
Table 12: Mean Scores and Standard Deviations – Contextual Factors Comparisons – PPVT, TERA, Print Task ........................................................................................................ 124
Table 13: Research Questions and Summary of Statistically Significant Results ....... 127
Table 14: Research Questions and Summary of Results Approaching Significance or with Moderate to Large Effect Sizes .......................................................... 128
List of Figures

Figure 1. Bronfenbrenner’s Ecological/Social-Contextual Model ................................... 18
Figure 2. An ecological and dynamic model of the transition to school ....................... 25

List of Appendices

Appendix A..................................................................................................................... 177
Appendix B..................................................................................................................... 178
Appendix C..................................................................................................................... 181
Appendix D..................................................................................................................... 184
Appendix E..................................................................................................................... 187
Appendix F..................................................................................................................... 195
Appendix G..................................................................................................................... 198
Appendix H..................................................................................................................... 200
Appendix I..................................................................................................................... 201
Appendix J..................................................................................................................... 202
Appendix K..................................................................................................................... 207
Appendix L..................................................................................................................... 209
Chapter 1: Introduction

Our first human relationships are essential for survival and growth. Infants’ attachment to their parents sets in motion a pattern of interactions with others that can have profound effects on long-term development. Across the life span, relationships continue to contribute to overall development but particularly within the context of transitions from one developmental stage to another. One significant developmental stage occurs when children make the transition from home or child care into the school system. The role of relationships with parents and with teachers takes prominence at this developmental juncture. The broad goal of the current study was to understand the ways in which young children’s attachment relationships with their mothers and with their teachers, as measured through the emotional bond of attachment affect and are affected by each other at the point when children are making the transition into the school system. The specific goals were to understand and to tell the story of these relationships among children and parents who represented wide ethno-cultural and linguistic diversity. The study arose from my personal interest in the construct of the attachment relationship and from the growing awareness on the part of researchers and policymakers of the importance of emotional development on young children’s success in school and in life. Although a large body of research offers insight into the importance of attachment security to healthy relationships with others, there is much less clarity about how the primary attachment relationship with the parent, in most cases the mother, is seen in children’s attachment relationships with other significant caregivers, such as the teacher. Further, with the increasing ethno-cultural and linguistic diversity among Canada’s...
youngest school children, it is important to note that we know less about how
developmental processes, including the development of attachment relationships, may be
salient among the range of new Canadians who are beginning school.

Attachment is a developmental construct that incorporates many elements, for
example, secure base behaviour (Ainsworth & Bell, 1970; Bowlby, 1988), proximity-
seeking (Bowlby, 1969/1982), exploration (Ainsworth & Bell, 1970; Bowlby, 1988), and
independence (Bowlby, 1973). These attachment behaviours are prerequisite to the
adaptive function of many social and learning experiences in school (Bretherton &
Munholland, 1999; Main, Kaplan, & Cassidy, 1985) yet may vary in their salience for
diverse groups. For example, independence is found to be less salient for some
immigrant groups than for non-immigrant North American parents (Johnston & Wong,
2002). Thus it is important not only to understand whether child-parent attachment is
related to child-teacher attachment but further, to explain patterns of individual
differences among children in relation to adults from different contexts. The
understanding of how the mother-child relationship and the teacher-child relationship are
fundamental to the cognitive, social, and emotional outcomes experienced by children is
critical to program planning at the classroom and policy levels (Cyr & Van IJzendoorn,
2007; Davis, 2003; Kennedy & Kennedy, 2004). This thesis paints a picture of how a
new, emerging attachment relationship with the teacher may be related to the attachment
relationship with the mother and how it may have an effect on child outcomes. These
outcomes include emotional regulation, academic performance, children’s reports of their
kindergarten experience, and direct classroom behaviour as measured by observation.
The study goes beyond simply correlating measures of attachment between significant
adults in a child’s life to include an in-depth examination of attachment related
behaviours in the classroom and children’s perspectives as to what is important to them
as they make the transition to kindergarten.

*My Personal Interest*

In the mid 1990s I chose to watch a television documentary entitled, *When the
Bough Breaks* (1995) about a unique intervention program for families who were
experiencing child behaviour issues around sleeping and eating. Rather than offering
solutions or strategies targeted to those specific behaviours, researchers instead examined
the parent-child relationships for clues to the challenges these families were experiencing.
Two families were invited to take part in a program at the Hincks Dellcrest Family
Treatment Centre in Toronto, Ontario. The children experiencing behaviour issues were
toddlers in two-child families. Parents had not experienced similar difficulties with their
older children and they were anxious to find a remedy. They were frustrated and
becoming resentful of the disruptions to family life that these behaviours created.
Mothers and children participated in a laboratory procedure called the *Strange Situation
Procedure* (Ainsworth, Blehar, Waters, & Wall, 1978), which is designed to provoke
mild stress in a child when a stranger enters the playroom, exchanges a few words with
the mother before mother leaves the room. In this procedure, researchers are interested in
what the mother-child *reunion* looks like when mother returns to the play room and the
stranger leaves. There are eight brief episodes in the procedure. Most children are
naturally upset (mild stress) when their mother leaves the room but it is the reunion that
gives clues to variations on the quality of the mother-child relationship. If the mother is
able to readily soothe her young child and the child returns to play, they are said to have a
secure attachment relationship. The child knows that his or her mother can be trusted to be there when needed, she serves as a secure base so that the child can explore, knowing that she is nearby or can be easily accessed if necessary. If the mother is not able to soothe her child and the child remains “clingy” or if the child does not come to mother to be comforted, they are said to have an insecure attachment relationship, i.e., the child is unable to rely on mother as a secure base which hampers the child’s ability to freely explore his or her environment, an essential component of learning. The two mother-child relationships in this documentary followed a pattern of insecure attachment placing stress on the relationship between parent and child, which in turn contributed to overall family distress.

The researchers explained to each mother that the relationship with their younger child was unique and required different responses than those they were familiar with from parenting their older child. Mothers were invited to participate in an intervention program entitled, *Watch, Wait, and Wonder* (Cohen et al., 1999; Cohen et al., 2002). This program was designed to help parents observe their children, look for the cues the child expressed in his or her behaviour for the kind of response s/he needed, not what the parent thought was needed. This was accomplished first by engaging in infant-led play, i.e., mothers were encouraged by the therapist to respond to her child’s initiations to play, to follow the child’s lead, and were instructed not to guide the play activity in any way. By developing the capacity to follow the infant’s lead, parents eventually learned to sensitively respond to the cues their children were giving in play and later to respond when children were distressed and needed to be comforted, and the way in which their children wanted to be comforted. Consistency of response was also key to the children
developing trust in their mothers that mothers would respond appropriately when needed and would serve as a secure base from which to explore.

As the mother of three children, my curiosity was piqued by the program and the potential for altering the trajectory of parent-child relationships. As a first time parent, I believed that the mother-child relationship was instinctual and that it would develop “naturally.” However, I had the opportunity to witness many relationships that were not very harmonious and I soon realized that parents really needed information about the developing attachment relationship so that they could develop the skills required for a healthy attachment relationship with their infant.

I came to the Ontario Institute for Studies in Education with the intent to study early learning and parent support with a focus on attachment. I became involved with ongoing early years research on parent involvement, the transition to school, readiness, and diversity. A large study in Professor Janette Pelletier’s research group was getting underway in the Peel region; funding had been made available for the design, implementation, and evaluation of preschool readiness centres in schools that did not have junior kindergarten at the time (Pelletier, 2002a; Pelletier & Corter, 2005a). There I had the unique opportunity to observe parents, often recent immigrants, come to school with their 4 year-old children, often with younger siblings in tow. The teachers who were involved in this program had agreed to be part of an initiative to support families by encouraging parent involvement, acting as mentors to parents by modeling teaching strategies, and participating in parent education programs. For these teachers, it was an opportunity for personal growth as they welcomed parents from many different cultures into their classroom and by extension, to the school community. They committed
themselves to creating a warm and welcoming environment and to be sensitive to the needs of many people who were English language learners (ELL) and recent immigrants to Canada. During the program, these experienced kindergarten teachers followed the guidelines for math and literacy that were part of the provincial kindergarten curriculum. Parents were able to participate in “group time” together with their children and then to join them for free-play activities at the various activity centres throughout the classroom. Teachers took every opportunity to explain to parents the concepts that were being taught in the program and gave suggestions for extending these concepts with their children at home. The efforts of these teachers paid off as most parents declared the teacher was the best part of the program (Pelletier & Brent, 2002). It was a privilege for me to witness the development of mutually respectful relationships with one clear goal in mind—children who were happy, secure, and successful in school. Typically there are bound to be challenges as children make the transition to school, however, this program was unique in that parents actually attended school with their child a few days a week. I wondered about all those other families who did not have this experience. All families, regardless of language or ethnicity have unique cultural expectations and experiences related to the transition to school.

Much has been written about the parent-child attachment relationship and the relationships that children develop with other important adults, often a teacher (Birch & Ladd, 1997; Pianta, 1997, 1999; Pianta, Nimetz, & Bennett, 1997; Pianta & Steinberg, 1992). But there is a gap in the literature when it comes to understanding how the interplay between child-parent and child-teacher relationships may facilitate the transition to school and the child’s subsequent adjustment, particularly in culturally diverse
neighbourhoods where school has a new meaning. I believe that a deeper understanding of attachment by both parents and teachers could go a long way in increasing sensitivity to children’s cues and supporting them by providing a secure base from which to explore and learn. Children will reap the benefits of living, playing and working in a secure environment at home and in school.
Chapter 2: The Literature Review

The purpose of this chapter is to review literature on how attachment in adult–child relationships enters into readiness and the transition to school. This review serves as a foundation and background for the current study and is divided into five sections. The first section outlines the present sociopolitical context which provides the background and sets the stage for the current study. Next the social ecological theoretical framework is introduced, providing a foundation for the levels of analysis that examine the interrelated and interdependent processes associated with the transition to school. The third section delineates adult beliefs and practices and contextual factors including: individual level factors for children, family factors, school level factors and demographic factors that may have an impact on children’s readiness for school. The fourth section provides a description of attachment theory and the function it serves in promoting successful outcomes for children.

The final section turns to mother-child and teacher child relationships; it explores the association between reports of attachment security and dependency and child outcomes. The chapter ends by outlining the purpose of the current project, the rationale for selecting specific measures to assess attachment, and the five research questions that guide this investigation.

The Sociopolitical Context

Although early childhood development has been the topic of extensive research over the last several decades (Nelson, Pancer, Hayward, & Kelly, 2004; Peters, 1994;
Peters, Petrunka, & Arnold, 2003; Prilleltensky & Nelson, 2000; Prilleltensky, Nelson, & Peirson, 2001), the last ten years have seen an explosion of exciting new research on brain development in the sensitive early developmental period (McCain & Mustard, 1999; McCain, Mustard & Shanker, 2007; Mustard, 2006; Shonkoff & Phillips, 2000). This body of research highlights the importance of the early years as the foundation for emotional, social, physical and cognitive development that in turn contributes to a healthy and successful future. In response to the increasing awareness of the impact of successful interventions in the early years, more government funding has become available for early childhood programs and research in general. The Ontario government commissioned the *Early Years Study* (McCain & Mustard, 1999) in the spring of 1998 with the purpose of providing options and recommendations on how best to prepare Ontario’s children for successful academic outcomes, employment, and social relationships. The process began with a synthesis of new knowledge gained from research in neuroscience, developmental psychology, sociology, and pediatrics. Added to that knowledge base were decades of findings from earlier work conducted in Canada (National Longitudinal Survey of Children and Youth [NLSCY], 1994; Corter, Harris, & Pelletier, 1998; Keating & Hertzman, 1999; Willms, 1999), the United States (National Institute of Child Health and Human Development [NICHD], 1997; Pianta & Walsh, 1996) and Europe (British Cohort Longitudinal Studies, 1958,1970; Rutter, 1994) regarding the determinants of health, learning and economic growth. Taken together, a framework was established to better understand how development in the early years contributes to health, behaviour and learning over the life span. From this knowledge base it became apparent that there was a need for continuing activities that were parent-focused and child-focused in order
to optimize brain development in the early years (McCain & Mustard, 1999). The process included discussions covering a wide range of backgrounds and skills but with a common focus on early child development and support for parents. A follow-up report (McCain & Mustard, 2002) was published three years later to reiterate the message that a focus on early childhood development is vital to societal as well as individual growth and development and to encourage government support for the recommendations made in the *Early Years Study* (McCain & Mustard, 1999). The Council for Early Child Development [CECD] was founded in 2004 to bring together researchers and community networks with a focus on early child development and community action and to promote the recommendations put forward in the *Early Years Study* (McCain & Mustard, 1999). The Council published *Early Years Study 2: Putting Science into Action* (McCain et al., 2007). The Council’s vision was to replace the “chaotic mess” of programs and assistance that existed across Canada with a system of community hubs, ideally located in schools, which would offer play-based preschool activities, parent education programs, social service referrals and child care. These centres would be organized to reflect local community needs and sensitivity to cultural diversity (McCain et al., 2007).

Local research efforts had also begun to examine the effects of parent involvement in school councils (Corter et al., 1998), parent and community involvement in schools (Corter & Pelletier, 2005), the integration of kindergarten, child care and parenting supports to help diverse families make connections with schools (Pelletier & Corter, 2005b), the “transition to school” and “readiness for school” programs for diverse families (Pelletier & Corter, 2005a). Other relevant local research had been examining mother-child attachment relationships (Goldberg, Lojkasek, Gartner, & Corter, 1989;
Goldberg, Corter, Lojkasek, & Minde, 1990; Goldberg, Perrotta, Minde, & Corter, 1986; Rinkoff & Corter, 1980) and interventions aimed at enhancing parents’ attachment relationships with their young children (Cohen et al., 1999; Cohen et al., 2002).

The context of the current study is the transition to kindergarten in Ontario with an emphasis on the existing relationship children have with their parents, the developing relationship with their teachers and the effect those relationships have on children’s academic outcomes and social and emotional adjustment in kindergarten. Today’s children, parents and teachers continue to share the universal questions and concerns common to the first day of school, but an increasingly diverse population necessitates a particular awareness and sensitivity to the unique, individual backgrounds children bring to school resulting from different preschool experiences and ethnic or cultural practices.

Ontario has recognized the challenges and benefits a diverse society presents and is working to create programs that encourage, support and include all children and their families. An important first step in developing quality programs is the training of early childhood educators and the provision of improved access to training for practitioners who want to upgrade their qualifications to obtain an early childhood education (ECE) diploma. The Ontario government has taken action to provide quality training and announced plans in 2007 to fund the establishment of a College of Early Childhood Educators. The college is the first such self-regulating body in Canada and includes the setting of standards and ethics that “demonstrate respect for diversity and sensitivity to multiculturalism” as part of their mandate (Beach & Flanagan, 2007).

Ontario has recently leapt ahead of other provinces to implement full-day early learning for 4 and 5 year-olds and pays particular attention to the needs of children of
Aboriginal descent. Recommendations from the Premier’s Early Learning Advisor are outlined in the report *With our Best Future in Mind: Implementing Early Learning in Ontario* (Pascal, 2009); our “best future” is described as one where all our children are: “healthy and secure, emotionally and socially competent, eager, confident, and successful learners, respectful of the diversity of their peers.” The special advisor on early learning publicly posted six assumptions that guided his work and were informed by scientific evidence. The fourth assumption in particular dealt with respect for diversity, equity, and inclusion as critical for honoring children’s rights, optimal development, learning, and making a contribution to a more inclusive society. When early learning environments include the diversity of the participants, the quality of the programming is enriched for all participants (Pascal, 2009).

This report on full-day early learning is the culmination of a vision shared by researchers, practitioners, educators and families with recommendations aimed at connecting and consolidating existing programs and resources with newly created programs that will facilitate the transition to school, improve academic outcomes, and increase post-secondary graduation rates. A key component of this vision is the network of relationships that have developed over many years through grass roots initiatives, pilot studies, the dissemination of research, and the implementation of programs that underscore the importance of investing in high quality early childhood education. Building on a solid foundation established in the early years is crucial for a healthy social and economic future in Ontario (Pascal, 2009).
Theoretical framework for the study: A Social Ecological Model

Bronfenbrenner’s theory of social ecology provides an apt theoretical orientation to examine the complexities of child, parent and teacher relationships that have an impact on children’s transition to school (Bronfenbrenner, 1979). At about the same time that interest was growing in the interactional aspects of attachment theory, Bronfenbrenner was developing an ecological view of human development that included the mother-child relationship but expanded that perspective to encompass the various reciprocal relationships and contexts that affect and are affected by that first tie. For those who were intrigued by Bowlby’s theory of attachment and Ainsworth’s empirical findings using the Strange Situation Procedure (Bretherton, 1992), Bronfenbrenner’s ecological perspective was seen as a way to expand attachment research because it drew attention to points that were not particularly emphasized but were thought to be implied in the theory (Belsky, 2005). On the one hand, attachment theory examines the microprocesses of development, that is, the daily interactions between parent and child that foster a secure or insecure relationship depending on the sensitive, consistent and contingent responses of the caregiver to the child’s cues. Drawing from the history of parent-child interactions, it is hypothesized that the child develops an internal working model of self in the environment and in relation to others. On the other hand, an ecological perspective is broad based in that it considers the contextual factors and processes that influence the microdevelopmental processes of the mother-infant dyad and the development of security, e.g., the mother’s state of mind, her relationship status, and social and emotional supports that may contribute to her ability to care for her child (Belsky & Fearon, 2008).
The developing individual actively processes experiences, both cognitively and emotionally, from an early age. This processing allows infants to learn about their environment, to make sense of it, and to conceptualize what it is all about. But this processing does not occur in isolation, because learning, to a large extent, takes place in a social context (Ainsworth, 1991; Bowlby, 1988; Bronfenbrenner, 1986; Pianta, 2002). There is a reciprocal interaction between developing individuals and their immediate environment and these reciprocal behaviours are thought to have a powerful influence on their development and beliefs (Ainsworth, 1991; Bowlby, 1958; Pianta & Cox, 1999). Throughout the lifespan there is a progressive, mutual accommodation between developing individuals and the changing environments in which they actually live and grow. However, individuals and their immediate environment are also embedded in larger, formal and informal, social contexts that also have an impact on development. The real world setting in which development occurs was described by Bronfenbrenner (1977, 1979) as a social ecological context.

Bronfenbrenner (1979) used a systems framework model to describe his social-ecological theory. The child’s setting is part of four interrelated and reciprocally interactive systems: the microsystem, mesosystem, exosystem, and macrosystem which all function in a temporal range designated as the chronosystem (see Figure 1). Each system contains roles, norms, and rules that can have a powerful influence in shaping development. There is also a bidirectional effect between individuals interacting with each other and with the environment. A microsystem refers to the relations between the developing individual and the environment in an immediate setting containing that person, e.g., the home, child care centre, school, or workplace. The setting is a place with
specific physical characteristics in which individuals engage in particular activities and in distinct roles, e.g., that of child, parent, sibling, student, teacher, or employee. These activities also occur for definite periods of time. The people who are in a close relationship with children and spend a significant amount of time with them have the most immediate effect on their development.

A mesosystem can be described as a system of microsystems because it involves connections across microsystems (Bronfenbrenner, 1979). A mesosystem is made up of interrelated settings containing developing individuals and their relationships at a particular point in their lives. For children, this could include interactions among family members, child care providers, teachers, classmates at school, or members of their peer group or a religious institution. For a parent, this could also include interactions among family members, child care providers, teachers, other parents, fellow workers, or members of a religious institution. Mesosystem relationships have a second order influence on the microsystem, for example in the way that the quality of the marriage relationship affects the child.

An exosystem is an extension of the mesosystem. While it includes particular social structures, both formal and informal, that have an impact on the developing individual, it does not actually contain that individual. These structures encompass the major institutions of society operating at a concrete local level. They include, among others, the neighbourhood, the work world, mass media, municipal, provincial, and federal governments, the distribution of goods and services, communication and transportation facilities, and informal social networks. To illustrate the effect of the exosystem on child development, marginalized families could be particularly vulnerable
to a lack of resources specific to their needs if services were not provided by the social structures of the exosystem. Thus, the exosystem indirectly affects the child within the family.

The macrosystem is composed of cultural values and beliefs, and historical events, which may affect the other ecological systems (Lerner, Castellino, Terry, Villarruel, & McKinney, 1995). As such, macrosystems are carriers of information and ideology that, both implicitly and explicitly, provide meaning and motivation to social networks, particular agencies, roles, activities, and their interrelations. “What place or priority children and those responsible for their care have in such macrosystems is of special importance in determining how a child or his caretakers are treated and interact with each other in different types of settings” (Bronfenbrenner, 1977, p. 515). The concept of stigma associated with marginalization is an example of how the developing individual may be affected by the macrosystem, directly and indirectly. Successful adaptation is a reflection of how well developing individuals progressively accommodate to their immediate environment, the one that is mediated by influences from the other systems (Bronfenbrenner, 1979).

Bronfenbrenner (1986) proposed a fifth component to his ecological model, the chronosystem, to examine both the developmental changes and the continuity of attributes within individuals over time in the settings they inhabit. The focus of a simple chronosystem could be one of two types of life transitions, either normative, e.g., school entry, puberty, entering into or retiring from the work force, marriage, or non-normative, e.g., an acute illness or death in the family, divorce, immigrating to another country, or a marked financial change. Often developmental change may occur as the direct result of
such transitions that are common across the life course and family processes may be indirectly affected by such transitions. A more complex chronosystem looks at how a series of developmental transitions over the course of one’s life may have cumulative effects. For example, taken from attachment theory, the child’s internal working model first develops within the microsystem of the family. When a secure attachment relationship is represented in the child’s internal working model, this may function as an adaptive mechanism as the child makes a transition to other microsystems, and s/he develops significant relationships within the new settings, e.g., child care or school. The evolving history of the accumulated, reciprocal interactions with others and the environment continues to shape and refine the internal working model over the life course and contributes to the formation of relationships or attachments with friends, teachers, romantic partners, and the transmission of attachment behaviours through parenthood to the next generation.
Figure 1. Bronfenbrenner’s Ecological/Social-Contextual Model

Bronfenbrenner was a lifelong advocate for children and their families in a changing society. He researched and wrote extensively on the importance of the family
for the healthy development of the child (Bronfenbrenner, 1977, 1979, 1985, 1986, 1989). He strongly believed that the home environment and parent involvement in preschool is a significant influence in preparing young children to make the transition to formal schooling. As one of the co-founders of Head Start, a school readiness program, he was able to directly affect millions of disadvantaged children and their families. He expressed concern over what he saw as a decline in the values being taught to children as the rise in technology increased the hectic pace of modern life and took away quality time spent between children and their significant adults. To illustrate his concern for the future of children and families, Bronfenbrenner (1989) proposed six developmental principles that he distilled from then current research in the fields of developmental psychology and sociology and advanced these principles as essential components for healthy development. These principles resonate with some of the core elements of attachment theory and the relation of those elements to school readiness and the transition to school:

1) In order to develop-intellectually, emotionally, socially, and morally—a child requires, for all of them, the same thing: participation in progressively more complex reciprocal activity, on a regular basis over an extended period of the child’s life, with one or more other persons with whom the child develops a strong, mutual, irrational emotional attachment, and who is committed to the child’s well-being and development, preferably for life (Bronfenbrenner, 1989, p. 30).

This statement reflects one of the key aspects of attachment theory, the development of an affectional bond within a reciprocal relationship with at least one
significant adult that fosters feelings of security in the child (Bowlby, 1969). The second principle is in alignment with exploratory behaviour (Ainsworth & Bell, 1970; Bowlby, 1988) and the development of an internal working model (Bretherton & Munholland, 1999). Children who develop a secure relationship with a primary caregiver feel confident in exploring their environment because they know they can return to their caregiver who acts as a secure base providing protection, comfort, and assistance as required. Eventually, children develop a mental representation, or internal working model, of this relationship which extends to other significant adults in caregiving situations and learning environments. For example, the relationships that children form with child care providers and preschool teachers may share some qualitative similarities to those with their primary attachment figures; child-teacher relationships provide opportunities for emotional and physical proximity and a secure base for exploration and a safe haven when experiencing stressful situations (Howes & Ritchie, 1999; Pianta & Steinberg, 1992). Students who share a close relationship with their teachers view their teacher as a secure base from which to explore the classroom environment and may feel safe making mistakes and more comfortable tackling the challenging academic tasks that are essential to learning (Rimm-Kaufman, 2010).

2) The establishment of patterns of progressive interpersonal interaction under conditions of strong mutual attachment enhances the young child’s responsiveness to other features of the immediate physical, social, and-in due course-symbolic environment that invite exploration, manipulation, elaboration, and imagination. Such activities, in turn, also accelerate the child’s psychological growth (Bronfenbrenner, 1989, p. 33).
The stability and continuity of attachment classifications are dependent upon consistency in the quality of caregiving. The third principle highlights this aspect of attachment theory.

3) The process of gradually escalating, reciprocally contingent joint activity between a child and an adult who care about each other fosters the child’s development only to the extent that it takes place on a regular basis over extended periods in the child’s life under conditions that are generally free from frequent interruption and acute environmental or emotional stress (Bronfenbrenner, 2002, p. 64).

A social and emotional support system for the primary caregiver favours the development of a secure attachment relationship and provides an opportunity for the infant to form an attachment with another close adult who is also in the position of caregiver. The fourth principle reflects this notion.

4) The establishment and maintenance of patterns of progressively more complex interaction and emotional attachment between caregiver and child depends in substantial degree on the availability and involvement of another adult, a third party who assists, encourages, spells off, gives status to and expresses admiration and affection for the person caring for and engaging in joint activity with the child (Bronfenbrenner, 1989, p. 34).

The fifth principle underscores the importance of reciprocal interactions as the child makes the transition from one microsystem, the home, to another, e.g., child care or school. The transition to child care or school is a developmental step that affects the child and his family. A secure parent-child attachment relationship and a developing
partnership between home and school may facilitate the transition and contribute to positive adjustment in the new setting. This is a good example of mesosystem involvement.

5) The effective functioning of child rearing practices in the family and other child settings requires: establishing ongoing patterns of exchange of information, two-way communication, mutual accommodation, and mutual trust between the principal settings in which children and their parents live their lives. In contemporary societies, these settings are the home, child care programs, the schools, and the parents’ place of work (Bronfenbrenner, 1989, p. 37).

The sixth principle emphasizes the accountability that is shared by individuals and institutions for child development and calls for an investment in the necessary support and resources for children and those who care for them. The continuing, keen research interest in early childhood education and development is a tribute to Bronfenbrenner’s progressive view on the direction that research should take and that view is expressed in the final principle.

6) The effective functioning of child rearing processes in the family and other child settings requires: public policies and practices that provide place, time, stability, status, recognition, belief systems, customs, and actions in support of child rearing activities not only on the part of parents, caregivers, teachers, and other professional personnel, but also relatives, friends, neighbors, coworkers, communities, and the major economic, social and political institutions of the entire society (Bronfenbrenner, 1989, p. 38).
This final principle underscores the responsibility for child development shared by members of society from the most proximal interactions children have with parents, child care providers, and teachers to the distal effects of economic, social, and political influences on policies that affect early childhood development and education. Thus, children’s readiness for school is an important developmental concept that is affected by their social ecological context.

An Ecological Model of the Transition to School

School readiness has received increased attention for more than a decade from parents, schools, teachers, and policy makers. This focus may be attributed in part to the first of the National Educational Goals that stated that “by the year 2000 all children will start school ready to learn” (National Education Goals Panel [NEGP], 1997). Creating an operational definition for readiness and establishing guidelines and timelines for how an individual child is assessed as being ready for school makes for a challenging task (Carlton & Winsler, 1999; Meisels, 1998). Past definitions have treated readiness as two separate concepts: readiness to learn as a developmental level attained rendering an individual capable of learning specific material and readiness for school which suggests that an individual has the ability to adjust to a conventional school context and perform successfully. The term school readiness combines the two concepts and promotes the idea that school readiness is intrinsic to the child and that the child must change to fit into existing, homogeneous school programs (Carlton & Winsler, 1999). In view of the increasing diversity of children and families entering the school system, this position ignores individual differences and places many children at a disadvantage for school
adjustment and successful outcomes. Rather, there has been a paradigm shift to a bidirectional, interactionist perspective that characterizes the transition process from home to school (Carlton & Winsler, 1999; Pianta & Cox, 1999; Rimm-Kaufman & Pianta, 2000). In other words, it is not only the child who is ready to make the transition to school but rather the transition to school is a process that involves the interrelation of children, families, schools and communities across time (Pianta, Rimm-Kaufman, & Cox, 1999). The NEGP (1997) emphasized the responsibility of schools to be “ready” to support the successful outcomes of children with 10 key principles, three of which are related to an ecological perspective: “ready schools” smooth the transition from home to school, “ready schools” work toward continuity between early care and education programs and elementary schools, and “ready schools” serve children in their communities (Pianta et al., 1999).

The concept of transition is tied closely to the concept of readiness in the literature (Meisels, 1999; Pianta et al., 1999). In fact it has been suggested that “transition to school” has emerged as a new construct in early childhood and elementary educational fields and in developmental psychology; it appears to be replacing the earlier construct of school readiness (Ramey & Ramey, 1999). The traditional view of school readiness implied that children who met a measurable standard of physical, intellectual, and socioemotional functioning were more likely to experience future academic success, however, the more current view of the transition to school implies a process involving interrelated systems working over time to ensure school adjustment and positive outcomes for children. Pianta and Cox (2002) proposed an ecological and dynamic model of transition (see Figure 2) that illustrates the shift in perspective from school
readiness as an inherent characteristic of the child (view 1) to school readiness as a result of interactions among the key settings in which the child actively participates (view 2). This framework builds on the Contextual Systems Model proposed by Pianta and Walsh (1996) and the Bioecological Model advanced by Bronfenbrenner and Morris (1998). Remaining true to the bidirectional, interactionist perspective represented in the two models, the current model suggests that the transition to school is best understood in terms of the settings that contribute to child development (e.g., family, classroom, school, and neighbourhood) and the connections among these settings (e.g., family-school relationships) at a specific time and over a period of time (Pianta & Cox, 2002).

