

Social Interaction and Temperament in Preschool Children

by

Vickie Gross

A thesis
presented to the University of Manitoba
in fulfillment of the
thesis requirement for the degree of
Master of Science
in
Human Ecology Family Studies

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VICKIE GROSS

A Thesis submitted to the Faculty of Graduate Studies of the University of Manitoba in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

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ABSTRACT

This study investigated 4-year-old children's social interactions in day care and their relation to the child's temperament. The sample of 32, 48- to 60-month-old children (15 boys and 17 girls) attended urban day care centres where their social interaction was observed.

Parents and Child Care Workers (CCWs) rated children's temperament using the EAS scales of emotionality, activity and sociability. Parent's and Child Care Worker's perceptions of children were found to be different. First, the parent's rating of the children's activity correlated with the frequency of the children's positive interactions whereas those of the CCWs did not. Second, the CCW's ratings of sociability correlated with both total and total positive interactions of the children. There was no relationship between parent-rated sociability and total or total positive interactions of the children. Correlations between demographic characteristics of children and their families with temperament and social interactions were also explored.

The results of this study suggest that difficulties experienced by some children in day care centres may be associated with the differences in perceptions between their caregivers and their parents.

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INTRODUCTION

Changing lifestyles have created a need for more mothers to enter the work force, consequently, more children need child care at an earlier age. In 1978, Belsky and Steinberg reported that over the previous six years the number of working mother's had tripled. As well, more recent statistics indicate that "The number of women in the Canadian labour force grew to 5 978 000 in 1989 from 368 000 in 1975, an increase of 62.4 per cent" (Women's Bureau Labour Canada, 1990, p. 1). Schindler, Moely, & Frank (1987) estimated that by 1990, 10.5 million American children would be in need of day care. Similarly in Canada, the number of licensed day care spaces has increased fifteen fold between 1971 and 1988. These numbers do not take consideration of those parents who do not choose a formal day care setting. The cost of child care includes both formal and informal statistics. "...The rapid rate of growth in women with young children entering the labour force, is undoubtedly fueling the rate of increase...of day care as an appropriate support service to the family." (Statistics Canada, 1990, Women in Canada, p. 12).

The increasing number of children needing day care has aroused interest and attention relating to social interac-

tion among young children in groups. Children come to day care from different environmental and family backgrounds. They also have their own style of behaving and inherited traits. All of these factors influence the way children interact with each other and with adults. The combination of inherited traits and behavioural style in an individual child is termed temperament (Thomas, A., & Chess, S., 1977, & Buss, A., & Plomin, R., 1975, 1984).

With increasing numbers of children entering day care centres each year, staff find it necessary to learn different methods of dealing with a larger number of children at one time. Knowledge of childrens' interactions and temperament is becoming a critical issue if the results are to be a positive experience for the day care child. This study focuses on the extent and manner in which temperament affects the type of social interaction in which children engage. It is important for the child care workers in a centre to become aware of each child's differing temperament and to learn ways of dealing with inappropriate forms of social interaction. The interactive theory, (Thomas and Chess, 1977, Buss and Plomin, 1984), the best known in the field, shows that the two main factors which influence temperament are heredity and environment. Both negative and positive interactions are a concern to parents and day care staff. One common goal is to increase positive interactions and lessen negative interactions. With an understanding of

childrens' differing temperaments, staff and parents may promote better social interactions among the children and the staff.

The first section of this research paper will be a review of the major theories and definitions of temperament. Next, both criticisms and benefits of the psychometric properties as they relate to temperament instruments will be examined. A final area will be the examination of other temperament measurements. As well, the literature on social interaction will be examined. As an outgrowth of the above, a definition of social interaction will be formed. The use of this definition should bring insight into examining the relationship between temperament and the way the child acts with others. The major goal of this research is to examine the relationship between temperament and the way children interact with others including peers and adults.

THEORIES OF TEMPERAMENT

The concept of temperament has existed for thousands of years. The Greek scholars linked bodily fluids to different personality traits (e.g., black bile linked to a person being sad or melancholy). More recently, Sheldon's (1942) constitutional approach to personality states that there are three different body types, each with its own temperament. This view of body build was part of the existing view of the time, but it was found that there was little relation between body fluid and personality. Diamond's comparative approach examines temperaments shared by man and animals close to man (fear, aggression, affiliativeness and impulsivity). Temperament theories of today have been developed from these early theoretical views.

There are several groups of temperament theorists in the literature. The interactionist theory of Thomas and Chess (1977) is reviewed first followed by Buss and Plomin's interactive approach. Following this Jan Strelau's neo-pavlovian theory is examined. Both the psychobiological theory of Rothbart and Derryberry and the developmental/behavioural model of Goldsmith and Campos are part of this review. Each of the theories has its strengths and weaknesses which are discussed in the review of each theory.

Thomas & Chess

The New York Longitudinal Study (NYLS) initiated by Thomas and Chess (1977) in the 1950s and which has continued to the present is probably the best known clinical research instrument for the study of temperament. They view temperament as a product of interaction between the child and the environment and suggest that environmental factors influence the expressions of temperament and its nature as development proceeds (1977). For them, temperament is the "behavioural style of the individual child - the how rather than the what or why of behaviour" (Thomas, Chess & Birch, p. 4, 1968). This behavioural style evolves from "its relationship to, or interaction with, the individual's abilities and motives and external environmental stresses and opportunities" (Thomas & Chess, p. 10, 1977). Another part of Thomas and Chess's (1977) theory is the concept of "goodness of fit" which refers to the match between environmental demands or expectations and the individual's abilities. When a match occurs it is called "consonance" and, when this condition exists, the person's development proceeds normally. If, however, there is no match "dissonance" occurs and maladjustment or poor development can occur.

Thomas and Chess's study has been criticized on several grounds. Buss and Plomin (1975) criticize their theory on the basis that they give no evidence of factorial unity in the nine characteristics derived from the NYLS. Hence, com-

paring the same temperament at different ages may be problematic, because the behaviours representing that temperament may not be comparable. The reason for this is that the items used in the questionnaire are not stable across dimensions. What occurs at one age does not necessarily follow from an earlier age level. For example, under the category of distractability, an example of not distractable at two months is: "won't stop crying when diaper is changed". At ten years of age the item constituting not distractable is "can read a book while television is at high volume and does chores on schedule" (Buss & Plomin, 1975, p. 227). The behaviour at two months and that at ten years cannot be adequately compared. Another criticism is that there is no evidence to support the fact that all nine features are inherited.

The sample of children used has also been criticized. The families were taken from similar socioeconomic backgrounds, and some families had more than one child participating. Other authors (Rothbart & Derryberry, 1987 & Goldsmith & Campos, 1987) have also criticized Thomas and Chess's theory. These criticisms include problems ranging from their definition of temperament to the way in which the nine scales of temperament have been derived. Thomas and Chess are criticized by Hinde (cited in Goldsmith et al, 1987) for being concerned with behavioural style in their definition but their dimensions do not include items which measure behavioural style.

