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**Finding the Right Fit: The Relation between Children's Temperament and
Adjustment in Two Divergent Daycare Settings**

by

Ann Barber

A thesis submitted to the
Faculty of Graduate Studies and Research
in partial fulfillment of the
requirements for the degree

Master of Arts

Carleton University

Ottawa, Ontario

May 11, 2001

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Faculty of Graduate Studies and Research
Acceptance of the thesis:

"Finding the Right Fit: The Relation Between Children's Temperament and Adjustment
in Two Divergent Daycare Settings"

submitted by

Ann Barber

in Partial fulfillment of the requirements for
the degree of Master of Arts

Chair
Thesis Supervisor

Carleton University
April, 2001

ABSTRACT

The present study was conducted to examine the interactive influences of temperament and contextual factors on preschool children's adjustment within two forms of day care. The participants in this study were 62 preschool aged children ($M_{age} = 41.4$, $SD = 7.88$ mos.), half of whom were enrolled in licensed home day care settings, half in day care centres. Mothers completed the Colorado Childhood Temperament Inventory (CCTI) (Buss & Plomin, 1984; Rowe & Plomin, 1977). Two teacher rated measures of adjustment were completed to assess children's adjustment with peers as well as with their caregivers. These included the Child Behaviour Scale (CBS) (Ladd & Profilet, 1996), and the Student- Teacher Relationship Scale (STRS) (Pianta & Steinberg, 1992; 1993; Pianta, Steinberg, & Rollins, 1995). Results from regression analyses indicated that certain dimensions of temperament interact with situational features of the child care environment to influence teacher perceptions of children's adjustment. The implications of these results are discussed in terms of the importance of program design and selection of day care settings to promote healthy development.

ACKNOWLEDGEMENTS

I would like to take this opportunity to thank the numerous people who have made this journey such a memorable experience. To begin with, thank you to my advisor, Tina Daniels who guided me through the many challenges I faced, offering words of wisdom and encouragement. Thank you also to my committee members, Rob Coplan, Jo-Anne Lefevre, and Karen March for all of your time and effort, your comments and suggestions were invaluable. A special thank you to Rob who went over and above his responsibilities as a committee member. Your knowledge and enthusiasm for research were greatly appreciated.

I would also like to thank the daycares, caregivers and parents who so graciously volunteered their time, making research possible.

A big thanks to my fellow students who became good friends, making the last few years ones that I will look back on with fondness. In particular I would like to say thank you to Dan, Tanya, Cherami and Kendra who have all been with me since the beginning, offering practical as well as emotional support, I wish each of you great success as you reach for your goals.

Finally, I would like to thank my family without whom none of this would have been possible. To my mother and my two sisters, thanks for your unconditional love and support. To my husband, Rob, whose unwavering belief in my abilities gave me the strength to persevere through the many obstacles in my path. And last, but not least, to my two beautiful children, Brad and Breanna who make my life complete. Thank you for continually reminding me of what is truly important.

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THE RELATION BETWEEN CHILDREN'S TEMPERAMENT AND ADJUSTMENT IN TWO DIVERGENT DAYCARE SETTINGS

In the early seventies, as women with children began entering the workforce in unprecedented numbers, researchers became interested in the possible consequences such a role shift might have on children's wellbeing. Although early researchers focused their efforts on the effects of daycare on children's development (Belsky & Steinberg, 1978; Belsky, 1984; Rutter, 1981), more recently the focus has turned to the variables that contribute to a child's healthy adjustment to such an experience (Anderson, 1989; Phillips, McCartney & Scarr, 1987; Zajdeman & Minnes, 1993). After all, in Canadian society today, daycare is a fact of life for a considerable number of children. Statistics indicate that fifty-five percent of infants between the ages of zero to eighteen months spend approximately twenty-five hours per week in nonparental care (Lero, Goelman, Pence, & Brockman, 1992). This number jumps to more than seventy-nine percent for three- to five-year old children. Such nonparental care most commonly takes place in daycare centres and family home day cares, particularly for children less than 5 years of age (Pence & Goelman, 1987). By concentrating research efforts on better understanding those factors which contribute to the behavioural adjustment of children in these two popular forms of out-of-home care, valuable information can be gathered to assist in children's overall healthy development. Although great advances have been made in the area of daycare research, there is a continuing need to examine children's development within the context of the daycare environment. In particular it is necessary to consider the relevant factors that may impact on a child's adjustment and subsequent development. Although considerable attention has been paid to aspects of the daycare setting itself,

particularly the quality of the setting and how this impacts on a child's social development and adjustment within the daycare (Howes, Phillips, & Whitebook, 1992; Scarr, & Eisenberg, 1993), far less attention has been devoted to aspects of the family and child him/ herself (Scarr & Eisenberg, 1993). As researchers begin to shift their attention to these factors, one factor within the child that has been garnering considerable attention in recent years is that of the child's temperament. This term is generally used to refer to a child's characteristic style of behaviour. The present research was designed to examine the relation between a child's temperament and his or her social development, or more specifically, behavioural adjustment within the daycare environment.

For the purpose of the present study, the terms "daycare," and "out-of-home" care will be used in a general sense to denote care by adults, other than a child's parent, outside of their home. More specifically, home daycare will refer to care by another adult within her own home, whereas centre daycare will refer to care within a larger institution designed specifically for the care of young children while their parents are at work. Preschool, will refer to educationally based programs designed more specifically for the preparation of young children for the experience of school.

Further, in examining the adjustment of preschool children, it is also necessary to define just what is meant by the term adjustment. Although numerous studies have assessed the initial or short term adjustment of children as they enter into daycare or preschool (Fox & Field, 1989; Parker-Cohen & Bell, 1988; See, 1986), the present study examined the ongoing, long term adjustment of children as they grow and develop within the context of the daycare environment. Although most children commonly experience some adjustment difficulties when first entering into a new setting such as a home or

centre daycare facility (Fox & Field, 1989), a small proportion of children (15-20%) continue to have difficulties that persist to the end of the first year and beyond (Chainage, 1999; Caraways & Prior, 1990). It is important to observe and assist this small but significant group of children who are experiencing ongoing, long term adjustment difficulties, as these are the children most in need of attention at the early stages before such behavioural difficulties lead to long term developmental problems.

But how exactly is adjustment defined? As subsequent discussion will reveal, there is some discrepancy as to how best to define and assess the adjustment of preschool children to daycare. In general, studies which have examined children's adjustment tend to assess how "well" they are doing in terms of their social relationships with parents, peers, and teachers or caregivers; whether they are in good health, and exhibit few socio-emotional problems (Hofferth, 1998). Because the preschool era is often described as developmentally significant in terms of children's socialization (Mobley & Pullis, 1991), the present study will focus on preschool children's behavioural adjustment within the social context. More specifically, this study will examine those behaviours important for the development of positive interpersonal relationships.

For the remainder of this introduction, I will discuss the relevant issues necessary to the understanding of the relation between temperament and adjustment. Specifically, attention will be focused on how the different dimensions of temperament best fit within the two most common forms of daycare, home daycare versus centre daycare. An introduction to the daycare literature in general will be presented, examining the shift in the research approach from the early work, with its concentration on the effects of daycare, to the current trends focusing on the contextual factors important to the

subsequent effects of care on children's development. An overview of one factor that has been found to contribute to adjustment within daycare will be provided, that is, children's temperament, examining both how it is defined and what approaches are most significant to its assessment. Attention will then shift to the empirical links, as well as the theoretical links proposed between children's temperament and their overall adjustment and development. Discussion will then address the issue of behavioural adjustment within the context of daycare, how this term is best defined, based on previous research within the school adjustment literature, which will highlight the importance of interpersonal relationships. For children in daycare, these will include relationships with their peers as well as with their caregivers. The introduction concludes with the goals and hypotheses of the present research study, with an emphasis on those areas in which further investigation is required.

In summary then, the present study was designed to examine the relation between preschool children's temperament and their long term, interpersonal adjustment, extending upon previous research by comparing such adjustment within two widely used forms of daycare, home day cares and day care centres. As subsequent sections reveal, differences in the dimensions of temperament which appear to relate to adjustment tend to vary across studies, which may reflect the influence of contextual factors on such a relation.

Unilateral Daycare Research

In the early years of daycare research, a unilateral approach was taken to such study (Belsky & Steinberg, 1978). Emphasis at this time focused on whether or not

daycare was good for children. As such, researchers assessed the differences in the development of children with or without experience in out of home care. For example, researchers examined the effects that the experience of daycare had on children's cognitive (Ackerman-Ross & Kana, 1989; Anderson, 1989; Burchinal, Lee, & Ramey, 1989), socio-emotional (Barglow, Vaughn, & Molitor, 1987; Belsky, 1988, 1989; Belsky & Rovine, 1988; Clarke-Stewart, 1988; Vaughn, Grove, & Egeland, 1980), and social development (Howes & Olenick, 1986; McCartney, Scarr, Phillips, Grajek & Schwartz, 1982; or for a review see Matlock & Green, 1990). Findings from these studies varied considerably depending not only on the area of children's development under investigation, but on a host of other extraneous variables within the family or care environment that influenced the overall effects of daycare on children's development as well (for reviews see Belsky, 1990; Clarke-Stewart, 1990). Although some studies found daycare to have negative effects on children's subsequent development, be it cognitive, socio-emotional or social (Baydar & Brooks-Gunn, 1991; Belsky, 1989; Desai, Chase-Lansdale, & Michael, 1989; McCartney et al., 1982), others found this experience to have positive effects in these domains (Anderson, 1989; Cochrane, 1977; Clarke-Stewart, 1988; Howes, 1988) or no effect at all (Ackerman-Ross & Khana, 1989; Scarr, 1984).

For example, considerable work has been done on the effects of daycare on children's cognitive development, with very mixed results. Although some studies have found that children in daycare had increased cognitive, language and achievement scores, relative to their home reared counterparts (Anderson, 1989; Burchinal, Lee and Ramey, 1989), others have not found such positive results (Ackerman-Ross & Khanna, 1989). The differences in findings appear to be related to factors such as the children's

socioeconomic background, quality of the daycare setting, and not simply the children's exposure to daycare per se.

A second area of development that researchers have often examined is the social development and adjustment of children. This line of study has also had mixed, and often contradictory results. Studies of children exposed to daycare since infancy have found that these children interact more with peers than with adults compared to those reared exclusively at home. These children tend to be more assertive and aggressive, both verbally and physically, they run around more, are less conforming to adult standards and less cooperative (Bates et al, 1991; Egeland & Hiester, 1995; Schwartz, Strickland & Krolick, 1974). A study conducted in Bermuda, where 90% of children are in daycare, found those children who began in infancy were rated as more maladjusted (i.e., more hyperactive, aggressive or anxious at three years of age) than those cared for at home by their mothers or by a babysitter (McCartney, Scarr, Phillips, Grajek & Schwartz, 1982). Other studies examining the social development of daycare versus home reared children have found much more positive effects for the group in daycare. These children displayed more self confidence, were more outgoing, assertive, self sufficient and comfortable, and less timid and fearful in new situations (Clarke-Stewart & Gruber, 1984; Cochrane, 1977; Fowler, 1978; Howes & Olenick, 1986). In a review of the literature on the effects of day care on children's social and emotional development, Matlock and Green (1990), found nine studies that indicated negative effects of such care including increased aggressiveness, more solitary play and noncompliance. On the other hand, eleven of the studies they evaluated demonstrated positive results with exposure to nonparental care in terms of increased cooperation and more social maturity, including an

increase in the ability to share. They concluded that other factors such as the quality of care, parental and child stress, and socioeconomic status were all important considerations when assessing the effect that daycare had on children's development. They also highlighted the significance of environments in fostering the healthy social and emotional development of children.

Perhaps one of the most studied relations between day care and children's development is that associated with the possible effects on the child's socio-emotional development. Belsky has conducted considerable research into the effects that the daily separations imposed by full time day care might have on the formation and maintenance of the attachment relationship between mother and child (Belsky, 1986; Belsky, 1988; Belsky, 1989; Belsky & Braungart, 1991; Belsky & Rovine, 1990; Belsky & Steinberg, 1978). In his first review of the literature Belsky concluded that day care did not appear to have many deleterious effects on children's cognitive or socio-emotional development, (Belsky & Steinberg, 1978), he went on to subsequently reexamine the existing research, and recanted his previous conclusions (Belsky, 1984; Belsky & Rovine, 1988). Upon reassessment, Belsky made the claim that, not only did more than twenty hours per week of nonmaternal care in the first year of a child's life present a risk factor in terms of an increased incidence of insecure attachment of infants with their mothers, but he related this to findings of subsequent aggression and noncompliance in children with such nonparental care (Belsky, 1988). Several other researchers have made similar observations (Barglow, Vaughn, & Molitor; NICHD Early Child Care Research Network, 1996). Opponents to these conclusions, such as Clarke-Stewart (1988), agree that daycare children are statistically more likely than non- daycare children to be classified as

insecurely attached, but claim that such differences are not large enough to necessarily reflect emotional maladjustment. She further suggests that there are numerous other possible explanations for such findings, including the method of assessment of attachment (use of Ainsworth's Strange Situation), as well as family factors such as the mother's attitude towards the infant, her emotional accessibility and behavioural sensitivity, and her desire for independence for herself as well as for her child.

The lack of consistent findings within the daycare effects research would appear to suggest that this unidimensional view was far too simplistic to accurately measure daycare's true impact on development.

Ecological Daycare Research

Recently, research on daycare has begun to take a much more ecological approach to the study of the influence of out-of-home care on children's development. Children enter daycare with a variety of experiences and characteristics, which are likely to impact on the nature and quality of their adjustment within a new and unfamiliar setting. Knowledge of those variables that may contribute to successful (or unsuccessful) adjustment can assist teachers and parents in making such transitions positive ones for their children. Numerous researchers in the area have argued successfully for the inclusion of three systems to describe the true nature of children's experience in daycare:

- a) environmental factors (i.e, the child care quality and type) ; b) family characteristics, including SES, marital adjustment, and parental stress and psychological functioning; and
- c) individual characteristics of the child such as gender, age, and temperament

(McCartney & Marshall, 1989; Scarr, Phillips, & McCartney, 1990).

Environmental Factors

Environmental factors have been assessed for their potential contribution to children's adjustment. Perhaps the single most significant factor in this regard is the quality of the daycare environment to which the child is exposed.

Quality. There is a trend in daycare research today towards focusing on the issue of the quality of daycare settings and less concern with whether parental care is better for children than non-parental care (Peters & Pence, 1992). Numerous studies have examined the relation between environmental quality and children's developmental outcomes, citing the positive influence that a high quality setting can have on children's intellectual, emotional, and social development (Gamble & Zigler, 1986; Goelman & Pence, 1987; Goelman, Rosenthal, & Pence, 1990; Wasik et al., 1990). Studies have identified several specific factors of quality, which appear to relate to children's adjustment to the daycare setting, as well as contributing to their overall development. These factors include both proximal features such as class size, child/staff ratios, and the quality of the setting and its furnishings/toys (Howes, 1983, 1990; Kontos & Fiene, 1987; Vandell & Powers, 1983), as well as distal factors, including staff wages, turnover, and training and education (Clarke-Stewart, 1987; Howes, 1983; Rosenthal, 1991; Whitebrook et al., 1991).

Although the earliest research took this approach, another aspect of the environment that may influence adjustment, but as yet has received little attention, is the type of care setting. Because the focus of the present paper is limited to preschool aged children, (i.e., from 2 ½ -5 years of age) who have not yet entered into formal school on a

full time basis, discussion and the corresponding literature review will be confined to children within this group and the types of arrangements most common to them.

Child care type. In general there are three types of programs commonly used by preschool children. One such program that has received considerable attention in terms of children's adjustment is that of nursery school or preschool. This term is used to describe a group organized primarily for educational purposes for children prior to entrance into kindergarten and as such includes instruction as an integral part of its program (Hofferth & Kisker, 1992). Research has focused on this form of care presumably because such preschools have traditionally been viewed as children's first group socialization experience outside of the home (Mobley & Pullis, 1991). However, as more and more children enter into child care arrangements, not for the sole purpose of educational instruction, but rather to accommodate the needs of working parents, it becomes necessary to focus attention on how these children adjust within these various forms of care. In this regard, there are two commonly used daycare settings; the daycare centre, and family home daycare. Next to parental care and the school setting these two forms of care represent the two most frequent forms of child care used by families within Canada and the United States (Pence, Goelman, Lero, & Brockman, 1992). Recent American statistics reveal 28% of children less than five years old are in daycare centres, and 33% are in family daycare homes (Kontos, Howes, Shinn, & Galinsky, 1995). Further, Canadian statistics indicate that children less than five years of age spend a considerable number of hours per day within these two settings, 30 hours and 34.7 hours respectively. Although these two programs share a number of characteristics, both with

each other as well as with the traditional preschool, they also differ from each other in significant ways, ways that may impact on children's behavioural adjustment.

The daycare centre very closely resembles that of the preschool program.