Figure 2. An ecological and dynamic model of the transition to school (Pianta & Cox, 2002).
Readiness, then, may be viewed as a bidirectional process whereby the child and the school adapt and adjust to one another contributing to a smooth transition and positive school adjustment (Rimm-Kaufmann & Pianta, 2002). Pianta (2007) suggests that it is the interactions with adults that create the learning opportunities essential to overall development and positive academic and social outcomes. The transition to school is an important developmental connection between home and school, undertaken by children and their families (Pelletier & Brent, 2002). Transition may be viewed as an extended process that expands the notion of school readiness to include the early years before school entry through the elementary school years (Ramey & Ramey, 1992). Families provide the social, cultural and emotional supports that children need to function successfully in school (Power & Hertzman, 1999); schools provide the opportunities for children to engage in positive interactions with other significant adults and children. These experiences enhance what has been learned at home while supporting continued development and related learning (Bronfenbrenner, 1985). Children are active agents in the process as they cross a cultural boundary and make the transition from home to school and begin to experience school as a place to learn and themselves as students (Lam & Pollard, 2006). Recognizing the role that children play in their transition and listening to children’s views about the issues that affect them, provides important information for developing environments and curricula that support and stimulate them to become confident, resilient, independent learners with heightened social and emotional competence and positive academic outcomes (Clark, McQuail, & Moss, 2003; Lansdown, 2005; Pelletier & Corter, 2006).
A successful transition process is characterized by child adjustment and how well families and schools interact, cooperate, and communicate (Pianta & Cox, 2002). Ramey and Ramey (1999) suggest that it is the adaptation by families, children, and teachers that affects the quality of the transition to school, which is an important developmental step for every child. “It is a cultural universal that is remembered with fondness or despair well into adulthood and frequently passed on as a legacy to the next generation” (p. 249). The implication is that the memories of these early school experiences may become integrated into the beliefs and practices that are transmitted from one generation to the next. Within a social ecological context, the quality of interactions comprising early school experiences are influenced by adult beliefs and practices and other contextual factors, e.g., individual level factors for children, family factors, school-level factors, and demographic factors that have an impact on children’s readiness for school. These categories of factors are reviewed below in relation to the design of the current study.

**Contextual Factors Affecting the Transition to School and Child Outcomes**

*Adult Beliefs and Practices*

*Parents.*

The child’s home learning experiences are a product of parental beliefs and practices. As the child’s first and most important teachers, parents provide the experiences that promote life skills, abilities, and attitudes that underlie school success (Macleod, 1996). When parents engage their children in loving and supportive interactions, children develop a sense of well-being that influences their social, emotional, and physical health and contributes to neurological and psychological
development (Schore, 2001; Siegel, 1999, 2001). Embedded in a sociocultural context, each family is uniquely affected by proximal and distal factors that influence their educational beliefs and practices and the child’s adjustment to school. Parent education, marital status, socio-economic status (SES), ethnicity, cultural beliefs, immigration, and child gender and age are all factors that have the potential for interactional effects with the developing child. In a study that analyzed data from the National Household Education Survey (1993), more concerns expressed about readiness for school were related to ethnic and racial minorities (Diamond, Reagan, & Bandyk, 2000). However, Caucasian parents were more likely to take action and hold a child back from attending kindergarten if they felt their child was not ready. This was especially true for children who were younger and for boys. This may be related to the fact that the Caucasian parents had greater financial and educational resources enabling them to provide alternative preschool experiences for their children. Diamond et al. (2000) suggested that many parents may have a broader view of school readiness that includes social and behavioural components but they tend to emphasize academic abilities when they are engaged in home learning activities or making school decisions related to their own children. This may be related to a belief that they are better able to teach their children basic school-related skills than to affect their emotional or social maturity (West, Hausken, & Collins, 1993).

According to the National Household Education Survey (1993) and the Fast Response Survey System (FRSS) Kindergarten Teacher Survey on Student Readiness (1993), parents and teachers were in agreement on the following skills as important for school readiness: it is essential for children to be able to communicate their needs, wants,
and thoughts verbally, and children should be enthusiastic and curious in approaching
new activities (West et al., 1993). Parents (80%) believed it was very important for
children to be able to take turns and share, and to sit still and pay attention; teachers
(42%) believed these skills were less important. The greatest disparity centered on
parents’ beliefs about the importance of children being able to count to 20 or more,
knowing the letters of the alphabet, and being able to use pencils and paint brushes
properly. Parents with the highest level of education put the least emphasis on these
skills and parents with the least education put the most emphasis on these skills.
However, taken together, parents put far more weight on the importance of the latter
skills than teachers did (West, et al., 1993). In other words, teachers tend to emphasize
readiness in a social domain and parents emphasize academic readiness (Lin, Lawrence

Socio-economic status appears to have an impact on parenting practices including
those related to learning strategies (Barbarin et al., 2008). Low-income and ethnic
minority parents are more likely to enforce strict disciplinary tactics and expect strict
obedience and often deference to adults. Compliance with teacher authority by children
is assumed by their parents (Piotrkowski, Botsko, and Matthews, 2000). They also tend
to use directive strategies in learning situations. Children who are accustomed to
responding to strong directive speech may be perceived as noncompliant when a teacher
who is not an ethnic and/or SES match issues an indirect command. In addition, teachers
who are less familiar with cultural norms of behaviour may incorrectly identify some
behaviours as evidence of immaturity (Rimm-Kaufman, Pianta, & Cox, 2000).
Low-income and ethnic minority parents are more apt to emphasize number and letter knowledge and counting as important readiness skills. These parents also believe it is important to communicate these basic skills in English when English is not the first language spoken in the home (Piotrkowski et al., 2000). Although these parents are actively involved in teaching preverbal children to label objects, once the child begins to talk they do not engage in activities to stimulate more complex language skills. Instead, they ask children to recite previously presented facts that have been memorized (Barbarin et al., 2008).

In contrast, while majority culture parents also value compliance with rules, one study showed that for children in these families it was more likely that they would be allowed to ask adults to explain the rules and to negotiate exceptions, if these rules interfered with personal needs—since personal freedom was also deemed to be important (Barbarin et al., 2008). Caucasian parents were more inclined to use learning strategies that involved explanations and encouraged questioning and inferential reasoning (Barbarin et al., 2008). They engaged actively and frequently in talking, joint book reading and interactions that used language about make believe.

Teachers.

Teachers’ beliefs about readiness are also shaped by many factors within a sociocultural context and these factors include their own ethnicity (Rimm-Kaufman et al., 2000), personal experiences as students and teachers, the structure and teaching conditions of the school, the expectations of their particular school and community for children, children’s home circumstances and cultural backgrounds, and community and general societal attitudes toward early childhood education (Lin et al., 2003). Teachers’
beliefs play a central role in creating classroom environments that support children’s learning and adjustment through developmentally appropriate instruction and positive interactions (Pianta, La Paro, Payne, Cox, & Bradley, 2002; Willer & Bredekamp, 1990). Teachers’ beliefs may also influence their early evaluations of children’s competencies and expectations of their adjustment and successful outcomes (West et al., 1993).

The extent to which preschool parents and kindergarten teachers share a common understanding of the readiness skills and attributes that contribute to a successful transition to school, the more likely that parents will encourage and promote the skills at home that teachers look for at school entry (Pianta & Rimm-Kaufman, 2006). Congruence in parent and teacher beliefs may contribute to teachers making a positive evaluation early in the child’s academic career which in turn contributes to the child having a successful early school experience (Piotrkowski et al., 2000; Rimm-Kaufman, 2004; West, et al., 1993). Although controversial, “testing” for readiness has been acknowledged by some school districts as one method for determining the appropriate skills and developmental attributes required for early school success.

We live in an era of accountability, which may promote a higher quality of education and support for children to perform at higher levels. However, accountability also calls for assessments and testing of children for school readiness which is inconsistent with the emerging conceptual model of education as an interactive endeavor (Pianta, 2007). This puts the onus on children to come to school with specific skills and for schools to conform to a program that may not consider children’s individual differences.
The question of how to adequately define and assess a child’s readiness for school continues to be open to debate (Clancy & Pianta, 1993; Meisels, 1999). Critics of individual readiness assessments point to the exclusion of some children who may be identified as not ready for kindergarten as the result of poor or absent preschool experiences, recent immigration, speaking English as an additional language or conditions of poverty (Meisels, 1999). An assessment alternative to testing individual children is the Early Development Instrument (EDI) (Offord & Janus, 1999), a population based measure for communities developed as part of the School Readiness to Learn (SRL) project in Ontario, Canada. A guiding principle of this project is that “all children are born ready to learn, but not all children arrive at school ready to learn.” Research indicates that 1 in 20 children in Canada come to kindergarten with insufficient skills needed to learn (The Offord Centre for Child Studies, 2007/2008) and in Ontario, 25% of kindergarten children are deemed to be at risk in one or more developmental areas (Pascal, 2009).

The EDI measures readiness to learn, defined by the SRL project as, “the child's ability to meet the task demands at school and the child's ability to benefit from the educational activities provided by the school.” The EDI measures readiness to learn in five domains: physical health and well-being, social knowledge and competence, emotional health and maturity, language and cognitive development, and general knowledge and communication skills. These five domains are consistent with the five “dimensions of school readiness” put forward by the National Education Goals Panel in the United States (Pianta, 2002). In the present study, two dimensions of readiness were assessed by direct child measures rather than by teachers’ ratings on the EDI. Thus, the
focus of this thesis was to explore the role of the mother-child relationship and that of the developing teacher-child relationship as they relate to readiness in two EDI areas: language and cognitive skills and social and emotional development - as the child makes the transition to school.

While there may not be a clear consensus regarding the level and type of academic skills children need prior to kindergarten entry, social and emotional competence appears to facilitate the transition to school and may be viewed as a strong predictor of future school success (Blair, 2002; Clancy & Pianta, 1993; Hawley, 1998). Interrelations between emotion and cognition support the view that developing emotional, attentional, and behavioural regulation is key for positive relationships with peers and teachers and academic success; in other words, the focus is on the development of the whole child, academic learning can not be separated from social and emotional regulation (Blair, 2002; Blair & Diamond, 2008; Guhn, Janus, & Hertzman, 2007).

Recent studies suggest that exposure to high quality instruction or close teacher-child relationships in child care and preschool settings prior to kindergarten are related to positive academic outcomes when children enter formal schooling (Howes et al., 2008). Developing curricula that integrate the acquisition of academic skills with an emphasis on social and emotional competence may provide children with more opportunities to achieve a level of cognitive and social/emotional self-regulation prior to school entry that facilitates a successful transition (Blair, 2002). Notwithstanding the value of improving the social and emotional quality of early education settings, it remains a challenging task to combine social/emotional skill development with the acquisition of academic skills (Pianta, 2002). One method for meeting this challenge is to employ transition practices
between pre-kindergarten settings and kindergarten that familiarize families with schools and target social emotional competence as a precursor to learning academic skills.

Research suggests that children’s emotional, social, and behavioural adjustment is as important as cognitive and academic development for school success (Raver & Zigler, 1997). In an intervention program for 4-year-olds, their mothers and Head Start teachers, parent and teacher training was found to strengthen protective factors (parenting competence, children’s social skills, home-school involvement, and a positive classroom environment), reduce risk factors and promote social competence in children from a culturally diverse and socio-economically disadvantaged population (Webster-Stratton, Reid, & Hammond, 2001). A complementary program to the parent and teacher training program was developed to intervene with children exhibiting externalizing behaviours and has since been adapted for use in several Head Start kindergarten classrooms. The classroom-based curriculum provides young children with language and skills that help them to manage emotions and problems that come up in their daily lives and has contributed to social and academic improvements (Webster-Stratton & Reid, 2004).

While all children benefit from transition practices, kindergarten teachers perceive children who experience social and economic risk to benefit the most in the area of social competence when they are exposed to specific transition practices between pre-kindergarten and kindergarten, (e.g., LoCasale-Crouch, Mashburn, Downer & Pianta, 2008). According to the developmental ecological model proposed by Pianta and Cox (2002), the most effective strategies would be to create relational and informational linkages between the child, family, school, and community that provide support for families during the transition period in ways that contribute to the child’s adjustment to
early schooling. Ideally, transition practices should be proactive, reaching out to families through a personal phone call, a visit to the child’s home or inviting the family into the classroom to become familiar with the school environment before the school year begins (Janus, 2004). However, most transition practices may be characterized as low intensity, group oriented practices that are initiated after school begins (e.g., form letters or a school open house). These practices often do not go far enough in meeting the actual needs of children and families, particularly those from communities that have a higher concentration of poverty and racial/ethnic minorities who potentially could benefit the most from personal outreach practices (Pianta & Cox, 2002; Pianta & Rimm-Kaufman, 2006). Since pre-school experiences vary widely (Coley, 2002), practices that support families and promote social and emotional competence in the transition to kindergarten may provide opportunities to close the gap between the differing skill levels that children bring to school (LoCasale-Crouch et al., 2008).

Preschool programs that incorporate supportive transition practices for children and families often focus on parent involvement. The association between parents’ involvement in their children’s learning and positive social, emotional and cognitive outcomes for children is a robust finding in developmental psychology. An innovative program, briefly described in the introduction of the current study, brought parents to school with their 4-year-old children for 2-3 half days a week over a 12 week period (Pelletier & Brent, 2002; Pelletier & Corter, 2005a). The pilot study was conceived as a universal program and more than half of the families were recent immigrants and spoke a language other than English. Over the course of program implementation, teachers listened to parents’ views and adapted their programs to reflect parents’ goals and
cultural differences. Mashburn and Pianta (2006) suggest that it is the social relationships and interactions that support school readiness competencies; the design of the readiness program (Pelletier & Corter, 2005a) was such that it provided many opportunities for parent-child, teacher-child, parent-teacher, and parent-parent interactions which fostered the development of respectful, culturally sensitive relationships, home-school partnerships, and potential benefits for children. During instructional group activities, teachers modeled teaching strategies for parents, explained the concepts being taught, and how to extend learning at home. Parents experienced one-on-one interaction with their children during free activities and teachers took the opportunity to circulate, to answer questions, and provide further information. Parents also participated in community-service programs, based on their specific needs and requests. This gave parents the opportunity to learn more about supporting healthy child development in all domains and to develop friendships with the other parents in the program (Pelletier & Brent, 2002).

The following year the child participants were followed into kindergarten. Findings from direct child outcome measures revealed that children who were ELL with no preschool experience and no readiness centre experience were the least ready for kindergarten. Correlations between environmental features scores (measured with the Early Childhood Environment Rating Scale, revised [ECERS-R], 1998) and child outcome scores indicated that teacher-child interactions and academic program quality were the two most important preschool environment components for positive child outcomes (Pelletier & Corter, 2005a). The finding that preschool teacher-child interaction quality was related to child outcomes in kindergarten is not unexpected.
Earlier studies, including one on exemplary kindergarten practices, reported that parents and educators consider teacher-child interaction as the most important aspect of exemplary practice (Corter & Park, 1993).

Publicly supported kindergarten in Ontario has been in existence for 125 years. It is estimated that there are 275,150 children in the 4 to 5 year old age group in Ontario and although kindergarten attendance is not compulsory, 90% of these children attend either a half or full day kindergarten program (Ontario Ministry of Finance, 2008). Attendance in kindergarten may be linked to parents reading more to their children, using numbers more often with their children and providing their children with more opportunities for other types of organized instruction and activities (Thomas, 2006). These statistics suggest that kindergarten may be an ideal time to engage, support and include families in school transition processes that foster partnerships between home and school, facilitate children’s adjustment to school and contribute to future academic success. However, increased diversity in schools demonstrates the significant impact contextual factors may have on school transition processes that are meant to facilitate school adjustment and positive outcomes for children.

*Individual Level Factors for Children*

*Birth Order.*

The subject of birth order has fascinated social scientists for decades. The literature presents a mixed picture of birth order, whether birth order differences are consistent across studies or indeed, whether there are birth order differences at all. Alfred Adler, a contemporary of Freud and Jung, first put forth the notion that when a child is
born has a deep impact on his personality development. According to Adler, firstborns are socially dominant, highly intellectual, and extremely conscientious. However, they also tend to be less open to new ideas, prone to perfectionism and pleasing others. Middle children often develop competitive natures, but tend to be the most diplomatic and flexible members of the family, eager for parental praise. The youngest tend to be dependent and selfish since they are used to others providing for them but they are also confident and comfortable with others (Caducci, 2009). A recent study suggested that firstborns tend to be conformists while second-borns are more adventurous, independent, and are more likely to rebel (McHale, Kim, Dotterer, Crouter, & Booth, 2009). Quality and quantity of parental time was associated with better academic outcomes for firstborns in another recent study and second-borns were more likely to benefit from increased financial resources that provided access to various extra-curricular activities and attendance in private school (Price, 2008).

While birth order patterns have been associated with various behaviours and personality traits, they are most often associated with intelligence, according to some research literature. Different methodological approaches have revealed variable results relating the effect of birth order on intelligence (Rodgers, 2001; Zajonc, 2001). Cross-sectional analyses suggest that the first born child enters into a family environment that changes with the birth of each successive child and that the differences in learning experiences and social influences that occur inside the family have effects on intelligence that can be generalized between families (Zajonc, 2001). Rodgers (2001) claims that this approach is flawed because it infers birth order effects and fails to represent the actual variability within individual families. Rather, Rodgers (2001) suggests that families are
embedded in a social context that has many immediate and distal influences (e.g., child gender, family SES, parent education, ethnicity) that affect the cognitive development of each child regardless of their place in the family structure. Program effects for families enrolled in an Early Head Start intervention illustrate this latter perspective.

Early Head Start serves low income families with infants and toddlers by providing services and intervention programs to promote and support healthy family development. Program effects for firstborn children and their parents were distinctly positive suggesting that early intervention when parents first become parents may be particularly beneficial (Love et al., 2001). Early Head Start (EHS) enhanced child cognitive outcomes, significantly increased sentence complexity and reduced aggressive behaviour problems at 2 years of age. Parenting outcomes included improved stimulation of language and learning with literacy support in the home, increased knowledge of child development, and reduced spanking and family conflict. Parents in this sample tended to be teenage mothers in high-risk families and their children were more likely than later borns to be enrolled in centre-based programs.

The program effects for later born children were different from those for firstborns. Although cognitive outcomes also improved there were no significant differences/advantages in language or social-emotional outcomes among these children. Early Head Start improved parenting outcomes in several areas. With respect to parents, child development knowledge improved, parents read more often at bedtime, and parental verbal and social skills improved. As well, emotional sensitivity was increased and detachment was decreased. However, negative regard also increased among parents (Love et al., 2001). Adult security rates were measured with the Adult Attachment
Interview (AAI) (George, Kaplan, & Main, 1984) at the EHS sites and results were typical of other low-income samples suggesting that these parents were at risk for insensitive and unresponsive caregiving (Speiker & Hamilton, 2001). The parents in this sample differed from the mothers of the firstborns; they tended to be older, either white or Hispanic and from low or moderate-risk families.

In the present study children’s birth order status was collected in order to examine whether attachment relations with mothers and teachers affected the transition to kindergarten differently for children of different birth orders.

**Child Gender.**

Early Head Start had different program effects for parents and children depending on the gender of the child. Although the families shared similar characteristics and the children attended similar programs, the program showed a clearer pattern of positive effects for the development of girls over boys. While all children made gains in cognitive, language and social-emotional development as a result of the program intervention, girls made significantly greater gains. The research authors suggested that boys were less responsive than girls to the improvements in parenting (Love et al., 2001). Parenting outcomes for boys included increased reading to children, increased knowledge of child development, less spanking and reduced parent-child interactions that were dysfunctional. Parenting of girls improved in the areas of emotional support and the stimulation of language and learning through increased reading to the child and increased parent-child activities to stimulate cognitive and emotional development. Knowledge of child development also increased among parents of girls.
In Canada, research conducted on data collected from the NLSCY (Thomas, 2006) reported gender differences in the following areas for children’s readiness skills at age 5 years: girls scored higher than boys in communication skills, copying and symbol use, attention, behavioural self-control, and independence in dressing; boys were rated higher in curiosity. Children who had high levels of positive interaction with parents and were encouraged to use numbers daily were rated higher in curiosity. More boys were involved in weekly organized sports and more girls attended lessons in physical activities, e.g., dance lessons and martial arts. There were no gender differences for receptive vocabulary, number knowledge, work effort, cooperative play, independence in cleanliness, parent-child interaction, daily reading, daily number use, participation in casual sports, or participation in lessons in the arts.

Social-emotional behaviours are being investigated more frequently as potential correlates of poor academic outcomes and in particular as they relate to gender. The effect of problem behaviours at school was recently examined in relation to emergent literacy skills and potential gender differences (Doctoroff, Greer, & Arnold, 2006). In that study emergent literacy skills included language skills, vocabulary, phonemic awareness, and print knowledge, all considered to be important developmental precursors to reading ability (Whitehurst & Lonigan, 1998). Participants were preschoolers from ethnically and socio-economically diverse backgrounds. Difficulties with these early skills were associated with aggressive behaviour and fewer prosocial interactions for boys but not for girls. More expressions of negative affect and solitary play were related to difficulties with emergent literacy skills for both boys and girls (Doctoroff et al., 2006). Observational research suggests that teachers may respond more often and
negatively to the disruptive behaviours of boys with learning difficulties and often react positively to girls who are dependent so that their learning difficulties may not be as readily recognized and addressed (Fagot, 1984). In support of the findings regarding aggressive behaviour, teacher ratings for the EDI (Offord & Janus, 1999) indicated no measurable gender differences with the exception of one item that rated boys as more physically aggressive than girls (Guhn et al., 2007).

An English study reported findings that suggested socialization processes may account for girls being better prepared at school entry. While girls were encouraged to develop more complex language skills and to engage in more academic pursuits, boys were encouraged to participate in sports and other physical activities. Girls had a ready advantage at school entry because they were more comfortable with academic tasks and their peer group activities provided opportunities to improve the skills they had learned at home; boys were more likely to find academic tasks unfamiliar and difficult (Whitehead, 2006). In a Russian study, social expectations were also believed to account for gender differences from an early age. Parents encouraged boys to be more independent and to engage in games and play with toys that promoted exploratory behaviour; parents tended to be overly protective of girls, hindering opportunities to develop curiosity. Teachers characterized girls as being more successful in learning activities and both genders as being socially competent with peers and the teacher (Buzhigeeva, 2004). A recent study found that both boys and girls benefited from having female friends, becoming more adventurous and independent if they played with girls (McHale et al., 2009).

A study of readiness in Jordan reveals an interesting departure from the findings that support girls as being more ready for school than boys (Al-Hassan & Lansford,
While other demographic factors related to readiness, e.g., family income, parent education, urban residence, are similar between Jordan and North American findings, boys were found to be more ready for school in Jordan. Traditionally, boys in Jordan are given opportunities to explore their environments away from home while girls are kept at home with their mothers. Awareness of cultural differences in child rearing, where they exist and where they do not, has important implications for supporting all children as they make the transition to school but particularly for children of immigrant families.

In addition to cultural and social influences affecting the gender differences associated with school readiness there is a neurological component. It has been reported that the areas of the brain involved in language and motor skills mature about six years earlier in girls compared to boys and the areas involved in targeting and spatial memory mature about four years earlier in boys (Hanlon, Thatcher, & Cline, 1999). Understanding these differences has important implications for avoiding stereotypical expectations and practices when parents prepare their children for school and for schools to teach children in a developmentally appropriate manner. In the present study, the variable of gender was explored in the analyses of mother-child and teacher-child attachment as it related to children’s transition to school.

*Child Age and School Entry.*

A large body of research has been conducted on determining the age that a child is ready to enter kindergarten. The underlying assumption is that a child’s chronological age is an appropriate determinant of readiness. However, as persuasive as that assumption may be for simplicity’s sake, it ignores the many individual differences that children
display at school entry. These differences are influenced by the child’s level of maturation, the family’s SES, parental education levels, relationships with parents, minority status, first language spoken, preschool experience, and child gender to name some of the most salient factors for development. Still, the research results are mixed (Beattie, 1970) and the controversy continues about the optimal or appropriate age for children to start school. It is crucial to consider that whatever the kindergarten entry age cut-off, there always exists a gap of close to one year between the youngest and oldest children entering kindergarten. An Australian study found that boys who were younger performed at significantly lower levels of achievement in math, reading, and phonics than their peers who were six to 11 months older (Boardman, 2006). One study found that the average test scores between the oldest and youngest students were not large and that by the time they reached 10\textsuperscript{th} grade any differences related to age had disappeared. For children who had been held back due to parent choice and “redshirting” (Stipek, 2002) and were then over age for their grade, there was on average a negative relationship between their age and achievement level which remained fixed (Grissom, 2004).

A potential problem caused by delayed school entry is that the average age of a kindergarten cohort is raised along with policy makers’ increased performance expectations of children and teachers and parental anxiety over their own child’s readiness (Diamond et al., 2000). Some researchers view full day learning as a way to support all children developmentally but especially those younger children who may need more exposure to enriched learning experiences in an emotionally relaxed atmosphere rather than in a time-crunch half day kindergarten program (Holloway, 2003). In the present study children’s age was considered in relation to other contextual factors and
mothers’ and teachers’ reports on security and dependency during children’s transition to school.

*Preschool Experience.*

Children with comprehensive preschool experiences are more likely to be rated by their teachers as having adequate academic, social, and emotional skills that contribute to a smoother transition and adjustment to kindergarten (Howes, 1990; Reynolds, 1989). These skills are also important predictors for future academic success (Entwisle & Alexander, 1999). Attendance in child care centres was associated with higher language development in a Canadian study using data from the NLSCY (Kohen, Hertzman, & Willms, 2002). Disadvantaged children, particularly boys, can benefit from good quality preschools that enhance readiness skills. Programs that include children from various socio-economic backgrounds benefit disadvantaged children even more than if they were to attend a child care centre or preschool program with children only from a background similar to theirs (Sylva, Melhuish, Sammons, Siraj-Blatchford, Taggart, 2009). However, access to high quality preschool or child care is negligible in communities with high poverty and minority populations placing these children at a distinct disadvantage at school entry with little chance of catching up to their peers. Head Start programs are a notable exception in urban areas, providing families with educational opportunities and experiences that work toward closing the divide between high and low SES communities (Love, et al., 2001).

The recent evaluation of the Miami School Readiness project revealed significant gains for poor, minority children who received subsidies to attend community child care centres and public pre-kindergarten programs (Winsler et al., 2008). Assessments in the
areas of cognition, language, and fine and gross motor skills indicated that children began the school year below national norms but made positive gains reaching national averages in cognition and motor skills and close to national averages in language skills. The only difference based on ethnicity was for Caucasian and Hispanic/Latino children in centre care, they scored slightly higher than African American children in fine motor skills.

Teachers and parents reported separately on children’s social-emotional strengths which included: initiative, self-control, attachment/closeness with adults, and behavioural concerns. These children started off the year around the national average and made considerable improvements in teacher and parent-reported social-emotional skills while behaviour problems were reported to be fairly stable over the year. Children in the public pre-kindergarten programs made greater gains in language and cognition than the children in centre-based child care suggesting that there was higher program quality associated with better paid, more educated teachers who delivered developmentally appropriate curricula. However, the effects of attendance in either preschool program appear to be of great benefit for children of poverty (Winsler et al., 2008). In contrast, results from an investigation of children from lower SES Canadian households who attended junior kindergarten did not reveal positive program effects for decreasing problem behaviour (Pagani, Larocque, Tremblay, & Lapointe, 2003). It was suggested that better curricular programming that integrated components from successful early childhood programs would be of benefit to children from disadvantaged backgrounds. For example, social skills programming for children that is associated with parent training may be of the greatest benefit to families and schools. Parents from lower income households may have had negative school experiences themselves, affecting their
attitude toward the neighbourhood school and lowering expectations for their own children to have a positive and successful academic career (Entwisle & Alexander, 1996). Training programs that encourage parent involvement may begin a new cycle of school adjustment and achievement for disadvantaged children.

Further evidence supporting the Pagani et al. (2003) investigation is a longitudinal study of children who spent time in a variety of non-maternal care settings over their first 4.5 years, often beginning care between 3 to 6 months of age. These children experienced difficulties in socioemotional adjustment at 54 months and in kindergarten (National Institute of Child Health and Human Development [NICHD] Early Child Care Research Network, 2003). The more time children spent in child care, the more externalizing behaviours and conflicts with adults were reported by mothers, teachers, and caregivers. Of interest was that lower levels of problems were associated with less time in child care and increased maternal sensitivity offset the manifestation of problem behaviours and conflicts with adults. Importantly, less negative adjustment was associated with mothers who were more highly educated, less depressed, and when greater economic resources were available to the family. These findings may have important implications for school readiness and the transition to kindergarten (Pianta & Cox, 1999).

The present study gathered data on type and amount of children’s preschool experience to see whether this factor was related to attachment patterns with mothers and teachers and with children’s transition to school.
Family Factors

Maternal Education.

Families are responsible for creating home learning environments that may be more salient for positive child outcomes than family SES, family structure or children’s involvement in early childhood programs (Sylva et al., 2009). Mothers are commonly the primary caregivers and most directly responsible for the home environment; maternal education is generally accepted in the literature as a key influence in a home learning environment that is associated with positive child outcomes. Even in very poor, rural environments some maternal education has a positive impact on child outcomes. For example, mothers in Pakistan with some education reported spending 75 minutes more a day on learning activities in the home as compared to mothers who reported having no education. When the mother, rather than another relative, was the primary caregiver the time increased by an extra 40 minutes per day. Although maternal education did not improve their ability to be involved in any educational decision making for children, their engagement in a home learning environment was responsible for children receiving higher test scores in English, Urdu (the native language) and math (Andrabi, Das, & Khwaja, 2009).

A longitudinal study of preschool and primary school experiences in the United Kingdom suggested that “what parents do is more important than who they are” (Sylva et al., 2009). Although parents’ social class and educational levels were associated with child outcomes, it was the quality of the home environment that mattered most. When parents were actively engaged with their children in a home environment that stimulated and supported learning, there was an impact on the intellectual and social development in
all children. Higher levels of maternal education were associated with greater parental responsivity (Pederson et al., 1990) and a more enriched and stimulating learning environment, one that included many and varied learning materials and experiences. However, as the quality of home environments increases, the influence of maternal education alone decreases (Zadeh, Farnia, & Ungerleider, 2006). This finding has important implications for promoting child achievement and enhancing social development through the support and education of parents in creating good quality home learning environments regardless of their educational levels (Sylva et al., 2009).

According to data from the NLSCY, vocabulary knowledge, communication skills, and number knowledge were related to mothers having more education. Positive parent-child interaction was also related to receptive vocabulary and communication skills (Thomas, 2006). In addition to providing an enriched home environment, many women with higher levels of education are employed outside of the home and require child care arrangements. Analyses of the National Institute of Child Health and Human Development (NICHD) Early Child Care and Youth Development data revealed that maternal education was positively related to the type, quantity, and quality of child care arrangements that would advance children’s readiness skills (Augustine, Cavanagh, & Crosnoe, 2009). In the present study, maternal education level was gathered through home information surveys and was used as a variable to understand how parent-child and teacher-child attachment affected the transition to kindergarten.
Immigration (English language learners).