Buss & Plomin

Buss and Plomin (1975) are also concerned with interactions between temperament and environment. Buss and Plomin's (1984) theory differs from others in that they specify a genetic origin for temperament whereas other theorists are uncertain as to origin. Another major difference is that they consider temperament as a class of personality traits. Their theory suggests that each person has inborn dispositions which change due to interaction with the environment. Temperament is seen as the stylistic aspect of behaviour, or how the response is made.

Buss and Plomin's (1975, 1984) concept of temperament was derived from Allport's definition.

Temperament refers to the characteristic phenomena of an individual's nature including his susceptibility to emotional stimulation; his customary strength and speed of response, the quality of his prevailing mood, and all the peculiarities of fluctuation and intensity of mood, these being phenomena regarded as dependent on constitutional make-up and therefore largely hereditary in origin (Allport, 1961, p. 34).

Criticism of Buss and Plomin's theory includes avoidance of the issue of relating temperament to other psychological concepts such as motivation (Goldsmith et al., 1987). Another criticism is that they restrict temperament to inherited traits that appear in the first year. These are the only specific criticisms that have been documented about Buss and Plomin's (1984) theory.

Neo-Pavlovian

The Neo-Pavlovian theory, as derived from the Russian school, has just recently been recognized in North America. Prior to 1983 the work of the Russian school was not well known despite the fact that several groups in Russia are doing research related to this theory. The Warsaw group looks at the regulative function of temperament. Teplov-Neybitsyn define temperament as the genetic determination of individual differences in nervous system properties and the significance of these properties in mental functioning. The Ural-Group stresses the "importance of the configuration of nervous system properties in human behaviour thus, making typological thinking one of the main elements of their temperamental approach" (Strelau, 1985, p. 14).

The combination of the above work is what Strelau (1985) has termed the regulative theory of temperament. The Strelau group considers "temperament...an important mechanism by means of which individuals regulate their interrelations with the environment" (p. 3). This work focuses on two temperamental traits, reactivity and activity. Reactivity "codetermines the stimulative value of actions and situations in which behaviour takes place." Activity refers to the regulation by the individual of "the stimulative value of actions and situations, having a significant impact on human functioning..." (Strelau, 1985, p. 4). This impact on functioning can be expressed in several ways including the

activities in which the individual participates and the level of performance. Strelau (1985) suggests that each individual performs differently according to varying temperament types. "Effective functioning in situations of different stimulative value results in psychophysiological costs the individual pays for efficient performance and these costs depend on the level of reactivity" (Strelau, 1985, p. 4). This suggests that people require different levels of stimulation and regulate their activities to reflect this need.

A temperament instrument was developed from Strelau's first studies so that Pavlov's original view could be used to assess the main nervous system properties. Pavlov's original view included "strength of excitation, strength of inhibition, mobility of nervous processes and equilibrium of nervous system understood as the ratio of strength of excitation to strength of inhibition" (Strelau, 1985, p. 17). From this work a more complex definition of temperament emerged. Temperament was defined as "relatively stable features of the organism which reveal themselves in such formal traits of behaviour as its energetic level and temporal characteristics. Temperament is a product of biological evolution. Being primarily determined by inborn physiological mechanisms it is subjected to slow changes caused by maturation and by some environmental factors" (Strelau, 1985, p. 22). Strelau (1985) distinguishes between high and low reactive individuals. High reactive individuals are

very sensitive and have low levels of endurance. They try to avoid stimulation. Low reactive individuals have low sensitivity and high endurance. These people seek out stimulation because their demand for stimulation is high. Reactivity is a temperament feature which is relatively stable for a given individual's intensity of reactions. It codetermines sensitivity, which is measured by sensory threshold and the organisms' capacity to work. This reveals itself in reactions to strong or long lasting stimulation (Strelau, 1985).

Activity, which is another major part of Strelau's theory, is defined as "a temperament feature which reveals itself in the amount and range of undertaken actions of a given stimulus value. It is conceived as a property on which individuals show relatively constant differences" (1985, p. 25). From the temperament inventory, two primary temporal factors that emerged were perseverance of behaviour and liveliness. This research has been applied in several different areas including cognition and activity level. This theory gives a more physiological perspective to temperament.

Psychobiological

Another area of temperament research is represented by Rothbart and Derryberry's theory which has more of a biological perspective. They define temperament as "relatively

stable, primarily biologically based individual differences in reactivity and self regulation" (Goldsmith et al., 1987, p. 510). Measurement of reactivity includes differences in threshold, latency, intensity, rise time, and recovery time. Self regulation refers to processes such as attention and approach which help to modulate reactivity. This viewpoint is not restricted to emotionality, but also extends to orienting and motor activation (Goldsmith et al., 1987).

Several dimensions have been derived from this research, two of which are negative and positive reactivity. "Negative reactivity, is reflected in expressed and felt distress, and behavioural and attentional aversion" (Goldsmith et al., 1987, p. 513). Another dimension is "positive reactivity, reflected in expressed and felt positive affect and behavioural and attentional approach" (Goldsmith et al., 1987, p. 513). Both types of reactivity are influenced by the individual's level of sensitivity to stimuli. "More sensitive individuals demonstrate positive reactions at low levels of stimulation and negative at higher levels" (Goldsmith et al., 1987, p. 513). Two more dimensions this theory has proposed are behavioural inhibition to novel or intense stimuli and the effort to focus and shift attention. Both of these characteristics develop in the second half of the child's first year. "Temperament may be seen as relatively stable while, at the same time, undergoing change in connection with maturational transitions" (Goldsmith et al., 1987,

p. 516). Rothbart's (1986) definition of temperament is primarily biological; existing within the person. However, there is another part to this theory, the interactive portion, which includes how the positive and negative reactivity of the individual affects other people. For example, a child who is very shy must rely on the caregiver to provide the stimulation necessary to elicit responses.

Developmental/Behavioural

The Goldsmith and Campos model of temperament represents a developmental and behavioural approach (Goldsmith et al, 1987). In describing this model, Windle (1988) suggests "that the significance of temperament lies not in the possession of a particular set of attributes, but rather in the extent to which the attributes match or are congruent with the contextual demands regarding behavioural style" (p. 185).

The Goldsmith and Campos model is not yet considered a formal theory. They define temperament "as individual differences in the probability of experiencing and expressing the primary emotions and arousal" (cited in Goldsmith et al., 1987, p. 510). There are several criteria which Goldsmith and Campos consider important for this model. These include: a) temperament is emotional in nature, b) it pertains to individual differences, c) it refers to behavioural tendencies rather than actual occurrences of emotional

behaviour, and d) it is indexed by the expressive aspects of emotion. The focus of their model is mainly on the behavioural level of temperament. Although this model does not ignore the interactive effects that can occur, the main goal is to "understand temperament as individual differences in emotionality" (Goldsmith et al, 1987, p. 520).