Although a daycare centre includes children from infancy to school age, the program it provides for preschool aged children is quite similar to that of preschools themselves, in terms of the educational opportunities they may provide compared to the home daycare setting (Thorman, 1990). The atmosphere is also considered to be more contrived and institutionalized, like that of a preschool classroom and therefore more structured in nature, with organized activities and time demands for such things as story time, circle time and the various play stations provided (Pence & Goelman, 1987). Other significant features of the centre include the class size and the number of teachers, along with their educational backgrounds. Generally speaking, in Ontario, the preschool group consists of up to twenty children with teacher/ child ratios regulated at no more than 1:8 (Day Care Nursery Act). Educational requirements for teachers, or caregivers within the centre include at least one teacher per room with an Early Childhood Education Diploma. In many respects then, it appears that the daycare centre shares a number of similarities to the nursery or preschool environment. However, the daycare centre differs from a preschool, per se, as children usually spend a greater proportion of their day within a centre than they do in a preschool and as a child care centre it does not necessarily have educational instruction as its primary goal.

The family home daycare, on the other hand, differs considerably in physical characteristics from that of the preschool or daycare centre. It is often considered to more closely resemble the home environment rather than the classroom atmosphere previously

described (Pence & Goelman, 1987). In general, this setting consists of a mother with young children, who also looks after several other children (no more than 5 under the age of 5) in her own home. These caregivers are usually less formally trained, as an ECE diploma is not required, but they tend to have more experience being both parents and caregivers. The program itself is generally found to be more flexible than centres, in terms of taking more infants, more part time spots and also in terms of routine, with more organization on what is happening and available around the house (Golbeck, 1992). For example, Prescott (1987) found home cares to be more flexible in space and time boundaries, they offered more quiet spaces for children, and time limitations that were less rigid and more responsive to the needs of the children. Centres, on the other hand, were found to have more adult enforced transitions between activities. Prescott (1973) found that centre children spent 24% of their time in structured transitions such as lining up to go outside, to use the washroom, or waiting for lunch, but only 3% of home care children's time was spent in such activities. The social groupings have also been found to differ within the home care setting than that of the centre. Home care settings are more diversified, with children of various ages all under the care of the same provider, and more outside visitors such as friends, relatives, and neighbours of the caregivers. Centres, on the other hand, are usually grouped by age and have little contact with people outside of this setting (Golbeck, 1992). Even the quality of children's daily experiences have been found to differ between home and centre care settings. Home care children are often closely involved in day to day activities such as folding laundry, meeting the deliveryman at the door, or discussing the makings of a salad in the kitchen (Golbeck, 1992). These everyday activities are less likely to be experienced by children in centres

where activities are much more child centred and preschool specific. Finally, the parents of children in home care often have a more personal connection to the caregiver and setting. Because the setting is much smaller, the parents have been found to have more control in choosing the provider and the place and as such often develop more personal and even social relationship with the caregiver. The parents and caregivers often share similar values, customs, and habits which allow for the development of such relationships (Golbeck, 1992).

As these descriptions and contrasts indicate, preschool children may experience various social group settings, outside of their homes, each of which is likely to exert differential influences on their overall adjustment and subsequent development. Although researchers have examined children's adjustment within the preschool setting (Fox & Field, 1989; Mobley & Pullis, 1991; Parker-Cohen & Bell, 1988), less attention has been focused on their adjustment and behavioural development within daycare centres, and even less focus on such adjustment within home care facilities (Goldbeck, 1992). Consequently, very little is known about the influence that day cares, in particular, home day care settings have on children's development. However, many believe there is sufficient theory and research in psychology to suggest that the physical environment has an impact on developmental and educational outcomes of children (Golbeck, 1992). Further, there is very little research on how adjustment might differ among the various child care settings available to children, especially for preschool aged children. There is reason to believe that variability within care type may impact on adjustment in significant ways. As previously outlined, children who are enrolled in family home care will experience a more home-like atmosphere with fewer children, multiple age groups, one

consistent caregiver and therefore possibly more individual attention, as well as greater flexibility in programming than those who enter into daycare centres. However, they may also be exposed to fewer toys and less child friendly furnishings, space limitations, less formally trained caregivers and a less structured environment than that of a daycare centre (Pence & Goelman, 1987). If characteristics of the physical environment are important to children's development, as has been suggested, then these factors may have a positive or negative impact on children's adjustment. These variables are often overlooked in the literature to date and therefore in need of investigation, an area which the present study addressed.

Family Factors

A number of researchers have examined children's adjustment to daycare in relation to various familial characteristics, including SES (Baydar & Brooks-Gunn, 1991), parenting styles (Bolger, 1991; Scarr et al., 1992), marital adjustment (Caraways & Prior, 1990; Roopnarine, Church, & Levy, 1990), as well as parental stress and psychological functioning (Longfellow & Belle, 1984). For example, Longfellow and Belle (1984) found that maternal factors, such as maternal health, emotional, financial and social network problems were all predictive of children's adjustment problems. Moreover, maternal stress, as a result of working outside of the home, and the guilt that is often associated with it, has also been found to influence mother-child interactions which in turn affects the child's adjustment (Mann & Thornburg, 1987). This body of research indicates that children entering into a daycare setting will bring with them various family backgrounds and experiences that will contribute to their (mal) adjustment.

Child Factors

Finally, various characteristics of the child may play a significant role in terms of the influence of the daycare environment on the child's subsequent development.

Researchers have examined factors including the child's gender, age, and temperament with, again, mixed and often conflicting results. For example, some researchers suggest that the effects of exposure to daycare on development may differ and be more significant for boys than for girls (Moskowitz, Schwarz, & Corsini, 1977; Nelson, 1987; Portnoy & Simmons, 1978). Negative effects reported for males have included: insecure attachments (Belsky, 1988; Chase-Lansdale, & Owen, 1987), social incompetence, and problems with cognitive development (Howes, 1988; Mott, 1991). However, it should be noted that not all studies have found such gender differences (Howes & Hamilton, 1992).

Moreover, some researchers believe that the age of entry into care will affect children's subsequent adjustment (Barglow, Vaughn, & Molitor, 1987; Baydar & Brooks-Gunn, 19; Belsky, 1988; Gamble & Zigler, 1986;). Others, however, have concluded that age of entry has no impact (Hausfather, Toharia, LaRoche, & Englesmann, 1997) or has a positive impact on adjustment (Anderson, 1989; Clarke-Stewart, 1987; Field, 1991). It is possible that these inconsistencies may result from various interactions with variables of the environment, such as the quality or the type of setting involved, or variables of the child or his or her family background. Due to the lack of consistency across studies, research on the factors contributing to children's adjustment to daycare should address both age and gender as a matter of course.

Individual differences in the children themselves will undoubtedly play an important role in children's behavioural adjustment within the daycare setting. Researchers have cited the need to pay more attention to the characteristics of the individual child and the interaction of these characteristics with the setting characteristics when assessing children's adjustment and development (Goldbeck, 1992). One of the most significant of these characteristics is temperament. Temperamental differences have often been considered as a mediating variable in children's social behaviour (Caraways & Prior, 1990; Parker-Cohen & Bell, 1988; Rothbart, Ahadi, & Hershey, 1994). Different temperaments may place different demands on both the caregiver and the environment. Although temperament has received some attention in the behavioural adjustment literature, its possible relation with the physical settings has not been extensively considered (Goldbeck, 1992). This aspect of the ecological approach to daycare research is central to the present study. In particular, the goal of this study is to examine the association between child temperament and behavioural adjustment within the context of the daycare environment. Particular attention will be given to whether this association may be differentially influenced by the two divergent daycare settings described in a preceding section, namely, that of the daycare centre, versus that of the home daycare environment. Therefore, discussion will now turn towards the construct of temperament, how it is defined and assessed, as well as its empirical and theoretical links to children's adjustment.

Temperament

Child temperament is a major contributor to individual differences in many aspects of development. Thomas and Chess were the first to highlight the importance of

this construct in a child's development. Their New York Longitudinal Study (NYLS, Thomas, Chess, & Birch, 1968), was one of the first to examine the characteristics of temperament and the contribution that these characteristics made towards the development of behaviour disorders. They defined temperament as the stylistic aspects of an individual's behaviour, believed to be biologically based and therefore innate in nature, however, molded by experience. Temperament was conceptualized as the "how" of behaviour, as opposed to the "what" (Thomas & Chess, 1977). They concluded that individual characteristics were well established in children by 2-3 months of age, suggesting that temperament had a strong genetic component. According to these researchers, temperament consisted of nine dimensions: activity, rhythmicity, approach/withdrawal, adaptability, intensity of reaction, thresholds of responsiveness, quality of mood, distractibility, and attention span. Although Thomas and Chess were the first to highlight the importance of this construct in the child's development, and remain prominent researchers in this area, there are now numerous theories on temperament and its implications for development (see Goldsmith et al., 1987 for full description). However, the approach of Thomas and Chess continues to be used extensively, and has spawned numerous instruments to measure the construct of temperament (Burks & Rubenstein, 1979; Carey, Fox, & McDevitt, 1977; Keogh, Pullis, & Cadwell, 1982).

A number of researchers have questioned the appropriateness of using this clinically- based approach in nonclinical settings, as well as questioning its validity on a number of dimensions (Buss & Plomin, 1984; Keogh, 1986). Several of these researchers found there to be considerable overlap among the nine dimensions proposed by Thomas and Chess and have therefore developed their own approach and measures

from which to study temperament. For example, Buss and Plomin (1984) developed their theory of temperament that includes fewer but broader dimensions, thereby eliminating what they saw as unnecessary overlap amongst the various dimensions.

Buss and Plomin (1984) defined temperament as a set of inherited personality traits. Their definition of temperament differs from that of Thomas and Chess in that they do not include individual differences that are not personality traits, nor do they include individual differences that do not occur beyond infancy, such as the NYLS trait of rhythmicity. Buss and Plomin focused on personality traits that appeared in infancy, but provided a basis for later development. Essentially, they specified three dimensions of temperament. The first of these was activity, which included both tempo and vigour of motor activity. The second dimension was emotionality, which included fear and anger, and involved both emotional and behavioural arousal. Their final dimension was sociability, which referred to a child's preference for being with others rather than being alone. This model combined many of the nine dimensions of the Thomas and Chess approach to produce the EAS theory of temperament. These three dimensions appear to have garnered the most consensus among temperament researchers and have been found to have the greatest heritability rates (Prior, 1992). In a review by Bates (1989), these three dimensions were identified as having considerable construct validity as well as commonality amongst researchers in the area.

Though there is some consensus as to what is meant by the construct of temperament, a conclusive definition remains elusive. There remains conflict among theories as to the boundaries suggested for temperament, particularly as to which dimensions best define the construct (Goldsmith et al., 1987). However, there is

overwhelming consensus that this construct is a significant factor in terms of its contribution to future development and psychological risk (Prior, 1992). Beginning with Thomas and Chess, many researchers have explored the predictive association between temperament and later behaviour problems (Thomas, Chess, & Birch, 1968). Findings to date appear to support the hypothesis that temperament plays an important role in the behavioural adjustment or maladjustment of children (for reviews see Bates, 1989; Rothbart, Posner, & Hershey, 1995).

In summary, once consideration has been given to the impact of the environment, the family, and the child on children's development, most researchers agree that daycare, in and of itself, does not directly result in either positive or negative developmental outcomes for children (McGurk, Caplan, Hennessy, & Moss, 1992; Scarr & Eisenberg, 1993). As the often conflicting results of the research reviewed suggests, it appears that it is not just whether a child has been in daycare that affects their behavioural adjustment within such an environment. Rather, it is the interaction of the numerous variables within the three systems of environment, family and the child, along with the experience of daycare that will ultimately affect how a child adjusts to such an experience and the effect it will have on subsequent development. In order for research to be truly ecological in nature, consideration must be given to these possible variables when assessing the impact of daycare on children's development. Central to the present study therefore, is one of the most significant child factors, namely that of temperament. In particular, the primary focus of the present study is to examine the association between child temperament and behavioural adjustment to daycare settings. The theoretical approach of Buss and Plomin (1984) will be employed to assess temperament because of its broad dimensions that

allow for greater generalizability and reduce the risk of unnecessary overlap between the various dimensions.

In order to further elucidate the temperament-adjustment relation, it is necessary to consider the empirical and theoretical links that have been proposed between these two constructs. It should be noted, however, that several researchers have expressed concern over interpretations of the relation found between temperament and behavioural disorders, particularly in terms of the potential for conceptual and operational overlap between these two constructs (Sanson, Prior, & Caraways, 1990). For example, Sanson et al. (1990) found that internalizing problems such as inhibition could be viewed as an extreme position on approach/withdrawal or sociability temperament factor. However, as these researchers themselves argue, this relation makes some intuitive sense as, by definition, internalizing refers to problems that are within the child and therefore difficult to separate from children's internal style of responding. Respondents of the temperament scales are requested to think of the child's "dispositional style" of behaviour. However, researchers have no way to assess whether the respondent was inadvertently considering a specific observed behaviour instead.

Although the research by Sanson et al. (1990) confirmed that there was some overlap between the two constructs, there was also an overall consensus between clinical psychologists that the items within temperament scales were better measures of temperament and that the behavioural problem items were better measures of behaviours. Further, as Bates (1990) has countered, the conceptual overlap found between temperament and behaviour has important theoretical significance. Because early temperament traits are believed to play a role in the development of behavioural problems

(Rothbart & Bates, 1998), then it makes sense that these two constructs would not be completely independent of one another. Researchers have agreed that despite all the methodological difficulties, there appears to be considerable agreement within the findings of temperament research and its predictive relation to behavioural development. This suggests that what is being described are some relatively solid, developmental phenomena (Lengua, West, & Sandler, 1998; Sanson et al., 1990). Simply because an area of study is complicated by difficulties with operational definitions, does not make it any less worthy of attention.

Temperament can be viewed as a dynamic factor that may mediate and shape the influence of the environment on an individual's psychological makeup, as well as be mediated and shaped by the environment itself (Thomas & Chess, 1977). As such, these researchers argued that it was important to assess temperament in terms of the social context in which the individual was placed. Therefore, the influence of temperamental characteristics may be even especially substantial for young children, as the environment has just begun to impact on their development. Indeed, research findings in the area have found stronger correlations between temperament and subsequent behaviour for younger children than older children (Bates, 1990). Based on the original work of Thomas and Chess (1977), it appears that it was not merely the type of temperament that a child exhibited that predicted how they dealt with the world around them. Rather, the impact of temperamental dimensions was dependant upon suitability of a child's behavioural repertoire and the characteristics of the particular environment to which the child was exposed. Therefore, not only will temperament influence a child's behavioural adjustment within a particular setting such as a home care or daycare centre environment,

but it may differentially influence adjustment between these two varied environments.

Thomas and Chess referred to this match between temperament and the environment as “goodness of fit”. For example, temperament dimensions that may relate to positive adjustment in one setting may not be similarly related in a different setting, due to the differing demands of that particular setting and its interactions with temperament.

Temperament and Adjustment

There is a growing body of research that supports the notion of an empirical relation between temperament and adjustment (Rothbart & Bates, 1998). In fact, some researchers have indicated that one of the most important predictors of children’s adjustment to daycare was that of the child’s temperament (Zajdeman, & Minnes, 1991). Temperament was found to predict adjustment after controlling for other variables such as age, and gender of child, the security of attachment, maternal stress and the quality of the daycare environment. However, the particular dimensions of temperament most often linked to positive or negative adjustment vary from study to study, making conclusions difficult to ascertain. A partial explanation for such variability in the findings may be that children were of different ages and therefore different developmental stages when observed. The link between temperament and adjustment has been assessed in infants (Scholom, Zucker, & Stollak, 1979), toddlers (Northam, Prior, Sanson, & Oberklaid, 1987), preschoolers (Klein, 1980; 1982; Mobley, & Pullis, 1991), and school-age children (Keogh, 1986). However, even when discussion is limited to the preschool aged children (3-5 years), findings of the temperament- adjustment relation vary considerably.

These differences appear to result from the variability within the settings, as well as to how adjustment has been defined.

In studies assessing preschool children's adjustment to kindergarten, temperament characteristics that have been found to be significant have included attention span/distractibility, rhythmicity, activity, adaptability, approach, intensity and mood (Skarpness & Carson, 1987; See, 1986). For example, Skarpness and Carson (1987) assessed the temperament-adjustment relation in a sample of kindergarten children. Mothers were asked to rate their children's temperaments with the Dimensions of Temperament Survey-Revised (DOTS-R), originally developed by Lerner, Palermo, Spiro, and Nesselroade (1982) which consisted of similar dimensions to that of Thomas and Chess (1977). Adjustment was assessed with two instruments, the Child and Adolescent Adjustment Profile (Ellsworth, 1977), and the School Adjustment scale (SA), one of five subscales of the Child Behaviour Rating Scale (Cassel, 1962). This scale measures children's adjustment to the specific interpersonal and academic demands of the classroom, whereas the Child and Adolescent Adjustment Profile assesses more general psychological adjustment. Findings in this study revealed different temperament dimensions to be related to different aspects or demands of the setting. Attention span/distractibility, as well as greater rhythmicity were found to be positively related to adjustment as measured by the SA. On the other hand, activity level was found to be most significantly related to adjustment as measured by the Profile scale. Mood was found to be predictive of adjustment on both scales. Attention span/distractibility may have been predictive on the School Adjustment scale as it might be more directly related to the academic demands of the classroom environment, however, activity level and

mood are more general features that may assist the teacher and peers in forming a more favourable relationship with an individual child.