Data from the Canadian NLSCY revealed the following links between country of birth for parents and child outcomes: children scored significantly lower in receptive vocabulary unless the main language spoken at home was either English or French in which case their scores didn’t differ from children of Canadian born parents. Children scored significantly higher in copying and symbol use but were rated lower in independence when their parents were born outside of Canada. These families had lower scores for parent-child interaction and fewer of these children participated in weekly sports or other physical activities. The data show that these families tend to settle in large urban communities when they immigrate to Canada and may experience risk factors associated with lower income neighborhoods.

English language proficiency is an important skill for children entering kindergarten in the majority of Canadian provinces. Researchers using the Early Development Instrument (EDI) (Offord & Janus, 1999) did not find measurable differences for English language learners in the physical, social, and emotional domains but, not surprisingly, these children received lower ratings for language and communication skills (Guhn, Gaderman, & Zumbo, 2007). A recent study extended the findings from the NLSCY; when mothers speak English rather than the language of their country of origin, children do not lag as far behind their native born peers (Magnuson, Lahaie, & Waldfogel, 2006).

Preschool experience affects math and reading outcomes for all children but particularly for the children of immigrants. Preschool attendance also provides
opportunities for improving English proficiency which facilitates the transition to school for these children (Magnuson, et al., 2006). However, immigrant children often have limited preschool experience because their mothers are not working outside of the home or they are looked after by relatives when mother is working. Research from Head Start showed that these programs improved the English proficiency and math scores of children of immigrants, especially for the children whose mothers had less than a high school education (Magnuson, et al., 2006).

School Level Factors: Public or Private School

In the current study, participant families were recruited from four public schools and one private university laboratory school. Attendance in public or private school was included as a variable to examine whether such school-level factors were related to attachment patterns and the transition to kindergarten. Children with a secure attachment to their primary caregiver may have a developmental advantage when making the transition to school because they are comfortable exploring their social and physical environment confident that mother is available as a secure base if needed. As a result, securely attached children develop an internal working model that supports positive expectations about social interactions with peers and other significant adults, for example, early childhood educators, preschool and kindergarten teachers. Transition practices that link home and school create opportunities for children to become familiar with a new physical and social environment and for interactions that may foster the development of secure teacher-child relationships. According to Pianta, Cox, Taylor, and Early (1999), “ready schools” reach out with appropriate intensity to link families,
preschool settings, and community with schools, making connections before the first day of school in an effort to smooth the transition for children and their families. Establishing a positive system of relationships among these different social contexts serves as a resource for children, providing a sense of familiarity and facilitating social competencies. Clear communication between home and school are important resources for children and families as they make the transition to school (Pianta et al., 1999). Early home-school partnerships are not only critical to the transition process but also for children’s school adjustment and academic achievement (Pianta & Cox, 2002; Pianta & Walsh, 1996; Ramey & Ramey, 1994).

While kindergarten teachers participating in the Early Childhood Longitudinal Study, kindergarten class of 1998-99 (ECLS-K) reported using an average of three transition activities (Rathbun & Germino-Hausken, 2001), there was a difference in the implementation of practices between schools that served at-risk, minority, English language learners (ELL) and those who did not which tended to be the private schools. The most common activities were phoning parents and sending them information about the program, inviting parents to visit the classroom before the start of school, and inviting parents to an orientation prior to enrollment. Teachers from schools with lower proportions of at-risk children, minority children, or English language learners reported using more transition activities than teachers from schools with a greater representation of these groups. The teachers in the latter group tended to use practices that could be characterized as “low intensity, group-oriented activities” (Rathbun et al., 2001). In addition, private schools had more, and more regular volunteers and greater attendance at
open houses and art or music event, examples of parent involvement and communication between home and school (Rathbun et al., 2001).

Adding to the knowledge base on the transition to school, the focus of another important transition is on the continuity in the child’s school experience from kindergarten to the first grade. This is particularly important for children living in poverty or from diverse ethnic backgrounds because they are most at risk for being retained, having academic problems later in school or for dropping out of school (Entwisle & Alexander, 1993). Despite the fact that first grade transition practices are not reflected in teacher education curricula or formal administrative policy, more than half the kindergarten teachers in a large national survey reported using transition practices (La Paro, Pianta, & Cox, 2000). Although the conceptual framework for the transition to kindergarten suggests practices that develop positive connections and promote communication among teachers, children, and families (Pianta et al., 1999), the first grade transition practices that were reported in the survey focused on teacher or child activities and not on parents. The most common practices were for kindergarten teachers to meet with first grade teachers to discuss curriculum, child progress, and first grade placement and for kindergarten children to visit a first grade classroom. More teachers in private than in public schools reported using first-grade transition practices. Although more than half the public school teachers reported using transition practices, as the proportion of children from families living in poverty or from minority backgrounds increased, fewer transition practices were reported in those schools (La Paro et al., 2000).
Demographic Factors Affecting School Transition and Child Outcomes

One in four Ontario children comes to Grade 1 with vulnerabilities that may be social, emotional or physical and/or have learning difficulties. These vulnerabilities are not exclusive to one particular group but affect children from all socio-economic status (SES) groups. In fact, more than 60% of children identified with vulnerabilities come from middle class and affluent families (Willms, 2002). These families may have sufficient resources to compensate for vulnerabilities while others do not. Some children are at a developmental disadvantage from birth simply by virtue of demographic factors affecting their sociocultural context, e.g., poverty, recent immigration, language other than English. If vulnerabilities for all children are identified and addressed in the early years, it may be possible to avoid later interventions that can be costly and less effective (McCain & Mustard, 1999). Close, supportive relationships with adults are important for the healthy development of all children but may be particularly salient for vulnerable children and serve to ameliorate the negative effects of demographic risk factors.

Poverty

Poverty is part of a chronic cycle that is responsible for poor educational outcomes that, in turn, contributes to the perpetuation of poverty. Conditions of poverty can interrupt the parent-child relationship affecting children’s development of language and social-emotional regulation thus increasing children’s risk for early school failure (Blair & Diamond, 2008). Ethnic and linguistic minorities are over-represented among families living in poverty in the United States (Winsler et al., 2008). Low SES has a developmental impact on the very young (Bronfenbrenner, 1986) and increases the risk of academic underachievement for ethnic minority children and for boys more often than
for girls in the United States (Arnold & Doctoroff, 2003). In Canada, low SES, the male gender, and being younger are contributing factors to increased vulnerability at school entry (Janus & Duku, 2007). Arnold and Doctoroff (2003) reported that early interventions targeting teacher training, improving parent-child relationships, and promoting partnerships between families and schools, showed positive effects for children’s social-emotional and academic skill development overall but particularly for minority children living in poverty.

Often schools in poorer communities have the fewest resources, which challenges classroom climate and teacher-child interactions. While low SES neighborhoods are frequently found in urban centres, a large research study examined suburban and rural schools that included sites with high levels of poverty (Pianta et al., 2002). Observers rated teacher-child interactions and classroom instructional climate as less positive when the concentration of poverty was high and there were fewer staff available to work with children. Conversely, observers rated more positive aspects of the classroom and teachers reported greater social and academic competence in high quality settings even for children from low income families, suggesting that positive social interactions and classroom features may provide beneficial developmental experiences for children at risk for poor achievement (Pianta et al., 2002).

Family income levels were linked to readiness factors for 5-year-olds in Canada in a report using data from the National Longitudinal Survey of Children and Youth (NLSCY) (Thomas, 2006). Since these children ranged in age from 57 to 65 months, the reported conclusions apply to a relatively young sample of 5 year olds. Higher household income levels were associated with higher parental education and two parent family
structures. Single parent family status was related to lower parent education and parent involvement and to lower scores in receptive vocabulary, number knowledge, and copying and symbol use for their children. Children in higher income households scored higher in receptive vocabulary, communication skills, number knowledge, copying and symbol use, and attention. These skills were also positively related to children’s participation in organized sports and physical activities. Cooperative play and communication skills were associated with positive parent-child interaction and participation in casual sports. Children who were attending kindergarten and participated in lessons in the arts scored higher in copying and symbol use. The resources associated with a higher income level enable parents to offer important readiness related activities within the home environment and the community. As family income increases so does daily reading to children and participation in sports and related physical activities (Thomas, 2006).

In the Thomas study (2006), children from lower income households scored lower in attention and playing cooperatively with others; however, there were no income-related differences for work effort, curiosity, self-control of behaviour, independence in dressing, or independence in cleanliness. All of the children who were read to daily had higher vocabulary and number knowledge scores than those children who didn’t experience daily reading. However, the children from lower income families were much less likely to have that experience on a regular basis. These families were also rated lower for parental involvement. While the present study did not have a measure of family income due to being part of a school board initiative that did not allow these data to be collected,
it is acknowledged that poverty is highly associated with risk. A related variable in determining risk is maternal education, a factor that was included in this thesis.

Diversity in contextual factors has significant implications for children’s readiness for school. The home environment is essential for providing a solid developmental foundation but there are many other influences within the child’s social context that affect the transition to school. The picture that emerges is that whether children live in higher or lower income households, daily reading, highly positive parent-child interaction, participation in organized sports, lessons in physical activities and the arts are linked to higher scores on readiness to learn measures. However, fewer children from lower income households are likely to experience home environments that promote readiness because their mothers are often single parents with lower education levels. These families may benefit from participation in universal programs that foster partnerships between home and school, support parents of young children, and promote the healthy development of children before and during the transition to school. Toronto First Duty (Corter & Pelletier, 2010; Pelletier & Corter, 2005b) and Better Beginnings, Better Futures (Nelson & Pancer, 2010; Nelson et al., 2004; Peters et al., 2003) are two longitudinal community research initiatives in Canada that provide effective, research-informed strategies for the successful support of young children and their families through service integration and parent/community involvement. These strategies include parent education and high quality preschool experiences for children that contribute to family readiness for school.

Preschool experiences are important for developing readiness skills for all children but are especially beneficial for children living in lower income households,
younger children, boys, and English language learners. Increased maternal sensitivity and responsiveness have also been linked to improved child outcomes. Positive interactions with caring adults, mothers, fathers, other relatives, child care providers, and teachers may promote social and emotional competence, cognitive development and contribute to a smooth transition and successful adjustment to school (Mashburn & Pianta, 2006). The focus of the current study is an examination of positive adult-child interactions as mediating mechanisms for the transition to school from the perspective of attachment theory. The development and description of attachment theory, empirical support for the theory, assessments of adult perceptions of child attachment, and the function of attachment relationships in the transition to school are presented in the following sections.

**Attachment Theory, an overview**

"All of us, from cradle to grave, are happiest when life is organized as a series of excursion(s), long or short, from the secure base provided by our attachment figure(s)” (Bowlby, 1988, p. 62).

**The Development of a Theory**

The concept of an infant’s tie to mother has been acknowledged for hundreds of years but it wasn’t until the late 19th century that theories regarding the existence or nature of our earliest relationships were proposed by psychiatrists and psychologists (Karen, 1998). Today, the significance of research and policies affecting parent-child relationships has become internationally recognized. A report published by the World Health Organization (Richter, 2004) emphasized the importance of positive caregiver-child relationships as the context for the healthy development of all children:
Sensitive and responsive caregiving is a requirement for the healthy neurophysiological, physical and psychological development of a child. Sensitivity and responsiveness have been identified as key features of caregiving behavior related to later positive health and development outcomes in young children. (p. 1)

This position acknowledges the early theoretical work of British child psychiatrist, John Bowlby and subsequent empirical investigations by Mary Ainsworth and others. In a monograph commissioned by the World Health Organization in 1952 Bowlby put forward the hypothesis that “the infant and young child should experience a warm, intimate, and continuous relationship with his mother (or permanent mother substitute) in which both find satisfaction and enjoyment.” The emphasis on mutual enjoyment within the partnership was a novel notion (Bretherton, 1992). The monograph, Maternal Care and Mental Health (Bowlby, 1952) dealt with the effects of maternal separation and deprivation in homeless children of postwar Europe. Bowlby believed children’s separations from their mother deprived them from experiencing healthy development and brought about significant and irreversible mental health consequences for these children. Subsequent work by Rutter (1981) suggested that maternal deprivation could be more precisely interpreted as a “vulnerability” factor rather than a causal factor contributing to later mental health issues in children. Although the available empirical evidence was limited at the time, Bowlby also proposed that a loving, stable relationship between parent and child is not only critical for young children’s physical survival but for their emotional health as well (Bretherton, 1992).
Bowlby was dissatisfied with existing theories describing the nature of early child-caregiver relationships, so he explored a range of fields including evolutionary biology, ethology, developmental psychology, cognitive science, control systems theory (cybernetics) and social learning theory (behaviourism) in his quest to formulate a comprehensive theory (Bretherton, 1992; Cassidy, 1999). He was particularly adept at drawing ideas from various domains and then synthesizing those ideas to support his proposition regarding early adaptive relationships. Bowlby’s initial training in the object-relations approach to psychoanalysis also influenced his investigations, particularly the emphasis on early relationships and the potential of pathology resulting from loss (Bowlby, 1969, Bretherton, 1992). However, early Freudian theory postulated that the breast was the love object and had little else to say about the child’s relationship with the mother. Bowlby was ostracized by the psychoanalytic community for his departure from the view that an infant’s efforts to maintain proximity to a familiar figure stemmed from motivation learned through feeding and the gratification of libidinal drives. In addition, Bowlby emphasized the actual history of the mother-child relationship and proposed that children respond to real life events, a position in contrast to the popular psychoanalytic view of the day that stressed the role of the child’s internal fantasies about the mother (Bretherton, 1992; Mercer, 2006). Instead, Bowlby developed a theoretical position that was in alignment with the British developmental psychologist, Ian Suttie, who suggested that the child’s need for affection was a primary one, not based on hunger or other physical gratifications (Bowlby, 1958).

When Bowlby (1958) first introduced the notion of an affectional and enduring bond in a paper entitled: *The nature of a child’s tie to his mother*, he described the
A child’s tie to his caregiver as an *attachment* and the caregiver’s reciprocal tie was referred to as the *care-giving bond* (Prior & Glaser, 2006). Bowlby proposed that we have evolved so that infants instinctively seek an affectional bond with a specific attachment figure (Bretherton, 1992). While affectional bonds may be reciprocal between two adults, the bond between a child and a caregiver is based on the child’s need for safety, security and protection for the purpose of survival, initially, but ultimately for reproduction (Prior & Glaser, 2006).

Although the primary caregiver is commonly the biological mother, there is nothing in attachment theory that suggests the father or someone else who provides most of the care and social interaction will not become principal attachment figures (Bowlby, 1969, 1982). A distinct attachment relationship develops with the primary caregiver, that is, the person who responds to the infant’s signals contingently and consistently, over the first 18 months of life as the infant’s behaviour becomes organized on a *goal-directed* basis to achieve and maintain conditions that create a sense of security (Ainsworth & Bell, 1970; Bowlby, 1969, 1982; Prior & Glaser, 2006). He drew his ideas for this paper, and the two that followed, *Separation anxiety* (1959) and *Grief and mourning in infancy and early childhood* (1960), from tenets of evolutionary biology, developmental psychology and ethology (Bretherton, 1992).

Drawing from Darwinian theory, Bowlby considered the attachment process to be an intrinsic system that evolved in primates and included the natural selection of social behaviours organized into a behavioural system that make the survival of individuals and groups more probable. The infant behaviour that is primarily associated with attachment is the seeking of proximity to an attachment figure in stressful situations. A toddler
staying close to mother in an unfamiliar setting is an example of an adaptive survival
behaviour; staying close to familiar people would have had significant safety advantages
in early hunter-gatherer societies and this advantage remains today (Bowlby, 1982).

Bowlby drew on Piaget’s (1951) empirical studies of infants’ cognitive and social
development to inform his discussion of infant development. Piaget hypothesized that
infants are active beings who are born with an internal framework of mental and
behavioural programs that make it possible to explore, learn, and work to master their
environment. He suggested that these programs are exceptionally flexible and adaptable,
becoming increasingly complex as the child matures physiologically and intellectually,
that intelligence is constructed in childhood and continues to be constructed all through
one’s life. Piaget also claimed that it was due to this specific set of mental abilities that
children were able to engage in exploratory behaviours and that these behaviours were as
essential as mating and feeding (Karen, 1998). Additional evidence for Bowlby’s
discussion of infant development came from the many years of experience he had as the
weekly facilitator of a support group for young mothers in London (Bretherton, 1992).

Although behaviourism was a prevalent theory at the time, Bowlby was not
compelled by this position because it did not consider the causal role of internal or mental
processes in explaining why people behave as they do. Instead, he carried forward the
insights he had gained regarding mental processes from his psychoanalytical training.
Bowlby was influenced by objects relations theory in developing the concept of internal
working models. The mental representations of self and other are core theoretical
constructs in object relations theory and show a distinct similarity to the internal working
model (Bretherton, Ridgeway, & Cassidy 1990).
Bowlby also believed his exposure to Piaget’s work assisted him in talking about an internal model of mental representations. The internal working model (IWM) included interactions already experienced but also supported predictions about future interactions (Bretherton & Munholland, 1999). The concept of the internal working model will be discussed in further detail later in this chapter.

Another colleague, Mary Ainsworth, also recognized the significance of exploratory behaviour in development and she emphasized the important role played by those social interactions that support exploration and learning. Children are dependent on their parents to create an environment that is stimulating but safe, comfortable and secure. Children who feel secure are more likely to develop an internal working model of their relationships as warm and loving and of their environment as inviting to explore. Ainsworth underscored the need for security as a normal part of development in infancy and early childhood and introduced Bowlby to the concept of using others (especially the primary caregiver) as a secure base from which to explore the environment. Ainsworth first became acquainted with security theory and the secure base concept while doing graduate work under the supervision of William Blatz at the University of Toronto’s Institute of Child Study (Ainsworth, 2010; Ainsworth & Marvin, 1995). She also developed an early system for the classification of relationship patterns which was her contribution to a paper that dealt with the separation and reunion of school-age children with their parents after an extended confinement in sanitoriums (Bretherton, 1992). She went on to refine this classification system through naturalistic observations in Africa and then in Baltimore and the development of a laboratory procedure, at Johns Hopkins
University, called the *Strange Situation* that assessed attachment patterns based on the separation and reunion patterns of infant-mother dyads (Ainsworth et al., 1978).

Bowlby was careful to distinguish the new concept of attachment from *dependency*, an older concept from social learning theory which was also prevalent during his early work in the area. Learning theorists proposed that the bond between parent and child could be attributed to the reciprocal reinforcement of learned behaviours that were part of the socialization process. Infants were dependent on their adult caregivers but would outgrow this need in the course of early childhood; an older child who was dependent would be seen as regressive. In contrast, drawing again from evolutionary biology, Bowlby proposed that attachment behaviours were attributed to an inborn mechanism that was activated in infants because they require protection, comfort, and affection for physical, emotional, and mental development and in adults because they are responsible for providing caregiving behaviours for the infant’s survival. Bowlby’s focus was on the parent-child relationship but he proposed that attachment behaviours were retained over the lifespan and exhibited in stressful situations. He associated a secure attachment with independent exploratory behaviour rather than dependence (Prior and Glaser, 2006).

Ethology, the study of animal behaviour in biology, also proved to have an important impact on the development of attachment theory. Bowlby was deeply influenced by Konrad Lorenz’ work on *imprinting* in geese, which suggested that a social bond could be formed without being tied to feeding. Lorenz observed that imprinting was a behavioural characteristic common to some young birds and mammals that involved the rapid recognition of a conspecific or a similar figure and the tendency to
follow that figure after recognition (van der Horst, van der Veer, & Van IJzendoorn, 2007). Attachment theory maintains that the attachment system is very robust and will develop in the presence of a caregiver even when the relationship is far from ideal. But in spite of the robust nature of the attachment system, significant separation from the caregiver or frequent changes of caregiver could prevent the development of an attachment relationship and increase the potential for a psychopathology to develop at some later point (Bowlby, 1958).

Lorenz also introduced the notion of a critical or sensitive period for young birds and mammals to seek proximity and form a bond with their parents or parent substitute for survival. Bowlby believed that infants displayed similar instinctual behaviour and due to the extended period of immaturity and vulnerability of humans, infants and caregivers were endowed with innate tendencies to be close to each other and to engage in reciprocal behaviours ensuring survival of the infant and continuation of the species through future reproduction (Bretherton, 1992). Bowlby (1958) originally proposed that the time period between 6 months and 2 to 3 years is a sensitive period for selective attachments to develop, but further research suggests that the time frame is broader and the effects are less set and irreversible than previously thought (Rutter, 1995). Eventually more differences than similarities between attachment theory and imprinting were acknowledged and the comparison lost some of its impact (Rutter, 1995). However, Bowlby’s fascination with ethology continued and there began a “cross-fertilization” of ideas between Bowlby and noted ethologists, Niko Tinbergen and particularly Robert Hinde (van der Horst et al., 2007). Hinde’s studies of individual differences in the separation and reunion behaviours of infant-mother rhesus monkey dyads were motivated
by Bowlby and colleagues, most notably Mary Ainsworth (Bretherton, 1992). The primary nature of the mother-infant bond was also supported by evidence gathered in a series of classic studies conducted by Harry Harlow and colleagues with infant rhesus monkeys and surrogate wire “mothers”. While feeding was important to establishing the mother-child bond in natural circumstances, contact comfort was shown to be more salient than feeding to the mother-infant bond in Harlow’s experimental setting (Harlow & Harlow, 1966).

Bowlby (1969) referred to proximity seeking in the face of danger, real or perceived, as the “set-goal” of the attachment behavioural system (Kobak & Madsen, 2008; Prior & Glaser, 2006). Bowlby referred to the newly emerging control systems theory (cybernetics) for a metaphor to explain proximity seeking behaviour. This behaviour may be seen as purposive and flexible depending on environmental circumstances. If a child is in familiar surroundings he may establish a wide set-goal, directing his attention or moving his body away from mother in order to explore his immediate environment. However, if circumstances change, the child perceives danger and the attachment system is activated, the child will narrow or correct his set-goal to maintain very close proximity, perhaps even clinging, to his caregiver. By returning to his caregiver for protection, the child demonstrates that he believes his caregiver is a secure base for him to return to and the balance between maintaining proximity and exploratory behaviour is re-established (Cassidy, 1999). By regulating the proximity to the caregiver, the child is able to restore and maintain the balance between having the caregiver accessible as a secure base and engaging in exploratory behaviour. Thus
proximity-seeking may be seen as an example of a systems “regulator”, a term borrowed from control systems theory (Ainsworth et al., 1978).

Drawing from these various fields of study, Bowlby formulated attachment theory and published the full theory in the trilogy, *Attachment and Loss* (1969-1982). Despite being ostracized from the psychoanalytic community and weathering later criticisms of attachment theory related to temperament (Kagan, 1994; Vaughn, Bost, & Van IJzendoorn, 2008), the complexity of social relationships (McHale, 2007; Mercer, 2006), and the limitations of discrete patterns of attachments for classifications (Fraley & Speiker, 2003), the main concepts of attachment theory have by and large become accepted (Rutter, 1995). Attachment theory has become an influential approach to understanding early social development and has advanced theory and empirical research into the formation of children’s close relationships. Attachment theory may not be an exhaustive description of human relationships but it has been referred to as an important “paradigm shift” in developmental psychology (Kuhn, 1962 as cited in Ainsworth et al., 1978).

*The Development of a Mother-Child Attachment Relationship*

Bowlby (1969, 1982) described the development of attachment in four phases. The first phase is a pre-attachment phase during the first six weeks or so after birth in which an infant exhibits non-focused orienting and signaling. There is some evidence that infants may recognize the mother’s voice (Mills & Melhuish, 1974) or odor Cernoch & Porter, 1985) but they do not show a consistent preference for her over others.
During the second phase, from two to seven months, infants will focus and respond to more than one caregiver but will soon begin to prefer a primary caregiver as they are better able to discriminate between familiar and unfamiliar adults. Infants also begin to learn the natural contingencies of this special relationship with the primary caregiver and develop expectations about how mother will respond to their different signals. Infants do not protest separation at this point because they have not yet developed an understanding of object permanence. Neither are gender differences necessarily evident since all infants are in need of protection and nurturance; one gender does not lag behind in attachment development (Ainsworth, 1991). A recent study, however, suggested that there were gender differences by the age of 3 years for children’s representations of emotional experiences. Girls rather than boys appeared to have easier access to emotions related to attachment experiences and they expressed more secure representations concerning parent-child interactions than boys did. This result points to a commonly held view that boys are socialized to control their emotions and girls are encouraged to express a wider range of emotions from an early age (Pierrehumbert et al., 2009).

Bowlby (1969, 1982) used the term monotropy to describe the strong bias an infant will show in directing her/his attachment behaviour toward the primary caregiver beginning in phase two and continuing into phase three. However, because children often experience more than one caregiver, current thought proposes that clear hierarchies of attachment relationships may exist rather than a single attachment relationship with the primary caregiver, although the latter would be at the top of the hierarchy. Fathers and other close family members may also serve as a secure base for children, but it is most
often the mother-child relationship that serves as the blueprint for future emotional relationships. The issue of monotropy versus attachment hierarchies remains a question for further research (Main, 1999; Rutter, 1995).

In the third phase, which lasts from approximately seven to 24 months, the infant enters what may be considered the most significant phase of attachment. The onset of stranger anxiety provokes an infant to actively protest separation from the caregiver if the infant is in an unfamiliar situation. The infant is now able to exhibit an expanding range of behaviours to ensure proximity to the caregiver. The most salient infant attachment behaviours during this phase are protesting the caregiver’s departure, greeting the caregiver’s return, clinging when frightened, and following when able as the child develops locomotion (Karen, 1998). The biological goal then is protection for survival and the psychological goal is security. Consistent and sensitive responsiveness by the caregiver contributes to the development of a securely attached child because children learn to expect to have their needs met, including the needs for survival and security; it is the quality of the parent-child engagement that is more influential than merely the amount of time spent together. When a securely attached infant experiences the loss or perceived loss of an attachment figure, separation anxiety or grief is considered to be a normal and adaptive response. This response is also an indication that the bond is no longer dependent upon the presence of the primary caregiver but is now a more enduring attachment. With increased locomotion the children are able to engage in exploratory behaviours secure in the knowledge that their primary caregiver is a secure base that they can return to if needed for protection, comfort, or affection (Ainsworth, et al., 1978, Bowlby, 1988, Cassidy, 1999).
The fourth phase finds the toddler engaging in more of a reciprocal relationship or partnership with the caregiver and the separation protests and proximity seeking behaviours gradually begin to decline. After the second year, Bowlby (1969, 1982) suggested that the child begins to see the caregiver as an independent person and a more complex and goal-corrected partnership is formed. Bowlby believed that the development of goal-corrected partnerships was made possible by three cognitive advances, 1) the development of language as a form of communication, 2) the development of the ability to take another’s perspective, and 3) the ability to negotiate shared plans of action (Prior & Glaser, 2006). During the preschool period children begin to use negotiation and bargaining in the development of shared plans with their caregiver (Waters, Kondo-Ikemura, Posada, & Richters, 1991). For instance, 4-year-old children may not show signs of distress when separated from their caregiver if they previously negotiated a joint plan for the separation and reunion (Marvin & Britner, 1999). Confidence in the stability of this shared understanding becomes integrated into the child’s working model (Ainsworth, 1989, Bowlby, 1969, 1982). In fact, research suggests that children’s ability to engage in a goal corrected partnership is a characteristic of security in preschoolers (Moss, Bureau, Cyr, & Dubois-Comtois, 2006). Parents are responsible for scaffolding these skills through their interactions with their children so that children are able to integrate a prototype of socioemotional relationships into their internal working model (Moss, St-Laurent, Dubois-Comtois, & Cyr, 2005). Children who are able to assimilate these social skills into a representational model tend to have more positive relationships with other children and adults.
Attachment and the Transition to School

The goal corrected-corrected partnership with parents becomes more complex as the child enters the school years. Now each partner is willing to compromise so that a mutually satisfying relationship is maintained (Waters, et al., 1991). Soon the goal of the attachment behavioural system shifts from *proximity* to the caregiver to *availability* and children are comfortable with longer separations when they know that reunion with their caregiver is possible. Self-reliance increases as clinging and following behaviours decline (Kerns, 2008).

Even with increased autonomy, children continue to be dependent on their caregiver/s for many years to come. Bowlby (1973) suggested that young children who are effectively dependent and able to use their primary caregiver as a secure base for exploration would later be more self-reliant and independent. In the Minnesota Parent-Child Project, dependency was studied in preschool, middle childhood, and adolescence (Sroufe, Fox, & Pancake, 1983; Sroufe, Egeland, Carlson, & Collins, 2005). Their findings suggested that infants who were pushed to be precociously independent were often classified as anxious/resistant or anxious/avoidant, two insecure patterns of attachment identified by Ainsworth et al. (1978). These children were predicted to be rated as more dependent and less self-reliant later in childhood. Strong support for this hypothesis came from researchers’ observations and teachers’ ratings in the preschool portion of the study. Being overly or emotionally *dependent* was defined as the need for contact, approval, and proximity to the teacher, extreme reliance on the teacher for help, and seeking the teacher’s attention at the cost of relations with peers and skill acquisition (Sroufe, et al., 1983). Observations confirmed that children who had been classified as
anxious/resistant and anxious/avoidant in the Strange Situation procedure were more reliant on teachers and teachers rated these children as highly dependent. Naturally all children are dependent on adults for instrumental assistance when they lack the necessary resources and will seek contact when distressed, sick, or hurt. Teachers in this study viewed secure children as those seeking contact when it was appropriate for the situation; they were quickly reassured and then returned to play, and their close relationship with their teacher didn’t hinder peer play or skills mastery (Sroufe et al., 1983). In another study, investigators found that Canadian children who had been classified as secure in a modified separation-reunion procedure were more likely to take risks in exploring and learning in preschool and the early school years (Moss et al., 2005).

It is not until middle childhood, from approximately 7 to 12 years of age, that children usually move towards more of a shared co-regulation of secure base contact in which each partner negotiates ways of maintaining communication and supervision as the child gains more independence (Waters et al., 1991). The balance between dependence on others versus independent, exploratory behaviour is a challenging task at each stage of development and requires ongoing renegotiation between attachment partners (Cicchetti, Cummings, Greenberg, & Marvin, 1990). In fact, Bowlby (1969, 1973, 1980) originally conceived of attachment relationships as serving an adaptive function across the life span not simply restricted to the early years of development.

Assessment of Mother-Child Attachment Relationships

Although Bowlby is often referred to as the “father of attachment theory”, it was his colleague, Mary Ainsworth, who translated the basic tenets of attachment theory into
empirical findings. Ainsworth (1990) viewed Bowlby’s theory as being open-ended, that is, it was open to extension, revision, and refinement through research but she also felt it was necessary to be guided by the principles that were implicit in attachment theory. Ainsworth (1991, p. 33) was influenced by Bowlby’s views on ethology and stated that “the great strength of attachment theory in guiding research is that it focuses on a basic system of behaviour - the attachment system - that is biologically rooted and thus species-characteristic.” The implication is that attachment research is directed at uncovering the basic processes of behaviour that are universal to human nature regardless of individual differences that are influenced by genotype, cultural beliefs and values, and personal experience.