In summary, both Thomas and Chess and Buss and Plomin take an interactionist approach. However, the two theories differ. Buss and Plomin's theory specifies a genetic origin and considers temperament as a class of personality traits. Whereas, Thomas and Chess (1977) consider temperament as a product of interaction between the child and the environment. The Russian school of Neo-Pavlovianism focuses on temperament as a means for individuals to regulate interactions with the environment. A more biologically oriented theory is Rothbart and Derryberry's psychobiological approach. The final model examined was the developmental/behavioural model which attempts to look at temperament as differences in emotionality. Among these theories, that of Buss and Plomin (1984) has been referred to most frequently in recent literature. As well as being referred to frequently, this theory includes heredity and environment as part of its rigorously tested components. This theory is the one adopted for the purposes of this study.

INSTRUMENTS

In the above review the focus has been on some of the major theoretical positions in the field of temperament. Many of the theorists use specific instruments to measure temperament. Some of these, such as the New York Longitudinal Study (NYLS) and the Emotionality, Activity and Sociability (EAS) scale have been developed over many years.

New York Longitudinal Study

Thomas and Chess's (1977) New York Longitudinal Study began with a sample of 141 children. When the children were three months old parents were interviewed regarding the child's behaviour. From the first 22 children, nine categories of temperament were derived using content analysis. The nine categories derived were: activity level, rhythmicity, approach or withdrawal, adaptability, threshold of responsiveness, intensity of reaction, quality of mood, distractibility, attention span and persistence. Three constellations were derived through qualitative analysis and factor analysis of the data. These include the easy child, the difficult child and the slow to warm up child. To measure temperament, Thomas and Chess (1977) developed a questionnaire to be completed by parents and/or teachers. Each

statement is rated on a seven point scale from "hardly ever" to "almost always". An example of an item from the questionnaire is "Child will initially avoid new games and activities preferring to sit on the side and watch" (Thomas & Chess, 1975, p. 240). Carey (1970, 1978) has developed a questionnaire from the research interview of Thomas and Chess (1977). His purpose was to simplify the instrument so mothers could quickly provide this information which could assist him as a pediatrician to get some idea of the mother-infant relationship. Carey's questionnaire was originally developed as a screening device to detect difficult temperament in infants, but since, has been used in research in the area of child development.

Emotionality, Activity, & Sociability

Buss and Plomin (1984) have developed the EAS (Emotionality, Activity and Sociability) by refining their prior instruments. There were three versions of the instrument prior to the latest version in 1984 of the EAS. Their original work began with the development of the EASI (Emotionality, Activity, Sociability and Impulsivity) in 1975. From 1975, they have revised their scales, to EASI II and III and finally to its most recent form the EAS.

Buss and Plomin (1975) used five criteria in deciding which personality variables to include in a measure of temperament. The most important criteria is a genetic compo-

ment, or inheritance. Stability during development is the second criterion. Buss and Plomin (1975) suggest two basic reasons for using this criterion. First, they say "that if a disposition is inherited it will be relatively stable during childhood" (1975, p. 10). If there is no stability, it is assumed that environmental variables have taken over and genetic components are not important in determining adult personality. The third criterion is presence in adults. If the trait is stable throughout childhood it will be present in the adult. Adaptiveness, another criterion, helps organisms to continue to create future generations. Being able to adapt to change helps people and animals to survive and reproduce, passing their traits on to future generations. The final criterion is presence in animals. "If a tendency has sufficient adaptive value to be passed on through the genes, it is likely to be present not only in man but in animals close to man" (1975, p. 11). This criterion strengthens the case for temperament (Buss & Plomin, 1975).

Buss and Plomin (1975) identified four dimensions of temperament which meet these criteria. These included emotionality, activity, sociability and impulsivity (EASI). Emotionality is defined as the intensity of reaction. Activity refers to the total energy output. Sociability is a strong desire to be with others. Impulsivity consists of two main components, the first resisting versus giving in to urges, impulses or motivational states and the second

responding immediately to a stimulus versus planning before making a move. From this first scale more testing was done and revisions were made until the latest EAS was developed in 1984.

In the 1975 work the impulsivity trait was questioned on the dimensions of heritability and factorial unity. Further research did not provide evidence for its inheritance. As well, the 1975 work included several criteria to define temperament, two of which have been retained. In the latest version of the EAS, the dimension of impulsivity was dropped and the only criteria retained were inheritance and presence in early childhood.

A recent study by Olson, Bates and Bayles (1990) examined the relationship between temperament at two years of age and later impulsivity at age six. They found no relationship between temperament and impulsivity. This provides additional support for Buss and Plomin's decision to eliminate impulsivity as a trait of temperament. The EAS has been developed and the definitions of each factor have not changed drastically from version to version. The current definitions of each of the factors follows.

Buss and Plomin (1984) suggest that the major component of emotionality is arousal, this is the only component that would show inherited individual differences. The three high arousal emotions are fear, rage and sexual arousal. Sexual

arousal has been eliminated as it is not relevant to studies with children. Another component was distress. This breaks into fear or anger in infancy. A child high in emotionality will express either fear or anger depending on what they were taught. For example, boys are taught to inhibit fear, therefore, boys high in emotionality would express more anger.

Sociability offers rewards, which to highly sociable people are very important. Some of the rewards that other people offer are their presence, attention, sharing of activities, responsiveness and stimulation (e.g., initiation). Sociable people also seek out others just to be with them.

Activity is seen as a combination of tempo and vigor (the rate and energy output). In the 1984 work the two components of activity "have been found to correlate so well that there is no longer any need to consider them as separate" (Buss & Plomin, 1984, p. 84).

Three different EAS rating scales have been developed. One is for adult self-report, one for parental ratings of children and one for teacher ratings of children. For the adult self-report, five items for each dimension are included for distress, fearfulness, anger, activity and sociability. These items, plus others, were given to 330 students at the University of Texas. They were asked to rate these items on a scale of one to five. All of the items had good

distributional properties. For each of the scales, four of the five items loaded highest on the appropriate factor. To improve the factorial structure the fifth item of each category was eliminated.

The parental rating scale was revised from the EASI II scale items and items from the nine temperament dimensions of the NYLS. Six factors emerged and these have been combined to form the Colorado Childhood Temperament Inventory (Rowe and Plomin, 1977). Three scales emotionality, activity and sociability emerged. The emotionality scale measures distress. The activity scale is similar to the adult self report measures. The sociability scale measures sociability and shyness. Most researchers do not differentiate between shyness and sociability. The sociability scale included in the EAS is experimental and based on the adult scale. A scale for teacher ratings of children has been developed and is currently being used in a project by Plomin and Defries. The items on the parent rating EAS have been modified to construct the teacher rating scale (Buss & Plomin, 1984).

PSYCHOMETRIC PROPERTIES OF TEMPERAMENT INSTRUMENTS

Although there are many instruments available to measure temperament, there is not much agreement on a definition of temperament (Hubert et al, 1982). As a researcher developing a temperament instrument there are many problems to be dealt with before a definition can be formed. These problems occur in areas such as reliability, size of samples, stability and validity. Each of these will be examined in the following review.