A similar study on kindergarten adjustment conducted by See (1986), found the strongest temperament predictor of adjustment to be the dimension of adaptability. Specifically, higher ratings of adaptability were found to relate to more positive adjustment in terms of children's social competence, defined by their ability to be cooperative and socialize with peers and teachers, and to communicate their needs effectively.

Children's adjustment to the preschool setting has also revealed a number of different dimensions of temperament to be important. For example, Mobley and Pullis (1991) examined the relation between preschoolers' temperament and their behavioural adjustment within a preschool classroom. Temperament was assessed through teacher ratings on the Teacher Temperament Questionnaire (TTQ-SF; Keogh, Pullis, & Cadwell, 1982). This instrument was also derived from a teacher form of the original work by Thomas and Chess (Teacher Temperament Questionnaire; Thomas & Chess, 1977). Behavioural adjustment was measured by the Rochester Adaptive Behavioural Inventory (RABI; Seifer & Sameroff, 1981). This instrument was originally designed to assess the social-emotional competence of children in relation to the family and home environment and therefore the researchers designed a parallel form for use within the classroom. They also assessed the frequency of socialization difficulties the children incurred by devising typical preschool incidents of behaviour problems using Sroufe and Rutter's (1984) five developmental issues; self control, self reliance, initiative, persistence and cooperation.

These researchers found children high in task orientation (a dimension which combines persistence, distractibility, activity), and low reactivity (intensity, thresholds of responsiveness, negative mood) displayed more positive socialization toward teachers and the classroom setting. Those children rated higher on the personal-social flexibility dimension (adaptability, approach-withdrawal, positive mood), were rated higher in terms of peer socialization variables. The researchers compared their findings with previous work on the temperament-adjustment link in school aged children (see Palisin, 1986; Martin, Nagle, & Paget, 1983) and noted that the temperament variables important to preschool adjustment differed from those in elementary school. Whereas adaptability, approach/withdrawal and persistence were important factors in academic success, here the personal-social flexibility dimension, which included adaptability and approach/withdrawal, did not relate to the teachers' ratings of socialization problems in the preschool. They speculated that the preschool teachers may expect a greater degree of fearfulness in children as they enter this setting than that of teachers within elementary school. However, the personal-social flexibility dimension did relate to children's adjustment in terms of their peers.

Other studies on young children's adjustment to the preschool setting have found similar dimensions of temperament to be important (Jewsuwan, Luster, & Kostelnik, 1993; Parker-Cohen & Bell (1988). Jewsuwan et al. (1993) examined the relation between temperament and preschool adjustment using the Colorado Childhood Temperament Inventory (CCTI); Buss & Plomin, 1984; Rowe & Plomin, 1977), an instrument based on Buss and Plomin's broader temperament dimensions described in their EAS theory of temperament (emotionality, activity, and sociability), yet still

incorporating those dimensions first postulated by Thomas and Chess (1977). They argued that the CCTI dimensions may be more directly related to adjustment. They also questioned the previous measures of adjustment that relied heavily on behavioural problems as the outcome measure. They believed that most of the children assessed would likely fall within the normal range on such measures and therefore they felt that instruments, that measured behavioural problems would not be sensitive enough to detect individual differences among these children. Therefore, to measure adjustment, these researchers devised their own preschool measure of adjustment, the Preschool Adjustment Questionnaire (PAQ, Jewsuwan, Luster, & Kostelnik, 1993), and compared it to the Preschool Behaviour Questionnaire (Behar & Stringfield, 1974), a more commonly used instrument for such studies, but originally designed to detect emotional problems in children. They found that children who were fairly sociable, soothable, and rated low in emotionality were assessed by their teachers as better adjusted to the preschool setting as measured by the PAQ, a global rating by teachers and the anxious subscale of the PBQ. High activity level was found to be related to problem behaviours on the PBQ.

Fewer studies exist that have examined the temperament-adjustment relation specifically within daycare settings. In one such study, Zajdeman and Minnes (1991) found three temperament factors to be significantly related to preschoolers' adjustment within a daycare centre. Temperament was assessed using the Dimensions of Temperament Survey- Revised (DOTS-R, Lerner et al, 1982). The Preschool Child Behaviour Checklist (PCBC, Hodges, Wechsler & Ballantine, 1979) was used to measure adjustment, a scale designed to measure various problem behaviours such as aggression, dependency, withdrawal, anxiety, and task orientation. These researchers found children

rated more positively in terms of mood were perceived by their teachers to be more positively adjusted. Children who were rated as highly active were judged as being more poorly adjusted. Low ratings on the approach/withdrawal dimension were also associated with poorer adjustment.

Overall these findings appear to suggest that there is overwhelming agreement that temperament is a significant factor in children's adjustment within various forms of preschool settings, ranging from kindergarten, to preschool, to daycare centres. However the dimensions found to be most predictive vary considerably as a function of setting, as well as the aspect of adjustment under investigation. For example, factors such as attention/distractibility and persistence were found to be related to adjustment assessed in terms of classroom management in several kindergarten and preschool samples (Mobley & Pullis 1991; Skarpness & Carson, 1987). However, in terms of adjustment as assessed by interpersonal relations within the group, factors such as approach/withdrawal, adaptability, and mood (closely related to dimensions of sociability, soothability and emotionality) were found to be the most predictive (Jewsuwan et al, 1993; Mobley & Pullis, 1991; Parker-Cohen & Bell, 1988).

The variety of methodologies and instruments that have been used to define both temperament and adjustment make it difficult to draw any definitive conclusions regarding the association between temperament and adjustment. However, when context and adjustment factors are considered more directly, the preceding findings appear to suggest some continuity in the temperament dimensions most related to adjustment.

To this regard, Klein (1980, 1982) has conducted two studies that directly addressed the issue of differential context, and as such she is one of the first researchers

to examine the relation between temperament and adjustment across several different social settings. Klein (1980; 1982), examined three groups of preschool children, in different programs including kindergarten, Head Start, and daycare centres. To assess adjustment she used the Preschool Behaviour Questionnaire (PBQ), which was designed to assess behavioural problems in young children (Behar & Stringfield, 1974). This instrument yields a score on three behavioural dimensions, hostile-aggressive, anxious, and hyperactive-distractible. Adjustment was rated through a global rating of teachers' or caregivers' perceptions of children's adjustment within their program. Temperament was measured through mothers' ratings on the Parent Questionnaire from Thomas and Chess (1977).

Findings from both studies revealed significant relations between children's temperament and their adjustment, however, the particular dimensions of temperament that were most predictive varied across samples. For the kindergarten children, poor adjustment was related to a higher threshold of responsiveness, low persistence, and withdrawal from new situations. For the Head Start sample, in contrast to the kindergarten group, poor adjustment was related to high persistence as well as high intensity. In the daycare group, high activity level emerged as the most significant predictor of poor adjustment, while high persistence was, like the Head Start sample, found to relate to poor adjustment. The only other dimension found to be related to positive adjustment was high distractibility.

It appears then, that although several dimensions of temperament did relate to adjustment, these dimensions differed according to setting. It is interesting to note that only persistence was a factor in all three groups, yet how it related to adjustment differed

according to the environment under investigation. High persistence was associated with poor adjustment in both the Head Start and daycare settings, but was associated with positive adjustment in the kindergarten group. Thus, the demands of various settings may require different temperament dimensions for success. For example, it is possible that high persistence may be a beneficial characteristic in a highly structured environment such as kindergarten, where classroom routine is more focused and goals are more specific, requiring the children to stay on task. Conversely, in an environment such as Head Start where the children are allowed to select among an array of activities, this may not be a beneficial characteristic (Klein, 1982). These findings would appear to lend support for the “goodness of fit” theory of the temperament-adjustment link.

These findings, along with those of the previous researchers all suggest the need for continuing research into the relation between temperament and adjustment with consideration to the possible differential impact temperament may have within various types of settings or contexts.

Clearly, there is evidence to support the argument that temperament and behavioural adjustment are related. How they are related, and which dimensions predict adjustment in various settings, however, continues to be debated. Theoretically, there are several possible pathways of association. In a recent review of the literature, Rothbart and Bates (1998) identified several possible ways in which temperament may be related to behavioural adjustment, including examples which, while all feasible, were not all empirically derived. These proposed models included both direct and indirect pathways, as well as a number of possible interactions with the environment or other temperament dimensions (see Appendix A for table with full descriptions). An example of a direct link

would be a temperament extreme exhibiting itself as a behavioural disorder, such as attention deficit disorder. In the case of an indirect linkage, temperament may predispose a child to seek out a certain environment, such as a high risk environment, which may lead to various stressors, such as peer rejection or criminality, culminating into a psychopathology. Other possible linkages included a number of interactions with the environment or other temperament dimensions.

Of particular interest for the present study, is the possible interaction between temperament and the environment. Thomas and Chess (1977), as previously discussed, were one of the first researchers to suggest the possibility of an interactive link between temperament and the environment in the shaping of behavioural disorders, a model they referred to as “goodness of fit”. These researchers argued that behavioural problems may occur when dissonance occurred between a child’s temperament and the demands or characteristics of the environment that he/she encountered. Buss and Plomin (1984) have also referred to this interaction which they defined as the match or mismatch between the individual’s temperament and the environment. In the review by Rothbart and Bates (1998), two temperament-environment interactions were hypothesized. One involved the potential buffering effect of temperament against certain risk factors or stressors. For example, these researchers suggested that temperamental fear may protect against aggression, or positive affect could protect against peer rejection. A second form of interaction involved the possibility of temperament heightening a response to an event. For example, negative affect might influence the response to a stressful situation, which in turn could lead to an increase chance of depression.

Keogh (1989) has elaborated on the interactional importance of temperament within the school setting. She concluded that there are two aspects of “goodness of fit” relevant to the educational domain. The first aspect deals with the instructional demands of the classroom, whereas the second aspect pertains to the interactions with other pupils as well as the teacher. In the first instance, she suggested that certain behavioural styles might be more capable of dealing with the demands of school learning. For example, Keogh (1986) argued that adaptable, approaching, and persistent children would be better able to deal with the difficult and ever changing formal instruction common to most school settings.

In terms of the second aspect of the “goodness of fit” model, Keogh (1986) suggested that relationships with peers and teachers may be particularly sensitive to individual differences in temperament. She speculated that temperamental differences in children may elicit different responses from teachers and therefore affect the nature of children’s experiences in school. For example, children who are adaptable, approaching and of positive mood will be well liked by their teachers. Therefore they may experience many more opportunities for social as well as instructional interactions with their teachers as compared to withdrawing, irritable children.

This second aspect of “goodness of fit” within schools may be particularly relevant to the experience of children within the daycare setting. While daycare centres, also generally work within a structured and curriculum-based program, home day cares are generally more unstructured and homelike in nature, and as such not as curriculum based (Pence & Goelman, 1987). Therefore, the first aspect of school fit may not be as relevant. Day cares’ primary concern is to the care of children while their parents are at

work. Therefore, academic pursuits of kindergarten or preschool, while important, are not as central in the daycare setting. What they do share with the school environments are the demands and expectations in terms of the interpersonal relationships they develop with both their peers as well as their caregivers. Preschool, as previously described, is a time significant for the development of socialization skills for young children. Therefore, these interpersonal relationships may be important indicators of how children are adjusting within this milieu.

Summary

In sum, there appears to be considerable evidence to support the link between a child's temperament and their adjustment to new settings, such as preschool or daycare. However, findings as to which dimensions of temperament are most significant vary from study to study, making the formation of conclusions, very difficult. The only dimension of temperament that appeared to relate to adjustment in preschool aged children consistently across studies was that of activity level, with higher levels relating to maladjustment (Jewsuwan et al, 1993; Klein, 1980; Mobley & Pullis, 1991). This dimension has also been found to be related in similar ways to adjustment in other settings such as kindergarten (Sharpness & Carson, 1987) and elementary school (Billman & McDevitt, 1980; Martin, 1989).

Various theories have been put forth in an attempt to explain the discrepancies between the temperament dimensions research has found to be most influential in children's behavioural adjustment. There does appear to be mounting evidence to suggest that the "goodness of fit" theory, as first hypothesized by Thomas and Chess

(1977) within the family constellation, and later extended to the school and daycare realm by other researchers (Keogh, 1989; Klein, 1980; 1982), may be a significant contributor to the differences in findings. Clearly, then, consideration must be given to the context of the setting, including the structure of the program, when assessing the association between temperament and adjustment. For example, environmental differences found between the two most common forms of daycare, the daycare centre and the home daycare may differentially influence the temperament-adjustment relation and therefore warrant examination. Such a hypothesis would be supported by the work of Klein (1980, 1982) who found differing demands and set up of kindergarten, Head Start and regular daycare settings required differing constellations of temperament in order to adapt. Currently, research within the daycare literature is lacking in this regard.

As such, research that specifically addresses the “goodness of fit” approach to the temperament-adjustment link would add considerably to the present body of knowledge on how children adapt to the daycare environment. Moreover, using measures of temperament that are readily generalizable to the previous research, could help facilitate our understanding of what is currently known of this relation.

As Rothbart and Bates (1998) noted, research has provided evidence of numerous linear relations, however, interactional links have been less conclusive. They argued that although numerous studies claimed to provide evidence for interactional effects, their methodology failed to support such conclusions as previous research did not hierarchically control for the main effects before assessing the interactional ones.

Further, review of the literature also appears to highlight the need for more coherent and relevant definitions of behavioural adjustment. In particular, there appears

to be a need to focus on more normative measures of adjustment rather than focusing attention so heavily on behavioural problems among children. The following section, therefore will examine what we know about adjustment at the present time, and how we can best define adjustment for the purposes of the present study.

Behavioural Adjustment

Research into the experience of children in daycare has not studied their adjustment extensively, and therefore far less is known about how children adapt to these settings, as compared to that of school adjustment. One explanation for the lack of research in this area may be the fact that daycare research has focused much more heavily on the effects that exposure to this form of care has on children's subsequent development (Scarr & Eisenberg, 1993). These two areas of research are undoubtedly intertwined, as a child's adjustment to daycare will certainly influence the effect it will have on his or her development. However, it is important to look at what variables will influence adjustment more directly.

Drawing from the temperament-adjustment research to date, as the preceding section illustrated, there appears to be little consistency or clarity as to the manner in which adjustment is defined. For the most part, studies of adjustment have tended to focus on behavioural problems of children within the preschool or daycare setting, although no theoretical reasoning is generally provided for use of these behaviours as indicators of adjustment (Fox & Field, 1989; Mobley & Pullis, 1991; Zajdeman & Minnes, 1991). However, these behaviours generally focus around peer group participation. For example, Fox and Field (1989), investigated preschool entry behaviour

of three year old children entering a preschool program for the first time. To assess the children's adaptation to the program, the researchers asked mothers to complete the Child Behaviour Questionnaire (CBQ); Trause, Voos, Rudd, Klaus, Kennell, & Boslett, 1981).

This instrument was used to identify problem behaviours and changes in children's eating, sleeping and toileting habits. As well, observations were taken of the children's interactive and solitary behaviours, including items such as aggression, aimless wandering, as well as types of play (parallel, constructive, fantasy, associative).

Other studies on preschool adjustment have used similar methods to assess adjustment such as the Preschool Behaviour Questionnaire (PBQ); Behar & Stringfield, 1974; Klein, 1980, 1982). This scale was originally designed as a quick screening measure of emotional disturbances. It included dimensions of 1) Hostility-Aggressive, 2) Anxious-Fearful, and 3) Hyperactive-Distractible. This would appear to suggest that preschool adjustment has been defined by these previous researchers in terms of the appearance of behavioural problems.

It has been argued, however, that studies on preschool adjustment have tended to rely too heavily on the negative aspects of behaviour. For example, Jewsuwan and colleagues (1993) argued that most children involved in studies of adjustment would likely fall within the normal range of behaviour. As such, the tools used to identify adjustment to date, would not be sensitive enough to adequately assess adjustment in the normal population of children. Further, as the preceding discussion on the link between temperament and adjustment revealed, only a few studies considered socialization factors such as peer relations as important indicators of adjustment (Mobley & Pullis, 1991; Skarpness & Carson, 1987). Therefore some researchers have begun to include positive

aspects of adjustment as well as aspects of peer relations into their definitions of adjustment.

Due to the paucity of knowledge on preschool adjustment, particularly how it is defined and assessed, it is first necessary to examine the literature on other context specific populations. One natural extension for the study of children's adjustment within a normative sample is found within the school adjustment literature. Considerable attention has been given to the research on kindergarten and early elementary school adjustment, much more so than either that of preschool, or daycare adjustment. Examination of the school literature, then, may help illuminate those factors that contribute to successful adjustment in the daycare group. Due to the nature of the present study, discussion will be restricted to that of the behavioural, rather than academic adjustment of children within the school setting.