Ainsworth had a research opportunity to observe the interactions and attachment relations of Ganda mothers and infants in their natural settings (Ainsworth, 1967). Ainsworth made an important discovery in her Uganda observations; mothers responded to infants’ “initiatives” for contact. This perspective was a departure from the earlier Freudian view that infants were simply more or less passive recipients. Rather, the Ganda infants were actively engaged in a reciprocal relationship with their caregivers. In other words, her data supported Bowlby’s hypothesis that attachment emerges from interaction rather than drive reduction (Vaughn & Waters, 1990). Ainsworth’s observations also suggested aspects of the security theory proposed by her early academic mentor, William Blatz. Security theory put forward the idea that a child derives emotional security from being near his parents and that security allows him to move out and explore his world, to learn and to acquire skills. Security theory also implied that the child can return from exploration to his parent who in turn acts as a secure base (Ainsworth & Marvin, 1994).
After her return to the United States, Ainsworth was able to replicate her Ganda study in Baltimore with mother-infant dyads by observing their interactions at home over their first year (Ainsworth et al., 1978). However, the Baltimore infants demonstrated less secure base activity, showed less stranger anxiety and were less likely to cry when mother left the room than the Ganda sample. Ainsworth wanted to test the notion that she shared with Bowlby that attachment behaviour is universal, rooted in species-specific patterns of behaviour, and independent of culture. When the children were 12 months of age, Ainsworth introduced the mother-child dyads to an unfamiliar or strange setting, the university laboratory, with the intention of activating the attachment system in the children. Ainsworth reasoned that this experimental setting would provide an opportunity for a direct test of the attachment system functioning. She used the previous home observations of exploration, crying and proximity seeking for validation of the procedure and the scoring method.

The Strange Situation Procedure was designed to provoke mild, but cumulative, stress over eight episodes of separation and reunion with mother and in the part time presence of an unfamiliar stranger. Attachment is assessed by examining the organization or pattern of the child’s responses, particularly to the caregiver, in a changing context of separation and reunion episodes with mother. How the child behaves when reunited with mother is determined not only by how the caregiver has treated the child but also the effect the child has had on the caregiver (Ainsworth, 1969). This view is in line with Bowlby’s (1969) theory that the quality of attachment between infant and caregiver is based on their interactive history in the first year. That is, based on the responsiveness and availability of the caregiver, the infant develops expectations about
having his needs met. In other words there is a co-regulation of behaviours with the

The Strange Situation procedure yielded three basic patterns of attachment
described by Ainsworth: one secure and two distinct types of insecure, anxious patterns.
Researchers in the United States and Europe, using Ainsworth’s original classifications,
have identified a securely attached pattern in approximately 65% of all infants observed,
10% with physically resistant and emotionally ambivalent attachment (insecure) and 20%
with actively avoidant attachment (insecure) (Prior & Glaser, 2006). Later, a fourth
pattern was identified as disorganized/disoriented attachment (insecure) and has been
reported in less than 10% of all infants observed (Main & Solomon, 1986). As the name
suggests, these children lack a coherent coping strategy. As a result of her empirical
findings, Ainsworth helped to expand attachment theory through these two major
theoretical contributions: 1) an explanation of individual differences expressed as patterns
of attachment in caregiver-child relationships, and 2) the concept of the caregiver as a
secure base from which to explore and return when needing comfort or assistance
(Bretherton, 1992).

Ainsworth also found that maternal sensitivity rated during the first year was
related to attachment classification. Highly sensitive caregivers were more likely to have
a secure attachment relationship with their infants whereas anxious attachments
developed when caregivers were rejecting or neglectful of infants’ need for contact and
comfort (Ainsworth, et al., 1978). Based on their relationships with the attachment
figure/s, attachment patterns are established and lead to children being guided by their
internal working model of coping and competence. Children who experience a secure
attachment relationship with their primary caregiver may be better able to regulate emotions and behaviours as they make the transition from infancy to toddlerhood. When children believe that their caregiver is available and responsive to their needs, they will feel secure, confident, worthy of love, and self-assured when approaching unfamiliar settings or situations. This felt security has been proposed as the goal of the attachment system beyond infancy and thought to result in children’s active exploration of the social environment (Ainsworth, 1990).

The rapidly developing brain supports the child’s increasing ability to regulate emotion, behaviour, and attention. Once the child has developed the capacity to regulate, interpret, and predict attachment related behaviour in the self and the attachment figure, he has also integrated an internal working model that prepares him to manage new types of social interactions (Bretherton & Munholland, 1999). Self-regulation skills are key to increasing autonomy, learning, and further development in all domains (Blair, 2002).

Exploration of the social environment leads to peer play and the further development of social competencies that are important for the transition from home to other contexts, e.g., child care, preschool, or kindergarten. The internal working model serves to direct the child’s feelings, thoughts, and expectations of self and others in the present and helps to predict the quality of later relationships with peers and other important adults like teachers (Bretherton & Munholland, 1999). In addition, Main et al. (1985) maintained that internal working models not only direct feelings and behaviours, but also attention, memory, and cognitions as they are related to attachment. Children may be better prepared to make the transition from home to school with the additional
development of attention, memory, and cognitions - essential skills for successful outcomes in school.

In contrast, children who believe that their caregiver is unavailable and unresponsive will not feel secure or worthy of love. In addition, they will most likely be guarded in new situations, hampering their social development (Ainsworth, 1990; Booth, Rose-Krasnor, McKinnon, & Rubin, 1994; Bretherton, 1985; Sroufe & Waters, 1977). Since attachment behaviours reflect children’s sense that they can trust the adult to care for them in a responsive and sensitive manner, insecure children may be at a developmental disadvantage (Ainsworth et al., 1978).

Although internal working models have the adaptive function of providing a sufficient representation of self, attachment figures, and the environment (Bretherton et al., 1990), it appears that limitations in young children’s thinking affect their ability to integrate relationship experiences into one general model (Kerns, 2008). Age, cognitive growth, and continued social experience further the development and complexity of the internal working model and children are usually able to integrate their experiences into a general model of attachment relationships during adolescence but it may happen as early as middle childhood, from 7 to 12 years of age (Kerns, 2008). As attachment behaviours change with age and in ways shaped by relationships, this system continues to develop with time, experience, and contextual factors over the lifespan. This in turn affects peer friendships, relationships with other significant adults and eventually adult friendships, relationships, parenthood and the transmission of attachment patterns to future generations. Evidence for the transmission of attachment patterns may be supported by the fact that children usually have the same attachment classification as their primary
caregiver, suggesting that the caregivers’ internal working model affects the way they relate to their child (Bowlby, 1969, 1973, 1982; Mercer, 2006).

While the stability of attachment classifications over the short term is high, it becomes less so over time. Social stressors such as poverty, unemployment, recent immigration or negative life events such as illness, death, abuse, or divorce may have an impact on the stability of caregiving which in turn affects the attachment relationship (Jerusalem & Mittag, 1995; Karen, 1998; Moss et al., 2005). In fact, an early secure attachment relationship could become insecure if caregiving becomes inconsistent (Karen, 1998). Insecure children are particularly vulnerable to family risk factors, especially those children classified as avoidant. While an insecure attachment does not always predict future social and behavioural difficulties for the child, it can be a liability for positive adjustment and it appears to be directly related to parenting behaviours, especially if those behaviours continue throughout childhood (Karen, 1998). It is also possible that as the child develops, the parents’ responses may become more consistent and appropriate, allowing a change in attachment classification from insecure to secure (Belsky & Fearon, 2002; Karen, 1998). Nevertheless, an early secure attachment relationship may provide a developmental advantage by functioning as a protective factor in challenging circumstances (Berlin, Cassidy, & Appleyard, 2008). Ainsworth (1991) noted that grandparents or other relatives, coaches, perceptive and sensitive teachers may play an important role as parent surrogates in a child’s life, especially for children who are unable to attain a secure attachment relationship with their parents. In other words, earlier relationships and experiences are very important for social development but later relationships and experiences may also have a significant impact (Rutter, 1995).
The Development of Teacher-Child Relationships

Parent-child and teacher-child relationships are key to a successful transition and positive outcomes for children. Families provide the social, cultural, and emotional supports that children need to function in school (Power & Hertzman, 1999). Schools provide the opportunities for children to engage in positive interactions with other significant adults and children that contribute further to their social, emotional, and academic development.

Research working from an attachment perspective conceptualizes teacher-child relationships as extensions of the parent-child relationship. In other words, a secure child has an internal working model (IWM) of the caregiver as a secure base who offers comfort and protection but also assistance, stimulation, and encouragement to explore and learn about the environment. Ideally the child’s IWM of a secure base figure would transfer to other important caregivers in his life, e.g., child care providers or teachers when the child makes the transition to formal schooling. Of equal importance to the teacher-child relational quality is the child’s relational schemas that he brings to the classroom and the ways in which the teacher responds to the child’s demands. Through nurturing and responsive interactions with teachers, children learn about their academic and social surroundings with peers and other adults (Davis, 2003). Teachers also take on greater importance in the process of emotion regulation by helping children to correctly label, manage, and express emotions experienced in the classroom (Pianta, 1999).

According to Bronfenbrenner’s ecological model, continuity between home and school enhances development if the child is secure and has a home environment that
supports the socioemotional and cognitive skill development that facilitates a smooth
transition to school. However, contextual variables relating to the setting, type of
caregiving, intensity and quality of the adult-child relationship may affect concordance
between mothers’ and teachers’ perceptions of attachment security and dependence.
Concordance appears to be more likely when there are greater contextual similarities
between home and school, for example, an in-home child care setting that is similar to
activities and caregiving routines that are most like those experienced at home with the
primary caregiver (Howes & Matheson, 1992). As preschool settings become more
disparate in environmental and relational qualities (e.g., centre based care, nursery
school) concordance appears to be less likely between mothers’ and teachers’
perceptions. However, an important finding by Howes and Matheson (1992) suggested
that when children experience predictability and consistency in child care settings and
with their primary early childhood educator they are more likely to have a supportive
relationship with their kindergarten teacher. Further to that study, a longitudinal
investigation found that toddlers’ attachment to child care teachers predicted children’s
perceptions of relationship quality with teachers and peers at age nine suggesting stability
and continuity in relationships outside of the parent-child relationship (Howes, Hamilton,
& Philipsen, 1998). As peers become important in middle childhood, children may direct
attachment behaviours toward their peers in the absence of parental figures, but evidence
suggests that peers do not become attachment figures. Bowlby (1988) suggested that
children view an attachment figure as someone who is “stronger and wiser” than oneself
and can be trusted to be a secure base. Peer attachments tend to emerge in adolescence,
however, parents continue to be attachment figures (Kerns, 2008).
Pianta and Steinberg (1992) also found that teacher-child relationship quality influences developmental outcomes as children enter school. Teachers’ ratings of conflict were related to behaviour and learning problems and more instances of retention. In contrast, positive relationships with teachers were associated with academic and social competence with peers and other adults and with greater emotion regulation. In addition, concept development, fewer behaviour problems (Pianta et al., 1997) and children’s visual and language skills and adjustment to kindergarten (Birch & Ladd, 1997) were related to teachers’ reports of teacher-child relationship quality.

Positive teacher-child relationships also give children an opportunity to develop and benefit from a secure attachment relationship with another caring adult outside of the family environment (Mashburn & Pianta, 2006). While it could be argued that the more closely parents’ and teachers’ beliefs and practices mirror each other, the more beneficial it is for the child’s development, school adjustment and academic outcomes, the obvious exception to this perspective is the maltreated child who is most probably insecure. Discordance between parents’ perceptions and teachers’ perceptions would be desirable for that child; developing a secure relationship with a sensitive and responsive teacher could serve a protective and compensatory function (Lynch & Cicchetti, 1992).

Research from an attachment perspective suggests that dimensions of parent-child relationships predict the quality of early teacher-child relationships (Davis, 2003; Pianta et al., 1997). This may be due to parents and teachers sharing similar developmental goals for children- intellectual exploration and social and emotional competence with peers and other adults (Davis, 2003). If teacher-child relationships are considered as extensions of parent-child relationships, then attachment assessments would be similar or
parallel, measuring the child’s secure base behaviour in terms of adult ratings of
attachment security and dependence.

An in-depth study was conducted to find appropriate parallel attachment measures
for the current study. The Attachment Q-Set (AQS) (Waters, 1987) was selected to
assess mothers’ perceptions of child security and dependency in the mother-child
relationship and to assess teachers’ perceptions of child security and dependency in the
teacher-child relationship. Meta-analytic evidence supports the validity of the AQS for
assessing mother-child relationships (Van IJzendoorn, Vereijken, Bakermans-Kranenburg, & Riksen-Walraven, 2004) but not many studies have assessed teacher-child
relationships with the AQS. In addition, there are few studies that include concurrent
measures of both mother-child and teacher-child relationships in relation to school
outcomes. A seminal study for the current investigation was conducted by Pianta et al.
(1997) in which mother-child and teacher-child relationships and school outcomes in
preschool and kindergarten with a high risk sample were examined. Mother-child
interactions were observed in the classroom while they worked together on a block-
design task for approximately fifteen minutes. Mothers’ and children’s behaviours were
coded by observers on two scales that examined the quality of interaction between the
dyad (affect/intimacy, control problems) and one that assessed the quality of mother’s
instruction. Teachers completed two self-report measures: 1) the Teacher Attachment Q-
Set (TQS) (Nimetz, 1992; Pianta, et al., 1997), an adapted version of the AQS that
excludes statements pertaining to at-home behaviours, such as, “Child cries when mother
leaves him at home with babysitter, father, or grandparent,” and 2) an objective measure
of children’s social, behavioural, and academic skills and difficulties. Children were
administered a test that assessed knowledge of concepts and language forms that were appropriate for their age (Pianta, et al., 1997). Analyses yielded results suggesting that observed mother-child interactions distinguished by positive affect and closeness were correlated with teachers’ perceptions of a secure teacher-child relationship; children who were observed as having control problems in their relationship with their mother were reported by teachers as insecure, conflicted, and dependent in their relationship with them. This was consistent with Howes’ and Matheson’s (1992) findings in a child care setting that used the AQS measure to assess maternal attachment during child care arrivals and departures and to assess teacher-child relationship quality based on observed interactions. In that study assessments were made by trained observers rather than by the self-report method. In the Pianta et al. (1997) study, the general quality of mother-child interactions predicted social adjustment in kindergarten as reported by teachers. Children’s achievement on a measure of concept development was predicted by the quality of both mother-child and teacher-child interactions. However, overall findings indicated that the qualities of mother-child interactions had a greater relation to preschool and kindergarten adjustment than the qualities of teacher-child relationships did.

The current study sought first, to extend Pianta’s et al. (1997) findings by examining perceptions of the mother-child relationship within the context of the home and to relate those findings to perceptions of the teacher-child relationship within the context of the classroom; second, to examine the influence of contextual factors on those perceptions of relationships, to investigate the effects of perceptions of adult-child relationships and contextual factors on children’s school adjustment, and finally to obtain the children’s perspective about their school experience. The following questions were
the guide for this inquiry and were organized with Bronfenbrenner’s social ecological model in mind – first looking at reports of adult / child relationships within the micro-systems of home and school, then expanding to questions regarding the impact of diversity in contextual factors on those reports. Questions 3-5 examine issues related to child outcomes and the impact of reports of adult / child relationships and diversity in contextual factors on these outcomes.

**Research question 1:** What is the relation between mothers’ and teachers’ reports of dependency and security?

**Research question 2:** What is the relation between diversity in contextual factors and mothers’ and teachers’ reports of dependency and security?

**Research question 3:** Are there differences in child outcomes based on mothers’ and teachers’ reports of dependency and security?

**Research question 4:** Are there differences in child outcomes based on diversity in contextual factors?

**Research question 5:** What is the relation between what children say about kindergarten and mothers’ and teachers’ reports of dependency and security?
Chapter 3: Methods

Participants

Thirty-nine mother-child dyads participated in the study. One mother had twins who participated and a second mother had one child in junior kindergarten and another in senior kindergarten and both children participated. Analyses were carried out using the data from only one twin from the first family and the child in senior kindergarten in the second family to avoid the duplication of contextual factors and attachment histories, an exclusion criterion suggested by previous researchers studying attachment (O’Connor & Croft, 2001; Van IJzendoorn et al., 2000). A strategic decision was made based upon the quality and amount of data available in the selection of the twin and older kindergarten child. This resulted in a final sample of 37 mother-child dyads. Families were recruited from five schools that differed in linguistic and socio-economic profiles. There were four public schools from two boards of education and one private university laboratory school. A review of the 2001 Census data revealed that three of the four public schools served predominantly English language learners (ELL) with lower mean family incomes and one served predominantly English first language learners (EL1) with higher mean family incomes (Statistics Canada, 2001). The private university laboratory school served families with higher mean incomes (Statistics Canada, 2001) and the participants were almost exclusively EL1.

Participant information was gathered through a demographic survey (Appendix A) that mothers completed prior to completing a parent-child attachment measure. In order to investigate variables that may have an impact on mother-child and teacher-child
attachment security and dependency, the following items were included in the survey: the educational history of both parents, the current occupational and marital status of both parents, first language spoken at home, the child’s birth order, number of siblings, gender, age, the type and number hours of the child’s preschool experience and activities outside of school. In order to clearly describe the characteristics of this heterogeneous sample, demographic information and other factors are presented by frequency and percent, first by school type (public or private), and then for the total sample (see Table 1). Marital status was not included in Table 1 because all but two of the mothers were married. Birth order, rather than the number of siblings, was included as birth order is a more stable measure of family dynamics. It may be argued that birth order is a more stable and consistent measure of family dynamics than the number of siblings in the family since the child’s particular ordinal position does not change with the birth of siblings (Davis, 1997). In addition, the strategies that individuals use to deal with the specific stressors that their position in the family engenders may be consistent with commonly accepted “birth order effects” (Sulloway, 1996).
Table 1: Participant Contextual Factors by School Type (Frequency and Percent) (N=37) (Note: items are ordered according to the Demographic Survey form – see Appendix A.)

<table>
<thead>
<tr>
<th>Contextual Factors</th>
<th>Participants</th>
<th>Public School (n=23)*</th>
<th>Frequency</th>
<th>Percent</th>
<th>Private School (n=14)</th>
<th>Frequency</th>
<th>Percent</th>
<th>Total Sample (N=37)</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mother’s Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some high school</td>
<td>1</td>
<td>4.3%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school diploma</td>
<td>7</td>
<td>30.4%</td>
<td>0</td>
<td>0%</td>
<td>7</td>
<td>18.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some college/specialized training</td>
<td>2</td>
<td>8.7%</td>
<td>2</td>
<td>14.3%</td>
<td>4</td>
<td>10.8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completed college/university</td>
<td>7</td>
<td>30.4%</td>
<td>5</td>
<td>35.7%</td>
<td>12</td>
<td>32.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional certificate/degree</td>
<td>3</td>
<td>13.0%</td>
<td>3</td>
<td>21.4%</td>
<td>6</td>
<td>16.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-graduate degree</td>
<td>3</td>
<td>13.0%</td>
<td>4</td>
<td>28.6%</td>
<td>7</td>
<td>18.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mother’s Occupation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homemaker</td>
<td>14</td>
<td>60.9%</td>
<td>2</td>
<td>14.3%</td>
<td>16</td>
<td>43.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>1</td>
<td>4.3%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill level D *</td>
<td>1</td>
<td>4.3%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill level C *</td>
<td>2</td>
<td>8.7%</td>
<td>0</td>
<td>0%</td>
<td>2</td>
<td>5.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill level B *</td>
<td>4</td>
<td>17.4%</td>
<td>5</td>
<td>35.7%</td>
<td>9</td>
<td>24.3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill level A *</td>
<td>0</td>
<td>0%</td>
<td>7</td>
<td>50.0%</td>
<td>7</td>
<td>18.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td>1</td>
<td>4.3%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Father’s Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some high school</td>
<td>1</td>
<td>4.5%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school diploma</td>
<td>7</td>
<td>31.8%</td>
<td>0</td>
<td>0%</td>
<td>7</td>
<td>18.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some college/specialized training</td>
<td>3</td>
<td>13.6%</td>
<td>2</td>
<td>14.3%</td>
<td>5</td>
<td>13.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completed college/university</td>
<td>4</td>
<td>18.2%</td>
<td>5</td>
<td>35.7%</td>
<td>9</td>
<td>24.3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional certificate/degree</td>
<td>5</td>
<td>22.7%</td>
<td>2</td>
<td>14.3%</td>
<td>7</td>
<td>18.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-graduate degree</td>
<td>2</td>
<td>9.1%</td>
<td>5</td>
<td>35.7%</td>
<td>7</td>
<td>18.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Father’s Occupation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homemaker</td>
<td>1</td>
<td>4.5%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill level D *</td>
<td>1</td>
<td>4.5%</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>2.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill level C *</td>
<td>2</td>
<td>9.1%</td>
<td>0</td>
<td>0%</td>
<td>2</td>
<td>5.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill level B *</td>
<td>8</td>
<td>36.3%</td>
<td>4</td>
<td>28.6%</td>
<td>12</td>
<td>32.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill level A *</td>
<td>6</td>
<td>27.2%</td>
<td>9</td>
<td>64.3%</td>
<td>15</td>
<td>40.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td>4</td>
<td>18.2%</td>
<td>1</td>
<td>7.1%</td>
<td>5</td>
<td>13.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>First Language Spoken at Home</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>13</td>
<td>56.5%</td>
<td>14</td>
<td>100%</td>
<td>27</td>
<td>73%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
<td>43.5%</td>
<td>0</td>
<td>0%</td>
<td>10</td>
<td>27%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Birth Order</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First</td>
<td>8</td>
<td>34.8%</td>
<td>9</td>
<td>64.3%</td>
<td>17</td>
<td>45.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second</td>
<td>12</td>
<td>52.2%</td>
<td>5</td>
<td>35.7%</td>
<td>17</td>
<td>45.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third</td>
<td>3</td>
<td>13.0%</td>
<td>0</td>
<td>0%</td>
<td>3</td>
<td>8.1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Girl</td>
<td>12</td>
<td>52.2%</td>
<td>9</td>
<td>64.3%</td>
<td>21</td>
<td>56.8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boy</td>
<td>11</td>
<td>47.8%</td>
<td>5</td>
<td>35.7%</td>
<td>16</td>
<td>43.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52-63 months</td>
<td>13</td>
<td>56.5%</td>
<td>5</td>
<td>35.7%</td>
<td>18</td>
<td>48.6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>64-76 months</td>
<td>10</td>
<td>43.5%</td>
<td>9</td>
<td>64.3%</td>
<td>19</td>
<td>51.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Preschool Experience</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Home</td>
<td>14</td>
<td>61.0%</td>
<td>0</td>
<td>0%</td>
<td>14</td>
<td>37.8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outside</td>
<td>9</td>
<td>39.0%</td>
<td>14</td>
<td>100%</td>
<td>23</td>
<td>62.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Preschool Hours</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 10 hours per week</td>
<td>13</td>
<td>56.5%</td>
<td>0</td>
<td>0%</td>
<td>13</td>
<td>35.1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 10 hours per week</td>
<td>10</td>
<td>43.5%</td>
<td>14</td>
<td>100%</td>
<td>24</td>
<td>64.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Activities outside of home/school</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participated-Yes</td>
<td>20</td>
<td>87.0%</td>
<td>14</td>
<td>100%</td>
<td>34</td>
<td>91.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participated-No</td>
<td>3</td>
<td>13.0%</td>
<td>0</td>
<td>0%</td>
<td>3</td>
<td>8.1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Skill Levels: D= elemental sales & services, e.g., construction, manufacturing laborers (on-the-job training usually provided)
C=intermediate sales & services, e.g., transport, factory assemblers
(secondary school and/or job specific training)
B=skilled administrative, e.g., technical, trades & paraprofessionals
(college or apprenticeship training)
A=professional occupations, e.g., physicians, lawyers, engineers (usually
require university education)
Management=across all occupations
(National Occupational Classification Matrix, Human Resources
Development Canada, 2006).

**n=22 for Father’s Education and Occupation in the Public School Sample only

Public School Participants

Sixteen families were recruited in the Spring of 2004 from four public school sites
that were either currently participating or had participated the previous year in a 12 week
research program that brought parents to kindergarten with their children 2-3 half days
per week (see Pelletier, 2002a; Pelletier & Corter, 2005a). The school readiness program
provided parents with the opportunity to observe the teacher instructing their children, to
participate in activities with their children in the classroom, and to attend parent
education sessions. Parents learned how to extend concepts presented in class to learning
activities at home, they increased their knowledge of child development and in the case
of ELL, English language proficiency was improved. Mothers were the participating
parents in the current study. There were seven additional families from these four sites
who could not participate in the school readiness study due to work-related time
constraints but they were available to participate in the current study. Three of the public
schools had half-day programs that combined the junior and senior kindergartens into
single classes. These schools served a high immigrant, predominantly ELL population.
Among the predominant language groups represented were: South Asian languages
(Hindi, Gujarati, Punjabi, Urdu, and Tamil) followed in order of predominance by Arabic, East Asian, and European languages. English language comprehension was sufficient for the completion of the measures in this study and interpreters were not required. The fourth public school offered alternate-day, full day separate junior and senior kindergarten programs. Five children from the senior kindergarten program in the fourth school participated in this study. This latter group of children spoke English as their first language.

University Laboratory School Participants

In order to augment the study’s sample size and to provide an appropriate and relevant comparison sample, five families were recruited from the junior kindergarten class and nine families from the senior kindergarten class at a private university laboratory school. Both junior and senior kindergarten classes were separate, full day programs.

Parents

Parents from the five schools ranged in educational levels from some high school experience to advanced academic and professional degrees (see Table 1). Most of the mothers who participated in this study had completed post-secondary education, 32.4% graduated from college or university, 16.2% earned a professional certificate or degree and 18.9% had earned a post-graduate degree. Although families from the private school made up slightly more than one third of the total sample, they represented half (12/25) of the higher educated group of mothers.
While more than half (56.4%, n= 13) of the mothers in the public school had completed college, university or a more advanced degree, many (65.2%, n=15) were not employed outside the home. Just over half (n=9) of these mothers spoke English as an additional language. By comparison, the majority (85.7%, n=12) of mothers in the private school had completed college, university or a more advanced degree and the same number were employed outside the home. Of all the mothers who were employed, positions ranged from basic skill workers such as cashiers to professionals such as physicians.

Although fathers were not included directly in the study, data on fathers’ education and occupation were obtained as an additional measure of demographic profile. Data were not available for one of the fathers in the public school sample. As with the mothers, fathers’ education ranged from some high school experience to advanced academic and professional degrees. Within the public school sample, exactly half of the fathers had completed college, university or an advanced degree and all but one of the fathers were employed outside of the home. The majority of the fathers (85.7%) in the private school sample had completed college, university or a more advanced degree and all were employed. Two thirds of the total sample spoke English as their first language in the home, one third of the participants spoke English as an additional language.

Children

There were 21 girls and 16 boys in the total sample ranging in age from 52 to 76 months. For purposes of analyses, the children were divided into two approximately equivalent age groups, 52-63 (n=18) months and 64-76 months (n=19). Nearly half of the
children were either firstborns or secondborns \((n=17)\) with only 3 children in the position of thirdborns. More than half the children \((n=13)\) in the public school sample received care for less than 10 hours per week in a home environment. Only one child received care in a home environment for more than 10 hours per week. For the purpose of this research, “in home” referred to children who did not attend child care or nursery school (outside preschool experience). Rather, these children were cared for by another relative or a babysitter. The remaining children \((n=9)\) attended a structured preschool program for more than 10 hours per week. All of the children in the private school sample \((n=14)\) at the university laboratory school had attended nursery school for more than 10 hours per week prior to kindergarten. All the children, with the exception of three in the public school sample, had attended some form of programmed activity outside of the home or school (e.g., sports, music, library, church programs).

*Contextual Factors.*

Eight contextual factors were selected from the 12 factors contained in the Demographic Survey. For purposes of analysis, all variables were recoded as binary, dichotomous variables. Variables used included: mother’s education, first language spoken at home, child’s birth order, gender, child’s age, school type, preschool experience, preschool hours, (see Table 2). Fathers’ education and employment status were not considered in the analyses since in all cases mothers completed the attachment measure. Since most of the children (34 of the 37 children) had attended activities outside of the home or school, this factor was not included for the purpose of comparisons.
Mother’s education was divided into dichotomous groups (not completed a college/university degree or completed a college/university degree). Those who had some high school, a high school diploma and some college or specialized training were in the first group \( (n=12) \) and those who had completed college or university or a professional or post-graduate degree were in the second group \( (n=25) \).

Mother’s occupation was not included in the analyses because nearly half of the mothers (46%) were not employed outside of the home. This group included 9 of the 10 mothers who spoke English as an additional language; language and recent immigration status may have affected their ability to secure employment commensurate with their education. In some cases these mothers were highly educated and trained and may have held high status jobs in their country of origin. As a result, because of this immigration phenomenon, it was decided that mothers’ occupation would not provide meaningful and trustworthy explanatory power. Therefore, it was decided that mothers’ education alone would be used in the analyses. In addition, maternal education is known to be related to an enriched home learning environment; both maternal education and home environment serve as strong predictors of positive academic and behavioural outcomes (Siraj-Blatchford, Taggart, Sylva, Sammons, & Melhuish, 2008). In fact, positive child outcomes seem to be more closely related to the home learning environment than the family’s socio-economic status or structure or the child’s participation in early childhood programs (Melhuish et al., 2008; Siraj-Blatchford, et al., 2008; Willms, 2002). Birth order was divided into first-born children or second and third born children. Age was divided into two groups – children 63 months old and younger and children 64 months old and older.
Table 2: Frequencies – Contextual Factors (Frequency and Percent) (N=37)

<table>
<thead>
<tr>
<th>Contextual Factors</th>
<th>Dichotomous Variables</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother’s Education</td>
<td>&lt; college/university degree</td>
<td>12</td>
<td>32.5%</td>
</tr>
<tr>
<td></td>
<td>≥ college/university degree</td>
<td>25</td>
<td>67.5%</td>
</tr>
<tr>
<td>First Language</td>
<td>English</td>
<td>27</td>
<td>73%</td>
</tr>
<tr>
<td>Spoken at Home</td>
<td>ELL</td>
<td>10</td>
<td>27%</td>
</tr>
<tr>
<td>Birth Order</td>
<td>First</td>
<td>17</td>
<td>45.9%</td>
</tr>
<tr>
<td></td>
<td>Second or third</td>
<td>20</td>
<td>54.1%</td>
</tr>
<tr>
<td>Gender</td>
<td>Girl</td>
<td>21</td>
<td>56.8%</td>
</tr>
<tr>
<td></td>
<td>Boy</td>
<td>16</td>
<td>43.2%</td>
</tr>
<tr>
<td>Age</td>
<td>52-63 months</td>
<td>18</td>
<td>48.6%</td>
</tr>
<tr>
<td></td>
<td>64-76 months</td>
<td>19</td>
<td>51.4%</td>
</tr>
<tr>
<td>School Type</td>
<td>Public</td>
<td>23</td>
<td>62.2%</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>14</td>
<td>37.8%</td>
</tr>
<tr>
<td>Preschool Experience</td>
<td>In Home</td>
<td>14</td>
<td>37.8%</td>
</tr>
<tr>
<td></td>
<td>Outside</td>
<td>23</td>
<td>62.2%</td>
</tr>
<tr>
<td>Preschool Hours</td>
<td>&lt; 10 hours per week</td>
<td>13</td>
<td>35.1%</td>
</tr>
<tr>
<td></td>
<td>&gt; 10 hours per week</td>
<td>24</td>
<td>64.9%</td>
</tr>
</tbody>
</table>

Intercorrelations for the contextual factors are reported in Table 3. Results indicate that in this sample, many of the factors are highly intercorrelated.