Reliability

The test-retest reliability for some instruments is inadequate. Some instruments base the test-retest estimates on small sample sizes and others do not report reliability at all (Hubert et al, 1982). Interrater reliabilities are reported to be fairly high ranging from 64% for the Temperament Characteristic Interview to 100% for the Infant Behaviour Records. These results have been obtained with trained observers. Studies with untrained observers have reported substantially lower reliabilities. Interparent and inter-teacher reliability reports vary. Generally they are low to moderate. Some explanations for the inadequate reliabilities have been attempted. One reason Hubert et al. (1982)

suggest is that the temperament instruments, such as Thomas and Chess's, allow for changes, if these changes occur they are gradual and seen as cumulative instead of sudden. This would be consistent with reports of high short term reliability and low moderate long term stability. The actual results of moderate reliability are not in agreement with any of the theories. Hubert et al (1982) imply that this reflects problems in the temperament instruments. "Unless we are to assume that the theories are flawed, existing levels of test-retest reliabilities can only reflect inadequacies in the existing temperament instruments" (Hubert et al., 1982, p. 579). Low interobserver reliabilities occur when the instrument used is not reliable, the observers do not have enough contact with the child to rate them accurately or the child behaves differently for different people in different settings (Hubert et al, 1982).

The EAS adult self report scale collected test-retest reliability on 34 undergraduates and found the average to be .82. The correlates are basically independent. For the three scales on the parental rating scales, emotionality, activity and sociability, the internal consistencies were .83. Test-retest reliabilities were done for 31 children aged 3.6 years at one week intervals. The correlations for emotionality are .72, for activity .80, and for sociability/shyness .58 (Buss & Plomin, 1984).

In Windle's (1988) report on Buss and Plomin's (1975, 1984) work he suggests that with each successive revision of the EASI better psychometric properties have been developed. In the most recent revision (EAS) support for the heritability of each of the traits has been reported. Psychometric research shows that the three traits are factorially independent. Internal consistency and test-retest reliability are reported to be good (Windle, 1988). A statement by Windle (1988) gives further credence to the EAS. It gives some support for the future use of this instrument. "... the development of the EASI and the EAS have been explicitly theoretically guided, programmatic and methodologically rigorous relative to many other temperament measures" (Windle, 1988, p. 180). The standardization sample for the EASI III consisted of 135 pairs of middle class twins 2-6 years of age. For the EAS, 182 children between the ages of 1 and 9 were used for the parental rating scale.

The area of convergent validity in the EASI III has been criticized because the sample was limited to twins. In the most recent revision this may be corrected as the sample of children used is not quite so specific.

The best evidence of construct validity comes from Thomas and Chess and Buss and Plomin's work. Hubert et al (1982) suggest that factorial studies support the theoretical orientation of these researchers. Windle (1988) states that the EAS, through psychometric research has factorial

independence amongst the three dimensions, it has high internal consistency and test-retest stability has been reported.

Windle (1988) in his review of psychometric measurement on temperament has found discrepancies in several areas. The first issues he addresses are content domain and item selection. Even though there is a "high level of agreement among some investigators as to what temperament is, as reflected in frequent similarity of dimension labelling, there is much heterogeneity in item content and in the operationalisation of constructs" (p. 187). For example, Windle (1988) cites an item taken from the EASI III which requires an evaluation of the "what" of behaviour. He compares this with an item from the Dimensions of Temperament Survey (DOTS) by Lerner (1982) which focuses on the subjective content. Windle (1988) points out that the subjective content might be related to the stylistic feature but this remains to be demonstrated. Another problem Windle (1988) cites is the "equivalence of measurement when different items are used to assess temperament dimensions labelled identically" (p. 188). For example, Thomas & Chess (1977) substitute the item "my child splashes hard in the bath" with "child seems to have difficulty sitting still..." for two different settings. These items being assessed as equal is done so strictly on a "face valid basis" as the age-specific approach does not allow usage of traditional methods to com-

pare items and ensure validity of these substitutions (Windle, 1988, p. 188). Substitutions such as these limit the validity and also limit conclusions that can be drawn from the instrument.

In reviewing the factor and component analysis, Windle (1988) found that most investigators use only a few of the available options. Most studies use the principal component model. It does not separate true scores from error variance for item responses. This model, however, allows "relationships among items and latent variables to be specified and tested for adequacy of fit" (Windle, 1988, p. 196). Another point is that "factorial replication and invariance studies are needed to support the structure of various instruments and to extend their use beyond the restricted sample upon which the factors were derived" (Windle, 1988, p. 197). As Windle's (1988) review suggests, there are many instruments that measure temperament. However, each temperament measure has instabilities in its construction and psychometric properties. Hubert et al (1982) have reviewed twenty-six temperament instruments for psychometric properties, such as standardization samples, reliability and validity.

Standardization Sample

Standardization samples range from 30 to about 300. The lower numbers cannot provide enough data to evaluate the psychometric properties of an instrument. The samples in

most of the studies seem to be based on three characteristics of the subjects, age, sex and socioeconomic status. The ages of the sample vary depending on which instrument is being used. For example, the New York Longitudinal Study - Parent interview sample was based on children from three months to five years of age, half of them being males. Another example is the EASI III survey, whose standardization sample was based on children two to six years old from a middle socioeconomic class. Most of the studies use a white middle class population which restricts the generalizability to other populations.

Stability

Stability among dimensions varies. High stability is reported for the dimensions of activity, rhythmicity and mood on the Revised Infant Questionnaire and the Toddler Temperament Scale (Hubert et al, 1982). "The possibility that childhood temperament may be more stable than infant temperament is supported by the moderate level of correlations between the dimensions of the Behavioural Styles and the Middle Child Temperament questionnaires over a four and a half year period" (Hubert et al, 1982, p. 574). Different studies report varying age ranges for the greatest stability. For example, Thomas and Chess's NYLS dimensions greatest stability is seen between infancy and five years. Other studies (Goldsmith & Gottesman, cited in Hubert et al, 1982) report major changes in stability in the first seven years.

Validity

The data for validity is much less available than evidence of reliability. Hubert et al. (1982) report that "for nearly half the available scales, neither convergent, concurrent, nor predictive validity has been documented" (p.575). Studies that do report validity are usually based on small sample sizes. Other problems include correlations which are low accounting for little variance, data is inadequately reported or retrospective reports are used. Criterion measures used to establish validity vary, for example, in the NYLS convergent validity was obtained by comparing interviews and observations of children between three and six months. Predictive validity was established for the Child Characteristic Questionnaire by the prediction of difficulties at 24 months and behaviour problems at 36 months.

An examination of convergent validity, (measuring the same dimensions at the same point in time), has shown a moderate correlation for the questionnaire method versus observations in home or lab. This type of correlation was also found between parent reports and behavioural observations on the temperament dimension of inhibition (Garcia-Coll, C., Kagan, J., & Reznick, S., 1984).

The results on concurrent validity are inconsistent. It has been found that correlations between temperament and

other aspects of development (e.g., temperament and intelligence) are significant but not essential to validate the theory. Other correlations (e.g., temperament and parent-child interaction) have theoretical implications. Significant correlations have been found between difficult temperament and optimal home environment. These findings may prove inconsistent as they are based on small sample sizes, use extreme groups and have insufficient instrument reliability data (Hubert et al, 1982).