In contrast to preschool, considerable attention has been paid to children's adjustment in school, as successful adjustment here has been found to lead to positive outcomes, not just from an academic standpoint, but in terms of their social development as well (DeRosier, Kupersmidt, & Patterson, 1994; Kupersmidt & Coie, 1990; Parker & Asher, 1987). Traditionally, positive school adjustment has been defined in terms of children's academic progress or achievement (Lazar & Darlington, 1982). As such, the definition was very restrictive and did not include important aspects of the school environment, namely that of the various interpersonal relationships within this milieu (Ladd, 1989). Ladd and his colleagues have extensively researched the area of school adjustment, and argued that successful school adjustment originates both within the child, and within the interpersonal environment (Birch & Ladd, 1998).

The importance of social adaptation is particularly significant in the early elementary years such as kindergarten, where children are first introduced to the school environment. Social adjustment in kindergarten is arguably more significant than in the later years, when the demands of school are much more academic in nature. One of the primary goals of kindergarten is that of socialization, learning how to get along in a group of one's peers. Therefore, the definition of adjustment in these early years will focus more on the quality of interpersonal relationships and the behaviours associated with these relationships (Birch & Ladd, 1998). Adjustment, then, could be defined in terms of the behaviours and social relations that children establish with significant others in the classroom, namely that of peers and teachers.

These same issues may also be relevant to preschool aged children entering daycare arrangements. These settings are similar to that experienced within the school domain in that they require children to learn to interact successfully with both other children as well as with significant adults other than their parents, in this case, their caregivers. Differences in these two settings, however, include the developmental stage of the children involved. Preschoolers may lack some of the cognitive and social abilities to establish successful peer relations to the extent that early school aged children do. However, by first examining peer relations within the school realm, we may better determine the developmental precursors and behaviours that may be relevant to preschool adjustment.

Therefore two areas within the social realm are significant in the school adjustment literature, and so should be considered in any preschool adjustment research as well: peer relationships, and teacher/ child relationships.

Peer Relationships

The quality of classroom peer relations has been found to be a significant contributor towards children's adjustment (Birch & Ladd, 1996; Kupersmidt, Coie, & Dodge, 1990; Parker & Asher, 1987). As children attempt to adapt to their new environment, peers may serve as either sources of support or stress. It is believed that those children who have positive relationships with their peers may feel more comfortable within the school and therefore they will be better prepared to take advantage of the social and academic opportunities afforded them within this context. Conversely, those children who are rejected by their peers may develop negative attitudes toward school, which, in turn, may decrease their further exploration and development.

The study of peer relations and its influence on psychosocial adjustment, has an extensive history (see Hartup, 1998 for a review). There is considerable evidence from this research to suggest that peer relations within the school setting have a significant impact on children's concurrent and future behavioural, and emotional adjustment, as well as their academic functioning (Kupersmidt & Coie, 1990; Kupersmidt, Coie, & Dodge, 1990; Kupersmidt & Patterson, 1991; Parker & Asher, 1987). In particular, those children identified as having poor peer relations (i.e. those who are disliked or rejected by their peers), have been found to be most at risk for a number of negative outcomes, including delinquency, criminality, school dropout, or need for mental health services (DeRosier, Kupersmidt & Patterson, 1994; Kupersmidt & Coie, 1990; Parker & Asher, 1987). Moreover, evidence from longitudinal studies indicated that problems with peer relations in childhood are associated with subsequent adult disorders as well. For

example, Rutter (1989) found that both low peer acceptance and aggression are predictors of adult criminality and of other adult adjustment problems.

As such, numerous researchers have examined children's early behaviour patterns within peer relations to identify those behaviours most significant to children's subsequent acceptance or rejection from the group (Kupersmidt, Coie, & Dodge, 1990; Parker & Asher, 1987). For example, there is a considerable body of research that links antisocial behaviour such as aggression, to peer rejection (Coie & Kupersmidt, 1983; Coie, Dodge, & Kupersmidt, 1990). Others have found asocial behaviour, such as social withdrawal and inhibition to be related to poor peer acceptance, particularly for girls (e.g. Cantrell & Prinz, 1985; La Greca, 1981; Rubin & Asendorf, 1993). On the other hand, prosocial behaviour has been found to be predictive of acceptance within the peer group (Dodge, 1983). These early behaviour patterns have been suggested to act as either risk factors or protective factors to later maladjustment.

It appears then, that poor quality peer relationships, determined in part by the existence of inappropriate social behaviours, leads to peer rejection. This, in turn, has been found to predict both internalizing and externalizing problems in the future, as well as further peer group difficulties, all of which are considered indices of children's adjustment (Birch & Ladd, 1998; DeRosier et al., 1994; Parker & Asher, 1987).

Therefore, based on the school research, as well as previous work in the preschool literature, these findings suggest the most accurate definition of adjustment should highlight the concept of social competence. By this we refer to the degree to which a child displays appropriate or inappropriate behaviours within the social domain including prosocial, antisocial and asocial behaviours (Howes & Hamilton, 1983). This does make

some intuitive sense as those children who exhibit low levels of social competence in early years such as preschool, tend to show peer relation difficulties in later childhood and beyond (Birch & Ladd, 1998). Therefore these behaviours may be viewed as precursors to later peer relations and therefore necessary components in defining and assessing adjustment within the preschool domain. Obviously, how a child behaves and interacts with other children within the child care setting, will have a significant influence on his/her adjustment. It follows, then, that when attempting to define adjustment for preschool aged children it would be important to look towards these precursors since these children have not yet forged strong peer relations from which to assess adjustment.

Teacher/Caregiver-Child Relationships

Although peers inevitably play a significant role in children's school adjustment, they are not the only people with whom children interact within the school. Teachers are also prominent figures within the school environment, and it is therefore surprising that much less attention has been given to teacher-child relationships and how they influence children's subsequent adjustment. Studies in which the influence of this relationship on children's development have been examined are based heavily on attachment theory (Howes & Hamilton, 1992,1993; Howes & Matheson, 1992). Researchers in this area have assessed the features of the teacher-child relationship in terms of secure, avoidant, or resistant/ambivalent attachments. Other researchers have expanded upon this research to identify three distinct qualitative aspects of the teacher- child relationship that are correlated to school adjustment (Pianta & Steinberg, 1992; Pianta, Steinberg, & Rollins, 1995). These features included; closeness, which refers to the degree of warmth and

openness between the teacher and child, conflict, the degree of antagonistic relations between the teacher and child, and dependency, the degree to which the child is overly dependant on the teacher. Pianta and his colleagues have found that those teacher-child relationships defined as close, were associated with positive child outcomes, such as school enjoyment, class participation and academic competence. Conflictual or dependant relationships, on the other hand, were associated with negative outcomes, such as negative attitudes towards school, poor participation and poor academic performance (Birch & Ladd, 1997). The theoretical framework for these features of the teacher-child relationship was based on previous work on teacher-child (Birch & Ladd, 1996; Howes & Hamilton, 1993; Pianta et al, 1995) and parent-child relationships (Elicker, Englund, & Sroufe, 1992; Parke, Cassidy, Burks, Carson, & Boyum, 1992). Closeness in the teacher-child relationship was thought to offer emotional support and security, which might in turn, lead to positive relationship expectations or schemas, all of which may lead to positive social-behavioural interaction styles within the classroom. If this were the case, it would be expected that close teacher-child relationships in kindergarten, would be related to increases in children's prosocial behaviours and decreases in their antisocial behaviour over time. Conversely, children who experienced conflictual teacher-child relationships, may come to develop beliefs regarding the appropriateness of antisocial acts and therefore exhibit increases in aggressive and coercive behaviours (see Patterson, DeBaryshe, & Ramsey, 1989; Crick & Ladd, 1990). For example, a dependant teacher-child relationship was hypothesized by the researchers to indicate a reliance on the teacher as a "shield" that the children use to protect themselves from coping with the

social challenges of peers. In this case, the children may be unknowingly reinforced for withdrawal from the peer group that may result in further asocial behaviour.

Pianta and Steinberg (1992), for example, found conduct disorders and internalizing problems, as well as learning problems to be negatively related to the subsequent quality of the teacher-child relationship in a kindergarten sample. Therefore, it has been suggested that although this relationship has often been assessed for its influence on behavioural adjustment, it might also be affected by children's behaviours, and as such, it may serve as a marker for how a child is adapting to the school environment (Birch & Ladd, 1998).

Similar relationships may also be found in daycare homes or centres between preschoolers and their caregivers. As with the school literature, very few studies have examined this relation, and those that have, tend to focus more on the caregiver-child relationship as a contributor to subsequent adjustment rather than a definitional factor. For example, Howes and Hamilton (1993) found that both changes in primary child care teachers, through teacher turnover or a change in facility, as well as changes within the nature or quality of the teacher-child relationship, were both associated with changes in children's social competence with peers. They found that children who experienced the most changes in primary teachers were more aggressive as four-year olds than those children who did not experience as much change. However, for the preschool aged children, the experience of change in teachers was mediated by the nature of the relation between the teacher and the child. That is, if the change was in the direction of a less positive teacher- child relation, the children were found to be most aggressive. If the children had secure teacher-child relations and experienced a change in a positive

direction, the children were found to be more positive with peers. These findings supported the researchers' theory that children use their teachers for emotional support, much in the same way that attachment theory describes the child's use of his/her mother as a secure base. Their findings also support the notion that a poor match between the child and teacher can lead to negative outcomes and that the nature of the relationship can influence aggression with peers.

It appears, then, that the teacher- child relationship may be another significant factor in children's adjustment to early elementary school as well as within the preschool realm. The quality of this relationship may influence children's schemas of their social environment and consequently affect their behaviours within this setting. It might also be the case that their behaviours within the social context might influence the relationship they form with their teachers. For these reasons the quality and consequences of the teacher or caregiver-child relationship is another area in need of examination when attempting to create a more coherent and comprehensive definition of behavioural adjustment in children, in the preschool domain and beyond.

Summary

Based on the school adjustment research, as well as previous daycare studies, there is considerable evidence to suggest that any assessment of behavioural adjustment of children must examine not only their relationship with peers, but their relationship with their teachers/caregivers as well. Although the research on peer relations' influence on children's adjustment is now well established (Hartup, 1998; Kupersmidt, Coie, & Dodge, 1990), far less is known of the influence that the teacher-child relationship may

play in this regard (Birch & Ladd, 1998). Studies that have examined the teacher-child relationship, have most often considered its influence as a determinant of children's subsequent behavioural adjustment. These studies have found that warm, close and open teacher/child relationships are associated with more positive adjustment than that of conflictual, or dependent relationships (Birch & Ladd, 1997; Howes & Hamilton, 1992; Pianta et al., 1995).

There are a number of issues pertaining to the association between temperament and behavioural adjustment within daycare that remain to be addressed. Although there continues to be growing literature to support such a link, the lack of consideration as to the potential differential influences of context (i.e., Centre vs. Home care) is unnecessarily limiting. Inconsistencies as to how best to measure temperament, as well as behavioural adjustment, also continues to impede the formation of definitive conclusions.

Present Study

Goals

The present study was designed to further investigate the nature of the relation between children's temperament and behavioural adjustment within the daycare setting, with regards to the "goodness of fit" model. This model may, in part, account for the divergent results found within the research to date. Researchers such as Klein (1980, 1982) have found this theory to provide a framework for the temperament-adjustment relation that takes into consideration the child's environmental context. This model suggests that the match between the particular dimensions of temperament and the

features or demands of the context interact to influence a child's subsequent adjustment. In her studies, Klein (1980, 1982) found that the dimensions of temperament most predictive to a child's adjustment varied according to the features of the program the child attended. In these studies Klein examined programs with very divergent qualitative features, namely a daycare centre, a Head Start program, and a kindergarten program. However, even within a given program such as that of daycare, there are several variations in settings.

Numerous differences, which may impact positively or negatively on a child's development, have been found between the two most common forms of daycare. As reviewed previously, daycares may be large centres that resemble a classroom setting with a certain number of children, of the same age, per caregiver. Children are often exposed to several caregivers throughout their day in care. Alternately, a daycare may refer to a family home daycare in which an unrelated caregiver looks after a limited number of children, of various ages, in her own home. In this case, the children have the consistency of one caregiver throughout their stay in care. Consequently, family home daycares are generally found to be more unstructured, flexible, and homelike in format while daycare centres tend to be more structured, in order to deal with the greater number of children under their care (Golbeck, 1992; Pence & Goelman, 1987; Prescott, 1987). As such, the features and demands of each type of setting are likely to differ considerably which may therefore influence the relation between temperament and adjustment.

The present study, therefore, will attempt to extend the findings of Klein (1980, 1982) by further examining the "goodness of fit" of the various dimensions of temperament within two divergent daycare settings, that of the daycare centre, and that of

the family home daycare. As yet little, if any, research has examined the possible differences in the relation between temperament and adjustment within these two settings. Previous research in daycare has focused much of its attention on daycare centres, particularly university based centres (McGurk et al., 1993; Rosenthal, 1991). This may be due to the convenience of being able to assess large groups of children at one time, or perhaps to limit the amount of uncontrolled variability, more likely within daycare homes that are often unlicensed. Aside from research design problems, it has been argued that home daycares have been “invisible” within daycare research because researchers have not acknowledged their importance as a valuable, and popular alternative to centre care (Clyde & Rodd, 1992). Regardless of the reason, many have argued that research solely examining the experience of daycare in centres does not provide an accurate account, as a significant portion of children receive extra familial care within family daycare homes (Thorman, 1990; Goelman, Rosenthal, & Pence, 1990). Recent statistics indicate that upwards of 45% of Canadian children five years of age or less, in care, spend a significant portion of their day in a home daycare setting (Lero, Pence, Brockman, & Goelman, 1992). Therefore, in order to more accurately assess the daycare experience, the examination of home care is an important consideration.

A second goal of the present study is to add to the existing literature by attempting to clarify the various inconsistencies that currently plague the research. One area in need of clarification, as previously reviewed, is that of the definition of adjustment. Whereas previous research has relied heavily on behavioural problems to define adjustment, the present study will focus on those behaviours more normative to the preschool group, and

found to be precursors to later adjustment and difficulties in peer relations (Ladd & Profilet, 1996).

Further extension of the definition of adjustment will be made to include, not only the children's relationships' among their peers, but with their caregivers as well. The importance of the inclusion of both relations with peers and teachers or, for present purposes, caregivers, follows from work in the school adjustment literature (Birch & Ladd, 1998; Keogh, 1986). Given that most previous research on the relation between temperament and adjustment has focused on children's behavioural problems, less attention has been paid to that of caregiver- child relationship. As indicated within the school research, the relationship between the child and teacher may be influenced by behaviours of the child within the class setting, as well as influencing subsequent behavioural adjustment (Birch & Ladd, 1997, 1998; Pianta & Steinberg, 1992). Perhaps then, this relationship serves not only as a measure of how children adjust to the setting they are in, but it may, in fact, be one of the elements within the "goodness of fit" model of temperament. As Keogh (1986), noted in a preceding section, it is important to include two related but separate aspects of "goodness of fit", that which pertains to the curriculum, and that which pertains to the interactions between the students and teachers. She concluded that both aspects were important to consider if one wished to understand the significance of "goodness of fit" within the educational domain.

A further extension to the current literature will be made by attempting to clarify the inconsistencies found amongst the temperamental dimensions related to behavioural adjustment. The present study will employ the broader dimensions of temperament, as developed by Buss and Plomin (1984), in particular those of emotionality, activity, and

sociability. These researchers argued for such factors of temperament as they were found to have the greatest heritability rates, as well as considerably generalizability and consensus among theorists in the area. This may assist in more direct comparison across studies, and therefore improve the ability to draw more definite conclusions about the relation between temperament and behavioural adjustment.

It should be noted that for the purpose of the present study, temperament and adjustment are assessed concurrently, a procedure which has been suggested to be somewhat problematic in terms of the potential confounding of the two constructs (Rothbart & Bates 1998). It has been argued that the meaning from such studies may be questionable due to the possibility that the informant may be assessing the same observed behaviour patterns for both types of questionnaires. As discussed in an earlier section, Sanson, Prior, and Caraways (1990) found that the content of temperament and behaviour problem questionnaires is similar in a number of items. However, the present study has attempted to partially control for such contamination through the use of separate informants for the two types of questionnaires. Parents were chosen as the preferred judges of their children's temperament since they are in a unique position to observe their children in various settings over a significant length of time. Because temperament is believed to be a dispositional attribute, it should remain stable across situations, in which case parents might be more in tune with their children's characteristic style of behaviour. Caregivers, on the other hand, were considered to be better judges of adjustment as it is those behaviours that occur within their care, which were of interest for the current study. This use of multiple informants has been described by researchers as a method of reducing the risk of confounding the two constructs (Rothbart & Bates, 1998).