Table 3: Intercorrelations – Contextual Factors (N=37)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mother’s Education</td>
<td>-</td>
<td>-0.228</td>
<td>0.059</td>
<td>0.139</td>
<td>0.134</td>
<td>0.302</td>
<td>0.412*</td>
<td>0.458*</td>
</tr>
<tr>
<td>2. English as Second Language</td>
<td>-</td>
<td>0.073</td>
<td>0.206</td>
<td>-0.260</td>
<td>-0.475*</td>
<td>-0.278</td>
<td>-0.318</td>
<td></td>
</tr>
<tr>
<td>3. Birth Order</td>
<td>-</td>
<td>0.038</td>
<td>0.079</td>
<td>-0.287</td>
<td>-0.272</td>
<td>-0.111</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Gender</td>
<td>-</td>
<td>-0.024</td>
<td>-0.119</td>
<td>-0.219</td>
<td>0.071</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Age</td>
<td>-</td>
<td>0.202</td>
<td>0.133</td>
<td>0.303</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Public or Private School</td>
<td>-</td>
<td></td>
<td>0.609*</td>
<td>0.574*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. In Home / Outside Pre-school</td>
<td>-</td>
<td></td>
<td>-</td>
<td>0.593*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Hours spent in Pre-school</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $p<.05$

(Note: all factors are dichotomous, binary variables. Therefore, all correlations reported are $\phi$ (phi) statistics – Pearson coefficient of dichotomous variables.)
Teachers

Seven teachers (6 female and 1 male) from the four public schools participated in the research; the female teacher of the alternate-day, full-day senior kindergarten class in the public school had taught the five children who participated in this study in junior kindergarten as well. Both the junior and senior kindergarten teachers from the university laboratory school were female. All of the teachers had taught kindergarten for at least two years.

Procedures

Participant recruitment

The previous year this researcher acted as project manager of a research study that examined a school readiness program for diverse families (Pelletier, 2002a; Pelletier & Corter, 2005a) in the four public schools. The four public schools were approached because it was believed the relationships established the previous year with principals, teachers and many of the participating parents would facilitate the request for their participation in the current study. In addition, the ongoing research partnership between the university and the private laboratory school provided this researcher with the opportunity to seek the participation of the principal, kindergarten teachers and families of that school.

After receiving ethics approval from the university to proceed with the current study, additional ethics approval was required by the two public school boards and the private university laboratory school; this process took an unusually long time and
therefore limited the time available for recruitment of participants in the appropriate age
category during the school year.

An initial meeting was set with school principals and kindergarten teachers in the
five target schools to describe the research study. Once these principals and teachers
gave their consent (Appendix B, Appendix C), an information letter and consent form
were sent (Appendix D) to all of the parents who had a child in junior or senior
kindergarten in the target schools. In addition, two short informational sessions were
held for: 1) parents attending the ongoing Parents in Kindergarten program (see Pelletier
& Corter, 2005a) at two of the public schools and 2) parents who attended the autumn
kindergarten open house in the three public schools that had high immigrant populations.
Parents were given the opportunity in both instances to ask questions about the study and
were asked to return the signed consent forms to their children’s kindergarten teacher
within 10 days if they decided to participate. Parents in the university laboratory school
received the information letter and consent form; parents in this school were familiar with
requests for research participation so it was deemed unnecessary to conduct information
sessions at that school. The returned forms were collected from all the teachers after a
two week period.

Data Collection

Mothers.

Thirty-seven families agreed to participate in the study. Arrangements were made
to meet with the participating mothers, at their convenience, to complete the attachment
measure and a demographic survey. These meetings were held in a variety of settings
which included: their child’s school, their place of business, coffee shops or in their home. After providing consent, mothers completed the Attachment Q-Set Version 3.0 (AQS) (Waters, 1987, 1995), as a measure of their young child’s attachment security and dependency (Appendix E), along with a demographic survey. Upon completion of the attachment measure and the demographic survey and in recognition of their participation, each family received a children’s book by Canadian author, Robert Munsch plus two guides published by the Ministry of Education for parents outlining early strategies for reading (Ontario Ministry of Education, 2001) and math (Ontario Ministry of Education, 2003).

*Teachers.*

An offer was made to cover the cost of a supply teacher for all teachers to allow them the time away from their classrooms to complete the Teacher Q-Set (TQS) (Nimetz, 1992; Pianta, 1999; Pianta et al., 1997), a measure of teacher-child attachment security adapted from the Attachment Q-Set (Appendix G). Six of the teachers accepted this offer and three of the teachers had their participation time covered by school staff. The latter group received an educational resource book for their school in appreciation for their participation.

*Children.*

Academic outcome measures were available for seven of the eight children recruited from the senior kindergarten class at the university laboratory school; these children had previously participated in a reading comprehension study (Pelletier,
Halewood, & Reeve, 2006; Pelletier & Lasenby, 2007). These outcome measures included: two standardized measures, the Test of Early Reading Ability-2 or -3 (Reid, Hresko, & Hammill, 1989, 2001), the Peabody Picture Vocabulary Test-III (Dunn & Dunn, 1997), and one experimental task – the Print Task (Pelletier, 2002b; Pelletier & Lasenby, 2003; Pelletier & Lasenby, 2007) (Appendix H). Permission was obtained to administer these same four outcome measures for the one senior kindergarten child and the five junior kindergarten children who had not participated in the reading comprehension study. In addition, a Child Interview (see Pelletier & Corter, 2006) (Appendix I) was administered to all 14 children in the university laboratory school sample.

The same five outcome measures were available for the 16 children who had participated in the Parents in Kindergarten program (see Pelletier & Corter, 2005a) in the four public schools. Outcome measures for the remaining seven children in the public school sample were not available. Direct classroom observations (Appendix J) were conducted for all 37 children for 90 minutes in the classroom and outside on the playground during both structured activities (e.g. circle time) and unstructured activity or playtime (e.g. building with blocks). Observations were recorded using a running narrative method (Beaty, 1998).

**Measures**

*Parent-child Attachment Measure*

The Attachment Q-Set Version 3.0 (AQS) (Waters, 1987, 1995) was used to provide parent reports of parent-child attachment security and dependency. The terms
Attachment Q-Set and Attachment Q-Sort are used interchangeably in the literature; for clarity in this study, Attachment Q-Set was used to refer to the measure and Attachment Q-Sort for the administration procedure of this measure.

The AQS was originally developed for several reasons. First, the AQS was designed to provide a cost effective method to further examine relations between secure base behaviour at home and Strange Situation classifications in the laboratory setting for children between the ages of 1 and 5 years. In a meta-analysis testing the reliability and validity of the AQS (Van IJzendoorn et al., 2004), the AQS security score provided by trained observers showed convergent validity ($r = .31$) with the Strange Situation Procedure (SSP), considered to be the standard measure of attachment used in infancy (Ainsworth, et al., 1978). When observations exceeded 3 hours per child, the combined effect size for the association between AQS security and SSP security increased to $r = .42$ (Van IJzendoorn, et al., 2004). Second, the AQS was developed to provide a clearer description of the behavioural referents of the secure base concept through the assessment of more behaviours and contexts than those observed in the SSP. Third, the AQS was designed to encourage interest in normative secure base behaviour and individual differences in attachment security beyond infancy (Moss et al., 2006; Teti & McGourty, 1996; Waters, 1987). While the SSP yields categorical classification data such as whether a child is secure, avoidant, ambivalent (Ainsworth, et al., 1978) or disorganized/disoriented (Main & Solomon, 1990) in a laboratory setting, the AQS provides a security score along a continuum from more secure to less secure. The SSP is designed to provoke secure base behaviour during an emotionally challenging or stressful event in a laboratory setting, whereas, the AQS considers everyday secure base behaviour
in the familiar home environment (Teti & McGourty, 1996). While a child’s expectations for parental protection in times of anxiety and stress are at the centre of the SSP, the relationship between attachment and the child’s exploratory systems as well as the child’s expectations of parental guidance under more usual conditions are emphasized in the AQS (Van IJzendoorn et al., 2004). In fact, some researchers consider the AQS to have more ecological validity than measures obtained in a laboratory setting because it is based on observations in the child’s natural environment (Howes & Ritchie, 1999; Waters & Deane, 1985).

Originally, the AQS was to be completed by observers who had been trained in the meanings of the 90 items as they related to attachment theory developed by Bowlby (1969, 1982); Bowlby conceptualized attachment relationships as serving a broad-based adaptive function throughout the lifespan. While observer Q-Sorts remain the preferred procedure for some researchers (Van IJzendoorn et al., 2004; Waters, 1998) others have obtained acceptable results with less well-trained observers, even when child behaviours are described by parents (Moss et al., 2006; Teti & McGourty, 1996; Waters, 1995). The correlation between Q-Sorts completed by a trained observer and a mother is moderate ($r = .53$) (Teti & McGourty, 1996); however, when observers feel confident that the behaviours they have observed are sufficiently representative of AQS behaviours and when mothers receive adequate training and supervision, the correlation increases ($r = .67$) (Teti & McGourty, 1996). In fact, Teti and McGourty (1996) maintain that “because mothers always have the most ‘representative’ sample of their children’s behaviour, mothers should always be one’s first choice to observe their children’s secure-base behaviour, provided they receive adequate training” (p. 602), with the caveat that the
mothers are drawn from a low-risk sample. Although recent immigration and speaking English as a second language may increase vulnerability, the families in the present sample were still regarded as low-risk; half of these mothers had completed university and all of these families had access to family support programs, like Parents in Kindergarten, in their schools. In addition, a meta-analysis (Van IJzendoorn et al., 2004) found that the AQS appeared to function even more effectively as a measure in Canada and Europe than in its country of origin, the United States. This finding may create an advantage for research in cross-cultural populations; the AQS may allow a researcher to observe specific secure base behaviours of children from these populations in greater detail (Van IJzendoorn et al., 2004). The AQS also allowed for the measurement of dependence (Vaughn & Waters, 1990), a construct of interest for the transition to school.

In the current study, self-reports were used rather than trained observer Q-Sorts for theoretical as well as practical reasons: practically, it would have been logistically challenging to collect a minimum of 4 hours of observation from each of 37 families (also, few of the participating families consented to have an outside observer visit their homes); theoretically, the goal of the present study was to use a trustworthy, ecological measure to look at parent reports of attachment rather than outside observations of the attachment behaviours.

Teti and McGourty (1996) have suggested that compliance with the following guidelines would suffice as adequate training for mothers as observers: 1) mothers must be given the opportunity to familiarize themselves with the 90 AQS items before sorting, 2) it must be emphasized to mothers that the ratings obtained through the sort reflect the
child’s current behaviour and 3) a trained researcher must be present to provide the necessary training and supervision during the sort.

Each of these guidelines was followed when the Attachment Q-Set was employed in the present study. In order to provide mothers with sufficient time to review the measure, each mother received a copy of the AQS questions at least two weeks prior to meeting with the researcher. Mothers were instructed to observe their child for two to three days with the AQS items in mind. Mothers received the set of 90 questions that included the item content (Waters, 1995) but not the rationale (Waters, 1987) for each question in the Attachment Q-Set measure (Appendix E). Waters (1987) provided a “rationale” for independent observer training (Appendix F); the rationale supplies information that describes the use and meaning of each item and is not meant to be used by the mothers when sorting the cards. The rationale was useful for a better understanding of individual items and it provided the researcher with information that could be drawn upon for clarification when working with the mothers. For the actual administration of the measure, the 90 questions were reproduced on individual cards to be used for the AQS sorting procedure and only the item content was included. During the meeting, mothers were first asked to sort the 90 items into three piles based on how representative each item was of their child’s current behaviour. According to the procedure established by Waters (1995), mothers were instructed to think of starting with all the items in one pile in the middle. The farther they were willing to place an item from the middle, the stronger the statement they were making about their child. In other words, items that were not at all characteristic of their child’s behaviour were placed in pile 1 (low) and items that were very characteristic were placed in pile 3 (high). If an
item was neither like nor dislike their child or was no longer appropriate from a developmental perspective, it was placed in the middle pile. For example, with regard to secure base behaviour, mothers could sort items as most like, neither like nor unlike, or most unlike their child. To illustrate, Item 60 presents three choices for sorting the card: 1) If mother reassures him/her by saying "It’s OK” or "It won’t hurt you”, child will approach or play with things that initially made him/her cautious or afraid (high), 2) If never cautious or afraid (middle), or 3) Child does not accept mother’s assurances (low). The rationale that Waters offers for the inclusion of this specific item in the Attachment Q-Set is that:

In his book, A Secure Base, Bowlby suggested that an attachment figure must be one who is viewed as ‘stronger and wiser’ than one's self. This however is not enough; the person must also be someone who is trusted. This item is intended to assess the child's trust or confidence in mother's support and reassurance. (Waters, 1987, p. 18).

Items were further sorted into nine piles with 10 cards in each pile based on the same criteria ranging from most like child (pile 9) to most unlike child (pile 1). The score for each item was the number of the final pile where the mother placed that particular item. This forced sorting procedure is used to decrease response bias and behaviour ratings based on social desirability (Waters, 1998). As suggested by Teti & McGourty (1996), this researcher sat with each mother as she completed the sort and she was requested to read each question aloud to ensure that she understood what was being asked and that she also give an example of her child’s behaviour that influenced her decision to
place an item in a particular pile. Feedback was provided for clarification purposes only. The time for the sorting process ranged between .75 and 2.5 hours with most mothers completing the sort in 1.0 hour. Once the AQS was completed, mothers were asked to provide a confidence rating (1-not confident, 2-confident, 3-very confident) to indicate that their Q-Sorts provided a good representation of their child’s current behaviour. Most mothers appeared to be confident in their sorts with the mean level of confidence at 2.58 ($SD = .49$).

To determine each child’s attachment security score, the individual sort of the 90 items (scores ranging from 1 to 9) was correlated with a criterion sort representing the “hypothetically most secure child” as prescribed in the administration procedures. The criterion sort was derived from independent ratings made by experts in the attachment field (Waters & Deane, 1985) resulting in each child receiving a continuous security score ranging from less to more secure, or a correlation of -1.0 to +1.0. The cutoff for classifying a child as secure (i.e. ability to use adult as a secure base) is generally .30 for a child reared in middle class homes (i.e., using a score of .30 will divide middle class children into two equal groups who are more secure or less secure) (Waters, 1998). The criteria for using .30 gives us approximately the same number of children labeled “secure” as we would get with the Strange Situation (about 70%). In general, when this cut-off score of .30 is used for security, scores for dependency (“clinginess”) are between 0 and -.2 (Waters, 1998). In the current study, the recommended cut-off score of .30 for security was used and the median scores for dependency were calculated yielding scores between 0 and -.18 for the Attachment Q-Set and between 0 and -.32 for the Teacher Q-Set, scores similar to those found by Waters (1998).
Although the AQS is typically used for children between the ages of 1 to 5 years, 11 children had turned 6 years of age by the time of testing due to scheduling challenges. However, an advantage of the AQS was that it could be used beyond the typical age range because items that were no longer age appropriate would not be observed, and would be neither characteristic nor uncharacteristic of a child; these items were then sorted to the centre of the item distribution as instructed by Waters et al. (1995) (Symons, Clark, Isaksen, & Marshall, 1998). The AQS has also been used in several studies with children who were 5 or 6 years of age at the time of sorting (Howes & Hamilton, 1992; Park & Waters, 1989; Teti, Nakagawa, Das, & Wirth, 1991; Kerns & Barth, 1995). In addition, the confidence ratings of mothers for the attachment security and dependency scores for these children did not differ significantly from those children aged 5 at the time of testing.

**Teacher-child Attachment Measure**

The Teacher Attachment Q-Set (TQS) (Nimetz, 1992; Pianta, 1999; Pianta et al., 1997) was adapted from the Attachment Q-Set (Waters, 1987) in consultation with Waters. Nine items that only have relevance to a mother-child relationship were eliminated (Appendix G) and the remaining 81 items were rewritten to apply to a teacher-child relationship. In a study examining mother-child and teacher-child relationships and school outcomes (Pianta et al., 1997), two expert sorters conducted independent criterion sorts using all 81 items to describe the “ideal” teacher-child relationship in terms of security, conflict and dependency. Scores for each of these constructs were obtained by computing the mean scores (ranging from 1 to 9 according to pile placement) for all 81
items. For inter-rater reliability, correlations were computed between the two expert sorters with the following results: for security, .80 \((p < .05)\), for conflict, .74 \((p < .05)\) and for dependency, .64 \((p < .05)\). Correlations were also computed for teacher-child security scores between the expert sorters and three preschool teachers. The results were significantly related (correlations above .85, \(p < .001\)) to Waters’ (1987) expert sorters’ security scores and provided support for the validity of the adapted measure.

The Teacher Q-Set was designed as a self-administered test but was facilitated by the researcher in this study to ensure accuracy and to maintain procedural consistency with the Attachment Q-Sorts completed by the mothers. Each teacher received a copy of the TQS at least two weeks prior to her/his completion of the measure. Teachers were asked to review the questions and to observe their target children with these 81 questions in mind. The Q-Sort procedure was described by the researcher and teachers were given an opportunity to ask questions when they met. The procedure for administering and scoring this measure was carried out in a manner identical to the Attachment Q-Sort with the mothers described above with one exception. The final sort consisted of 9 piles with 9 rather than 10 cards in each pile. The majority of teachers felt confident in their sorts, with the mean level of confidence at 2.51 \((SD = .51)\).

Creating a Comparable Parent-child and Teacher-child Measure

Before attempting any analysis, it was necessary to create an AQS scale that was statistically comparable to the TQS scale. Since the original version of the AQS with 100 items (Waters & Deane, 1985) was introduced, there have been many alterations to the phrasing and number of items but the AQS has remained robust (Van IJzendoorn et al.,
For the purpose of this study the 90-item AQS (Waters, 1987) was correlated with an abbreviated version, removing the same nine items that were not included in the 81-item TQS (Nimetz, 1992, Pianta, 1999; Pianta et al., 1997). The two scales were found to be highly correlated and virtually identical, $r=.992 (p<.001)$ for security and $r=.997 (p<.001)$ for dependency. To confirm the reliability of these correlations, t-tests were computed and both were significant, $t=2.137 (36, p<.05)$ for security and $t=5.868 (36, p<.001)$ for dependency. The 81-item AQS was then used for all analyses.

*The Test of Early Reading Ability-2 and 3 (TERA-2 and TERA-3)*

This literacy measure is a standardized early reading test that measures early reading in children between the ages of 3 years, 6 months and 8 years, 6 months. The TERA-2 and TERA-3 (Reid, Hresko, & Hammill, 1989, 2001) are comprised of three subtests assessing children’s understanding of alphabet, conventions of print, and meaning. This measure was selected to examine a potential relationship with mother-child and teacher-child attachment security and/or dependency and early reading ability. Although early reading skills may begin in the home, a more formalized instruction takes place in the classroom and the relationship with the teacher may have an impact on the acquisition of early literacy skills. Prior to the revised edition becoming available, the TERA-2 was administered to the eight university laboratory school students participating in the reading comprehension study (Pelletier et al., 2006; Pelletier & Lasenby, 2007) and to the 4 public school students participating in the Parents in Kindergarten program (Pelletier & Corter, 2006). When the revised edition, TERA-3 (Reid, Hresko, & Hammill, 2001) became available, it was administered to the remaining 18 participants.
The TERA-2 scores were later re-coded (Harper & Pelletier, 2008) to obtain reading quotients that reflected changes made in the revised edition. The reading quotients from the two TERA editions were used in the analyses for this study. Environmental print is captured in the TERA as one of the three subscales: alphabet knowledge, conventions of print, meaning.

*Test of Early Reading Ability – 2nd Edition.* The TERA-2 (Reid et al., 1989) is a standardized and nationally normed measure, used for testing young children’s emerging literacy. Children begin the test with the appropriate question according to their age (e.g., 5-year-olds start with item number 10) and continue through the items until they make five consecutive errors. Each test item measures a component of early literacy (alphabet knowledge, conventions of print or meaning), and items are presented in a sequence of increasing difficulty, but are not grouped according to their category (i.e., alphabet, conventions and meaning). The authors of the test have reported sufficient content, construct, and criterion-predictive validity, and have also indicated strong reliability scores of .91 and .90 for form A and B, respectively, of the TERA-2 (Reid et al., 1989).

*Test of Early Reading Ability – 3rd Edition.* The TERA-3 (Reid et al., 2001) includes items that measure the same three components of early reading measured by the TERA-2. However, the TERA-3 provides individual scores of children’s early literacy in each of the three areas, as three individual subtests are administered individually to each child. For each subtest, children start with the appropriate test item according to their age (e.g., for the Alphabet subtest 5-year-olds start with item 1) and continue through each subtest until they either complete all items in the subtest or until three consecutive questions (within a subtest) are answered incorrectly. If a child fails to complete all items
in a subtest, s/he moves on to the next subtest, starting with the appropriate item number for his/her age. The authors of the TERA-3 have reported sufficient content, construct, and criterion-predictive validity, and strong reliability of .91, .83, and .90 for the alphabet, conventions and meaning subtests, respectively (Reid et al., 2001). There is also evidence of the concurrent validity between the two versions of the TERA. When comparing the TERA-2 and TERA-3, correlation coefficients range from .85 to .98 and are significant for both forms A and B, and for all subtests of the TERA-3 (Reid et al., 2001).

*Peabody Picture Vocabulary Test III (PPVT-III)*

This standardized measure can be individually administered to children beginning at age 2 years, 6 months through the adult years. The PPVT-III (Dunn & Dunn, 1997) is a norm referenced, wide range measure of receptive vocabulary for spoken words in standard English language and a screening test of verbal ability. The examiner presents the child with a set of four pictures and asks the child to point to the picture that best represents the word that the examiner reads aloud. The sets presented become progressively more difficult until a ceiling is reached. The development of oral vocabulary is a skill that begins in the home and is not usually a target of formal instruction but may be associated with general intelligence (Biemiller & Slonim, 2001; Pelletier & Lasenby, 2007). This task was included primarily to investigate potential differences in child outcomes based on home language but analyses were also carried out using the PPVT as a dependent variable with selected contextual factors (mother’s education, birth order, gender, school type) as well as the AQS and TQS. Although the
PPVT is widely accepted as an appropriate measure for use with young children, it has been argued that scores may be less stable for preschool children, especially those from minority groups (Bochner, 1978).

Print Task

This experimental task (Pelletier & Lasenby, 2007) builds on prior work by Tangel and Blachman (1992) and was developed to measure children’s developing understanding of print through their writing. Scoring is based on a developmental sequence from a scribble to drawing to phonetic spelling and on children’s ability to depict the “message” in either drawings or writing (Pelletier & Lasenby, 2007). Early print is related to early reading and may also be associated with instruction effects (Pelletier & Lasenby, 2003). For this reason, the teacher-child relationship could have an impact on this developing skill.

Child Interview

The child interview is an experimental task that was developed to tap social and emotional understanding in kindergarten (Pelletier & Corter, 2006). Children were asked four questions: what do you like/don’t like about kindergarten and what are you good at/not so good at in kindergarten? Coding procedures included total word count and frequencies of children’s spontaneous mention of the following categories: play, work, academics, school, rules and routines, arts, activity centres, and teacher-child and peer-child relationships. The interview was included to provide insight into the important aspects of kindergarten from the child’s perspective. Few instruments are available that specifically ask about the nature of the child’s relationship to the teacher and these child-
report measures are not considered to be developmentally appropriate for young children (Mashburn & Pianta, 2006).

**Direct classroom observations**

Observation data were collected in order to illuminate other data sources. Observation data did not specifically answer any of the research questions, therefore these data and analyses are reported in Appendix J, rather than in the study results.

As previously noted, all observational data were collected using a running record format (Beaty, 1998). Each target child was observed for 1.5 hours in school during 1) circle time when the child sat as part of a group with the teacher, 2) time spent at an independent activity as the teacher circulated throughout the classroom, and 3) a brief outdoor period of free play when the teacher acted in a supervisory role. Although all behaviours were noted, preference was given to documenting explicit attachment behaviours (Waters, 1987) and those behaviours indicative of social and emotional readiness for school as described in the Early Development Inventory (EDI) (The Offord Centre for Child Studies, 2007/2008).

These observations supplemented the quantitative data on secure base and exploratory behaviour as well as social competence in terms of readiness. Observations were coded using a qualitative methodology, i.e., themes were highlighted and summarized by frequency counts. There were 80 discrete observed behaviours that were subsequently coded into the following nine categories for analysis: self regulating, affective sharing, imitative, physical contact, physical activity, on/off task, rules and routines, social and secure base behaviours (see Appendix J). These categories were derived from the AQS items which included the rationale for each observed behaviour.
(Waters, 1987) (see Appendix F) plus items from the Early Development Inventory (The Offord Centre for Child Studies, 2007/2008). Please refer to Appendix K for a list of the EDI items included in the coding.

Inter-rater reliability was established by two teacher-researchers who were trained in child observations. Following detailed training with this researcher, the two independent reviewers each scored the qualitative observational data for 20 subjects, classifying all items into mutually exclusive categories (the behaviour was observed or not observed). An analysis of Cohen’s kappa coefficient of inter-rater reliability was conducted using the conventional formula (Cohen, 1960). An overall kappa of .500 (83.44% agreement) was found, suggesting overall moderate, acceptable, inter-rater agreement (see Appendix L for detailed reporting of kappa information).

Reliability Procedures

All data were initially entered by hand into an Excel spreadsheet hardcopy. Once the data were checked and confirmed for accuracy, an SPSS data base was created. Following all analyses, data entry for a random sample of data (6 subjects) was again checked and confirmed for accuracy. Following the second data check, all analyses were re-calculated to confirm accuracy.
Chapter 4: Results

In order to gain a comprehensive perspective on the attachment relationship between mother and child and the developing relationship between teacher and child as the family makes the transition to kindergarten, both qualitative and quantitative analyses were carried out. Results are organized according to the research questions presented in the Introduction. The research questions are organized with Bronfenbrenner’s social ecological model in mind – first looking at reports of adult / child relations within the micro-systems of home and school, then expanding to questions of the impact of contextual factors on those reports. Questions 3-5, examine issues related to child outcomes and the impact of adult / child relations and contextual factors on these outcomes. Table 4 outlines the research questions, instruments, and analyses conducted.

Table 4: Summary of research questions, instruments & variables, and analyses

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Instruments &amp; Variables</th>
<th>Analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) What is the relation between mothers’ &amp; teachers’ reports of dependency &amp; security?</td>
<td>AQS, TQS; ratings of security &amp; dependency</td>
<td>Comparison of means, paired samples t test, correlations, intercorrelations</td>
</tr>
<tr>
<td>2) What is the relation between diversity in contextual factors and mothers’ &amp; teachers’ reports of dependency &amp; security?</td>
<td>Demographic Survey, 8 contextual factors,*</td>
<td>Frequencies, comparison of means, effect size</td>
</tr>
<tr>
<td>3) Are there differences in child outcomes based on mothers’ &amp; teachers’ reports of dependency &amp; security?</td>
<td>PPVT, TERA, Print task; AQS &amp; TQS ratings</td>
<td>Comparison of means, Intercorrelations</td>
</tr>
<tr>
<td>4) Are there differences in child outcomes based on contextual factors?</td>
<td>PPVT, TERA, Print task; 8 contextual factors*</td>
<td>ANOVA</td>
</tr>
<tr>
<td>5) What is the relation between what children say about kindergarten, and mothers’ &amp; teachers’ reports of dependency &amp; security?</td>
<td>AQS &amp; TQS ratings; child interviews</td>
<td>Cross-tabulation</td>
</tr>
</tbody>
</table>

* Eight dichotomous contextual factors: mothers’ education, first language spoken at home, birth order, gender, age, school type (public or private), preschool experience (in home or not), preschool hours (< 10 or > 10 hours per week)
**Research question 1: What is the relation between mothers’ reports of dependency & security and teachers’ reports of dependency & security?**

Correlations between participant sorts and expert criterion sorts for the AQS and TQS, a comparison of means for the AQS and TQS and intercorrelations for the AQS and TQS were calculated to examine the following corollaries to my first research question: Did mothers and teachers share a similar perspective of child attachment? Did securely attached children develop a secure relationship with their teacher? And, if children were less dependent on their mother, were they also less dependent on the teacher?

Scores for AQS dependency and security and TQS dependency and security were calculated for each participant following the procedure prescribed by Waters (1998) and described in the Methods section of the current study. Briefly, individual participant sorts of the 90 items (scores ranging from 1 to 9) were correlated with expert criterion sorts that represented the hypothetically most secure child and described dependent child behaviour. The results yielded a continuous security score for each child ranging from less secure to more secure, or a correlation of -1.0 to +1.0. Waters (1998) has suggested .30 to be used as the cut-off score for a classification for a secure child reared in middle class homes (i.e., using a score of .30 will divide middle class children into two equal groups of children who are more or less secure). Waters also found that scores on the AQS between 0 and -.20 generally indicate a level of “clinginess”, behaviour associated with children who are more dependent. In the current study, the recommended cut-off score of .30 for security was used; the median scores for dependency were calculated
yielding scores between 0 and -.18 for the Attachment Q-Set and between 0 and -.32 for the Teacher Q-Set. Individual scores for AQS dependency and security and TQS dependency and security are presented in Table 5.