Concurrent validity is another area which has not been as extensively studied. This is due to methodological problems. For example, some studies suggest that the effect that temperament has on development or interactions with others is determined by the age or sex of the child, which leads to relationships which are not necessarily predicted by the theory (Hubert et al, 1982). There have been significant findings from Thomas and Chess's study but the results are questionable. This is due to the fact that assessments of dimensions have been concurrent and not predictive.

Construct validity "involves the degree to which scales based on a particular theoretical orientation yield factor structures reflecting that orientation" (Hubert et al, 1982, p. 577). The evidence for this type of validity has come mainly from Buss and Plomin (1984) and Thomas and Chess (1977). The results have been inconsistent. As recognized from the above information, there is an abundance of temper-

ament instruments. Those that are available are plagued with reliability and validity problems. Hubert et al. (1982) suggest that researchers must choose the instruments they use carefully. "While no single satisfactory instrument currently exists, certain instruments have demonstrated adequacy with regard to some psychometric properties" (p. 581). Buss and Plomin compared Infant Behaviour Record items (Matheny, Dolan & Wilson, 1976) that assessed the same behaviours as their EAS temperaments. "These data indicate significant heritability for fearfulness in the second year, for activity in the first and second year, for energy in the second year, and for sociability in the first year" (1984, p. 132).

SOCIAL INTERACTION

Over the last number of years research in the area of social interaction has focused on describing the course of disorders in social behaviour and teaching more adaptive skills and positive methods of interacting. Though the number of studies on social interaction among children in day care centres has increased, there is no unifying definition of the concept or agreed upon units of measurement.

In contrast to the literature on temperament in which definitions are basically theory specific, definitions of social interaction tend to be empirically based and consequently, considerably more diverse. In an attempt to discern the commonality among definitions of social interactions, empirical definitions and observation methods are reviewed and summarized in Table Form (See Appendix A). This table shows that considerable variation occurs across studies. A number of studies include positive or negative exchanges between children (Tremblay, 1981, Roopnarine, 1987, Lamb et al, 1988, Kreimeyer, 1988, Factor, 1984). Most studies use physical and/or verbal exchanges in their definitions (Tremblay, 1981, Roopnarine, 1987, Connolly, 1988, Bjorkman et al, 1986, Lamb et al, 1988, Antia, 1988 and Ramsey, 1986). Interaction is another commonality in

the studies. This includes contact or exchange where one child becomes aware of the other child (Connolly, 1988, Tremblay et al, 1980, Kreimeyer, 1988, Fox, 1987, Ramsey, 1986, Bronson, 1981, and Vandell and Mueller, 1980).

Lamb, Suomi, & Stephenson (1979) suggest that one problem with social interaction research is the failure to take into consideration the context in which the interactions take place. For example, in a study by Tremblay et al. (1980) they observe just the target child's actions and responses; social initiation by a peer to a target child is not recorded. This would limit the contextual factors resulting in a partial record of the child's behaviour. Lamb et al point out that another factor to be considered is the "fineness or grossness" of the data units. If too "gross", a problem of distinguishing between behaviours that are given different meanings occurs. If the defined category is too fine, behaviours that appear outwardly different may actually be the same. Another problem occurs when a simple or more precise definition could be used rather than one that is too complex. For example, Bronson (1984) distinguishes between contact bursts and contact chains which requires a lot of explanation. The definitions are quite detailed but very similar in content with slight differences between the two. The similarities involve "act/ react" interactions where one child responds to another. The differences occur in the amount of time that the child takes to

respond to the other and whether or not the interaction is initiated by peers or adults.

In an examination of these studies it follows that a definition of interaction can be formed by putting a large number of the concepts together. This results in a definition which is not unified and without consensus, but taking into consideration the limitations and the commonalities of these previous studies, at least a working definition for the present study can be formed.

A dictionary definition of interaction states "action on each other". The definition of social includes "dealing with human beings in their relations to each other". Combining these, social interactions are the resulting actions and reactions of two or more people in an encounter. Brockman and Jackson (1982) state that "social interaction is a meaningful exchange between two people" (p. 13). Therefore, social interaction involves an exchange between two or more people where each person is aware of the other. The studies of social interaction tend to deal with finely defined characteristics. For this study, social interaction is viewed as positive or negative, verbal or physical exchanges between child-child or adult-child where the participants in the exchange become aware of each other. Each of these exchanges will note who is initiating the interaction and who is responding. Also included in this definition is the type of play in which the child engages.

SOCIAL BEHAVIOUR OF PRESCHOOL CHILDREN IN DAY CARE SETTINGS

Children's social behaviour in a group may vary from child to child and place to place. The effect group care has on the behaviour of the child is reflected in the following studies. For a clearer picture of the social behaviour of children in a day care and/or group setting it is necessary to cite data from the following studies in a card file fashion. At the conclusion of these citings a composite chart will show the extent to which various studies have tended to corroborate or diverge with the findings reported in the studies.

Hartup (1980) follows the developmental course that a child's interactions take, starting with object centred interaction. In the second year, imitation and sharing emerge. During the preschool years, positive social encounters increase. Other activities that increase during this period are talking, rough and tumble play, and cooperative activity. Rates of aggression increase in the two to four year age range.

The age at which a child begins attending day care, and previous experience seem to have different effects according to the following studies. Finkelstein, Dent, Gallacher and

Ramey (1978) studied infants and toddlers social behaviour in a day care setting. They found that as children increase in age they interact less frequently with teachers and more frequently with peers. The reason is that older children are capable of reciprocating behaviour and they use more speech in their interactions.

Schwarz, Strickland and Krolick (1974) compared two groups of children. The first group had started attending day care when they were between five and twenty-two months. The second group were new children who were three to four years old when they started the day care program. Previously, these children were cared for by parents or others in their home. After children had attended the program for four months, staff were asked to rate each child on social compatibility, social assertiveness, and intellectual competence. The results indicated that those children who were attending day care since infancy were less cooperative with adults. "... they were more uncooperative and less inclined to do what they were told than the new group ..." (p. 504-505).

Becker (1977) and Mueller & Brenner (1977) suggest that experience with peers increases interaction skills by allowing interaction with others with different styles. It is also found that children in day care centres are more socially competent with peers than those reared at home. In another finding Becker (1977) indicates that children in

groups interact with parents at a higher rate than those raised at home. They also state that "children who were enrolled in alternative care settings during infancy engage in more peer interaction (both positive and negative) than their agemates, suggesting that the greater experience with peers facilitates the acquisition of both prosocial and antisocial behaviour patterns" (p. 488). The infant group was also found to be more physically and verbally aggressive with peers and adults. Another area of difference was motor activity. "There was a tendency for the infant group to be less tolerant of frustration. The infant group participants were more inclined to run about, whereas the new group children were relatively more sedentary" (p. 505). The authors of this study suggest that a "potentially confounding variable not controlled by matching were combinations of maternal motivation and infant temperament..." (Schwarz, Strickland & Krolick, 1974, p. 505) .