In the present study, I explored the relation between preschool children's behavioural adjustment within two divergent daycare settings, that of the daycare centre, as well as that of the home daycare. Because context has been shown to mediate the impact of temperament on children's adjustment, it was hypothesized that the perceived adjustment of children with differing temperament patterns would vary across these two settings. Those dimensions of temperament thought to be the most significant within the daycare centre may not be the most significant within a family home care.

Predictions

In terms of the hypotheses concerning the overall relation between temperament and children's behavioural adjustment to daycare, I hypothesized that sociability, emotionality and activity would be associated with adjustment. Higher levels of sociability were expected to be associated with positive adjustment, both for relationships with peers and caregivers. In contrast, higher levels of activity and emotionality as well as lower levels of soothability were expected to predict poor adjustment in both types of relationships. These associations have all been found in previous work assessing the behavioural adjustment of children in daycare centres (Jewsuwan et al., 1993; Klein, 1980; 1982; Mobley & Pullis, 1991; Skarpness & Carson, 1987).

The second set of hypotheses concerns the application of the "goodness of fit" model of temperament in assessing how a child's adjustment may be influenced, in part, by the suitability of the setting to the child's individual temperament characteristics. Due to the lack of research based on family home care, there were few sound justifications to make any directional predictions. In this sense, then, this research was exploratory in

nature. Family home daycares, as previously reviewed, do differ in a number of significant ways from that of the daycare centres. Therefore, we would expect there to be differences in how various temperamental dimensions may influence adjustment.

Possible expectations might include low sociability to predict poor adjustment within centres but not home daycares given home daycares advantage of fewer children and caregivers. Previous research has shown that both of these factors do influence the quality of a daycare and therefore may also play a role in their adjustment (Kontos, 1991; Scarr & Eisenberg, 1993).

Secondly, children may adjust more easily to home daycares, despite their temperaments, because home care is less structured and more flexible than centre care. It was therefore hypothesized that the dimensions of activity and attention may be found to relate to adjustment within the centres but not within home daycare settings as these two dimensions are commonly found to relate to adjustment across instructional based care settings (Schoen & Nagle, 1994; Skarpness & Carson, 1987). More specifically, it was expected that children rated higher on the activity dimension would have more difficulty in adjustment within the daycare centre where there is more structure and less chance for these children to choose their own timing of activities than in the home care setting.

Similarly, children rated as low on the attention scale may adjust poorly in centres where the set up more closely resembles the classroom environment than that of the home care.

In conclusion, the present study was designed to explore the relation between temperament and behavioural adjustment, furthering the work of previous research in the area, as well as acting as a first step towards extending upon the research by examining the interactive association of temperament and context on such adjustment.

METHOD

Subjects

The participants for this study consisted of 62 preschool children (32 females, 30 males) who had entered into full-time day care (over 20 hrs, per week) within the previous year. Half of these children were enrolled in day care centres while the other half were enrolled in licensed home day cares within the Ottawa-Carleton area. The children ranged in age from 25 to 59 months ($M=41.4$ mos, $SD=7.88$ mos). The children came from mainly middle class homes with socioeconomic status measured by the level of parental education; 37% of fathers and 19% of mothers had at least some high school, 31% of fathers and 48% of mothers had some college, and a further 27% of fathers and 32% of mothers had some university education or beyond. All participants were Canadian, and spoke English as their first language. Parents of both centre and home care children reported high levels of satisfaction with their current child care arrangement ($M_{\text{centre}} = 4.47$, $SD = 0.52$; $M_{\text{home}} = 4.53$, $SD = .56$, out of a 1-5 rating scale).

Day care Settings

A total of five government licensed day care agencies which oversaw both day care centres, as well as home day care facilities participated in the study. All shared similar philosophies in terms of standards of care as these are mandated by the provincial guidelines of the Day Nurseries Act. In total, six daycare centres, with 12 corresponding caregivers, and 23 home cares, with an equal number of caregivers, participated in the study.

Procedure

Assessments began after the children had been in care at least 4-6 months in order to ensure that initial adjustment to the setting had been established, as this study chose to focus on the long term adjustment of these children. Mothers and caregivers were contacted by the researcher and asked to participate. Consent forms, along with questionnaires, a demographic information sheet, instructions and a debriefing letter, were then distributed to each participating mother and caregiver through the daycare facilities (see Appendix B).

Measures for the present study included, a measure of temperament, and two measures of children's adjustment.

Temperament Measure. Parents were given the Colorado Childhood Temperament Inventory (CCTI) (Buss & Plomin, 1984; Rowe & Plomin, 1977), to fill out for their child at the onset of the study. The CCTI is a 30 item parent-rating scale that assesses children's temperamental characteristics (see Appendix 3). Parents were asked to rate a series of descriptive items regarding their child's behavioural style, on a five point likert scale. This instrument was chosen as it defines temperament in broad dimensions by combining those dimensions of temperament defined by Thomas and Chess (1977), with the EAS dimensions of Buss and Plomin (1975). The dimensions included 1) Sociability; 2) Shyness; 3) Emotionality; 4) Activity; 5) Attention Span/Persistence; and 6) Soothability.

Rowe and Plomin (1977) have reported moderate to high internal consistency estimates and one-week test-retest reliability coefficients for these subscales. The internal consistency estimates range from .73 (soothability) to .88 (sociability).

Reliability coefficients ranged from .43 (soothability) to .80 (activity). For the purpose of the present study the dimensions of interest, based on theoretical links in the literature on children's adjustment within various preschool and school settings, included activity, attention, sociability, shyness, emotionality and soothability. These last two dimensions were combined, based on current temperament research, to form a dimension referred to as emotion regulation (see Rubin et al., 1995 for full description). This dimension was aggregated by first standardizing and then summing emotionality and the reversed soothability scores. As such, a high score on this dimension reflects a child who is highly and negatively emotional and difficult to soothe, in other words, emotionally dysregulated. For the remainder of this paper this dimension will be referred to as emotion dysregulation.

Adjustment Measures. Two teacher rated measures of adjustment were distributed concurrently with the parent temperament measure. The first of these was the Child Behaviour Scale (CBS) (Ladd & Profilet, 1996). This scale was chosen over other well known behaviour scales, as it, of all the existing measures of young children's behaviours, is the only measure which focuses exclusively on children's behaviours with their peers (Ladd & Profilet, 1996). The items for this scale were pooled from two well established measures, the Children's Behaviour Questionnaire (CBQ) (Rutter, 1967), and the Preschool Behaviour Questionnaire (PBO) (Behar & Springfield, 1984), combined with new items derived by Ladd & Profilet (1996). The final scale contained 50 items (16 similar to CBQ & PBO, 8 PBO, and 34 new items). Teachers were asked to rate the behaviours described in terms of how characteristic it is for each child on a three point likert scale. As such, the CBS was designed to assess five behavioural constructs of

young children's behaviour towards peers within the elementary school setting, specifically with kindergarten and Grade 1 children, but has been suggested as appropriate for preschool as well (see Appendix 4). These behaviours included aggression with peers, prosocial with peers, and two forms of withdrawn behaviour. The first of these withdrawn, or solitary behaviours was asocial, where the child prefers to play alone. The second form of solitary behaviour was anxious-fearful, where the child appears fearful or upset and withdraws from peers. A fifth subscale was also included, that of hyperactive-distractible, as it is a form of externalizing behaviour found to be related to both antisocial tendencies and early school adjustment difficulties (Ladd & Price, 1987). These subscales combine to form three composite scores which included prosocial, asocial (includes asocial, and anxious-fearful), and antisocial behaviours (includes antisocial and hyperactive-distractible).

In terms of the established construct validity of this scale, the composite measures of antisocial, asocial and prosocial behaviours were previously found to be significantly correlated (in the expected directions) to the subscales on the Teacher Report Form of the Child Behaviour Checklist (TRF; Achenbach, 1991). This is a nationally normed teacher report instrument used in classrooms. Further, this scale has well established internal validity as Ladd & Profilet (1996) found moderately high internal consistency estimates, ranging from .54 (asocial) to .83 (hyperactive). Overall, these researchers found fairly strong psychometric properties for this measure. As such, this instrument has been recommended as a reliable tool for assessing peer behaviour among young children (Ladd & Profilet, 1996).

The second measure of adjustment assessed the teacher/caregiver- child relationship. The Student-Teacher Relationship Scale (STRS, Pianta & Steinberg, 1992; 1993; Pianta, Steinberg, & Rollins, 1995), was originally developed to assess the teacher-child relationship within the school milieu and has been used for children from 3-9 years of age (Pianta, 1996). This scale was designed on the basis of both attachment theory similar to the model of Howes and colleagues (Howes & Hamilton, 1992; Howes & Matheson, 1992), as well as research from teacher- child interactions (Lynch & Cicchetti, 1992; Birch & Ladd, 1997). The STRS assesses teacher's perceptions of their relationships with children in their care, in terms of the qualitative features of closeness, conflict, and dependency (see Appendix 5). This instrument consists of a 30 item, five point likert scale which produces these three subscales. The Conflict subscale consists of 12 items which assess the degree of antagonistic relations between the teacher and child (e.g., This child and I always seem to be struggling with each other). The Closeness subscale consists of 11 items that assess the degree of warmth and openness between the teacher and child (e.g., I share an affectionate, warm relationship with this child). Finally, the Dependency subscale consists of 4 items that examine the degree to which the child is overly dependant on the teacher (e.g., This child asks for my help when he/she doesn't really need help). A total score composed of an aggregate of these three subscales (the sum of closeness and the reverse of dependency and conflict) and therefore reflecting an overall rating of the positiveness of the child/caregiver relationship was also computed (see Pianta & Steinberg, 1992 for full description). Because this subscale reflects a measure of the overall relationship between caregiver and child, it was selected for the subsequent analyses.

In terms of validity of the scale, the three-factor solution has been replicated by a number of other studies (Birch & Ladd, 1997; Cost, Quality and Outcomes in Child Care, 1995), as well, STRS scores have been found to be stable across the first three years of school (Pianta et al., 1995). Reported alpha levels ranged from .64 for the Dependency scale to .92 for the Conflict scale.

RESULTS

Descriptive Analyses

Between Group Differences. Comparisons between the two groups of children, those in home care and those in day care centres, were made to determine how similar the two groups were prior to our analyses of interest. To begin with, subjects from both settings began care at approximately one year of age ($M_{\text{centre}} = 13.45$ mos., $SD=9.4$; $M_{\text{home}} = 12.3$ mos., $SD=8.2$; $t(60) = .503$, ns) and both had been in their current care for slightly more than one year ($M_{\text{centre}} = 14.3$ mos., $SD= 11.1$; $M_{\text{home}} = 13.4$ mos., $SD=10.1$; $t(60) = .323$, ns). In terms of socioeconomic level, Chi square tests for mothers and fathers revealed that level of education did not differ significantly between parents of home care as compared to day care centre children ($\chi^2(3, N=62) = 3.27$, ns; $\chi^2(3, N=59) = 1.90$, ns). In terms of father's education 51% of the centre care group and 61% of the home care group had at least some college education or beyond. For mothers 77% of the centre group and 84% of the home care group had some college education or beyond.

To determine parents' rationale for choosing their current day care arrangements, and whether these variables were similar between the two settings, mothers were asked to

rank order a variety of considerations for choosing a particular setting, from most important to not important (see Table 1). The number one consideration for choosing a particular day care setting differed between parents with children in centre care and those with children in home care settings. For centre care parents, convenience of the setting was the number one reason for choosing their day care arrangement (42%). For the home care parents, characteristics of the caregiver was the most frequent response (71%). Although convenience was third in importance for home care parents, 39% of these parents also chose this factor as a number one reason, a number very close to that of the centre care parents. Due to the fact that a number of mothers rated more than one factor as their number one choice, it was not possible to compare these choices statistically. It is of interest to note that neither group of mothers ranked characteristics of their children as the most important rationale for their choice of setting (this factor was rated number one by 16% within centres, and by 26% in the home care group).

To assess whether the groups of children entering into day care centres differed from those who entered family home care on any of the various dimensions of interest, a series of independent group t-tests were conducted. In terms of the children's temperamental dispositions, results from these analyses revealed that children in centre care did not differ significantly in terms of the 5 dimensions of interest, from those in home care settings (see Table 2).

In terms of adjustment, there were no significant differences between the two groups of children on any of the 3 behaviour dimensions of the CBS scale, nor on the total relationship score of the STRS adjustment scale (see Table 3). T-tests indicated that

Table 1

Percentage of Respondents Choosing Each Setting CharacteristicAs The Most Important or Not Important to Their Decision On Daycare

<i>Reason for Choice</i>	<i>Most Important</i>		<i>Not Important</i>	
	<i>Centre</i>	<i>Home Care</i>	<i>Centre</i>	<i>Home Care</i>
1. Convenience	42	32	6.5	29
2. Caregiver	29	71	19	0
3. Child	16	26	26	39
4. Setting	19	39	23	13
5. Cost	19	13	29	58

Note: Numbers do not add to 100% as many respondents rated more than one factor as most important.

Table 2

Between Group Differences for Temperament

<i>Temperament</i>	<i>Centre Care</i>		<i>Home Care</i>		<i>T</i>
	<u><i>M</i></u>	<u><i>SD</i></u>	<u><i>M</i></u>	<u><i>SD</i></u>	
Activity	4.19	0.66	4.0	0.74	1.01
Attention	3.34	0.53	3.42	0.65	-0.47
Emotion Dysregulation	1.05	0.90	0.92	1.10	0.54
Sociability	3.51	0.53	3.35	0.58	1.22
Shyness	2.17	0.56	2.25	0.87	-0.04

Note: No t-values reached significance

there was a trend towards home care children being rated as having a somewhat more positive relationship with their caregivers than that of the children in centre care.

In terms of adjustment, there were no significant differences between the two groups of children on any of the 3 behaviour dimensions of the CBS scale, nor on the total relationship score of the STRS adjustment scale (see Table 3). T-tests indicated that there was a trend towards home care children being rated as having a somewhat more positive relationship with their caregivers than that of the children in centre care.

SES Differences. A series of multivariate analyses of variance tests was also completed to determine whether there were differences on either the temperament or adjustment dimensions based on socioeconomic status, as measured by level of parental education. Results from the first MANOVAs computed between both paternal and maternal education and the 5 dimensions of temperament indicated that the children in centre and home care did not differ, overall, in terms of their temperamental makeup based on parental education (paternal Wilks=.645, $F=1.32$, n.s.; maternal Wilks=.644, $F=1.41$, n.s.). The second MANOVAs, concerning SES and the adjustment dimensions, also did not reveal any overall significant differences between the adjustment dimensions and either paternal or maternal education (paternal Wilks=.679, $F=.971$, n.s.; maternal Wilks=.635, $F=1.22$, n.s.). Since no significant differences between the daycare groups were found based on SES, this factor was not included in subsequent analyses.

Daycare Settings. In order to establish whether or not, as previously speculated, daycare centres and home care settings were significantly different environments, a series of independent t-tests or Chi square analyses (where needed) were conducted on several basic characteristics of the settings. These tests revealed a number of significant

Table 3**Between Group Differences for Adjustment**

<i>Adjustment</i>	<i>Centre Care</i>		<i>Home Care</i>		<i>t</i>
	<i><u>M</u></i>	<i><u>SD</u></i>	<i><u>M</u></i>	<i><u>SD</u></i>	
CBS Scale					
Prosocial	2.09	0.42	2.28	0.45	-1.64
Asocial	1.40	0.28	1.40	0.30	-0.09
Antisocial	1.52	0.48	1.44	0.29	0.83
STRS Scale					
Total Score	113.94	10.69	118.90	11.19	-1.78*

* $p < .10$

differences between the two forms of care (see Table 4).

Although caregivers from both centres and homes had a similar number of years experience, Chi-square analysis revealed caregivers in centres to be more highly educated than home care providers ($\chi^2(3, N=31) = 29.99, p<.001$). Although 52% of centre-based caregivers had ECE diplomas and a further 36% had some university or beyond, only 13% of caregivers in home care had ECE diplomas, and only 7 % had university education or beyond.

The average group size within day care centres was significantly larger than that of the home care setting as was the child/ caregiver ratio, $\chi^2(3, N=31) = 54.5, p<.001$. Chi- square analyses found that 90% of the centre groups had a ratio of 1:8, whereas 94% of the home care groups had ratios of 1:5. As would be expected, children within centres were found to interact on a daily basis with a significantly larger number of children than were children within the home cares. Centre care children were also exposed to a greater number of caregivers on a day to day basis than were children in home care.

In terms of programming, centres were found to be significantly more structured than home care. More of the caregivers in the day care centres described their programs as being structured in terms of the scheduling of circle times, outdoor play, nap times and meals (over 77%) while home care providers described their programs as more flexible or only moderately structured in terms of such scheduling (74% moderately structured, 16% unstructured; $\chi^2(2, N=62) = 29.87, p<.001$).