Table 5: \textit{AQS & TQS Scores: Correlations between participant sorts for security and dependency and expert criterion sorts for AQS & TQS}

<table>
<thead>
<tr>
<th>Participant number</th>
<th>AQS Dependency</th>
<th>AQS Security</th>
<th>TQS Dependency</th>
<th>TQS Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>-.10</td>
<td>.52</td>
<td>-.21</td>
<td>.40</td>
</tr>
<tr>
<td>2.00</td>
<td>-.37</td>
<td>.44</td>
<td>-.53</td>
<td>.16</td>
</tr>
<tr>
<td>3.00</td>
<td>-.24</td>
<td>.44</td>
<td>-.38</td>
<td>.55</td>
</tr>
<tr>
<td>4.00</td>
<td>-.21</td>
<td>.28</td>
<td>-.53</td>
<td>.28</td>
</tr>
<tr>
<td>5.00</td>
<td>-.35</td>
<td>.49</td>
<td>-.48</td>
<td>.36</td>
</tr>
<tr>
<td>6.00</td>
<td>-.19</td>
<td>.43</td>
<td>-.45</td>
<td>.46</td>
</tr>
<tr>
<td>7.00</td>
<td>.06</td>
<td>.38</td>
<td>-.33</td>
<td>.57</td>
</tr>
<tr>
<td>8.00</td>
<td>-.25</td>
<td>.33</td>
<td>-.53</td>
<td>.46</td>
</tr>
<tr>
<td>10.00</td>
<td>-.15</td>
<td>.57</td>
<td>-.21</td>
<td>.29</td>
</tr>
<tr>
<td>11.00</td>
<td>-.14</td>
<td>.49</td>
<td>-.31</td>
<td>.23</td>
</tr>
<tr>
<td>12.00</td>
<td>.41</td>
<td>.24</td>
<td>-.23</td>
<td>-.04</td>
</tr>
<tr>
<td>13.00</td>
<td>-.05</td>
<td>.61</td>
<td>-.36</td>
<td>.51</td>
</tr>
<tr>
<td>14.00</td>
<td>-.33</td>
<td>.51</td>
<td>-.43</td>
<td>.54</td>
</tr>
<tr>
<td>16.00</td>
<td>.07</td>
<td>.52</td>
<td>-.14</td>
<td>.70</td>
</tr>
<tr>
<td>17.00</td>
<td>-.22</td>
<td>.63</td>
<td>-.33</td>
<td>.19</td>
</tr>
<tr>
<td>18.00</td>
<td>-.11</td>
<td>.59</td>
<td>-.49</td>
<td>.30</td>
</tr>
<tr>
<td>19.00</td>
<td>-.19</td>
<td>.44</td>
<td>-.08</td>
<td>.41</td>
</tr>
<tr>
<td>20.00</td>
<td>-.22</td>
<td>.43</td>
<td>-.07</td>
<td>.55</td>
</tr>
<tr>
<td>21.00</td>
<td>-.16</td>
<td>.29</td>
<td>-.51</td>
<td>.25</td>
</tr>
<tr>
<td>22.00</td>
<td>-.30</td>
<td>.61</td>
<td>.12</td>
<td>.64</td>
</tr>
<tr>
<td>23.00</td>
<td>-.37</td>
<td>.45</td>
<td>-.26</td>
<td>.58</td>
</tr>
<tr>
<td>24.00</td>
<td>.01</td>
<td>.48</td>
<td>-.27</td>
<td>-.12</td>
</tr>
<tr>
<td>25.00</td>
<td>-.20</td>
<td>.28</td>
<td>-.41</td>
<td>-.45</td>
</tr>
<tr>
<td>26.00</td>
<td>.30</td>
<td>.31</td>
<td>-.09</td>
<td>.52</td>
</tr>
<tr>
<td>27.00</td>
<td>-.02</td>
<td>.15</td>
<td>-.01</td>
<td>-.16</td>
</tr>
<tr>
<td>28.00</td>
<td>-.27</td>
<td>.64</td>
<td>-.09</td>
<td>.61</td>
</tr>
<tr>
<td>29.00</td>
<td>.08</td>
<td>.41</td>
<td>-.46</td>
<td>.48</td>
</tr>
<tr>
<td>30.00</td>
<td>.09</td>
<td>.42</td>
<td>-.43</td>
<td>.14</td>
</tr>
<tr>
<td>31.00</td>
<td>.03</td>
<td>.31</td>
<td>-.22</td>
<td>.47</td>
</tr>
<tr>
<td>32.00</td>
<td>-.18</td>
<td>.60</td>
<td>-.32</td>
<td>.42</td>
</tr>
<tr>
<td>33.00</td>
<td>-.02</td>
<td>-.05</td>
<td>-.32</td>
<td>.35</td>
</tr>
<tr>
<td>34.00</td>
<td>-.28</td>
<td>.37</td>
<td>-.03</td>
<td>.05</td>
</tr>
<tr>
<td>35.00</td>
<td>-.21</td>
<td>.54</td>
<td>-.31</td>
<td>.42</td>
</tr>
<tr>
<td>36.00</td>
<td>-.24</td>
<td>.36</td>
<td>-.47</td>
<td>.30</td>
</tr>
<tr>
<td>37.00</td>
<td>.03</td>
<td>.49</td>
<td>-.48</td>
<td>-.04</td>
</tr>
<tr>
<td>38.00</td>
<td>-.24</td>
<td>.44</td>
<td>.06</td>
<td>.03</td>
</tr>
<tr>
<td>39.00</td>
<td>.16</td>
<td>.10</td>
<td>-.36</td>
<td>.47</td>
</tr>
</tbody>
</table>

Note: subject numbers range from 1 to 39, although the 37 subjects were included in the final study participants. Participants 9 and 15 were removed to avoid the duplication of contextual factors and family histories (see, Methods above).
The means, standard deviations and ranges for the AQS and TQS dependency and security scores are presented in Table 6. Although variability was found in the children’s level of attachment dependency and security for the AQS and the TQS, only seven individual scores for the AQS were below the .30 threshold that is recommended as the cut-off score for the hypothetically secure child (Waters, 1998); fourteen individual scores for the TQS fell below this threshold. Although there were a few extreme scores, it was deemed unnecessary to adjust those scores as the lowest and highest scores for AQS dependency and security and TQS dependency and security were within the acceptable level of less than 3 standard deviations from the mean.

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQS Dependency</td>
<td>-.12</td>
<td>.18</td>
<td>-.37</td>
</tr>
<tr>
<td>AQS Security</td>
<td>.42</td>
<td>.15</td>
<td>-.05</td>
</tr>
<tr>
<td>TQS Dependency</td>
<td>-.30</td>
<td>.18</td>
<td>-.53</td>
</tr>
<tr>
<td>TQS Security</td>
<td>.32</td>
<td>.26</td>
<td>-.45</td>
</tr>
</tbody>
</table>

A paired-samples t test was conducted to evaluate the relation between mothers’ and teachers’ reports of each child’s dependency and security. Results indicated that teachers found the same children to be significantly less dependent ($t = 4.42, p < .05$) and less secure with them ($t = 2.30, p < .05$) than the mothers did (note: on the dependency scale, a score of -1 indicated highly less dependent (independent) child behaviour, and a score of +1 indicated highly dependent child behaviour).

In order to examine individual patterns of attachment to mothers and to teachers, intercorrelations were computed for the AQS and TQS dependency and security scales for each adult; results are presented in Table 7, below. There was a significant moderate
negative correlation between dependency and security scores for the AQS ($r = -.39, p < .05$) suggesting that mothers who rated their children to be less dependent also rated them as more secure. The correlations between dependency and security scores for teachers, using the TQS, were not significant. Furthermore the correlations between the security scale on the AQS and TQS and between the dependency scales were non-significant. However, there was a moderate (although non-significant) positive correlation between parent and teacher ratings on these scales (a larger sample may have yielded a statistically significant result). In summary, mothers’ sorts yielded higher associations for both security and dependency. Mothers reported a moderate negative correlation between dependency and security.

Table 7: Intercorrelations between AQS and TQS (N=37)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. AQS Dependency</td>
<td>-</td>
<td>-0.39*</td>
<td>0.06</td>
<td>-0.10</td>
</tr>
<tr>
<td>2. AQS Security</td>
<td></td>
<td></td>
<td>0.09</td>
<td>0.27</td>
</tr>
<tr>
<td>3. TQS Dependency</td>
<td></td>
<td></td>
<td></td>
<td>0.07</td>
</tr>
<tr>
<td>4. TQS Security</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $p < .05$

Research question 2: What is the relation between diversity in contextual factors and mothers’ reports of dependency and security and teachers’ reports of dependency and security?

Results for the comparison of means between contextual factors selected for analysis and the AQS and TQS dependency and security scores are presented in Table 8. In most cases, the differences between the contextual factors and the AQS and TQS for
dependency and security were not statistically significant; that is, security and dependency did not vary significantly as a result of: mothers’ education, first language spoken at home, birth order, gender, and school type.

However, the dependency scores for the AQS were significantly related to children’s age and the number of hours spent in care or preschool. The number of hours refers to the number of hours the child was cared for by someone other than the parent and was not related to whether the preschool experience was in home (children were cared for by another relative or babysitter) or in a structured child care or preschool (outside the home). Children who were older (64-76 months) were less dependent on their mothers than were the younger children, $F(1,35) = 4.0, p = .054$. Children who spent more than 10 hours a week in a preschool environment (in home or outside the home) were also less dependent on the mother, $F(1,35) = 4.1, p < .05$. The security scores for the TQS approached significance for age, $F(1,35) = 3.3, p = .078$, which suggested that with a larger sample, results may have indicated that teachers rated older children as more secure. There was a significant relationship between TQS security and outside preschool experience in a child care or nursery school environment, $F(1,35) = 5.9, p < .05$. That is, outside preschool experience was related to greater attachment security with the teacher. There was also a positive relation between TQS security and the amount of time spent in a preschool environment, $F(1,35) = 5.4, p < .05$. Specifically, teachers reported children who spent more than 10 hours a week in a preschool environment as being more secure in their relationship with them.
Table 8: Mean Scores (and Standard Deviations) – Contextual Factor Comparisons – AQS and TQS (N=37) (Standard Deviations are in parentheses)

<table>
<thead>
<tr>
<th>Contextual Factors</th>
<th>Participants (N=37)</th>
<th>Measure</th>
<th>Measure</th>
<th>Measure</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>AQS Dependency</td>
<td>AQS Security</td>
<td>TQS Dependency</td>
<td>TQS Security</td>
</tr>
<tr>
<td>Mother's Education</td>
<td>Lower (n=12)</td>
<td>-.09</td>
<td>.43</td>
<td>-.33</td>
<td>.23</td>
</tr>
<tr>
<td></td>
<td>(n=25)</td>
<td>(.18)</td>
<td>(.11)</td>
<td>(.19)</td>
<td>(.30)</td>
</tr>
<tr>
<td>English Spoken at Home</td>
<td>First (n=27)</td>
<td>-.14</td>
<td>.45</td>
<td>-.29</td>
<td>.33</td>
</tr>
<tr>
<td></td>
<td>ESL (n=10)</td>
<td>(.19)</td>
<td>(.13)</td>
<td>(.19)</td>
<td>(.27)</td>
</tr>
<tr>
<td>Birth Order</td>
<td>First (n=17)</td>
<td>-.13</td>
<td>.42</td>
<td>-.29</td>
<td>.33</td>
</tr>
<tr>
<td></td>
<td>(n=20)</td>
<td>(.13)</td>
<td>(.19)</td>
<td>(.15)</td>
<td>(.25)</td>
</tr>
<tr>
<td></td>
<td>Second and Third (n=20)</td>
<td>-.10</td>
<td>.42</td>
<td>-.30</td>
<td>.31</td>
</tr>
<tr>
<td>Gender</td>
<td>Girl (n=21)</td>
<td>-.09</td>
<td>.45</td>
<td>-.27</td>
<td>.34</td>
</tr>
<tr>
<td></td>
<td>(n=16)</td>
<td>(.21)</td>
<td>(.16)</td>
<td>(.18)</td>
<td>(.29)</td>
</tr>
<tr>
<td></td>
<td>Boy (n=21)</td>
<td>-.15</td>
<td>.38</td>
<td>-.33</td>
<td>.29</td>
</tr>
<tr>
<td></td>
<td>(n=16)</td>
<td>(.14)</td>
<td>(.15)</td>
<td>(.17)</td>
<td>(.21)</td>
</tr>
<tr>
<td>Age</td>
<td>52-63 months (n=18)</td>
<td>-.06*</td>
<td>.41</td>
<td>-.27</td>
<td>.24</td>
</tr>
<tr>
<td></td>
<td>(n=19)</td>
<td>(.19)</td>
<td>(.17)</td>
<td>(.16)</td>
<td>(.29)</td>
</tr>
<tr>
<td></td>
<td>64-76 months (n=19)</td>
<td>-.17*</td>
<td>.42</td>
<td>-.32</td>
<td>.39</td>
</tr>
<tr>
<td>School Type</td>
<td>Public (n=23)</td>
<td>-.10</td>
<td>.38</td>
<td>-.31</td>
<td>.27</td>
</tr>
<tr>
<td></td>
<td>(n=14)</td>
<td>(.18)</td>
<td>(.16)</td>
<td>(.18)</td>
<td>(.27)</td>
</tr>
<tr>
<td></td>
<td>Private (n=14)</td>
<td>-.14</td>
<td>.48</td>
<td>-.28</td>
<td>.40</td>
</tr>
<tr>
<td></td>
<td>(n=14)</td>
<td>(.20)</td>
<td>(.12)</td>
<td>(.18)</td>
<td>(.26)</td>
</tr>
<tr>
<td>Preschool Experience</td>
<td>In Home (n=14)</td>
<td>-.09</td>
<td>.37</td>
<td>-.31</td>
<td>.20*</td>
</tr>
<tr>
<td></td>
<td>(n=14)</td>
<td>(.18)</td>
<td>(.17)</td>
<td>(.19)</td>
<td>(.28)</td>
</tr>
<tr>
<td></td>
<td>Outside (n=23)</td>
<td>-.13</td>
<td>.45</td>
<td>-.29</td>
<td>.40*</td>
</tr>
<tr>
<td></td>
<td>(n=23)</td>
<td>(.19)</td>
<td>(.14)</td>
<td>(.18)</td>
<td>(.21)</td>
</tr>
<tr>
<td>Preschool Hours</td>
<td>&lt; 10 hours (n=13)</td>
<td>-.04*</td>
<td>.36</td>
<td>-.28</td>
<td>.20*</td>
</tr>
<tr>
<td></td>
<td>(n=24)</td>
<td>(.17)</td>
<td>(.11)</td>
<td>(.18)</td>
<td>(.19)</td>
</tr>
<tr>
<td></td>
<td>&gt; 10 hours (n=24)</td>
<td>-.16*</td>
<td>.45</td>
<td>-.31</td>
<td>.39*</td>
</tr>
</tbody>
</table>

*p < .05*
What is the effect size for the diversity in contextual factor comparisons with the AQS and TQS?

To determine the effect size for the contextual factor comparisons presented in Table 8, Cohen’s $d$ (1969, 1988) was calculated ($d=(M_1- M_2)/SD_{POOLED}$). This step was taken to minimize the effect of the sample’s small $n$ and to present results that were meaningful and likely to be statistically significant with a larger sample. These results are presented in Table 9. It is important to remember that, in this sample, many of these contextual factors are highly intercorrelated (see Methods, Table 3). Despite the significant intercorrelations among contextual factors, substantial effect size differences were found for some factors. Large differences were found for AQS dependency in two factors; mothers reported their older children and those who had attended preschool for more than 10 hours a week as less dependent. For AQS and TQS security, there were some relatively large effect sizes for several contextual factors. Specifically, differences were found for AQS security related to language, school type, preschool experience and the amount of time spent in preschool. Mothers rated their children as more secure when English was their first language, when the child attended private school and when the child had attended child care or nursery school for more than 10 hours a week. Large differences were found for TQS security related to mothers’ education, the child’s age, school type, preschool experience, and the amount of time spent in preschool. Teachers rated children as more secure in their relationship with them when mothers had completed post-secondary education and the child was older, and/or had attended a private school, a daycare or nursery school for more than 10 hours a week. Mothers and
teachers rated children who attended private school as more secure in both their mother-child and teacher-child relationships.

Language group status had a moderate effect on AQS dependency scores; English speaking mothers rated their children as somewhat less dependent than ELL mothers rated theirs. Concerning birth order, mothers rated firstborns as moderately less dependent than second or third-born children. There were some moderate effects related to gender; mothers and teachers rated boys as less dependent; mothers rated girls as more secure.

Table 9: Effect Sizes – AQS and TQS Mean Scores and Contextual Factors (N=37)*

<table>
<thead>
<tr>
<th>Contextual Factors</th>
<th>Measure</th>
<th>AQS Dependency</th>
<th>AQS Security</th>
<th>TQS Dependency</th>
<th>TQS Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother’s Education</td>
<td></td>
<td>.20</td>
<td>.08</td>
<td>.27</td>
<td>.5</td>
</tr>
<tr>
<td></td>
<td>Small</td>
<td>Small</td>
<td>Small</td>
<td>Large</td>
<td></td>
</tr>
<tr>
<td>First Language Spoken at Home</td>
<td></td>
<td>.47</td>
<td>.70</td>
<td>.11</td>
<td>.07</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>Large</td>
<td>Small</td>
<td>Large</td>
<td>Small</td>
</tr>
<tr>
<td>Birth Order</td>
<td></td>
<td>.16</td>
<td>.00</td>
<td>.02</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td>Small</td>
<td>Small</td>
<td>Small</td>
<td>Small</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td>.35</td>
<td>.45</td>
<td>.32</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Small</td>
<td>Small</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>.63</td>
<td>.08</td>
<td>.26</td>
<td>.58</td>
</tr>
<tr>
<td></td>
<td>Large</td>
<td>Small</td>
<td>Small</td>
<td>Large</td>
<td></td>
</tr>
<tr>
<td>School Type</td>
<td></td>
<td>.23</td>
<td>.62</td>
<td>.19</td>
<td>.50</td>
</tr>
<tr>
<td></td>
<td>Small</td>
<td>Large</td>
<td>Small</td>
<td>Large</td>
<td></td>
</tr>
<tr>
<td>Preschool Experience</td>
<td></td>
<td>.21</td>
<td>.53</td>
<td>.09</td>
<td>.77</td>
</tr>
<tr>
<td></td>
<td>Small</td>
<td>Large</td>
<td>Small</td>
<td>Large</td>
<td></td>
</tr>
<tr>
<td>Preschool Hours</td>
<td></td>
<td>.67</td>
<td>.65</td>
<td>.15</td>
<td>.75</td>
</tr>
<tr>
<td></td>
<td>Large</td>
<td>Large</td>
<td>Small</td>
<td>Large</td>
<td></td>
</tr>
</tbody>
</table>

* Note: Magnitude of effect sizes are reported using the common convention (Cohen, 1988):
  - 0 -.29 = Small Effect Size
  - .3 - .49 = Medium Effect Size
  - .5 - = Large Effect Size
Research question 3: Are there differences in child outcomes based on mothers’ reports of dependency and security and teachers’ reports of dependency and security?

Descriptive statistics for the child outcome measures are presented in the next section, followed by intercorrelations between the AQS, the TQS, and the child outcome measures.

Child outcome measures

A comparison of means was conducted for the four child outcome measures selected for this study; results are presented in Table 10. The first two measures (PPVT and TERA) were standardized tests with a mean of 100 and standard deviation of 15. The results showed that as a whole, the children in this sample were above average on both the PPVT and the TERA. The last measure was a non-normed, experimental task.

Table 10: Descriptive Statistics – Child Outcome Measures

<table>
<thead>
<tr>
<th>Variable</th>
<th>N=30</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPVT Standard Score</td>
<td></td>
<td>108.17</td>
<td>17.07</td>
<td>57</td>
</tr>
<tr>
<td>TERA 2/3 Reading Quotient *</td>
<td></td>
<td>112.03</td>
<td>18.65</td>
<td>66</td>
</tr>
<tr>
<td>Print Task **(Pelletier &amp; Lasenby, 2007)</td>
<td>28.83</td>
<td>15.69</td>
<td>5</td>
<td>60</td>
</tr>
</tbody>
</table>

* 12 students completed the TERA 2; 18 students completed the TERA 3
** raw scores
Intercorrelations between the AQS, TQS and child outcome measures

There was a highly significant relation between teachers’ reports of security and children’s scores on the TERA \((r = .59, p < .01)\) and on the print task \((r = .47, p < .01)\) and a moderately significant relation with the PPVT \((r = .43, p < .05)\) (that is, children who were rated as more secure scored higher). As one would expect, the standardized achievement tests, TERA and PPVT, were highly correlated with each other \((r = .65, p < .01)\). There were no other correlations with the AQS and TQS. Results are presented in Table 11.

Table 11: Intercorrelations between AQS, TQS and Child Outcome Measures (N=30)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQS Dependency</td>
<td>-</td>
<td>-0.39*</td>
<td>0.07</td>
<td>-0.10</td>
<td>-0.08</td>
<td>0.19</td>
<td>-0.13</td>
</tr>
<tr>
<td>AQS Security</td>
<td>-</td>
<td>0.07</td>
<td>0.27</td>
<td>0.24</td>
<td>0.04</td>
<td>0.20</td>
<td></td>
</tr>
<tr>
<td>TQS Dependency</td>
<td>-</td>
<td>0.07</td>
<td>0.04</td>
<td>-0.12</td>
<td>-0.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TQS Security</td>
<td>-</td>
<td>0.59**</td>
<td>0.47**</td>
<td>0.43*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TERA Reading Quotient</td>
<td>-</td>
<td>0.15</td>
<td>0.65**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Print Task Total Score</td>
<td>-</td>
<td></td>
<td>0.017</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPVT Standard Scores</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Research question 4: Are there differences in child outcomes based on diversity in contextual factors?

The ANOVA results on contextual factors and child outcome scores are presented in Table 12. Significant or nearly significant differences were found for the PPVT and TERA scores and mothers’ education, first language spoken at home, school type, preschool experience and hours spent in preschool. There was a significant relation
between mothers’ education (completed post secondary or more) and the PPVT, \(F(1,28) = 4.107, \ p < .05\), and the TERA, \(F(1,28) = 9.192, \ p < .05\). Language group also had a significant impact on the PPVT, \(F(1,28) = 11.019, \ p < .05\), and the TERA, \(F(1,28) = 12.793, \ p < .05\), that is, English first language children scored significantly higher on both measures. Whether children attended private or public school was significantly related to their score on the PPVT, \(F(1,28) = 12.03, \ p < .05\), and the print task \(F(1,28) = 4.676, \ p < .05\); results approached significance for the TERA. Specifically, private school children scored significantly higher than those in public schools, which represented a lower socio-economic level. Preschool experience was significantly related to higher PPVT scores, \(F(1,28) = 4.927, \ p < .05\), and results approached significance for the TERA and print task; children who had preschool experience outside of the home scored higher. The amount of time a child spent in preschool had a significant impact on PPVT, \(F(1,28) = 10.038, \ p < .05\), and TERA scores, \(F(1,28) = 4.446, \ p < .05\), and approached significance for the print task. Children who had spent more than 10 hours a week in preschool scored significantly higher in vocabulary and early reading. Gender and birth order had no effect on children’s performance on the child outcome measures.
<table>
<thead>
<tr>
<th>Contextual Factors</th>
<th>Participants (N=30)</th>
<th>PPVT</th>
<th>TERA</th>
<th>Print Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother’s Education</td>
<td>Lower (n=9)</td>
<td>99.00*</td>
<td>98.11*</td>
<td>27.33</td>
</tr>
<tr>
<td></td>
<td>Higher (n=21)</td>
<td>112.10*</td>
<td>118.00*</td>
<td>29.48</td>
</tr>
<tr>
<td>First Language Spoken at Home</td>
<td>English (n=24)</td>
<td>112.62*</td>
<td>117.17*</td>
<td>28.10</td>
</tr>
<tr>
<td></td>
<td>ELL (n=6)</td>
<td>90.33*</td>
<td>91.50*</td>
<td>31.83</td>
</tr>
<tr>
<td>Birth Order</td>
<td>First (n=13)</td>
<td>112.31</td>
<td>118.00</td>
<td>30.08</td>
</tr>
<tr>
<td></td>
<td>Second or third (n=17)</td>
<td>108.96</td>
<td>112.64</td>
<td>29.36</td>
</tr>
<tr>
<td>Gender</td>
<td>Girl (n=19)</td>
<td>106.89</td>
<td>111.42</td>
<td>29.74</td>
</tr>
<tr>
<td></td>
<td>Boy (n=11)</td>
<td>110.36</td>
<td>113.09</td>
<td>27.27</td>
</tr>
<tr>
<td>School Type</td>
<td>Public (n=16)</td>
<td>99.56*</td>
<td>106.38</td>
<td>23.38*</td>
</tr>
<tr>
<td></td>
<td>Private (n=14)</td>
<td>118.00*</td>
<td>118.50</td>
<td>35.07*</td>
</tr>
<tr>
<td>Preschool Experience</td>
<td>In Home (n=11)</td>
<td>99.64*</td>
<td>103.91</td>
<td>22.18</td>
</tr>
<tr>
<td></td>
<td>Outside (n=19)</td>
<td>113.11*</td>
<td>116.74</td>
<td>32.68</td>
</tr>
<tr>
<td>Preschool Hours</td>
<td>&lt; 10 hours (n=9)</td>
<td>95.00*</td>
<td>101.67*</td>
<td>23.11</td>
</tr>
<tr>
<td></td>
<td>&gt; 10 hours (n=21)</td>
<td>113.81*</td>
<td>116.48*</td>
<td>31.29</td>
</tr>
</tbody>
</table>

* p< .05
Research question 5: What is the relation between what children say about kindergarten and mothers’ reports of dependency and security and teachers’ reports of dependency and security?

Child interviews

Coding categories for the child interviews were adapted from the categories delineated by Pelletier and Corter (2006). Children spontaneously mentioned the following categories when asked four questions about kindergarten: play, play outdoors, work, teacher, school, good peer behaviour, bad peer behaviour, everything, academics, arts (crafts, music, drama) physical activity, computer, activity centres, rules and routines, and snack. Crosstab analyses were carried out on the most frequent responses for the four interview questions and the AQS and TQS scores for dependency and security.

The most frequent responses for question 1) *What do you like in kindergarten?* included: play, play outdoors, arts, activity centres and snack. There were no differences in frequency of these responses between the more secure and less secure children as rated on the AQS and TQS. However, children who were rated as less dependent by their mothers mentioned they liked having snack at school significantly more often, $\chi^2(1, N=30) = 4.615, p<.05$. There was no difference for the TQS and dependency scores.

For question 2) *What don’t you like in kindergarten?* the most frequent responses were: rules and routines, everything, academics, and activity centres. The children who were rated as less secure and more dependent by their mothers mentioned significantly more often that they did not like academics, $\chi^2(1, N=30) = 4.658, p<.05$; children who
were rated as less dependent by mothers more often said that they liked everything, $\chi^2 (1, N=30) = 4.615 \ p<.05$. There were no significant differences in responses based on security and dependency ratings on the TQS.

When children were asked question 3) *What are you good at in kindergarten?* the most frequent responses included: play, art, physical activity, and activity centres. There were no differences on the AQS for security and dependency nor on the TQS for security. However, the children who were rated as less dependent by their teachers mentioned that they were good at art significantly less often, $\chi^2 (1, N=30) = 5.0, \ p<.05$.

The most frequent responses for question 4) *What are you not so good at in kindergarten?* included: bad peer behaviour, everything, academics, art and activity centres. *Academics* was a response that approached significance ($p=.057$) by children who were rated as less secure by their mothers. There was no difference in responses for ratings of dependency on the AQS and TQS. However, children who were rated as more secure by their teachers mentioned that they were not so good at art significantly more often, $\chi^2 (1, N=30) = 4.342 \ p<.05$.

Although the interview results suggested some possible differences between secure /insecure and less dependent /dependent children’s perceptions of kindergarten, they must be interpreted with caution, given the small number of participants. Nevertheless, there may be some indication that children who were less secure and more dependent, as rated by mothers, found the academic aspects of school to be more difficult.
A Summary of Results

A summary of all significant results are presented in Table 13. Given the small \( n \) for this sample, effect sizes were calculated to reveal meaningful results that may have been significant given a larger sample. The findings for moderate and large effect sizes and those approaching significance are summarized in Table 14.

Table 13: Research Questions and Summary of Statistically Significant Results*

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Summary of Significant Results*</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ 1: What is the relation between mothers’ and teachers’ reports of dependency and security?</td>
<td>• When mothers rated children as less dependent, rated as more secure&lt;br&gt;• Teachers rated children as less dependent&lt;br&gt;• No relation between AQS &amp; TQS scores</td>
</tr>
<tr>
<td>RQ 2: What is the relation between diversity in contextual factors and mothers’ and teachers’ reports of dependency and security?</td>
<td>• Mothers rated older children and children with more preschool hours as less dependent&lt;br&gt;• Teachers rated children with more outside preschool hours as more secure</td>
</tr>
<tr>
<td>RQ 3: Are there differences in child outcomes based on mothers’ and teachers’ reports of dependency and security?</td>
<td>• Teachers who rated children as more secure scored higher on PPVT, TERA, and print task</td>
</tr>
<tr>
<td>RQ 4: Are there differences in child outcomes based on diversity in contextual factors?</td>
<td>• Higher maternal education and PPVT and TERA&lt;br&gt;• EL1 and PPVT and TERA&lt;br&gt;• Private school and PPVT and print task&lt;br&gt;• Preschool (outside) experience and PPVT&lt;br&gt;• More than 10 hours of preschool and PPVT and TERA</td>
</tr>
<tr>
<td>RQ 5: What is the relation between what children say about kindergarten and mothers’ and teachers reports of dependency and security?</td>
<td>• Mothers who rated child as less dependent liked snack at school&lt;br&gt;• Mothers who rated child as more dependent, less secure didn’t like academics&lt;br&gt;• Mothers who rated child as less dependent liked everything</td>
</tr>
</tbody>
</table>
Teachers who rated child as less dependent said they were good at art less often
Teachers who rated child as less dependent said they were not so good at art

*p<.05

Table 14: Research Questions and Summary of Results Approaching Significance or with Moderate to Large Effect Sizes

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Summary of Results:</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ 1: What is the relation between mothers’ and teachers’ reports of dependency and security?</td>
<td>There was a moderate (non-significant) positive correlation between AQS and TQS security and dependency ratings</td>
</tr>
</tbody>
</table>
| RQ 2: What is the relation between diversity in contextual factors and mothers’ and teachers’ reports of dependency and security? | Mothers rated children who were EL1, private school, more preschool (outside) hours as more secure (LES)              
Teachers rated children who were older (AS), attended private school, higher maternal education, as more secure (LES)              
EL1 Mothers rated their children to be less dependent (MES)              
First born children are rated by mothers as less dependent; girls are rated by mothers as more secure (MES)              
Teachers rated boys as less dependent (MES) |
| RQ 3: Are there differences in child outcomes based on mothers’ and teachers’ reports of dependency and security? | None |
| RQ 4: Are there differences in child outcomes based on diversity in contextual factors? | Private school and TERA (AS)              
Preschool experience and TERA & print (AS)              
More preschool hours and print (AS) |
| RQ 5: What is the relation between what children say about kindergarten and mothers’ and teachers reports of dependency and security? | Mothers who rated child as less secure said they weren’t good at academics (AS) |
Chapter 5: Discussion

The focus of this study was fourfold, and intended to examine: 1) mother-child attachment security and dependency and teacher-child attachment security and dependency, 2) how those relationships relate to children’s transition from home to school, 3) the effects of contextual factors on the transition to school, and 4) the impact of these relationships and contextual factors on child outcomes as an indicator of positive adjustment to school. The key relationships were examined in the context of children’s experience with preschool and school type within the socio-cultural context of diversity. Bronfenbrenner’s ecological conceptual framework was utilized as a framework for the reciprocal nature of adult-child relationships and the bidirectional effects of these relationships with the other factors examined as possible contributors to school transition. Transition outcomes were assessed in terms of direct measures of ability in kindergarten and the child’s perspective of the kindergarten experience.