Macrae and Herbert Jackson (1976) replicated Schwarz's (1974) study. They found differences that were significant in Schwarz's study were not significant in the replicated study. However, this study found significant differences for cooperation with adults and abilities to get along with peers for the group who had attended the day care for approximately two years. In comparison to the Schwarz study, opposite trends occurred. They indicate that the discrepant results could be due to differently run day care programs.

This includes different child care philosophies and different daily routines or programming. These results indicate the need for more research that also considers setting group/factors, i.e., programming in the area of behavioural effects on children who attend day care.

Schenk and Grusec (1987) compared children who had attended day care for an average of 11 months with home-reared children who had attended nursery school for two hours a day, three or four days per week. The children were from six months to three years with an average of 1.5 years. The study examined how children behaved with a strange adult. The results indicated that those children who had no experience in day care were more likely to show concern for others. Boys who did not attend day care used more stereotyped reasoning. "The most important finding was the lesser responsiveness of children with day care experience to the needs of an adult" (p. 239). Some reasons given for this finding were less time spent by teachers and parents to encourage prosocial responding. "Extensive peer interaction afforded by day care may, however, promote certain forms of prosocial behaviour involving peers..." (p. 239). Schindler, Moely and Frank's (1987) study on social participation of children in day care found that children who had day care experience had an increase in social participation and associative interaction with peers. It was also found that these children had a decrease in unoccupied and onlooker

behaviour. This study also indicated that the more time spent in day care, the more positive social interaction with peers.

Hartup (1980) suggests that the age of the child influences how they interact with each other. Social interaction among children who are the same age is more aggressive than the interaction of mixed age groups. In a mixed age group, aggression in their social interactions is less likely to occur as it has aversive consequences for the younger child and not much gratification for the older child. In the mixed age groups (3 and 4 year olds), the four-year-olds tended to have more mature forms of social activity which may also lead to a higher level of language. "Children's interactions with adults and other children become more differentiated in the preschool years" (Hartup, 1980, p. 285). Along with this differentiation, the preschool child in a day care tends to have increased amounts of time that are spent with peers. Among four year olds in day care centres (Heathers cited by Hartup, 1980) there were more social overtures to peers than adults. Also, the four year olds sought attention and approval whereas the three year olds sought affection. In a study of three and four year old children, it was found that the four year olds showed more giving of positive attention and approval, affection and personal acceptance, submission and giving tangible objects. With increasing age, children engage in more associative and cooperative activities (Hartup as cited in McGurk, 1978).

Pardeck (1986) reviewed the major findings regarding the effects of day care on the child's intellectual, emotional, social development and the impact it has on the family. The conclusions Pardeck draws from this study include no difference in intellectual development between home-reared and day care children if they were from an advantaged background. For high risk children, the day care had a positive effect on their intellectual development. They found no negative effects on day care children's emotional development. Social development was found to differ between home-reared and day care children. Day care children were more peer-oriented and interacted with their peers more than parents or adults (Pardeck, 1986). In Pardeck's (1986) review several other studies which indicate results on the social development of children in day care are cited. Ricciuti, and Kagan, Kearsley and Zelazo (cited by Pardeck, 1986) suggest that day care children are more peer-oriented and engage in less physical contact with their mothers. McCutcheon and Calhoun and Lay and Meyer (cited by Pardeck, 1986) found that children in day care interacted more with other peers than adults. Day care children were also found to be "more assertive, less conforming, less impressed by punishment, less averse to dirt and more prone to toilet lapses" (Pardeck, 1986, p. 902).

Jennings, Curry and Connors (1986) examined toddlers behaviours in dyad and group settings. They proposed that

more interaction would occur in dyads than in groups. However, this was not found, there was no difference in the frequency of interactions between groups and dyads. This could be due to familiarity with peers. They also found that the toddlers in their study talked more with the adults, but made more indirect contact (such as imitating) with peers. This study mentions that the reporting of peer interaction differs between studies. Some studies report parallel play as being peer interaction and others do not. The studies that do report it have a higher incidence of peer interaction.

A study by Kolvin et al (cited in Mohar, 1988) found that the child takes an active role in influencing others around them. "In academic settings, a greater degree of adverse temperament can lead to interrelationships that are critical, poor social skills and increased aggressive behaviour" (p. 233).

Waters, Wippman and Sroufe (1980) looked at children at several ages 18 months, 24 months and three and half years. They measured how securely the infant was attached to the mother at 18 months. There were three different measures of attachment: securely, avoidant or resistant. Affective sharing was used as a criterion for distinguishing the three types. This is defined as "presence or absence of smiling, looking, vocalizing, showing or giving toys to the mother, individually or in combinations at any time during the three

minute period was scored" (p. 823). At the age of three and a half years peer competence and ego strength was found to be predictable by the quality of attachment. The more secure attachment results in greater peer competence. Peer competence refers to "initiative, skill, and engagement in interaction with peers" (p. 826).

Erickson, Sroufe and Egeland (1985) in their study on children's behaviour problems and the quality of attachment, report that infants who are not securely attached to their caregiver show adaptation problems of a social nature in both preschool and kindergarten. The problems that they reported were aggressive and inattentive behaviours.

In another study, Frankel and Bates (1990) report similar results. Their study examined the relationship between the mother and child's attachment and the child's problem solving skills. They suggest that "the secure toddlers showed more on task time, less aggressive behaviour, and less verbal negativism than insecure toddlers" (p. 813). Those children who were securely attached were better at problem solving tasks. These results show that the attachments that occur in the family may influence the child's later behaviour.

Pardeck (1986) looked at the effects day care has on the family. He cited studies (Falender & Heber, 1976, Ramey & Mills, 1975) that reported mothers interacting more with

their child when they came home from day care than children who were reared at home. The mother's who have children in day care centres have a greater opportunity to obtain a higher educational status and earn a higher income. In families that were happy with day care arrangements there was more marital satisfaction.

The day care experience has an effect on the family. However, the parent's child rearing beliefs, personality and perceptions may also influence the child. Mangelsdorf, Gunnar, Kestenbaum, Lang & Andreas (1990) examined the relationship between maternal personality, behaviour and the infant's emotional temperament. They used the Multidimensional Personality Questionnaire which has a subscale called social closeness. Mothers who scored positively on this scale had infants who did not become upset when meeting someone new. On the other hand, mothers who scored high on the "negative affectivity" subscale, which measures anger and anxiety, reported their children as more prone to distress than an observation instrument would measure. The suggested reason for this discrepancy "may reflect genetic or experiential factors, or merely the influence of maternal personality on maternal perceptions of the infant" (p. 828).

Another study by Kochanska (1990) suggests that the mother's beliefs on childrearing reflects the mother's prediction of their child's behaviour. Those parents who were more democratic, experienced more consistent behaviour from

their children. Those parents who used an authoritative style of parenting had children who were maladjusted. This study also reports that the authoritative parents often viewed child rearing as problematic, and they in turn, show "negative affect" to the child.