Table 4

Daycare Setting Comparisons

<i>Characteristic</i>	<i>Centre Care</i>		<i>Home Care</i>		<i>t</i>
	<u><i>M</i></u>	<u><i>SD</i></u>	<u><i>M</i></u>	<u><i>SD</i></u>	
Caregiver Experience	8.92	5.54	9.56	4.83	n.s.
Group Size	4.58	0.50	1.23	0.56	24.8**
Interactions	20.39	13.70	5.94	3.35	5.7**
Number of Caregivers	3.29	0.90	1.48	0.81	8.29**

** $p < .001$

Intercorrelations among variables. Correlation coefficients were computed among the 5 dimensions of temperament of interest in order to assess how these dimensions associated with each other and to ensure that none of the dimensions were so highly related so as to present the problem of multicollinearity. As expected, based on previous work with this scale, several significant correlations were found (see Table 5). The dimension of activity was found to be significantly, negatively related to that of shyness, and emotion dysregulation was found to be negatively related to attention, and sociability and positively related to shyness. Sociability was found to be strongly negatively associated to the shyness dimension.

Correlation coefficients were also computed between the dimensions of children's behavioural adjustment as measured by the Child Behaviour Scale as well as between dimensions of the Student-Teacher Relationship Scale. For the CBS, the only significant correlation, was between antisocial and prosocial behaviour (see Table 6). For the STRS scale, a significant correlation was found between the closeness and conflictual subscales, as well as all three subscales being significantly correlated with the total score of the STRS scale (see Table 6). These findings are consistent with expectations, given that the total score is an indicator of the overall positive relationship between the child and caregiver. This score is computed by summing the reverse items of the conflictual and dependency items with the closeness items. Subsequent regression analyses with the STRS scale included only the total score which gives an overall positive relationship rating.

Table 5

Intercorrelations among Child Temperament Characteristics

	<i>Attention</i>	<i>Emot. Dysreg.</i>	<i>Shyness</i>	<i>Sociability</i>
Activity	.10	-.10	-.45**	.24
Attention		-.26*	-.11	-.11
Emotion Dysregulation			.35**	-.32*
Shyness				-.59**

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

Table 6

Intercorrelations among Adjustment Dimensions

<i>Child Behaviour Scale</i>			
	Asocial	Prosocial	
Antisocial	-.002	-.34**	
Asocial		-.25	
<i>Student-Teacher Relationship Scale</i>			
	Conflictual	Dependent	Total Score
Closeness	-.26*	.19	.61***
Conflictual		.14	-.86***
Dependant			-.30*

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

Intercorrelations between the two adjustment scales, CBS, and the STRS scales also revealed moderate correlations as expected based on previous research (see Birch & Ladd, 1998). Consistent with Birch and Ladd (1998), the antisocial, asocial, and prosocial behaviours of the children were significantly related, in expected ways, to the type of relationship that these children shared with their caregivers (see Table 7). Antisocial behaviour was significantly and positively related to the conflictual relationship subscale, as well as being significantly and negatively related to the total score. Asocial behaviour was also found to be significantly and negatively related to the total score, while prosocial behaviour was positively related to the total score, and the closeness subscale, and negatively related to the conflictual subscale.

Temperament- Adjustment Relations

Correlational Analyses. Preliminary correlational analyses were computed for the total sample in order to assess the overall degree of association between temperament and adjustment dimensions. Significant correlations were found between a number of dimensions of temperament and several of the dimensions of adjustment (see Table 8). Significant correlations between the Child Behavior Scale and the Colorado Childhood Temperament Inventory included the temperament dimension attention with the antisocial subscale, and the shyness dimension which was correlated to the asocial subscale. No other dimensions of temperament were found to be significantly correlated to behavioural adjustment.

Correlations between temperament and the Student-Teacher Relationship Scale found only the temperament dimension of attention to be related to the conflict subscale.

Table 7

Correlations between CBS and STRS Adjustment Scales

<i>STRS</i>	<i>CBS</i>			
	Closeness	Conflictual	Dependant	Total Score
Antisocial	-.14	.67**	-.04	-.50**
Asocial	-.20	.17	.21	-.32*
Prosocial	.37**	-.33**	-.04	.40**

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

No other dimensions of temperament were found to be significantly related to adjustment as defined by the children's relationship with their caregivers.

Hierarchical Multiple Regression Analyses. In order to examine the nature of the association between temperament and adjustment in centres versus home care settings, a series of hierarchical regression analyses were conducted. In these analyses the 5 dimensions of temperament and 2 types of care, along with their interactions acted as predictor variables, and the 3 subscales of the CBS and the STRS total score were the outcome measures. This resulted in 20 separate regression equations being conducted. This procedure has been used in other studies of this nature as it allows for the assessment of each temperament dimensions' unique predictive ability (Gauze, Bukowski, Aquan-Assee, & Sippola, 1996).

Due to the large number of regressions conducted, one must be cautious with interpreting the findings. However, due to the exploratory nature of this study it was determined that while the use of this number of regressions elevates the risk of type 1 error, it was necessary in order to enable us to examine independently, each dimension of temperament that had conceptual significance.

Both univariate and interactive associations between dimensions of temperament, type of care, and the adjustment measures were examined through Cohen's partialled products technique (Cohen & Cohen, 1983). Of particular interest for the purposes of the present study were those of the interactive associations, as these examined the differential influence of temperament on adjustment within the two types of care.

Table 8.

Correlations Among Temperament and Adjustment

<i>Colorado Childhood Temperament Inventory</i>					
	<i>Activity</i>	<i>Attention</i>	<i>Emot.Dysreg*</i>	<i>Sociability</i>	<i>Shyness</i>
CBS Scale					
Antisocial	.25	-.28*	-.07	.03	-.05
Asocial	-.14	-.11	.31*	-.04	.28*
Prosocial	.09	.15	-.19	.18	-.15
STRS Scale					
Total Score	-.14	.25*	-.22	.02	-.09

* $p < .05$

In order to determine whether background variables such as socioeconomic factors should be entered first into the regressions, preliminary regressions were run with mother and father education entered first into the equations. No significant effects were found and therefore this factor was eliminated from subsequent analyses.

As such, regression equations were conducted for each temperament dimension of interest and the four adjustment dimensions. In order to assess the predictive nature of each dimension of temperament along with the predictive nature of its interaction with type of care, variables were standardized and entered in the following order: Step 1, child temperament (one of activity, attention, emotion dysregulation, sociability or shyness) and type of care entered as a block; Step 2, the standardized interaction term between the temperament of interest and type of care. At each step, the significance in the R^2 change was assessed to determine whether each main effect, or, of particular interest, each interaction, added to the predictiveness of the overall equation.

Results from the regression analyses predicting children's adjustment in terms of temperament revealed a number of significant effects (see Table 9). To begin with, main effects were found for the temperament dimensions of attention with antisocial behaviour ($\beta = -.28$, $t(59) = -2.21$, $p < .05$), while a trend was found with the relationship scale ($\beta = .24$, $t(59) = 1.94$, $p < .10$). Shyness was found to predict antisocial behaviour ($\beta = .28$, $t(59) = 2.19$, $p < .05$), and a trend was indicated for the dimension of emotion dysregulation predicting prosocial behaviour ($\beta = -.21$, $t(59) = -1.68$, $p < .10$). More specifically, higher ratings on the attention dimension were found to significantly predict lower levels of antisocial behaviour and a trend towards a more positive relationship with the caregiver.

Table 9

**Summary of Hierarchical Regression Analyses of Child Temperament and Interaction
with Type of Care on Adjustment**

<i>Adjustment Measure</i>	<i>Significant Predictors</i>	<i>Beta</i>	<i>t</i>	<i>R²</i>	<i>R² ch</i>	<i>Fch</i>
Antisocial	Activity x Type			.175	.150	11.13**
	Attention	-.275	-2.21*			
Asocial	Shyness	.275	2.19*			
Prosocial	Emot Dysreg	-.211	-1.68+			
Child/Caregiver	Attention	.239	1.94*			
Relationship	Emot Dysreg X Type			.137	.055	4.56**

**p<.01. *p<.05. +p<.10

High levels of shyness predicted negative adjustment in terms of higher rates of asocial behaviour, whereas emotion dysregulation marginally predicted adjustment in terms of children's prosocial behaviour.

Of particular interest to the present study were the findings of the interaction effects with type of care and the dimensions of activity and emotion dysregulation. A significant interaction was found for the activity dimension and type of care on negative adjustment in terms of antisocial behaviour ($F(1,58) = 11.13, p < .01, R^2_{ch} = .15$). Therefore, 15% of the variance in antisocial behaviour could be explained by the interaction of activity level and type of care.

To further analyze this interaction, a follow up simple effects regression equation was computed separately for each type of care. Results from the follow up revealed that, although activity significantly predicted poor adjustment in terms of antisocial behaviour for centre care children ($\beta = .52, t = 3.29, p < .01$), this relation did not hold for the home care group ($\beta = -.16, t = -.881, n.s.$).

The second significant interaction, occurred between the dimension of emotion dysregulation and type of care in the prediction of adjustment in terms of the relationship between the caregiver and child ($F(1,58) = 4.56, p < .01, R^2_{ch} = .06$). In this case the interaction of emotion dysregulation with type of care accounted for 6% of the variance in the positive caregiver/child relationship. Follow up analysis indicated that emotion dysregulation significantly predicted poor adjustment in terms of the child/caregiver relationship for the home care group ($\beta = -.49, t = -3.04, p < .01$), but did not predict adjustment for the centre care group ($\beta = .15, t = .837, n.s.$).

DISCUSSION

The goal of the present study was to explore the relation between preschool children's temperament and their long term, interpersonal adjustment within day care. The results extended previous research by highlighting the importance of contextual factors in terms of the "goodness of fit" of these temperament dimensions to the different daycare environments, namely that of the daycare centre and that of home daycare.

Comparison the two types of daycare settings, the daycare centre and the home care environment, confirmed the existence of a number of qualitative differences between the two that may interact with temperament to differentially influence children's adjustment. In contrast to home cares, centres had larger groups of children, a greater number of caregivers to whom the children were exposed, and a higher ratio of children to caregivers. Furthermore, centres had caregivers with a higher level of education and a more structured program than home care environments. Such differences may affect the demands and expectations that caregivers have for children within each setting which may, in turn, influence how varying levels of each temperament dimension may interact with environment to influence children's adjustment.

The two groups of children were similar in background in terms of age, socioeconomic status, and length of time in care. Overall, the maternal ratings of the children's temperamental dispositions did not differ across settings. However, parents' reasons for choosing their particular daycare environment differed across settings. Parents who chose centre care selected 'convenience' as their number one reason for choosing to send their child to a centre, whereas parents who chose home care rated characteristics of the caregiver as their primary concern. The fact that centre care parents

focused on convenience may reflect the restrictedness in choices available to them. It might also reflect the idea that by choosing a centre setting these parents feel that quality in terms of caregivers and setting are assured. Home care parents' concern over characteristics of the caregiver also makes some intuitive sense as the caregiver is the central figure of that setting and is solely responsible for the quality of the setting.

Interestingly, neither of the groups of parents selected characteristics of their child as their primary consideration when choosing a day care. Again this may reflect the limited choice available to parents when choosing a day care facility, or merely a lack of awareness of the importance that a child's temperamental disposition may play in his/her adjustment and development within the day care setting. Either way, these observations highlight the need for studies such as the present one in order to educate parents and anyone concerned with the welfare of children in care on the role, albeit small in the present study, that child characteristics may play in their adjustment.

In general, the children in the present study were all found to be well adjusted regardless of their individual temperamental dispositions. However, results from analyses of the temperament - adjustment relations did confirm the prediction that certain dimensions of temperament may be predictive of the quality of a child's adjustment in terms of their behaviour with other children within the daycare setting, as well as the relationship they share with their caregivers. Regardless of the type of care, children rated higher on the shyness dimension of temperament were rated as exhibiting increased asocial behaviour. Further, the children rated as having greater attention spans were more positively adjusted both in terms of lower ratings on antisocial behaviour peers and they shared a more positive relationship with their caregivers. Finally, children who were

better at regulating their emotions were rated by their caregivers as behaving in more prosocial ways with their peers. These findings lend some support to our predictions as well as further extend upon previous research in the area.

The central goal of the present study, to determine the existence of any interactional influences of context on the relation between a child's temperamental disposition and his/her adjustment within daycare, was successful. Based on the results of significant interactions between two dimensions of temperament and type of care on children's behavioural as well as relational adjustment, it would appear that, at least in some respects, the prediction that temperament would influence adjustment differentially within daycare centres than in home cares was supported. Given that the present study was one of the first to examine a relationship between these two forms of care, these results are important.

Adjustment varied across type of care as a function of two temperamental dispositions. First, children rated as high in activity by their parents were less well adjusted than less active children in centre care but not in home care. This supported the prediction for this dimension. Second, home caregivers rated children who were more negative in emotionality, and less able to regulate their emotions as having a less positive relationship with their caregivers, a relation not found within daycare centres. Predictions concerning other dimensions of temperament were not supported. For example, the present study found a small association between adjustment and the temperament dimension of attention, however, this dimension did not appear to be differentially associated with adjustment as a function of type of care. Furthermore, the dimension of sociability was not associated with more positive ratings of adjustment overall, nor was it

found to influence how children adjusted within the home care environment as compared to those in centre care.

Conceptual Mechanisms

In examining the relation between temperament and adjustment within divergent daycare settings, several pathways of influence may be suggested. First, the main effect trends of the present study support previous research in the area of temperament and preschool adjustment. As predicted, attention was found to relate to caregivers' perceptions of children's adjustment within daycare. This supports previous research findings. For example, in structured settings such as kindergarten and preschool, the dimension of attention has often been found to be associated with adjustment (Orth, & Martin, 1994; Skarpness & Carson, 1987; Schoen & Nagle, 1994). Similarly, in the current study children who could better attend to their caregiver and the activities at hand were rated as behaving more positively, as well as being viewed as establishing a more positive relationship with these caregivers. This finding supports previous research which found attention to be a significant predictor of school adjustment (Orth & Martin, 1994; Skarpness & Carson, 1987; Schoen & Nagle, 1994). However, the lack of an interaction between this temperament dimension and type of care would appear to suggest that this dimension is important regardless of the structure of the environment.

Second, the dimension of emotion dysregulation predicted adjustment in terms of the rated display of prosocial behaviour towards peers. This finding is in keeping with previous work on emotion dysregulation in which children who are fearful and unable to regulate their emotions in novel situations may become socially withdrawn within their

peer group. This withdrawal may subsequently prevent them from learning positive social skills (Rubin & Coplan, 1992; Rubin, Coplan, Fox, and Calkin, 1995).

Finally, although it was the dimension of shyness, as opposed to our predicted dimension of sociability that was found to relate to adjustment, this may not be so surprising, given the close relation they were found to share ($r = -.591$), and the findings of previous research (Bates, 1989; Coplan, Rubin, Fox, Calkin & Stewart, 1994). While shyness is closely related to sociability in the sense that they both deal with a lack of engagement in social interactions, the two are not identical given that the shyness dimension also includes a fear component whereas sociability does not. Most previous research in which a sociability component of temperament was related to adjustment, included a dimension known as approach/withdrawal, which again includes both a social as well as a fear dimension (Mobley & Pullis, 1991; Prior, Smart, Sanson & Oberklaid, 2000; Zajdeman & Minnes, 1991). Teachers and caregivers of preschool children may find fear of social situations to be more problematic for children than simply the lack of socializing. As discussed in the introduction, the preschool years are a time of learning in terms of social skills and thus caregivers may not expect children to naturally gravitate towards social groups. However, fear of such situations would make the teaching of these important skills much more difficult. This is also consistent with the extensive research on shyness and inhibition in which shyness is associated with subsequent maladjustment and future internalizing problems (Bates, 1989; Broberg, 1993; Prior, Smart, Sanson & Oberklaid, 2000; Rubin & Mills, 1988).

In terms of the interactional findings of the temperamental dimensions of activity and emotion dysregulation, these results again provide some support for our hypotheses

and may be explained from several perspectives. The finding that high levels of activity were found to be perceived by the caregivers as more problematic in daycare centres than within the home care environment, may reflect the fact that activities and the environment are more structured in centres than in home care. Such structured programming may not allow enough flexibility within its routine to accommodate children with higher energy demands. This finding is supported by previous research examining children's adjustment within the daycare setting (Jewsuwan et al, 1993; Klein, 1980). What is new and of particular interest in the present study, is the fact that high activity level was not perceived as problematic for adjustment within the home care environment. It may be that caregivers in the smaller home- like settings are better able to adjust activities to accommodate the needs of their children.

Secondly, the number of children each group of caregivers must deal with may influence the activity-adjustment relation. Results from our between group differences supported the argument that centres have a higher child/caregiver ratio, as well as an overall greater number of children within their care than do the home care settings. As such, having one or two highly active children may be viewed as much more of a disruption in a large group than in the smaller home care.