The analyses examining child-adult attachment and dependency and contextual factors in relation to child outcomes were organized with the child’s social ecology in mind. The first of five research questions examined reports of adult-child relationships within the micro-systems of home and school. The focus expanded to examine the impact of contextual factors on those relationships in the second question. Questions three and four examined issues related to child outcomes measured as cognitive and pre-academic skills and the impact of adult-child relationships and contextual factors on these outcomes. And finally, question five explored adult-child relationships and their association with the child’s narrative reports on the school experience.
This chapter first discusses the findings in relation to each of the research questions investigated in this study and implications for practice that may be drawn from those findings. The chapter ends by considering implications of the findings, limitations of the study, as well as directions for future research.

The study began by asking whether mothers and teachers would report the same children to be similar in attachment security and dependency. In order to examine this, mothers carried out an attachment Q-Sort procedure that sorted their child’s behaviours into categories of security and dependency. Teachers carried out a similar card sorting procedure on the same children. When children’s attachment security and dependency were rated by both mothers and teachers, it appeared that mothers and teachers had different perceptions of the relation between dependency and security. Mothers’ reports of dependency and security were closely related and teachers’ reports were not related. Mothers who rated their children as less dependent also rated them as more secure. This finding may be explained by considering that mothers with securely attached children encourage child autonomy for purposes of exploration and learning. Attachment theory implies that mothers’ perceptions of attachment security and dependency are closely related. The secure base concept is central to this notion; the function of the primary caregiver is to provide comfort and protection so that children are secure in the knowledge that they can venture into their environment to explore and learn and return to mother for assistance and reassurance. Bowlby (1973) posited that when young children are effectively dependent they are able to use their primary caregiver as a secure base for exploration becoming more self-reliant and independent over time. Mothers may also have a more global perception of their relationship with their child due to their longer
history of interactions and the strong emotional bond that they share. It may also be important to consider that secure base behaviour may look different in a classroom environment where children are part of a larger group of children. Although children may engage in attachment behaviours with other children in the classroom environment, this is not an attachment relationship, as young children are not able to provide a secure base for one another (Bowlby, 1988; Kerns, 2008). Nevertheless the primacy of attachment-type relationships may decline as other types of relationships such as peer friendships develop.

The teacher-child relationship does not begin until the child enters the classroom. Each brings an internal working model (IWM) that influences the development of their relationship. Ideally the young child’s IWM of a secure base relationship would transfer to the teacher; however, the classroom context and the teacher’s instructional role may influence the teacher’s perceptions of security and dependency behaviours. Findings in this study indicate that the teachers’ reports of security and dependency are unrelated, suggesting that children whose mothers report secure and independent behaviours in the home environment may experience a relationship with the teacher that differs in intensity and quality (Howes & Matheson, 1992) but does not impede less dependent behaviour.

Discordance between mothers’ and teachers’ perceptions may also be related to measurement issues. In particular, the self-report method measures parent and teacher perceptions of relationship quality as opposed to trained-observer reports of observed behaviours and interactions between mothers and children and teachers and children. This may be particularly relevant in that the parents and teachers are reporting on their own relationships with the children; these perceptions may influence their expectations, reports and actual interactions with the children. In addition, researchers have previously
demonstrated lower levels of reliability of norm-referenced, standardized tests like the PPVT for preschool aged children, particularly those from minority groups (see, e.g., Bochner, 1978). It may be the case, that with such a small sample of younger children, the tools used to measure vocabulary and literacy skills were not as reliable as would be desirable.

Given the diversity of the population which participated in the study, it was important to determine if contextual factors had an influence on the patterns of results related to attachment security and dependency for mothers and teachers. Further, a significant body of previous research had paved the way to ask whether child factors such as gender and birth order may interact with other family factors (Doctoroff et al., 2006; Fagot, 1984; Love et al., 2001; Thomas, 2006). Contextual factors have a great impact on all relationships but particularly on the development of children within their immediate contexts and the transition to school.

In this study three factors appeared to be particularly salient for both mothers’ and teacher’s perceptions of attachment security: 1) participation in centre-based child care or nursery school, 2) preschool for more than 10 hours a week and 3) attendance in private school. There is extensive support in the literature for the association between good quality, consistent preschool experience and children’s readiness for school. Comprehensive preschool experience is associated with academic, social, and emotional skills that contribute to a smoother transition and adjustment to kindergarten (Blair, 2002; Howes, 1990; Howes et al., 2008; Reynolds, 1989; Winsler et al., 2008). All children may benefit from preschool experience but economically disadvantaged, minority children appear to experience greater gains. Findings from a recent study indicated that
high-risk children improved over the course of a school year in the areas of language and
cognitive skills when assessed by standardized measures. In addition, parents and
teachers reported separately that children made considerable improvements in social-
emotional skills that included: initiative, self-control, attachment/closeness with adults,
and behavioural issues (Winsler et al., 2008). Nevertheless, in the sample for the current
study, children from the private school had higher levels of preschool experience, so that
more benefits may have resulted for them.

Attendance in private school in this sample is associated with several contextual
factors identified in the literature as important for children’s successful transition and
adjustment to school. Families who have the resources to send their child to private
school are more likely to have a higher family income and a greater level of education,
which contributes to an enriched home learning environment. Higher levels of maternal
education are also linked to greater maternal sensitivity (Pederson et al., 1990), which is
more likely to promote a secure mother-child relationship and home learning
environment that encourages exploration and learning (Sylva et al., 2009). In fact, in the
current study, teachers reported children to be more secure in their relationship with them
when mothers had a higher level of education. Teachers may know parents better in
private schools because they are also more likely to engage in transition practices that
encourage parent involvement in the school through more communication between home
and school, regular volunteering by parents, and more attendance by parents at open
houses and other events (Rathbun et al., 2001).

However, it is important to note that the children who attended the private school
in the current study also participated in a full day, high quality preschool program, in the
same location as their elementary private school, and integrated into other grade levels prior to entry into kindergarten. One may also infer that parents chose this particular school because their beliefs and practices related to learning were in line with those of the teachers and they recognized the value of a high quality full day program for their children’s future academic success. Also, the integration of the preschool program with the rest of the school program afforded significant familiarity for the children making the transition from preschool to kindergarten. Clearly, this must have facilitated a much smoother, less stressful transition to kindergarten for both children and families.

With respect to families who spoke English as an additional language, the findings in the current study parallel those reported by Thomas (2006) in analyses conducted with data collected from the NLSCY. In that study families who were recent immigrants and English language learners had lower scores for parent-child interaction on the NLSCY. Positive parent-child interaction is an essential element for a secure attachment relationship regardless of the cultural variations that may be related to parent-child interactions. In the current study, English speaking mothers also reported their children to be less dependent. This finding may be related to the fact that children who are EL1 are more likely to experience non-maternal care in child care or nursery school. These children are also more likely to participate in organized sports and activities that contribute to the development of self-confidence and self-esteem (Thomas, 2006). Taken together, these experiences contribute to children feeling more secure and willing to take risks in exploring their environment (Moss et al., 2005; Rimm-Kaufman, 2010).

With respect to age, mothers reported older children to be less dependent and teachers reported them to be more secure. Mothers’ perceptions and reports of
attachment and dependency behaviour may be related to the actual developmental maturation of the child, the history of her interactions with the child and the evolving goal-corrected partnership that supports increasing child autonomy (Waters et al., 1991; Bowlby, 1969/1982). This finding may also be understood in terms of the context in which the mother and teacher reported. Mothers reported perceptions about their relationship with their own child within the context of the home with a relatively limited number of similar-aged comparators; teachers, on the other hand, reported their perceptions of security in the classroom context with many comparators. In many cases, these children may be as much as one year apart in the full day programs or even two years apart in the combined junior and senior kindergarten classes. A comparison of the developmental differences at these early ages would be dramatic. Older children would be more likely to exhibit the cognitive skills and socioemotional regulation conducive to the development of a positive relationship with the teacher and an increased ability to use her as a secure base (Sroufe et al., 1983).

Mothers reported girls to be more secure and both mothers and teachers reported boys to be less dependent. These reports are consistent with socialization practices reported in the literature. While girls are encouraged to express a wider range of emotions, boys are taught to control their emotions. As a result, girls have easier access to their emotions and are more likely to represent parent-child interactions as a secure attachment (Pierrehumbert et al., 2009). Boys are generally encouraged to engage in games and play with toys that promote more independent and exploratory behaviour while girls are frequently encouraged to develop more complex language skills and engage in more academic pursuits (Whitehead, 2006). In contrast to the finding that
mothers report firstborns to be more independent, a recent study suggested that second-born children are more adventurous and independent (McHale et al., 2009). However, the subject of birth order effects continues to be open to debate in the literature.

The study then asked whether children’s attachment security and dependency with mothers and with teachers had any bearing on how children performed academically in school. An unexpected finding in the current study was the absence of a relation between mothers’ reports of security and dependence and any child outcome measures (PPVT, TERA, and the experimental Print Task). This raises a question of continuity of context; mothers are not observing their child in the context of the classroom where the child is actually measured on specific skills. Also, as noted above, with comparators, mothers may have an inflated view of their child’s security and independence. This finding is not in line with the common perception in the research literature that mothers who report their child as secure are more likely to encourage exploratory behaviours that support learning and autonomy (Ainsworth & Bell, 1970; Barbarin et al., 2008; Blair, 2002; Thomas, 2006).

In contrast, teachers’ reports of greater security are positively related to academic and language outcomes (as reported on two age-normed standardized measures of language and early literacy); they are also positively associated with the child’s age, participation in centre-based care or nursery school for a greater number of hours, and with higher levels of maternal education. Teachers may report these children as more compliant, cooperative, pro-social, and “ready” for school based on developmental maturity, preschool experience, and a higher family income related to maternal education,
an enriched home environment and attendance in a private school. Private school, as previously noted, is associated with high quality, full day preschool experience.

The study then asked specifically whether children’s academic and social outcomes were tied to these contextual factors. Maternal education is generally accepted in the literature as a key influence in a home learning environment that is associated with positive child outcomes (e.g., Sylva et al., 2009) and results from the current study reflect this position. Specifically, a higher level of maternal education was associated with higher scores for vocabulary and early reading skills.

The finding that EL1 was related to higher vocabulary and early reading scores is also consistent with the literature. Researchers using the Early Development Instrument (EDI) (Offord & Janus, 1999) did not find measurable differences for English language learners in the physical, social, and emotional domains but, as expected, found that ELL children received lower ratings for language and communication skills (Guhn et al., 2007). There was also a strong relation in the current study between attendance in private school, participation in a higher quality preschool program for more hours with reading and language scores.

Earlier findings (in terms of the positive relation between teacher reports of security and outcomes) may suggest that security at school is a driver of language and literacy skills. However, these positive relations between contextual factors and outcomes as well as teacher reports of security and several other contextual factors, suggest that the interpretation of this association may be more complex—it may be that participation in high quality child care, higher maternal education and private school experience have a greater effect on the children’s language and literacy development relative to their peers,
than their security at school. This does not, however, address the “chicken and egg”
question at the root of the teachers’ perceptions – do the teachers perceive the children
who have advanced language and literacy skills as more secure, because of their
advanced skills and likely ease at school, or, are the children with all of the social
advantages listed above, perceived to be more secure by their teachers and also happen to
have well developed language and literacy skills. It is also important to note, that with
the positive relations between teacher reports of security and several contextual factors,
this indicates that many of the children reported to be more secure, share common
backgrounds with their teachers. As a result, in many cases these children come to school
with a similar internal working model as their teachers, and are more likely to establish a
positive, secure relationship with the teacher. Rimm-Kaufman et al. (2000) similarly
argue that teachers frequently value the habits and values of children from a similar social
class as themselves.

Finally the study explored how children themselves perceived their kindergarten
experiences and whether their perceptions were related to mothers’ or teachers’ ratings of
dependency and security. In order to do this, children took part in an open-ended
interview. Children were able to say what they liked and didn’t like about kindergarten
as well as what they felt they were good at and not so good at in kindergarten. These
interviews demonstrate that giving children the opportunity to voice their experiences
yields rich information that supplements more traditional measures of outcomes in terms
of skills (Clark et al., 2003).

As would be expected, mothers who reported their children to be less secure and
more dependent had children who indicated in the child interview that they had
difficulties with the academic aspects of school; these children reported that they did not like academics and they were not good at academics. Interestingly, these findings are not in line with the earlier findings in which maternal reports of higher security and independence did not correlate with academic outcomes. This supports the argument, above, that results from the PPVT and TERA may not be highly trustworthy with a young, diverse sample of subjects. This is consistent with research literature that suggests children who have been classified as insecure are at a developmental disadvantage (Blair, 2002; Bretherton & Munholland, 1999; Main et al., 1985) and may be lacking in the requisite cognitive skills but also the socioemotional skills related to developing a secure base relationship with their teacher. A supportive relationship with the teacher would give the child another opportunity to develop a secure relationship with a caring adult and may in fact compensate for the lack of a secure relationship with his primary caregiver (Lynch & Cicchetti, 1992). In addition, close teacher-child relationships beginning in preschool are related to positive academic outcomes when the child enters formal schooling (Howes et al., 2008).

Finally, when mothers reported children to be more independent, children reported that they liked everything about kindergarten, which suggests they were more likely to take risks in exploring and learning contributing to positive school adjustment (Moss et al., 2005; Rimm-Kaufman, 2010). Children who were reported as independent by their teachers reported that they were not good at art which indicates perhaps that they also had a level of security or self-esteem that allowed them to express a lack of proficiency in a kindergarten activity. An alternative interpretation builds on the fact that more independent children tended to be older and thus more mature in this sample. With
age and maturity, children develop an increasing capacity for self-criticism (Stipek & MacIver, 1989). While these findings are interesting, given the small sample size, these interpretations are offered with a cautionary note.

**Implications**

Findings from the present study need to be interpreted with some caution – primarily as a result of the relatively small number of families participating in the study. However, despite the small sample size, rich and detailed data were collected for all participants and findings do suggest potential policy and practice implications. When considering the policy and practice implications for the present study, three findings stand out: first, that there is a significant relation between mothers’ reports of positive child security and independence and reports from children of their kindergarten experiences, second, that there is a significant positive relation between high-quality early child care experiences and both child academic outcomes, and reports of positive relationships with mothers and teachers, and third, that there is a significant positive relation between teachers’ reports of child security and positive child academic outcomes.

These findings, taken together, support a closely related group of recommendations – that universal, high quality early childhood experiences should be made available, that parents and children will benefit from parent supports that encourage the healthy development of attachment relationships, and that children will benefit academically when teachers receive supports and training that encourage teacher sensitivity to become a secure base for children. The understanding of how the mother-child relationship and the teacher-child relationship are fundamental to the cognitive,
social and emotional outcomes experienced by children is critical to program planning at the classroom and policy levels (Cyr & Van IJzendoorn, 2007; Davis, 2003; Kennedy & Kennedy, 2004).

A number of local programs in Ontario have attempted to bring together high quality preschool child care experiences with parent supports. For example, Peel District School Board’s school readiness centres for diverse families brought together parents and teachers in supporting children. The centres facilitated relationship building between parents, children, and teachers, provided supports for parents, and eased the transition to school for highly diverse families (Pelletier & Corter, 1995a). A second example of this type of program is Toronto First Duty (see Pelletier & Corter, 1995b). In this model, early childhood educators, teachers and parents work together to support children. With parents and teachers working together, the goal here is for there to be a seamless continuity of context between home and school, easing transition and the development of social, emotional and cognitive skills. However, findings from the current study suggest that these programs should include a significant focus on healthy social-emotional development and that these types of program be universally available for all children. Since vulnerability at school entry is not restricted to children from lower income households (Willms, 2002), universal programs that recognize the importance of positive attachment relationships support all children in the transition to school. These findings also suggest that training and supports for child care, preschool, and kindergarten teachers must include a component addressing increased sensitivity to relationships with children, fostering independence and security.
Limitations, Considerations and Future Directions in Research

Despite the rich findings and implications resulting from the present study, there are several significant limitations to this work, pointing to the need for further research.

- The current versions of the TQS and AQS may not have been the best set of tools available to measure child security and independence – several researchers are currently working on developing improved measures of these constructs, breaking down the constructs into smaller classifications (e.g., avoidant behaviour, ambivalent behaviour). Also, these were self reports, provided by teachers and mothers. Previous versions of the AQS have included observation by trained observers. However, time constraints and availability of families made it impossible to collect data in that manner. Also, the current versions of the AQS and TQS were the only measures that provided parallel measures from both the teacher and mother. Future research could include these and other measures to provide a richer and more comprehensive picture of the relationships between teachers, parents, and children.

- No direct observations were reported. Home observations were not possible – only two families consented to an outside observer in their homes. Classroom observations were collected, but not reported, as these data did not directly address any of the research questions (see Appendix J). Future research may include significant observational data to provide a fuller picture of child, parent, and teacher behaviours. These observations may also provide data on processes and mechanisms related to these relationships.

- The current study did not examine parenting or teaching behaviours – also, no data were collected regarding mothers’ or teachers’ attachment profiles. A larger study
may have included the use of a tool like the Adult Attachment Inventory (George et
al., 1984). There is evidence in research literature that the transmission of attachment
patterns may be supported by the fact that children usually have the same attachment
classification as their primary caregiver, suggesting that the caregiver’s internal
working model affects the way s/he relates to the child (Bowlby, 1969, 1973, 1982;
Mercer, 2006).

- Practical and financial considerations made it impossible to collect a significantly
  larger sample for this study. Future funded research may ask similar questions with a
  significantly larger sample of participants, providing the opportunity to make more
definitive conclusions.

- Fathers were not included in the study – mothers are not always the primary caregiver
  or the person most knowledgeable about the child. However, with the small sample of
  participants in this study, the limitation to mothers allows for generalization to
  situations where the mother is the primary caregiver. Including fathers in the study –
those who are primary caregivers – would have added significant and unnecessary
  complexity to the study. Future research may look at specific subgroups (e.g., father
caregivers, families with two mothers, single parent families, etc.)

- The current study did not include significant data from the perspective of the child –
  however, interview data were collected and reported. Future research may include
  additional measures of the child’s perspective of relationships with significant adults
  as well as peers in their lives.

- Data collected do not provide sufficient evidence to speculate on causes for the lack
  of concordance in results between the AQS and TQS. Future research may include
greater observation of parents and mothers (e.g., characteristics of relationships) and allow researchers to observe interrelationships among these factors.

**Conclusion**

This study of parent-child and teacher-child attachment and dependency at the transition to kindergarten bolsters our commitment to establishing positive and significant relationships in early human development. The literature review makes a strong integrative statement about the need to consider children’s emotional internal working model as the foundation for all learning, including separation, exploration, play, and instruction in school. The study itself included a diverse group of participant families, providing authenticity and representativeness to the findings. Despite the small sample size of this exploratory study, results clearly implicate support for parents and educators of young children, particularly in knowing how to initiate and respond contingently and sensitively to young children’s fundamental need for security. The transition to school represents one of life’s major stresses for families; knowing how to give all children a sense of security during this exciting time in development can inform universal programs through excellence in early years policy.
References


National Institute of Child Health and Human Development (NICHD) Early Child Care Research Network (2003). Does amount of time spent in child care predict
socioemotional adjustment during the transition to kindergarten? *Child Development*, 74, 976-1005.


Ontario early math strategy.* [Brochure]. Queen’s Printer for Ontario.

Ontario Ministry of Finance (2008) *Annual Ontario population estimates by
age.* Retrieved from

kindergarten on behavior in elementary school children. *International Journal of
Behavioral Development, 27*(5), 423-427.

*Child Development, 60,* 1076-1081.

Ontario.* Report to the Premier by the special advisor on early learning.
Retrieved from:
http://www.ontario.ca/en/initiatives/early_learning/ONT06_018865

Pederson, D. R., Moran, G., Sitko, C., Campbell, K., Ghesquire, K., & Acton, H.

Pelletier, J. (2002a). *Parents come to kindergarten: A unique junior kindergarten
program for four year olds and their families.* FINE Harvard Family Research


Pelletier, J., & Lasenby, J. (2003). Understanding children’s theories about print to enhance writing in the early school years. In S. Peterson (Ed.), *Untangling some*
knots in teaching writing (pp. 40-50). Newark, DE: International Reading Association.


Appendix A

PARENT INFORMATION SURVEY FOR RESEARCH PARTICIPANTS

Answers to the following survey questions are voluntary:

1. What are the ages of your other children?

2. What language/s are spoken at home? Please list first language first.

3. What is the Mother’s educational experience?

   PLEASE CHECK ONE: some high school___; completed high school ___; some college/university ___; completed college/university (what degree?) ___; professional certificate/degree (which degree?) ___; post-graduate degree (Masters, Doctorate, Law) (which degree? ___)

4. What is the Father’s educational experience?

   PLEASE CHECK ONE: some high school___; completed high school ___; some college/university ___; completed college/university (what degree?) ___; professional certificate/degree (which degree?) ___; post-graduate degree (Masters, Doctorate, Law) (which degree? ___)

5. What is the Mother’s occupation? (includes homemaker, student)

   ______________________________________________________________

6. What is the Father’s occupation? (includes homemaker, student)

   ______________________________________________________________

7. What is the Kindergarten child’s preschool experience: Please be specific about number of ours/day, number of days/week, and number of months or years of attendance. Also please state whether the experience was daycare, babysitter, or nursery school.

8. What are the Kindergarten child’s activities outside of school (e.g., music or sports?):
Appendix B

Principal Information Letter


Dear _____________ (Name of principal),

I am a graduate student and researcher at the Institute of Child Study, OISE, University of Toronto. I am conducting a study that is part of a research project on school readiness at your school, carried out by my supervisor, Professor Janette Pelletier. The purpose of my study is to examine how the parent-child relationship might relate to the developing teacher-child relationship. Research indicates that children’s early relationships predict adjustment in life transitions. Starting school is an important developmental transition undertaken by families. I would like to ask your permission to conduct my study with the kindergarten teachers who are already participating in the kindergarten intervention project. I would also like to send information letters to all the mothers of the children in these specific kindergarten classes.

I will ask mothers who choose to participate to observe their children at home for 2-3 days. Then, I will interview the mothers at school or at another location of their choice about their observations, one time only, in Winter, 2004. This interview with mothers will take approximately one hour and will consist of sorting cards that describe the child from “most like my child” to “least like my child”. I will also ask the kindergarten teachers to observe, in the classroom, the children of participating mothers. I will interview teachers, one time only, about their observations in late Spring, 2004, using the same interview protocol that has been adapted for teachers with fewer questions. The interview with teachers will last approximately 30 minutes per child. In addition, I would like to observe the participating children for one hour with their mother at home or in school and one hour with the teacher in the classroom. I will only observe the children, I won’t be interviewing them.

Please note that your name and the names of your school, teachers and parents will NOT be used in the study. Instead, I will use a number code. You may choose to end participation in the study at any time.

All information pertaining to the study will be kept strictly confidential in a locked file in my research office and will be available only to authorized research personnel. Three years following completion of the study, all raw data will be destroyed. Results of the study will be available to all participants upon request. I will also share the results of the study with members of the research community and with interested school personnel at meetings and through relevant publications. The results of this study will help parents and teachers recognize and support the important emotional processes that underlie children’s adjustment to school. I hope you will allow me to conduct my study in your school.
Participation in this research project will provide important information about young children’s transition to school. If you have any questions about the study, please feel free to contact me at my research office (416) 934-4510 or by email jbrent@oise.utoronto.ca. Please read and sign the attached consent form and return it to me in the stamped self addressed envelope as soon as possible. Thank you for your participation.

Sincerely,

Julaine Brent, M.A.
Principal Consent Form

Please read and sign:

I understand that I have been asked to give consent for the participation of kindergarten teachers and parents in my school in a research study on parent-child and teacher-child relationships and the emotional processes that underlie the transition to school, conducted by Julaine Brent, M.A. at the Institute of Child Study, OISE/University of Toronto. I understand that their participation is voluntary and that I may withdraw my consent for their participation in the study at any time. Participants have the right to decline any questions they choose. A copy of their consent forms will be provided to participants. A summary of the study results will be provided to interested participants.

I give my consent to participate in the research study: PLEASE CHECK ______

Signature

Date

Contact information:
Julaine Brent, student researcher
Institute of Child Study, OISE/UofT
45 Walmer Rd.
Toronto, ON M5R 2X2
Phone: (416) 934-4510  Fax: (416) 978-6485
jbrent@oise.utoronto.ca

Prof. Janette pelletier, thesis supervisor
Phone: (416) 934-4506
jpelletier@oise.utoronto.ca
Appendix C

Teacher Information Letter


Dear _______________ (Name of Teacher),

I am a graduate student and researcher at the Institute of Child Study, OISE, University of Toronto. I am conducting a study that is part of a research project on school readiness at your school, carried out by my thesis supervisor, Professor Janette Pelletier. The purpose of my study is to examine how the parent-child relationship might relate to the developing teacher-child relationship. Research indicates that children’s early relationships predict adjustment in life transitions. Starting school is an important developmental transition undertaken by families.

I will ask mothers who choose to participate to observe their children at home for 2-3 days. Then I will interview the mothers at school or at another location of their choice about their observations, one time only. This interview with mothers will take approximately one hour and will consist of sorting cards that describe the child from “most like my child” to “least like my child”. I will also ask you, the kindergarten teachers, to observe, in the classroom, the children of participating mothers. I will also interview you, one time only, about your observations using the same interview protocol that has been adapted for teachers with fewer questions. The interview with teachers will last approximately 30 minutes per child. In addition, I would like to observe the participating children for one hour with their mother at home or in school and one hour with the teacher in the classroom. I will only observe the children, I won’t be interviewing them. These interviews will take place at school and at your convenience in late Spring 2004 and will focus on your relationship with these children.

Please note that your name and the name of your school will NOT be used in the study. Instead, I will use a number code. Your participation is voluntary and you may choose to end the interview or withdraw from the study at any time.

All information pertaining to the study will be kept strictly confidential in a locked file in my research office and will be available only to authorized research personnel. Three years following completion of the study, all raw data will be destroyed. Results of the study will be available to all participants upon request. I will also share the results of the study with members of the research community and with interested school personnel at meetings and through relevant publications. The results of this study will help parents and teachers recognize and support the important emotional processes that underlie children’s adjustment to school. I hope you will agree to share your observations with me.

Your participation in this research project will provide important information about young children’s transition to school. If you have any questions about the study, please
feel free to contact me at my research office (416) 934-4510 or by email jbrent@oise.utoronto.ca. Please read and sign the attached consent form and return it to me in the stamped self addressed envelope as soon as possible. Thank you for your participation.

Sincerely,

Julaine Brent, M.A.
Teacher Consent Form

Please read and sign:

I understand that I have been asked to participate in a research study on parent-child and teacher-child relationships and the emotional processes that underlie the transition to school, conducted by Julaine Brent, M.A. at the Institute of Child Study, OISE/University of Toronto. If I agree to participate, I will be interviewed at my convenience and I will be asked to sort cards that describe a participating child from “most like this child” to “least like this child”. The interview/card sort for each child will take approximately 30 minutes. I understand that my participation is voluntary and that I may withdraw from the study at any time. I have the right to decline any questions I choose. A copy of this consent form will be provided to participants. A summary of the study results will be provided to interested participants.

I give my consent to participate in the research study : PLEASE CHECK _____

Signature

Date

Contact information:
Julaine Brent, student researcher
Institute of Child Study, OISE/UofT
45 Walmer Rd.
Toronto, ON M5R 2X2
Phone: (416) 934-4510  Fax: (416) 978-6485
jbrent@oise.utoronto.ca

Prof. Janette Pelletier, thesis supervisor
Phone: (416) 934-4506
jpell@oises.utoronto.ca
January, 2004

Dear Parents,

I am a graduate student and researcher at the Institute of Child Study, OISE, University of Toronto. I am conducting a study that is part of a research project on school readiness at your school, carried out by my thesis supervisor, Professor Janette Pelletier. The purpose of my study is to examine how the parent-child relationship might relate to the developing teacher-child relationship. Research indicates that children’s early relationships predict adjustment in life transitions. Starting school is an important developmental transition undertaken by families.

I will ask mothers who choose to participate to observe their children at home for 2-3 days. Then I will phone to arrange an interview with the mothers at school or at another location of their choice about their observations, one time only. This interview with mothers will take approximately one hour and will consist of sorting cards that describe the child from “most like my child” to “least like my child”. I will also ask the kindergarten teachers to observe, in the classroom, the children of participating mothers. I will interview the teachers, one time only, about their observations using the same interview protocol that has been adapted for teachers with fewer questions. The interview with teachers will last approximately 30 minutes per child. In addition, I would like to observe the participating children for one hour with their mother at home or in school and one hour with the teacher in the classroom. I will only observe the children, I won’t be interviewing them.

Please note that your name and the name of your school will NOT be used in the study. Instead, I will use a number code. Your participation is voluntary and you may choose to end the interview or withdraw from the study at any time.

All information pertaining to the study will be kept strictly confidential in a locked file in my research office and will be available only to authorized research personnel. Three years following completion of the study, all raw data will be destroyed. Results of the study will be available to all participants upon request. I will also share the results of the study with members of the research community and with interested school personnel at meetings and through relevant publications. The results of this study will help parents and teachers recognize and support the important emotional processes that underlie children’s adjustment to school. I hope you will agree to share your observations with me.

Your participation in this research project will provide important information about young children’s transition to school. If you have any questions about the study, please feel free to contact me at my research office (416) 934-4510 or by email.
jbrent@oise.utoronto.ca. Please read and sign the attached consent form and return it to your children’s teacher as soon as possible. Thank you for your participation.