Bates (1990) suggests that there is a relationship between temperament and behaviour problems. He states that "early behaviour problems serve as markers of a process leading to the later problems" (p. 198). He states that children who are unadaptable early in life, have a greater tendency to experience anxiety, especially, in new situations.

Two studies examined a relationship between type of temperament and sociability with peers. Kochanska & Radke-Yarrow (1992) explored "whether social and non-social inhibition measured in early childhood predicted children's peer competence and sociability during interactions with unfamiliar peers at age 5" (p. 326). The results indicated that children who were uninhibited and actively explored the new environment, at age 5 engaged in more group play. An explanation, which the authors offer, is perhaps children who are curious and explore develop more skills and imagination in the use of toys, which may facilitate group play.

Asendorff (1991) reports that children who are inhibited temperamentally tend to play in a solitary passive way with

strange peers. This temperamental pattern will follow the children throughout their lifetime and may result in social rejection or withdrawal.

Separately, both temperament and social interaction studies occur frequently in the literature. However, the two in combination occur rarely and when they do studies tend to be lacking in a few areas. One such study is that by Billman and McDevitt (1980). They use the Behavioural Style Questionnaire and the Teacher Temperament Scale to measure the child's temperament. To measure interaction they used naturalistic observations. The results of this study indicate that highly active children were involved in more conflict situations and were more sociable. Sociable was defined as a frequent exchange of toys. The authors say that the "low threshold sensitive child react by hitting out at other children but was less often involved in the social exchanges of giving or receiving" (p. 399). Children who were rated as rhythmic were found to work longer and more consistently, and spoke to peers more frequently. Intense children preferred to deal with peers on a more physical level (more touching and hitting).

Unfortunately this study did not yield a complete picture of each child's interaction since it did not determine whether a child was initiating or responding to another child's overtures. It also failed to distinguish between parallel and associative or cooperative play, an important dimension of peer interaction at this age level (p. 399).

Chipperfield (1989) studied the relation between activity level and reactivity asking parents to rate their children on both measures. The instrument used was constructed by taking items from four scales. They included the Friedenberg & Strelau's Teacher Rating Scale, Kohn's Self-Rating Scale, Thomas & Chess' Parental Questionnaire & White's Sensitivity Scale. The prediction that there would be a negative relationship between child reactivity and activity level was confirmed along with age differences. Older children were rated as less active than younger children. She also studied activity and the role it plays in regulating the internal state. "Internal state then, is presumably a reflection of the constant influence of temperament differences (reactivity) and the transitory influence of environmental factors such as stimulation level" (p. 40). She also found that high and low reactive children reacted differently to changes in environmental stimulation.

The literature on interaction in groups for children is varied. There are some discrepancies but also some common elements. In several studies reviewed previously there is agreement that the more time a child spends in day care the less cooperation and response to adults and more interaction with peers. Some studies report children being more physically and verbally aggressive with both peers and adults. Schenk and Grusec (1987) reported more positive social interactions with peers after 11 months in day care in com-

parison to children who attended three or four days a week, two hours a day. The children attending day care have lower frustration levels. These studies indicate that future research should focus more on deriving a common result. Billman and McDevitt's (1980) study which dealt with social interaction and temperament found highly active children to be involved in more conflict situations and found them to be more sociable. This study provides interesting results but was sparse in areas (e.g., was the child initiating or responding to another). From the above there appears to be much overlapping in the foregoing results of the readings. In order to have a clearer definition of the importance given to the various behaviours a chart will help to clarify the outcomes of the above studies (See Appendix B).

In summary, these studies indicate that as children increase in age they begin to interact more frequently with peers and less with adults in the day care setting. Also, the results show that children who have day care experience are involved in more social participation and associative interactions as well as in more positive giving of attention, approval and affection. Children attending day care since infancy were less cooperative with adults. With an increase in day care experience there was more positive social interaction among peers. With increasing age children tended to be less active and engage in more cooperative and associative activities. Aggressive behaviour was shown

to increase among children in the two to four year old age range. Those children who were highly active were involved in more conflict situations. Children in day care were found to be more physically and verbally aggressive. There is a lot of variation in each child's interactions which may be affected by different temperamental traits.

Temperament is very important to consider when looking at interactions and the effects of day care on interactions because a child's temperament is determined by both environmental and hereditary factors. In interactions or different settings a child may interact either positively or negatively. This can be linked to the concept of goodness of fit (Thomas and Chess, 1977). If a match occurs between environmental demands and abilities (consonance), a positive experience or interaction may take place. This relates directly to setting. For example, in a day care at a structural situation which requires a child to sit for a length of time, a child high in activity (temperamental scales) may have some difficulty in meeting environmental demands with their ability. Therefore, a negative interaction may occur which could have been averted or dealt with if the day care or parents had a better understanding of these concepts.

The proposed study will attempt to examine some of the previous variables. Buss and Plomin's (1984) EAS was used to provide a clearer measurement of temperament. The variables, initiating or responding, and the type of play in

which the child was engaging were included in a new observation instrument that was developed by the author. All of the interactions the child participates in were dependent variables. The independent variable was the child's temperament. The new instrument has utilized the components taken from earlier studies.

HYPOTHESES

In the present study it was hypothesized that children with different temperaments would differ in the quality and rates of social interaction in structured and unstructured group settings. A structured situation involved play or activities that had been planned by adults. An unstructured situation allowed the child to play with whomever they wished with as few limits as possible. The quality of social interaction referred to the positive (e.g., laughing, sharing) or negative (e.g., hitting, yelling) aspects of the interaction. The rate referred to the number of times per observation session that an interaction occurred.

Specific hypotheses related to the dimensions of temperament are proposed. The dimensions of temperament of interest in this study are emotionality, activity and sociability as measured by the EAS of Buss and Plomin (1984). It has been suggested that children in a day care cooperate less with adults (Riccuti, 1980) and that children of the same age interact more aggressively with their peers (Hartup, 1980). Buss and Plomin (1984) point out that individuals who are highly emotional become more upset with "the stresses of everyday life" (p. 54), thus reacting with high levels of emotional arousal. Children with high emotionali-

ty "tend to have more frequent and more intense emotional reactions, by definition and therefore have more negative behaviour ..." (p. 57). From this, it can be expected that children who demonstrate different levels of emotionality respond in social situations in day care in varying ways from acting out to complete withdrawal. As a consequence, they would be expected to show varying levels of aggressiveness and cooperation towards peers and adults.

1. a) Children high on the temperament component of emotionality respond negatively more frequently to peers and adults in structured situations.
- b) Children high on the temperament component of emotionality respond negatively less frequently to peers and adults in unstructured situations.

Buss and Plomin (1984) state that children high in activity are more likely to respond with anger when threatened by others. For example, in a group setting a child who has a high activity level is likely to encounter more friction because of discrepant levels of activity that vary from the norm of the group. A high activity level in this setting would also result in more energy output and a faster rate of activity (Buss and Plomin, 1984).