Finally, the current findings may reflect the perspectives of the caregivers themselves. Given that the caregivers served as the raters on the adjustment scales, it is possible that caregivers from centres differ from home caregivers in their perspectives of antisocial behaviour. Caregivers in daycare centres were more highly educated than home caregivers. Perhaps antisocial behaviour may be more salient to those educated in child development whereas home caregivers might not view the same behaviours as

negatively. Furthermore, caregivers within the two forms of daycare are exposed to very different experiences with the children within their care, which may shape their perceptions and expectations of children's temperament and its behavioural expression. As our preliminary analyses indicated, centre and home care children did not differ from each other on any levels of temperament, including activity. Therefore it was not the case that centre care children were in actuality, more active than the home daycare children, at least not as rated by their parents. This notion lends further support to the "goodness of fit" model suggesting not only that each setting has differential features and demands that may be better suited to different temperament dimensions of the child, but that the caregivers themselves may have different expectations and perspectives due to their experiences within these differential settings. For example, perhaps the experience of being in the day care centre with a large number of children who must be controlled, for safety as well as to reduce the chaos, results in these caregivers having somewhat different expectations as to the level of activity that is acceptable. Or, it may be that they interpret the same levels of activity as meaning different things than do the caregivers within home care.

Children who were more highly emotional and less able to regulate these emotions were rated as more poorly adjusted in terms of their relationship with their caregivers within the home care setting but not within daycare settings. This finding also supports and extends upon previous research. Although in previous research emotionality and soothability were related to preschool adjustment (Jewsuwan et al, 1993; Rubin et al., 1995), the current research adds to this previous work by highlighting the interactive influence that the daycare setting has on this relation. Again several conceptual

mechanisms may account for such differential influence. As preliminary analyses on child/caregiver ratios revealed, home care providers served as the sole caregiver, in the majority of cases, whereas in centre daycares, numerous caregivers were involved with the children. As such, a caregiver within a home care setting may have found a highly emotional, difficult to soothe child particularly taxing on a daily basis, when she must also contend with a number of other children requiring her time and attention. On the other hand, a caregiver within the centre setting, where there are a number of caregivers, would have the opportunity to enlist the help of other caregivers in taking a break and removing herself from the situation, should she feel overwhelmed by a particular child. In this case, simply the ability to separate herself from the child can quickly diffuse the intensity of the situation, an opportunity not afforded the home caregiver.

A second possible explanation for the differential influence of emotion dysregulation may stem from the difference between the educational experiences of the two groups of caregivers. Caregivers within the centres were found to have more formal education related to child development and as such they may have some advantage in terms of knowledge and training in managing an emotional child who is difficult to soothe. They may see this type of behaviour as merely a part of normal development for children of this age rather than as an indicator of poor adjustment. In this sense the centre caregivers may take a more business-like approach in dealing with this type of child, whereas in the smaller, often less formal home care setting, the caregiver may perceive her inability to comfort an emotional child as more of a personal failure and therefore rate the situation more negatively.

Taken from a slightly different perspective, the fact that analyses found no relations between temperament and the Student-Teacher Relationship Scale within the centres, but did within home cares, may reflect the way in which caregivers within each type of care view their respective role. Home day cares are often described as a more “homelike” atmosphere, and this fact, along with the smaller size of the group, may assist in building a more personal relationship between the caregiver and the children in her care. That is, children may be viewed as extended family members (Golbeck, 1992). Caregivers within centres, on the other hand, work in a more school-like setting, and therefore they may adopt a more teacher - like approach towards their relationship with the children in their care. Moreover, the nature and demands of the centre care setting, for example the increased number of children these caregivers are required to attend to may decrease the personal or emotional connection they have with the children. As such, they may not consider their own personal relationship with an individual child as a significant indicator of adjustment, as their training and experiences within the daycare centre atmosphere focuses on the importance of developmental adjustment of children. Perhaps, then, these caregivers may not relate the difficulties they encounter with a highly emotional and difficult to soothe child with the quality of the relationship they share with such a child, at least not to the same extent as those caregivers within the home care environment.

Caveats and Limitations

While the findings of the present study appear to further support as well as extend existing knowledge of the relation between children’s temperament and adjustment within the daycare setting, particularly in terms of the “goodness of fit” model first

proposed by Thomas and Chess (1977), several limitations of the results must be considered. To begin with, one must be cautious interpreting the findings due to the large number of regression analyses that were conducted. As such, there is a need for further research in order to validate the present findings, perhaps focusing on fewer dimensions of temperament and with a larger sample size. By doing so it might be possible to consider the temperament dimensions simultaneously, blocking them together in the analyses, allowing for the consideration of potential intercorrelations amongst the various dimensions of temperament before examining their unique contribution to adjustment. This was beyond the scope of the present study, given that it was a first look into the interactive influence of temperament and type of care on adjustment and the relatively small sample size.

As with much of the research in social aspects of child development, this study shares a number of weaknesses in design based largely on the uncontrolled variability inevitable in this type of research. It is therefore important to remember that, the two groups under investigation, home daycare and centre daycare children, were not randomly assigned to one setting or the other, but rather the choice of care was a decision made by the parents. The possibility then exists that selection bias contributed to the differences found between the two groups of children. As illustrated in the rationales given by parents for selecting a particular type of care setting, differences, as well as similarities were found. Furthermore, observations in the preliminary analyses comparing the two groups, found the two groups of children to be fairly similar in terms of background variables (e.g. SES, age started care, time in care), as well as in their ratings of temperament and adjustment. Therefore the groups, at least in assessed characteristics,

appeared to be more similar than dissimilar. It is also important to keep in mind that all of the findings are correlational in nature and therefore no causality can be inferred in terms of certain temperament dimensions resulting in a more positive or negative adjustment for any given child.

Another design issue that must be addressed is the reliance on concurrent mother and teacher ratings of both temperament and adjustment. The use of parent ratings of temperament have often been questioned with regards to their validity due to the possibility of perceptions biasing the responses, a possible problem with the teacher reports as well. However, several researchers highlight the advantage of parent reports concluding that there is sufficient evidence that these informants offer a unique perspective on the personality of their children as they observe a wide range of the children's behaviours in a variety of social situations. Further, these researchers argue that parent ratings have been found to have established a fair degree of objective validity based on convergent findings with observational studies, as have teacher reports on children's behaviour (see Rothbart & Bates, 1998 for a full discussion). Nevertheless, it has been suggested that there continues to be a need for more observational work to confirm findings based solely on informant ratings (Prior et al., 2000).

A final shortcoming of the current study, and the temperament literature in general, is the continuing debate regarding what has been previously described as the overlap of the constructs of temperament and behaviour. As previously discussed, numerous researchers have been concerned with the fact that temperament and behavioural scales tend to share common content. This has been described as confounding any findings of a temperament- behavioural adjustment link, which may

lead to potentially important conceptual and methodological concerns (Rothbart, & Bates, 1998; Sanson, Prior, & Caraways, 1990). However, studies addressing this issue have concluded that there continues to be significant relations between temperament and behavioural adjustment, even after removing threats to validity due to such overlap, and this conceptual overlap has important theoretical significance. Therefore this area of study is still important and worthy of investigation (Bates, 1990; Lenqua et al., 1998).

Finally, it is important to emphasize that the current sample consisted of children all rated as being well adjusted within their daycare environment. This may be due to the fact that they had been selected specifically because they had been in care for up to one year in order to avoid initial adjustment issues, or it may indicate a bias on the part of the caregivers reporting on the adjustment scales. This finding may have therefore limited the ability to detect important associations between dimensions of temperament and children's adjustment. What is important within this research, however, is the fact that the significant findings appear to indicate that even within this group of children, there still are associations between temperament and adjustment that may have an impact on children's overall development in the long term. As I suggested in the introduction, children who experience long term adjustment difficulties may be most at risk for future developmental problems and therefore information gathered from the present study may offer some insight into how these children can best be assisted.

Implications

The current study has presented findings on children's temperament as it relates to adjustment within the daycare environment, findings which may have important implications to developmental researchers, parents, caregivers, and anyone who has an

interest in the welfare of children in such care. The research highlights the need to educate parents on the importance of considering the characteristics of their child in the decision making process when selecting the most appropriate daycare environment for that child. Such knowledge could help to ease both the transition into care, but more importantly, assist in the child's long term adjustment and development.

Caregivers would also benefit from such knowledge in terms of assisting parents and children with the adjustment process. For example, based on the present research, parents with highly active children might find their children adjust more readily to the home daycare environment where it appears their active natures may be perceived in a more positive way by home care providers. This may be due to the smaller groups and more flexible programs that such settings provide. Highly emotionally dysregulated children, on the other hand, may be best served in a daycare centre where their behaviour is perceived more positively (or less negatively), perhaps due to the greater number of caregivers who can share in the daily demands and needs of such a child.

Furthermore, knowledge of the interactive influence of children's temperament and context on adjustment would assist caregivers in taking a more "proactive" approach, designing and developing programs and spaces which would be more inclusive to a wider variety of temperaments, or constellations of temperaments. Centres that incorporated more free play time, where children were given the choice of activities, might find highly active children fit more easily into their setting.

Finally, the present research supports the need to educate policy makers on the psychological importance of establishing high quality, universally accessible daycare settings, not only in terms of daycare centres, but home daycares as well. As previous

research has noted, work in the area of children's adjustment and development within the home day care setting is still greatly limited. The present findings serve to highlight the significance of this type of care as a viable alternative to centres for children, particularly for those whose temperamental dispositions may not be the best "fit" within the centre environment. By establishing a more equitable system of providing child care, parents would be given the opportunity to focus on choosing the daycare setting which would best meet the psychological needs of their child, rather than simply choosing the care that is most convenient or readily available to them.

Conclusions and Future Directions

The primary goal of the present study was to further investigate the relation between temperament and adjustment within the "goodness of fit" model. To this end this research appears to add to the growing support for the importance of context in any interpretation of the association between these two constructs. It appears that certain temperament dimensions may have a better fit with particular features or demands of a given setting that may, in part, influence a child's adjustment. Although the present study provides a preliminary look at how the demands and features of centres as compared to home daycares can differentially relate to children's adjustment, it highlights the need for future research to examine more directly those aspects of these two settings that influence such a relation. Longitudinal studies may help to elucidate the pathways of this relation by assessing both initial, and long term adjustment. Furthermore, the use of longitudinal studies would strengthen the support for the existence of a temperament-adjustment association beyond what is possible from correlational studies.

Studies of this nature may also be strengthened by not relying solely on parent and teacher ratings, as mentioned earlier, but through observational assessments as well. The use of observational studies of children's temperament and behaviour would assist researchers to both assess the accuracy of raters as informants, as well as provide more conclusive evidence of causal relations between temperament and adjustment.

A secondary goal of the present study was to attempt to clarify inconsistencies within the temperament- adjustment literature to date. In this regard, this research extends upon the school literature's focus on the importance of considering children's relationships, not only with peers but with teachers and caregivers, in any complete definition of adjustment. Further evidence was brought forth on the importance that the relationship with caregivers, particularly within the home care environment, had on children's adjustment and evidence from the centre findings further support the significance that peers play in children's adjustment and development. Although all children within the current study were rated by their parents as being well adjusted, the findings that certain temperamental dimensions were perceived more negatively in terms of adjustment should serve to further emphasize the impact that a good fit between children and their peers, as well as their caregivers would have for those children who are experiencing difficulties in their behavioural adjustment. Such knowledge could go a long way towards ensuring healthy and happy development for all children within the daycare environment. Future research might do well to identify those children most at risk for subsequent adjustment problems and examine the interactive relation between these children's temperaments and context on their behavioural adjustment. This might

increase the possibility of finding stronger associations, and in the process, assist parents and caregivers of such children who are experiencing adjustment difficulties.

In terms of adding to the knowledge of the importance of temperament, the present study, for the most part, has provided further support for previous conclusions that the three broad dimensions first proposed by Buss and Plomin (1984), emotionality, activity, and sociability continue to impact on children's adjustment. It also suggests the need to further assess how these dimensions may interact and work in combination, as was the case with the dimensions of emotionality and soothability (emotion regulation/dysregulation) to influence subsequent adjustment.

Future research may also wish to consider how gender may interact with temperament and type of care. Although the present study failed to find many significant differences in terms of temperament and adjustment based on gender, perhaps due to its limited sample size, the possible mediating effects of gender should not be discounted. Previous research has found gender differences in terms of temperament (Buss & Plomin, 1975; Rowe & Plomin, 1977; Schoen & Nagle, 1994), as well as differences in adjustment (Barglow et al., 1987; Baydar & Brooks-Gunn, 1991; Scholom et al., 1979). It would therefore be of interest to further examine whether gender might also be a factor in the interactive relation between temperament and context on children's adjustment. For example, temperament research has found boys to be rated as more active than girls (Buss & Plomin, 1975). As such, incongruencies in the expression of these dispositions may be perceived by caregivers as more problematic. Consequently, girls found to be highly active in centre care may be more at risk for adjustment difficulties.

In conclusion, the present study contributes to the growing body of research on children in daycare by adding an interesting preliminary examination of the possible means in which temperament may influence children's adjustment within the two most common forms of care for preschool children. Armed with the knowledge that the preceding pages provide, parents and caregivers alike may be more able to assist in making such a social experience a more positive and rewarding one for their children. In so doing, they may help to alleviate some of the negative outcomes associated with the experience of daycare commonly described in the psychological literature. Consequently, parents themselves may begin to reduce their own apprehensions regarding their daycare choices and caregivers may work more confidently towards enriching the development of the young children entrusted daily to their care.

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Appendix A

Processes That May Link Temperament and Adjustment

A. Direct, Linear Effects

1. Temperament extreme constitutes psychopathology or positive adaptation (e.g. extreme shyness, attention deficit disorder, high attentional control).
2. Temperament extreme predisposes to a closely related condition disorder; high attentional control → good social adjustment).
3. Temperament characteristics affect particular symptomatology of a disorder (e.g. anxiety versus hopelessness in depression).

B. Indirect, Linear Effects

1. Temperament structures the immediate environment, which then influences development of positive adjustment or psychopathology (e.g. high stimulation seeking → leaving home early, marrying poorly; high attentional control → planning → good school adjustment).
2. Temperament biases others to behave in ways that provide experiences leading to risk factors, pathology, or more positive outcome (e.g. high positive affect → attention from caregivers in institutional situations; infant irritability → coercive cycles in parent-child interactions).
3. Temperament biases processing of information about self and others, predisposing to cognitively based psychopathology or positive adjustment (e.g. negative affectivity → negatively biased social information processing → aggression; positive affectivity → positively biased social information processing → optimism about others).

C. Temperament X Environment Interactions

1. Temperament buffers against risk factors or stressors (e.g. fear protecting against aggression or criminal socialization; positive affect protection against peer or parental rejection).
2. Temperament heightens response to event (e.g. negative affectivity augmenting response to stress, increasing risk of depression or likelihood of post-traumatic stress disorder; attentional orienting augmenting response to teachers' instructions).

D. Temperament X Temperament Interactions

1. Self-regulation of a temperament extreme qualitatively changes its expression (e.g. high surgency with nonregulation → ADHD, whereas same trait with good regulation → high competence; high negative emotionality with low attentional control sensitization and increasing anxiety, whereas negative emotionality plus high attentional control → no maladjustment).

D. Temperament X Temperament Interactions (cont.).

2. One temperament trait protects against risk consequences of another temperament-based trait (e.g. fearfulness or higher attentional control protecting against impulsivity).

E. Miscellaneous

1. Different temperament characteristics may predispose to similar outcomes (e.g. shyness, impulsivity, lack of affiliativeness, and negativity may each predispose to development of social isolation).

2. Temperament or personality may be shaped by psychopathological disorder (e.g. anxiety disorder → increased dependency).

Table from Rothbart and Bates (1998).

Appendix B

Informed Consent For Mothers and Caregivers

March, 1999

Dear Parents:

We are writing to ask your participation in a research study that is currently being conducted at Carleton University. The purpose of this project is to examine the relation between children's temperament and their adjustment to daycare. It appears that children adjust to daycare differently depending on various aspects of their temperamental makeup, as well as various characteristics of the setting. For this study, we are particularly interested in whether the important aspects of temperament which relate to adjustment, differ in two common forms of childcare, that of daycare centres, and that of family home day cares. It may be that different types of temperament may adjust more readily in one form of daycare, rather than another.

This study will begin in April 1999. Should you decide to participate, you will find enclosed a **short 30 item temperament questionnaire**, which asks you to rate your child's characteristic styles of behaviour. Also included, are a few questions regarding general information about your child as well as yourself. You are asked simply to fill out these two pages along with the consent form and return the package promptly to your daycare.

We will also ask your child's caregiver to complete two short questionnaires concerning your child's behaviours within the daycare with peers as well as with the caregiver herself. Sample questions will include whether the child prefers to play alone or with others, and how openly the child shares feelings with the caregiver. We will not be collecting any information directly from the children, therefore, there will be no disruption in their daily routines.

When all packages have been returned to the daycare, a draw will be made from all participating mothers who return completed questionnaires for a **\$25.00 gift certificate to Mrs. Tiggywinkles** (educational toy store) as a thank you for participating.