Sincerely,

Julaine Brent, M.A.

This study has been approved by Peel’s External Research Screening Committee.
Parent Consent Form

1. Mother’s (or Guardian’s) Name

2. Kindergarten child’s name, gender and age:

Name _________________________ Boy or Girl ______ Date of birth

Please read and sign:

I understand that I have been asked to participate in a research study on parent-child and teacher-child relationships and the emotional processes that underlie the transition to school, conducted by Julaine Brent, M.A. at the Institute of Child Study, OISE/University of Toronto. If I agree to participate, I will observe my child in the home for 2 to 3 days. Next, I will be interviewed for approximately one hour sorting cards that best describe my child’s behavior. My child will be observed for one hour with me at home or in school and for one hour in the classroom. My child will NOT be interviewed. I understand that my participation is voluntary and that I may withdraw from the study at any time.

A copy of this consent form will be provided to participants. A summary of the study results will be provided to interested participants.

I give my consent to participate in the research study: PLEASE CHECK

You may contact me by phone to arrange a convenient meeting time and place:
Yes _____ or No _____

Home telephone: _______________ Workplace telephone: _______________

Signature ____________________ Date ____________________

Contact information:
Julaine Brent, student researcher
Institute of Child Study, OISE/UofT
45 Walmer Rd.
Toronto, ON M5R 2X2
Phone: (416) 934-4510 Fax: (416) 978-6485
jbrent@oise.utoronto.ca

Prof. Janette Pelletier, thesis supervisor
Phone: (416) 934-4506
j pelletier@oise.utoronto.ca

This study has been approved by Peel’s External Research Screening Committee.
Appendix E

Attachment Q-Sort (Version 3.0)

1. Child readily shares with mother or lets her hold things if she asks to.
   Low: Refuses.

2. When child returns to mother after playing, he is sometimes fussy for no clear reason.
   Low: Child is happy or affectionate when he returns to mother between or after play times.

3. When he is upset or injured, child will accept comforting from adults other than mother.
   Low: Mother is the only one he allows to comfort him.

4. Child is careful and gentle with toys and pets.

5. Child is more interested in people than in things.
   Low: More interested in things than people.

6. When child is near mother and sees something he wants to play with, he fusses or tries to drag mother over to it.
   Low: Goes to what he wants without fussing or dragging mother along.

7. Child laughs and smiles easily with a lot of different people.
   Low: Mother can get him to smile or laugh more easily than others.

8. When child cries, he cries hard.
   Low: Weeps, sohs, doesn't cry hard, or hard crying never lasts very long.

9. Child is lighthearted and playful most of the time.
   Low: Child tends to be serious, sad, or annoyed a good deal of the time.

10. Child often cries or resists when mother takes him to bed for naps or at night.
    Low: Does not cry or resist going to bed.

11. Child often hugs or cuddles against mother, without her asking or inviting him to do so.
    Low: Child doesn't hug or cuddle much, unless mother hugs him first or asks him to give her a hug.
12. Child quickly gets med to people or things that initially made him shy or-frightened him.
   Middle if never shy or afraid.
   Low: Child is slow to get used to people or things.

13. When the child is upset hy mother's leaving, he continues to cry or even gets angry after she is gone.
   Middle if not upset hy mom leaving.
   Low: Cry stops right after mom leaves.

14. When child finds something new to play with, he carries it to mother or shows it to her from across the room.
   Low: Plays with the new object quietly or goes where he won't he interrupted.

15. Child is willing to talk to new people, show them toys, or show them what he can do, if mother asks him to.
   Low: Mother's suggestion does not increase willingness to engage new people.

16. Child prefers toys that are modeled after living things (e.g., dolls, stuffed animals).
   Low: Prefers halls, blocks, pots and pans, etc.

17. Child quickly loses interest in new adults if they do anything that annoys him.

18. Child follows mother's suggestions readily, even when they are clearly suggestions rather than orders.
   Low: Ignores or refuses unless ordered.

19. When mother tells child to hring or give her something, he obeys.
   (Do not count refusals that are playful or part of a game unless they are clearly disobedient)
   Low: Mother has to take the object or raise her voice to get it away from him.

20. Child ignores most humps, falls, or startles.
   Low: Cries after minor huinps, falls, or startles.

21. Child keeps track of mother's location when he plays around the house.
   (Calls to her now and then, notices her go from room to room. Notices if she changes activities.)
   Middle if child isn't allowed or doesn't have room, to play away from mom.
   Low: Doesn't keep track.

22. Child acts like an affectionate parent toward dolls, pets, or infants. Middle if child doesn't play 'With or have access to dolls, pets, or :infants.
   Low: Plays with them in other ways.
23. When mother sits 'With other family members, or is affectionate with them, child tries to get mom's affection for himself.
Low: Lets her be affectionate with others. May join in but not in a jealous way.

24. When mother speaks firmly or raises her voice at him, child becomes upset, sorry, or ashamed about displeasing her.
Low: Child does not become upset in response to such behavior.

25. Child is easy for mother to lose track of when he is playing out of her sight.
Middle if never plays out of sight.
Low: Talks and calls when out of sight. Easy to find; easy to keep track of what child is doing.

26. Child cries when mother leaves him at home with babysitter, father, or grandparent.
Low: Doesn't cry with any of these.

27. Child laughs when mother teases him.
Middle: If mother never teases child during play or conversations.
Low: Annoyed when mother teases him.

Middle: If child never sits still.
Low: Prefers to relax on the floor or on furniture.

29. At times, child attends so deeply to something that he doesn't seem to hear when people speak to him.
Low: Even when deeply involved in play, child notices when people speak to him.

30. Child easily becomes angry with toys.
Low: Child does not easily become angry with toys.

31. Child wants to be the center of mother's attention. If mom is busy or talking to someone, he interrupts.
Low: Doesn't notice or doesn't mind not being the center of mother's attention.

32. When mother says "No" or punishes him, child stops misbehaving (at least at that time). Doesn't have to be told twice.
Low: Child persists in misbehavior.

33. Child sometimes signals mother (or gives the impression) that he wants to be put down, and then fusses or wants to he picked right back up.
Low: Always ready to go play by the time he signals mother to put him down.

34. When child is upset about mother leaving him, he sits right where he is and cries.
Low: Doesn't go after her.
Middle: If never upset by her leaving  
Low: Actively goes after her if he is upset or crying.

35. Child is independent with mother. Prefers to play on his own; leaves mother easily when he wants to play.  
Middle: allowed or not enough room to play  
Low: Prefers playing with or near mother

36. Child clearly shows a pattern of using mother as a base from which to explore. Moves out to play; Returns or plays near her; moves out to play again, etc.  
Low: Always away unless retrieved, or always stays near.

37. Child is very active. Always moving around. Prefers active games to quiet ones.  
Low: Child's activity level is low. Prefers quite activities.

38. Child is demanding and impatient with mother. Fusses and persists unless she does what he wants right away.  
Low: Child waits a reasonable time if mother doesn't respond immediately.

39. Child is often serious and businesslike when playing away from mother or alone with his toys.  
Low: Often silly or laughing when playing away from mother or alone with his toys.

40. Child examines new objects or toys in great detail. Tries to use them in different ways or to take them apart.  
Low: First look at new objects or toys is usually brief. (May return to them later however)

41. When mother says to follow her, child does so.  
Low: Child ignores or refuses.

42. Child recognizes when mother is upset. Becomes quiet or upset himself. Tries to comfort her. Asks what is wrong, etc.  
Low: Doesn't recognize; continues play; behaves toward her as if she were OK.

43. Child stays closer to mother or returns to her more often than the simple task of keeping track of her requires.  
Low: Doesn't keep close track of mother's location or behavior.

44. Child asks for and enjoys having mother hold, hug, and cuddle him.  
Low: Not especially eager for this. Tolerates it but doesn't seek it; or wiggles to be put down.

45. Child enjoys dancing or singing along with music.  
Low: Neither likes nor dislikes music.
46. Child walks and runs around without humping, dropping, or stumbling.
Low: Bumps, drops, or stumbles happen throughout the day (even if no injuries result).

47. Child will accept and enjoy loud sounds or being bounced around in play, if mother smiles and shows that it is supposed to be fun.
Low: Child gets upset, even if mother indicates the sound or activity is safe or fun.

43. Child readily lets new adults hold or share things he has, if they ask to.
Low: Child does not readily share with new adults when asked.

49. Runs to mother with a shy smile when new people visit the home.
Middle: If child doesn't run to mother at all when visitors arrive.
Low: Even if he eventually warms up to visitors, child initially runs to mother with a fret or a cry.

50. Child's initial reaction when people visit the home is to ignore or avoid them, even if he eventually warms up to them.
Low: Initial reaction is to approach and interact.

51. Child enjoys climbing all over visitors when he plays with them.
Middle: If he won't play with visitors.
Low: Doesn't seek close contact with visitors when he plays with them.

52. Child has trouble handling small objects or putting small things together.
Low: Very skillful with small objects, pencils, etc.

53. Child puts his arms around mother or puts his hand on her shoulder when she picks him up.
Low: Accepts being picked up but doesn't especially help or hold on.

54. Child acts like he expects mother to interfere with his activities when she is simply trying to help him with something.
Low: Accepts mother's help readily, unless she is in fact interfering.

55. Child copies a number of behaviors or way of doing things from watching mother's behavior.
Low: Doesn't noticeably copy mother's behavior.

56. Child becomes shy or loses interest when an activity looks like it might be difficult.
Low: Thinks he can do difficult tasks.

57. Child is fearless.
Low: Child is cautious or fearful.
58. Child largely ignores adults who visit the home Finds his own activities more interesting. 
Low: Finds visitors quite interesting, even if he is a bit shy at first.

59. When child finishes with an activity or toy, he generally finds something else to do without returning to mother between activities. 
Low: When finished with an activity or toy, he returns to mother for play, affection or help finding more to do.

60. If mother reassures him by saying "It's OK" or "It won't hurt you", child will approach or play with things that initially made him cautious or afraid. 
Middle: if never cautious or afraid. 
Low: Child does not accept mother's assurances.

61. Plays roughly with mother. Bumps, scratches, or bites during active play. (Does not necessarily mean to hurt mom) 
Middle if play is never very active 
Low: Plays active games without injuring mother.

62. When child is in a happy mood, he is likely to stay that way all day. 
Low : Happy moods are very changeable.

63. Even before trying things himself, child tries to get someone to help him. 
Low: Confident. Tries things himself before seeking help.

64. Child enjoys climbing all over mother when they play. 
Low: Doesn't especially want a lot of close contact when they play.

65. Child is easily upset when mother makes him change from one activity to another. (Even if the new activity is something child often enjoys.) 
Low: Readily changes activities when mother suggest new ones.

66. Child easily grows fond of adults who visit his home and are friendly to him. 
Low: Doesn’t grow fond of new people very easily.

67. When the family has visitors, child wants them to pay a lot of attention to him. 
Low: Does not particularly seek attention from visitors.

68. On the average, child is a more active type person than mother. 
Low: On the average, child is less active type person than mother.

69. Rarely asks mother for help. Middle if child is too young to ask. 
Low: Often asks mother for help.

70. Child quickly greets his mother with a big smile when she enters the room. (Shows her a toy, gestures, or says "Hi, Mommy"). 
Low: Doesn't greet mother unless she greets him first.
71. If held in mother's arms, child stops crying and quickly recovers after being frightened or upset.
Low: Not easily comforted.

72. If visitors laugh at or approve of something the child does, he repeats it again and again.
Low: Visitors' reactions don't influence child this way.

73. Child has a cuddly toy or security blanket that he carries around, takes it to bed, or holds when upset.
Low: Can take such things or leave them, or has none at all.

74. When mother doesn't do what child wants right away, child behaves as if mom were not going to do it at all.
(Fusses, gets angry, walks off to other activities, etc.)
Low: Waits a reasonable time, as if he expects mother will shortly do what he asked.

75. At home, child gets upset or cries when mother walks out of the room. (May or may not follow her.)
Low: Notices her leaving; may follow but doesn't get, upset.

76. When given a choice, child would rather play with toys than with adults.
Low: Would rather play with adults than toys.

77. When mother asks child to do something, he readily understands what she wants (May or may not obey.)
Middle if too young to understand
Low: Sometimes puzzled or slow to understand what mother wants.

78. Child enjoys being hugged or held by people other than his parents and/or grandparents.
Low: No particular interest in such contact.

79. Child easily becomes angry at mother.
Low: Doesn't become angry at mother unless she is very intrusive or he is very tired.

80. Child uses mother's facial expressions as good source of information when something looks risky or threatening.
Low: Makes up his own mind without checking mother's expressions first.

81. Child cries as a way of getting mother to do what he wants.
Low: Mainly cries because of genuine discomfort (tired, sad, afraid, etc.).

82. Child spends most of his play time with just a few favorite toys or activities.
Low: Explores and plays (briefly) with a number of different toys.
83. When child is bored, he goes to mother looking for something to do.  
Low: Wanders around or just does nothing for a while, until something comes up.

84. Child makes at least some effort to he clean and tidy around the house.  
Low: Spills and smears things on himself and on floors all the time.

85. Child is strongly attracted to new activities and new toys.  
Low: New things do not attract him away from familiar toys or activities.

86. Child tries to get mother to imitate him, or quickly notices and enjoys it when mom  
imitates him on her own.  
Low: Doesn't show any particular interest in this such engagement.

87. If mother laughs at or approves of something the child has done, he repeats again and  
again.  
Low: Child is not particularly influenced this way.

88. When something upsets the child, he stays where he is and cries.  
Low: Goes to mother when he cries. Doesn't wait for mom to come to him.

89. Child's facial expressions are strong and clear when he is playing with something.  
Low: Facial expressions are not particularly clear or varied.  
Middle: if child isn't allowed or doesn't have room to move very far away.

90. If mother moves very far, child follows along and continues his play in the area she  
has moved to. (Doesn't have to be called or carried along; doesn't stop play or get upset. )  
Low: Child moves play to maintain proximity/access to mother.
Appendix F

Attachment Q-set (Version 3.0) (Waters, 1987). A sample of items and explanations

Below is a partial list of the 90 AQS items with descriptive information about the meaning and use of each item. The “Rationale” for each item is for training only. When the q-set items are reproduced on cards for use by observers, only the item content (“Item”, “Middle”, and “Low”) are included.

1. Child readily shares with mother or lets her hold things if she asks to.
   Low: Refuses.
   Rationale: Sharing is interesting because it is an aspect of smooth interaction and secure base behavior (insofar as it involves seeking information). From clear instances of sharing or refusing you can see whether the child expects the mother to be intrusive and/or unresponsive (i.e., to keep the object and end the interaction). You can't make much out of the absence of sharing. Sharing includes both spontaneous offers to the mom and going along when mother is more the initiator of the sharing.

2. When child returns to mother after playing, he is sometimes fussy for no clear reason.
   Low: Child is happy or affectionate when he returns to mother between or after play times.
   Rationale: The smoothness of the child's transition from exploration to proximity and contact is a defining feature of a well functioning secure base relationship. In the Strange Situation fussing during the pre-separation episodes, incomplete approaches with fussing
instead or reaching to be picked up, and inability to be comforted by contact are hallmarks of insecure attachment. This item is in the Q-set because the behavior is so important in the S/S. Such returns are not necessarily easy to anticipate and they are not very frequent in home settings. Stay alert or you will miss the key moments right at the end of the approach. It might be useful for observers to see this behavior in a few videotapes of the S/S.

3. When he is upset or injured, child will accept comforting from adults other than mother.

Low: Mother is the only one he allows to comfort him.

Rationale: Preference for one figure over others is a hallmark of attachment. However, this does not imply exclusivity or rejection of all others. Nor does it apply to all contexts. In Ainsworth's Baltimore home observations, the only behavior directed almost exclusively to the mother was "approach ending in reach or other effort to make contact". Count only approaches related to comforting. Disregard if the child approaches wanting something other than comfort. The behavior referred to in this item is probably most often a function of how upset s/he is; and this is more a function of the situation and of temperament than of attachment status. Secure base relevance is an empirical issue.

4. Child is careful and gentle with toys and pets.

Rationale: This is a "filler" item. It may be related to a impulsive / reflective cognitive style or to imitation of parental behavior with pets or care off infant siblings. No secure base connotation is intended. Nonetheless, it is important to score this item correctly.
Infants classified anxious resistant in the Strange Situation tend, even in pre-separation episodes, to bang and sweep toys around rather than playing with them carefully. Both anxiety and immaturity might explain this behavior. Filler items make the Q-set sort more easily. They also make the focus on security less obvious. This may reduce social desirability responding when moms are observers.
Appendix G

Teacher attachment Q-Set: Nine items excluded from the original Attachment Q-Set (Waters, 1987).

10. Child often cries or resists when mother takes him to bed for naps or at night.
Low: Does not cry or resist going to bed.

26. Child cries when mother leaves him at home with babysitter, father, or grandparent.
Low: Doesn’t cry with any of these.

33. Child sometimes signals mother (or gives the impression) that he wants to be put down, and then fusses or wants to be picked right back up.
Low: Always ready to go play by the time he signals mother to put him down.

47. Child will accept and enjoy loud sounds or being bounced around in play, if mother smiles and shows that it is supposed to be fun.
Low: Child gets upset, even if mother indicates the sound or activity is safe or fun.

49. Runs to mother with a shy smile when new people visit the home.
Middle: If child doesn’t run to mother at all when visitors arrive.
Low: Even if he eventually warms up to visitors, child initially runs to mother with a fret or a cry.
53. Child puts his arms around mother or puts his hand on her shoulder when she picks him up.

Low: Accepts being picked up but doesn’t especially help or hold on.

61. Plays roughly with mother. Bumps, scratches, or bites during active play.

(Does not necessarily mean to hurt mom)

Middle if play is never very active

Low: Plays active games without injuring mother.

68. On the average, child is a more active type person than mother.

Low: On the average, child is less active type person than mother.

73. Child has a cuddly toy or security blanket that he carries around, takes it to bed, or holds when upset. (Do not include bottle or pacifier if child is under two years old.)

Low: Can take such things or leave them, or has none at all.
Appendix H

PRINT TASK

Student Name: ________________________________________________________

School: _______________________________ Teacher: _________________________

Date: ________________ Researcher’s Initials: ____________________________

Grade: ______________________________ Subject #: ____________ (TBD later)

Please circle: Gender: M or F AM or PM

Writing number and word task - booklet

Read the items (1 to 5) to the child, one line at a time. Ask child to write the following items, one per page in booklet. e.g., for question 1 say “write One Cat” Tester should write down what child is doing on this sheet (e.g., if they are sounding out, etc.)

1. One cat ____________________________________________

2. Two horses ____________________________________________

3. Mommy has four keys ____________________________________

4. Daddy has three hockey sticks ___________________________

5. Child’s name is “X” years old ____________________________

Reading task - card

Ten Little Monkeys Jumping on the Bed (Show card. Say “This says ten little monkeys jumping on the bed”. Ask child to repeat the saying with you. Cover “jumping on the bed”. Ask child “What does this say?”) Write response verbatim.

_________________________________________________________
Appendix I

CHILD INTERVIEW

Student Name: ________________________________________________________

School: _______________________________ Teacher: __________________________

Date: _________________________________ Researcher’s Initials: ____________________

Grade: ________________________________ Subject #: ____________ (TBD later)

Please circle: Gender: M or F AM or PM

Write down the responses verbatim. N/R for no response. ... (P) if probe necessary (only one probe per question). e.g., “tell me one thing you like”

1. What do you like best at kindergarten?

2. What DON’T you like in kindergarten?

3. What are you good at doing in kindergarten?

4. What are you NOT so good at doing in kindergarten?
Appendix J

Direct Classroom Observations and Coding

Observations

All observational data were collected using a running record format (Beaty, 1998). Each target child was observed for 1.5 hours in school during 1) circle time when the child sat as part of a group with the teacher, 2) time spent at an independent activity as the teacher circulated throughout the classroom, and 3) a brief outdoor period of free play when the teacher acted in a supervisory role. Although all behaviors were noted, preference was given to documenting explicit attachment behaviors (Waters, 1987) and those behaviors indicative of “readiness” for school as described in the Early Development Inventory (The Offord Centre for Child Studies, 2007/2008).

Coding

These observations supplemented the quantitative data on secure base and exploratory behavior as well as social competence in terms of “readiness”. Observations were coded using a qualitative methodology, i.e., themes were highlighted and summarized by frequency counts. There were eighty discrete observed behaviors that were subsequently coded into the following nine categories for analysis: self regulating, affective sharing, imitative, physical contact, physical activity, on/off task, rules and routines, social and secure base behaviors. These categories were derived from the AQS items which included the rationale for each observed behavior (Waters, 1987) (see Appendix F) plus items from the Early Development Inventory (The Offord Centre for
Child Studies, 2007/2008). Please refer to Appendix K for a list of the EDI items included in the coding.

Inter-rater reliability was established by two teacher-researchers who were trained in child observations. Following detailed training with this researcher, the two independent reviewers each scored the qualitative observational data for twenty subjects, classifying all items into mutually exclusive categories (the behavior was observed or not observed). An analysis of Cohen’s kappa coefficient of inter-rater reliability was conducted using the conventional formula (Cohen, 1960). An overall kappa of .500 (83.44 % agreement) was found, suggesting overall moderate, acceptable, inter-rater agreement (see Appendix L for detailed reporting of kappa information).

Observations of the 37 target children resulted in a thematic summary of 80 discrete behaviors that had been recorded as occurring most frequently and then coded into the following categories: self regulating, affective sharing, imitative, physical contact, physical activity, on/off task, rules and routines, social and secure base behaviors. A crosstabs analysis was carried out between these 80 behavioral variables and the mothers’ ratings for security and dependency obtained from the Attachment Q-Set and the teachers’ ratings for security and dependency obtained from the Teacher Q-set. These were the same AQS and TQS ratings for security and dependency that were used for all analyses in the current study. Security ratings for mothers and teachers used the .30 cutoff suggested by Waters (1998); children were rated as secure if the AQS and TQS ratings fell along the continuum at .30 or above or as insecure if they fell below .30. The dependency ratings for this study were calculated using the median scores and
yielded a range of scores between 0 and -.18 for the AQS and between 0 and -.32 for the TQS.

There was only one behavior out of the 80 that was associated with an insecure rating assigned by mothers, *does not follow teacher’s actions in circle* (imitative). There were 3 behaviors for which mothers’ ratings from the AQS suggested that there wasn’t a difference between children who were perceived as secure and those who were perceived as insecure: *child greets teacher, child is sad* (affective sharing), and *child observes others and then joins them* (social); seventy-six observed behaviors were associated with children perceived as secure by mothers.

Six behaviors were associated with children who had been perceived as less secure by teachers: *follows peers even when wrong, observes teacher for how to do something* (imitative), *wanders aimlessly* (on/off task), *doesn’t obey teacher* (rules and routines), *discourages one or more from playing or staying together, involved in pretend play alone* (social). There were no differences between children who had been perceived by teachers as secure or insecure for 33 behaviors; the remaining 41 behaviors were associated with teachers’ rating of perceived security on the TQS. Although mothers and teachers were in agreement for more than half (54%) of children’s behaviors perceived as secure, there were thirty behaviors that were engaged in by children that mothers had rated as secure, yet teachers’ ratings suggested there was no difference in secure and insecure children for these behaviors. This result suggested that behaviors related to security that one might observe in the home may not be perceived as such by the teacher in the classroom and confirmed the earlier finding that there was not a
significant relationship between the AQS and TQS scores for security when intercorrelations were calculated.

Mothers’ ratings for dependency were associated with 29 observed behaviors, ratings for independence were related to 26 observed behaviors. Teachers’ ratings were nearly twice the number for dependency \((n=33)\) as for independence \((n=17)\); mothers and teachers were in agreement for 56% of observed behaviors (19 dependency, 11 independence and 15 no difference). This result suggested that dependent behaviors (as with secure behaviors) observed in the home may not be perceived as such by the teacher in the classroom and once again confirmed the earlier finding that there was not a significant relationship between the AQS and TQS scores for dependency when intercorrelations were calculated. Teachers may have interpreted secure base behavior as dependent behavior as the teacher-child relationship developed.
### Appendix J: Crosstab Analysis of the Direct Classroom Observations and the AQS and TQS

#### Observed Behaviors

<table>
<thead>
<tr>
<th>Behavior</th>
<th>AQS Secure</th>
<th>AQS Insecure</th>
<th>TQS Secure</th>
<th>TQS Insecure</th>
<th>AQS TQS</th>
<th>TQS Secure</th>
<th>TQS Independent</th>
<th>AQS TQS</th>
<th>TQS Independent</th>
<th>AQS TQS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self Regulating Behaviors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sucking, rocking</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Affective Sharing Behaviors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greets teacher</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playful, gregarious, confident</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sad</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Initiative Behaviors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follows teacher's actions in circle</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follows peers even when wrong</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observes teacher for how to do something</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observes peers for how to do something</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Physical Contact</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hugs, cuddles with Teacher</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hugs, hair play, sits close to peer</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hits, jostles, being silly</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>no difference</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recipient of hits, jostles, being silly but doesn't react</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Physical Activity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agile, active</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inactive, less coordinated</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>On/Off Task Behaviors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sits close to teacher</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>no difference</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attention wanders</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staring, daydreaming, talking to neighbor restless, fidgets</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>no difference</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child stays on task without teacher prompting</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moves from one activity to another &quot;popcorn&quot;</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>no difference</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Returns to task when teacher reminds her</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Returns to task without teacher reminder</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child wanders aimlessly</td>
<td>X</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rules and Routines</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raises hand to answer questions</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doesn't raise hand, calls out answers</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sits quietly and orderly</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stretches out, lies down, kneels</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doesn't obey teacher</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asks teacher's permission for task, snack, bathroom</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doesn't wait for further instructions before starting to work</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Takes up with prompt from teacher</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Takes up without prompt from teacher</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child lines up in orderly and timely fashion</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Social Behaviors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Says excuse me, sorry, concern if hurt to peers, adults, teacher, applauds efforts</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Observes others and joins them</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talks or shares with neighbor during activity</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talks to group during activity</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plays or works alongside another with little or no exchange</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Child invites one or more to play or stay together</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Child discourages one or more from playing or staying together</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Child involved in pretend play alone</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child involved in pretend play with peers</td>
<td>X</td>
<td>no difference</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix K

Early Development Instrument (Offord & Janus, 1999), Section C: Social and Emotional Development

Items considered in Direct Classroom Observations (Appendix J):

3. plays and works cooperatively with other children at the level appropriate for his/her age
4. is able to play with various children
5. follows rules and instructions
6. respects the property of others
7. demonstrates self-control
8. shows self-confidence
9. demonstrates respect for adults
10. demonstrates respect for other children
11. accepts responsibility for actions
12. listens attentively
13. follows directions
14. completes work on time
15. works independently
16. takes care of school materials
17. works neatly and carefully
18. is curious about the world
19. is eager to play with a new toy
20. is eager to play a new game
21. is eager to play with/read a new book
22. is able to solve day-to-day problems by him/herself
23. is able to follow one-step instructions
24. is able to follow class routines without reminders
25. is able to adjust to changes in routines
26. answers questions showing knowledge about the world (e.g., leaves fall in the autumn, apple is a fruit, dogs bark)
27. shows tolerance to someone who made a mistake (e.g., when a child gives a wrong answer to a question posed by the teacher)
28. will try to help someone who has been hurt
29. volunteers to help clear up a mess someone else has made
30. if there is a quarrel or dispute will try to stop it
31. offers to help other children who have difficulty with a task
32. comforts a child who is crying or upset
33. spontaneously helps to pick up objects which another child has dropped (e.g., pencils, books)
34. will invite bystanders to join in a game
35. helps other children who are feeling sick
36. is upset when left by parent/guardian
37. gets into physical fights
38. bullies or is mean to others
39. kicks, bites, hits other children or adults
40. takes things that do not belong to him/her
41. laughs at other children's discomfort
42. can't sit still, is restless
43. is distractible, has trouble sticking to any activity
44. fidgets
45. is disobedient
46. has temper tantrums
47. is impulsive, acts without thinking
48. has difficulty awaiting turn in games or groups
49. cannot settle to anything for more than a few moments
50. is inattentive
51. seems to be unhappy, sad, or depressed
52. appears fearful or anxious
53. appears worried
54. cries a lot
55. is nervous, high-strung, or tense
56. is incapable of making decisions
57. is shy
58. sucks a thumb/finger
## Appendix L

*Cohen’s Kappa: Inter-Rater Reliability for Observational Data*

<table>
<thead>
<tr>
<th>Subject</th>
<th>Percent Agreement</th>
<th>κ</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>82.3%</td>
<td>0.535</td>
</tr>
<tr>
<td>7</td>
<td>82.3%</td>
<td>0.600</td>
</tr>
<tr>
<td>8</td>
<td>82.3%</td>
<td>0.217</td>
</tr>
<tr>
<td>10</td>
<td>78.5%</td>
<td>0.488</td>
</tr>
<tr>
<td>11</td>
<td>77.2%</td>
<td>0.477</td>
</tr>
<tr>
<td>12</td>
<td>87.3%</td>
<td>0.589</td>
</tr>
<tr>
<td>13</td>
<td>84.8%</td>
<td>0.572</td>
</tr>
<tr>
<td>14</td>
<td>88.6%</td>
<td>0.620</td>
</tr>
<tr>
<td>16</td>
<td>88.6%</td>
<td>0.542</td>
</tr>
<tr>
<td>17</td>
<td>74.7%</td>
<td>0.441</td>
</tr>
<tr>
<td>18</td>
<td>88.6%</td>
<td>0.506</td>
</tr>
<tr>
<td>19</td>
<td>86.1%</td>
<td>0.638</td>
</tr>
<tr>
<td>20</td>
<td>73.4%</td>
<td>0.200</td>
</tr>
<tr>
<td>21</td>
<td>82.3%</td>
<td>0.362</td>
</tr>
<tr>
<td>22</td>
<td>82.3%</td>
<td>0.424</td>
</tr>
<tr>
<td>23</td>
<td>84.8%</td>
<td>0.570</td>
</tr>
<tr>
<td>24</td>
<td>77.2%</td>
<td>0.377</td>
</tr>
<tr>
<td>25</td>
<td>88.6%</td>
<td>0.506</td>
</tr>
<tr>
<td>26</td>
<td>88.9%</td>
<td>0.543</td>
</tr>
<tr>
<td>27</td>
<td>89.9%</td>
<td>0.712</td>
</tr>
<tr>
<td>Total</td>
<td>83.44%</td>
<td>0.500</td>
</tr>
</tbody>
</table>

\[
K = \frac{\text{Pr}(a) - \text{Pr}(e)}{1 - \text{Pr}(e)}
\]