This project has been approved by the Ethics Committee of the Psychology Department at Carleton University, and the Director of the daycare where your child attends. All information collected for this study is completely confidential. Please note that you do not have to answer any questions you do not wish to. Questionnaires will be reviewed by only the researchers named at the end of this letter and will be used only for data analysis. Study results will be reported in ways to ensure complete confidentiality of all participants. None of the information collected will appear in any daycare records, and you will be provided with a summary of the findings as soon as they are made available.

Participation in this study is completely voluntary and you may choose to withdraw at any time. Your cooperation in this study would be greatly appreciated. Whether you decide to participate in this study, or not, please complete the attached form and return it to your child's daycare by next week. If you should have any questions, please feel to contact Dr. Tina Daniels (520-2600, ext.2686). Should you have further concerns with regard to this study, please feel free to contact Dr. Gick (Chair of the Department of Psychology Ethics Committee, 520-2600, ext.2664), or Dr. Matheson (Chair, Department of Psychology, 520-2600, ext.2648). Thank you for your assistance.

Sincerely,

Ann Barber

Dr. Tina Daniels

(detach and return)

CONSENT FORM

The information collected for this project is confidential and protected under the Municipal Freedom of Information and Protection of Privacy Act, 1989.

Date:

(Name of child- please print)

(Name of parent or guardian-please print)

Gender of child: Male__ Female

Child's Date of Birth: _____
 Month Day Year

Child's Age (in months) _____

Please check one:

☐ Yes, I give my permission for my child to participate in this study of daycare adjustment.

☐ No, I do not give my permission for my child to participate in this study of daycare adjustment.

Please return the signed consent form to your daycare as soon as possible (even if you are unable to participate)

Informed Consent For Teachers/ Caregivers

April, 1999

Dear Teachers/Caregivers:

As you may have heard, we are conducting a research study within your daycare facility and we are writing to you to ask for your participation. The purpose of this project is to examine the relation between children's characteristic style of behaviour, often referred to as their "temperament", and their adjustment to daycare. It appears that children adjust to daycare differently depending on various aspects of their temperamental makeup, as well as various characteristics of the setting. For this study, we are particularly interested in whether the important aspects of temperament which relate to adjustment differ in two common forms of childcare, that of daycare centres, and that of family home daycares.

This study will begin in April 1999. Your participation in this study is voluntary and would be greatly appreciated. Should you agree to participate, you will find enclosed two short questionnaires regarding those children within your care who have been included in the study. You are simply asked to fill out these forms, along with the consent form, place it back in the envelope which I will pick up at your daycare facility.

The questionnaires ask about the children's behaviour within the daycare, as well as questions regarding your relationship with each child participating in the study. Also included are a few general information questions regarding the characteristics of the daycare setting, as well as your background in terms of education and experience. Since we are only assessing preschool aged children who have entered your daycare facility within the last six months, you will only be required to complete these forms for a very few children. As such, the time commitment to you will be minimal, 5-10 minutes, per child, maximum. We will not be collecting any information directly from the children, therefore there will be no disruption to the daily routine.

This project has been approved by the Ethics Committee of the Psychology Department at Carleton University, and the Director of your daycare facility. All of the information collected will be kept completely confidential, and the questionnaires will be reviewed only by the researchers named at the end of this letter. This information will be used for data analysis only, and study results will be reported in ways to ensure complete confidentiality of all participants. None of the information collected will appear in any daycare records, and should you wish, a summary of findings will be provided to you when they are made available.

Your participation is completely voluntary and you may choose to withdraw at any time. Your cooperation in this study would be greatly appreciated. Whether you decide to participate in this study or not, please complete the attached form as soon as possible. If you should have any questions, please feel free to contact Dr. Tina Daniels (520-2600, ext.2686). Should you have further concerns with regard to this study, please feel free to contact Dr. Gick (Chair of the Department of Psychology Ethics Committee, 520-2600, ext.2664), or Dr. Matheson (Chair of the Department of Psychology, 520-2600, ext.2648). Thank you for your assistance.

Sincerely,

Ann Barber

Dr. Tina Daniels

(detach and return)

CONSENT FORM

The information collected for this project is confidential and protected under the Municipal Freedom of Information and Protection of Privacy Act, 1989.

Date _____

(Name of Daycare Facility-please print)

(Name of Teacher/Caregiver- please print)

Please check one:

___ Yes. I will participate in this study of daycare adjustment.

___ No. I will not participate in this study of daycare adjustment

Appendix C

Debriefing for Parents

We would like to take this opportunity to thank you for participating in this study examining the relation between children's temperament and adjustment to daycare.

Although previous research in the area has found that children's temperament may relate to their adjustment in daycare centres, little is known about how this relation may differ depending on the type of daycare setting. It might be that different patterns of temperament may be better suited to different forms of childcare settings.

Discovery of the suitability of various dimensions of temperament to the two most common forms of daycare, the centre and home daycare, would greatly assist both parents and caregivers in making children's adjustment a happy and healthy one.

In a few months time, a full report will be sent home to you, if you wish. Should you have any concerns with regard to this study, please feel free to contact Dr. Gick (Chair of the Department of Psychology Ethics Committee, 520-2600, ext.2664), or Dr. Matheson (chair, Department of Psychology, 520-2600, ext.2648). Should you have any further questions about this study, please feel free to contact us at the numbers listed below. Once again, thank you for your assistance.

Ann Marie Barber

Dr. Tina Daniels

520-2600 ext.2686

Appendix D

Demographics and Day Care Information**General Information for Parents**

Name of Child: _____

Child Birthdate: _____
month day year

Child's current age (in months) _____

Are you a Canadian citizen? _____

If not, how long have you lived in Canada? _____

What language is spoken in your home? _____

Occupation: Mother: _____ Father: _____

Highest level of parental education attained (please check one for each parent):

	Mother	Father
Some high school	_____	_____
High school diploma or equivalent	_____	_____
Some community college or equivalent	_____	_____
Community college diploma or equivalent	_____	_____
Some university	_____	_____
University degree	_____	_____
Some graduate work	_____	_____
Graduate degree	_____	_____

Has this child had any previous childcare arrangements? ___Yes ___No

If yes, how many previous arrangements? ___1 ___2 ___3 ___4 ___5 ___6 or more

How old was this child when he/she first entered into a childcare setting? _____When did the child enter into this current care arrangement? _____
month day yearWhat made you choose this setting? (Choose as many as applicable and rank order in importance:
1 being most important):

Convenience of setting location	_____
Cost of setting	_____
Characteristics of the setting	_____
Characteristics of your child	_____
Characteristics of Caregiver	_____
Other reasons	_____

Please briefly describe your reasons for choosing this setting?_____

How satisfied are you with your current childcare arrangement?

0(not at all) 1 2 3 4 5 (very satisfied)

How would you say your child is adjusting to this arrangement?

0(not at all) 1 2 3 4 5 (very well)

Please describe briefly how your child is adjusting?_____

Appendix E**COLORADO CHILD TEMPERAMENT INVENTORY**

For _____
(Child's NAME)

Please answer the items on these pages about the behavior of this child by circling one of the numbers following each item. We know that no item will apply to the child in every situation, but try to consider his/her usual or general behavior. Please answer honestly-- there are no right or wrong answers.

	How much is the child like that?				
	Not at All (Strongly DISAGREE)			A Lot (Strongly AGREE)	
1. Child persists at a task until successful.	1	2	3	4	5
2. Child gives up easily when difficulties are encountered.	1	2	3	4	5
3. Child tends to be shy.	1	2	3	4	5
4. Child cries easily.	1	2	3	4	5
5. When upset by an unexpected situation, child quickly calms down.	1	2	3	4	5
6. Child goes from toy to toy quickly.	1	2	3	4	5
7. Child likes to be with people.	1	2	3	4	5
8. Child is always on the go.	1	2	3	4	5
9. Whenever child starts crying, he/she can be easily distracted.	1	2	3	4	5
10. Child prefers playing with others than alone.	1	2	3	4	5
11. Child tends to be somewhat emotional.	1	2	3	4	5
12. When child moves about, he/she usually moves slowly.	1	2	3	4	5
13. If talked to, child stops crying.	1	2	3	4	5
14. Child makes friends easily.	1	2	3	4	5
15. Child is off and running as soon as he/she wakes up in the morning.	1	2	3	4	5

	How much is the child like that?				
	Not at All (Strongly DISAGREE)			A Lot (Strongly AGREE)	
16. Child finds people more stimulating than anything else.	1	2	3	4	5
17. Child often fusses and cries.	1	2	3	4	5
18. With a difficult toy, child gives up easily.	1	2	3	4	5
19. Child is very sociable.	1	2	3	4	5
20. Child is very energetic.	1	2	3	4	5
21. Child takes a long time to warm up to strangers.	1	2	3	4	5
22. Child plays with a single toy for long periods of time.	1	2	3	4	5
23. Child gets upset easily.	1	2	3	4	5
24. Child is something of a loner.	1	2	3	4	5
25. Child prefers quiet, inactive games to more active ones.	1	2	3	4	5
26. When alone, child feels isolated.	1	2	3	4	5
27. Child tolerates frustration well.	1	2	3	4	5
28. Child reacts intensely when upset.	1	2	3	4	5
29. Child stops fussing whenever someone talks to him/her or picks him/her up.	1	2	3	4	5
30. Child is very friendly with strangers.	1	2	3	4	5

Appendix F

Characteristics of Daycare Setting

Please have participating teacher complete:

Teacher/Caregiver Name_____

(Please note: answer questions as it applies to preschool child of interest)

1. Type of daycare setting ___ Daycare centre ___ Family Homecare
 2. Group Size ___ 5 or less ___ 5-10 ___ 10-15 ___ 15-20 ___ 20 or more
 3. Child-Caregiver Ratio ___ <1:5 ___ <1:8 ___ <1:10 ___ <1:12 ___ <1:15
 4. How many children would this child interact with on an average day? _____
 5. How many of these children fall into these age categories? ___ 0-18mnths. ___ 18mnths-3yrs.
___ 3-5yrs. ___ 5-6yrs. ___ 6-10yrs. ___ over 10yrs.
 6. Number of Caregivers ___ 1 ___ 2 ___ 3-5 ___ 5-7 ___ 7-10 ___ >10
Child involved with:
 7. Available Space:(Approximate sq. ft.) Indoor_____ Outdoor_____
 8. Caregiver Training ___ Some high school ___ College (ECE or similar)
 ___ High school diploma ___ Some university
 ___ Some college or university ___ Bachelor degree
 ___ College ___ Graduate work
 9. Have you taken any of the following workshops/training: (please check all taken)
___ Child development ___ First Aid/ CPR
___ Curriculum planning ___ Setting up a daycare in your home
___ Child guidance/Behaviour management ___ Caring for special needs children
___ Nutrition ___ Other (please specify)
-
-
10. Caregiver Experience (number of years) _____
 11. Daycare Programming ___ Highly structured (day-to-day activities planned in advance, set schedule; eg. nap time, circle time, craft time)
 ___ Moderate structure (activities planned, for most part, but schedule flexible)
 ___ Nonstructured (no set programming; day-to-day activities may differ, timing may change as to when during the day they occur)

Appendix G**Child Behavior Scale**

Please consider the descriptions contained in each of the following items below and rate the extent to which each of these descriptions applies to this child, particularly in the context of his or her behavior with peers. For example, circle 3 – "**Certainly applies**" if the child often displays the behavior described in the statement, circle 2 – "**Applies sometimes**" if the child occasionally displays the behavior, and circle 1 – "**Doesn't apply**" if the child seldom displays the behavior. Please circle only one response per item.

1 = Doesn't apply

2 = Applies sometimes

3 = Certainly applies

1 2 3	1. Restless. Runs about or jumps up and down. Doesn't keep still.	1 2 3	15. Has speech difficulty
1 2 3	2. Squirmy, fidgety child	1 2 3	16. Bullies other children
1 2 3	3. Destroys own or others' belongings	1 2 3	17. Inattentive
1 2 3	4. Fights with other children	1 2 3	18. Doesn't share toys
1 2 3	5. Not much liked by other children	1 2 3	19. Cries easily
1 2 3	6. Is worried. Worries about many things.	1 2 3	20. Blames others
1 2 3	7. Irritable; quick to "fly off the handle"	1 2 3	21. Gives up easily
1 2 3	8. Appears miserable, unhappy, tearful, or distressed	1 2 3	22. Inconsiderate of others
1 2 3	9. Has twitches, mannerisms, or tics of the face and body	1 2 3	23. Kicks, bites, or hits other children
1 2 3	10. Is disobedient	1 2 3	24. Stares into space
1 2 3	11. Has poor concentration or short attention span	1 2 3	25. Prefers to play alone
1 2 3	12. Tends to be fearful or afraid of new things or new situations	1 2 3	26. Helps other children
1 2 3	13. Fussy or over-particular	1 2 3	27. Peers refuse to let this child play with them
1 2 3	14. Tells lies	1 2 3	28. Shows a recognition of the feelings of others; is empathic
		1 2 3	29. Tends to react to other children's distress by teasing them or making things worse
PLEASE COMPLETE THE OTHER SIDE OF THIS PAGE			

Child Behavior Scale, page 2

Name/ID _____

1 = Doesn't apply

2 = Applies sometimes

3 = Certainly applies

1 2 3	30. Not chosen as playmate by peers	1 2 3	45. Is ignored by peers
1 2 3	31. Likes to be alone	1 2 3	46. Cooperative with peers
1 2 3	32. Keeps peers at a distance	1 2 3	47. Loses temper easily in conflicts with peers
1 2 3	33. Peers avoid this child	1 2 3	48. Argues with peers
1 2 3	34. Seems concerned when other children are distressed	1 2 3	49. Friendly toward other children
1 2 3	35. Aggressive child	1 2 3	50. Annoys or irritates other children
1 2 3	36. Taunts and teases other children	1 2 3	51. Solitary child
1 2 3	37. Often unoccupied	1 2 3	52. Disrupts peers' activities
1 2 3	38. Threatens other children	1 2 3	53. Shows concern for moral issues (e.g., fairness, welfare of others)
1 2 3	39. Takes turns with play materials	1 2 3	54. Ridiculed by peers
1 2 3	40. Kind toward peers	1 2 3	55. Avoids peers
1 2 3	41. Can be trusted, is dependable	1 2 3	56. Offers help or comfort when other children are upset
1 2 3	42. Listens to classmates	1 2 3	57. Withdraws from peer activities
1 2 3	43. Excluded from peers' activities	1 2 3	58. Will continue to bother or hurt other children even when they are clearly upset
1 2 3	44. Compromises in conflict with peers	1 2 3	59. Bossy toward peers

Appendix H**STUDENT-TEACHER RELATIONSHIP SCALE**
Robert C. Pianta

Child: _____ Teacher: _____ Grade: _____

Please reflect on the degree to which each of the following statements currently applies to your relationship with this child. Using the scale below, circle the appropriate number for each item.

Definitely does not apply 1	Not really 2	Neutral, not sure 3	Applies somewhat 4	Definitely applies 5
-----------------------------------	--------------------	---------------------------	--------------------------	----------------------------

1. I share an affectionate, warm relationship with this child.	1	2	3	4	5
2. This child and I always seem to be struggling with each other.	1	2	3	4	5
3. If upset, this child will seek comfort from me.	1	2	3	4	5
4. This child is uncomfortable with physical affection or touch from me.	1	2	3	4	5
5. This child values his/her relationship with me.	1	2	3	4	5
6. This child appears hurt or embarrassed when I correct him/her.	1	2	3	4	5
7. When I praise this child, he/she beams with pride.	1	2	3	4	5
8. This child reacts strongly to separation from me.	1	2	3	4	5
9. This child spontaneously shares information about himself/herself.	1	2	3	4	5
10. This child is overly dependent on me.	1	2	3	4	5
11. This child easily becomes angry with me.	1	2	3	4	5
12. This child tries to please me.	1	2	3	4	5
13. This child feels that I treat him/her unfairly.	1	2	3	4	5
14. This child asks for my help when he/she really does not need help.	1	2	3	4	5
15. It is easy to be in tune with what this child is feeling.	1	2	3	4	5
16. This child sees me as a source of punishment and criticism.	1	2	3	4	5
17. This child expresses hurt or jealousy when I spend time with other children.	1	2	3	4	5
18. This child remains angry or is resistant after being disciplined.	1	2	3	4	5
19. When this child is misbehaving, he/she responds well to my look or tone of voice.	1	2	3	4	5
20. Dealing with this child drains my energy	1	2	3	4	5
21. I've noticed this child copying my behavior or ways of doing things.	1	2	3	4	5
22. When this child is in a bad mood, I know we're in for a long and difficult day.	1	2	3	4	5
23. This child's feelings toward me can be unpredictable or can change suddenly.	1	2	3	4	5
24. Despite my best efforts, I'm uncomfortable with how this child and I get along.	1	2	3	4	5
25. This child whines or cries when he/she wants something from me.	1	2	3	4	5
26. This child is sneaky or manipulative with me.	1	2	3	4	5
27. This child openly shares his/her feelings and experiences with me.	1	2	3	4	5
28. My interactions with this child make me feel effective and confident.	1	2	3	4	5