2. a) Children at the high end of the activity scale initiate interactions more frequently than those with low activity levels.

b) Those with high activity scale scores are involved in more negative interactions and those on the low end of the scale are more neutral in their interactions.

Highly sociable people are reinforced by social rewards that follow from interaction. Because these social rewards mean so much to the highly sociable person they tend to interact positively with others to avoid losing these rewards. They interact even though there is a risk of negative interaction or punishment. Low sociable people do not need or seek out social rewards so they tend to be neutral or more negative in their interactions (Buss and Plomin, 1984).

3. Children with high sociability measures on the temperament scale interact positively with peers more frequently than those with low scores.

METHOD

Subjects

The subjects in this study were 32 children, 15 boys and 17 girls who ranged in age from 48 to 60 months at the time of observation. The mean age was 54.3 months with a standard deviation of 3.76. These children attended one of 13 randomly chosen day care centres in a metropolitan area with a population of 650,000. All of the children had spent time in a day care setting; the mean number of months was 17.5 with a standard deviation of 10.36. Some children had also been in a previous day care. The demographic information collected from the parents gives a better understanding of the subjects' home environment. Seven children lived in single parent families and 25 lived in intact families with two adults present. The mean number of years that the parents were married was 10.4 with a standard deviation of 4.41 (See Table 1). Other data collected included: parents' jobs, employment status, income, education of both parents, child's birth order, marital status, age of parents and whether day care fee subsidies were received. For percentages on these items see Tables 1 and 2.

Table 1

Demographic Information about the Parents

	Number	%	Number	%
	Respondent		Spouse	
Age of parent				
20-24	2	6.3		
25-29	6	18.8	6	22.2
30 or older	24	75.0	21	77.8
Marital status				
Single never married	3	9.4		
Married or common law	25	78.1		
Single previously married	4	12.5		
Years parents married				
Not currently married	7	21.9		
Less than ten years	9	28.2		
Ten years	8	25.0		
Ten years or more	8	25.0		
Education of parents				
Less than grade 8	2	6.3	2	7.4
Grade 8-12	13	40.6	9	33.3
Some post-secondary	4	12.5	3	11.1
Post-sec cert/diploma	5	15.6	2	7.4
University Degree	8	25.0	11	40.8

Table 1. Parent Demographics (continued)

Total family income

Under 10,000	5	15.6
10,000-49,999	14	43.8
50,000 and over	13	40.6

Parents job

No job	4	12.5	4	14.8
Worker	12	37.5	10	37.0
Mid-management	11	34.4	7	25.9
Prof/senior management	5	15.6	6	22.3

Parents employment status

Work full-time	19	59.4	21	77.8
Work part-time	5	15.6	2	7.4
Unemployed, looking	1	3.1	3	11.1
Full-Time student	4	12.5		
Full-Time homemaker	3	9.4	1	3.7

Table 2

Information Describing the Children

	Number	%
Number of children in the home		
1	10	31.3
2	15	46.9
3	6	18.8
5	1	3.1
Birth order of the child		
Only child	10	31.3
Oldest	8	25.0
Second oldest	9	28.1
Third oldest	5	15.6
Language match home/day care		
No	3	9.4
Yes	29	90.6
Receives day care subsidy		
No	19	59.4
Yes	13	40.6
Relation of respondent to child		
Mother	21	65.6
Father	10	31.3
Other relative	1	3.1

Table 2. Child Information (continued)

Age of children (in months)

48.0-51.9	9	28.1
52.0-54.9	7	21.9
55.0-57.9	8	25.0
58.0-60.9	8	25.0

Mean age: 54.3 months

Time spent in present day care (in months)

1.0-5.0	5	15.6
5.1-10.0	9	28.2
10.1-24.0	8	25.0
24.1-31.0	10	31.2

Mean time: 20.1 months

Time spent in another day care (in months)

0.0	21	65.6
1.0-5.0	3	9.4
5.1-10.0	2	6.3
10.1-24.0	5	15.6
24.1-31.0	1	3.1

Mean time: 20.1 months

Child Care Setting

All day care centres were located in a large metropolitan area with a population of 650,000. Centres selected met the following criteria: the centres were licensed for 30-40

children aged 2 to 6. The study population was then randomly selected from those centres which met the criteria, a total of 32 subjects were chosen. The subjects were chosen from the centres based on age (four-year-olds) and attendance. More specific criteria are discussed in the next section.

After the board of each centre had given consent to participate, the director was asked to hand out a participation survey to all the parents of four-year-old children who had indicated interest in participating and who met the following criteria. The child's attendance was full time in the program (average of 5 or more hours a day, five days a week) at the day care centre for not less than six consecutive weeks prior to administration of the questionnaires. If children were attending any other program they were excluded. Parents of children who were selected and who agreed to participate were then asked to sign a consent form allowing the observers to collect data on their child as well as allowing the Child Care Worker to fill out a questionnaire regarding that child.

The 13 day care centres from which the subjects were selected were all non-profit organizations. From each of four centres one child participated, six centres had two children participating, there was one centre with three children, two centres with four children participating and one centre with five children participating. Participants

were from the core areas to the mid-^{sp.}to upper-class regions of a large city. All programs offered some structured activities such as meals, snacks, circle time and they also offered some unstructured free play periods. These play periods were inside or outside depending on the weather. Each centre had a large floor space which was generally divided into different play areas (i.e., housekeeping, blocks, puzzles). Each play area was equipped with appropriate toys. Some of the centres had separate rooms for different activities. Most had some form of climbing structure.

Child Care Workers

Child Care Workers (CCWs) in each centre were classified as a Level I, II, or III worker. Each child care worker who participated in this study met the following criteria: they spent a minimum of two hours (average) per day working in the same group or room as the child for not less than six consecutive weeks prior to administration of the questionnaires. Information about the participating children was received from a total of 14 Child Care Workers (Table 3). The participating CCWs were 19 years of age or younger to 30 years or over. There were 13 female CCWs and one male CCW. Each centre had one CCW who rated each of the participating children from that centre. Ten of the CCWs had a post secondary certificate/diploma, one had some post

secondary, one had grade 9-12 and two had a university degree.

Table 3

Information Describing the Child Care Workers

	Number	%
Sex of child care workers		
Male	1	7.1
Female	13	92.9
Age of child care workers		
19 or younger	1	7.1
20-24	2	14.3
25-29	2	14.1
30 or over	9	64.3
Child care workers education		
Grade 9-12	1	7.1
Some post-secondary	1	7.1
Post-secondary certificate/ diploma	10	71.4
University degree	2	14.4
Child care workers job title		
Director	4	28.6
Child care worker	8	57.1
Special needs worker	2	14.3
Child care workers classification		
Level I	1	7.1
Level II	4	28.6
Level III	9	64.3

Table 3. Child Care Worker Information (continued)

Child care workers time in present day care

(in years)

0-4	10	71.4
5-10	2	14.3
10 or more	2	14.3

The director of the day care centre (or supervisor) was asked to select the staff member with the most education, experience and direct knowledge of the child to respond to the questionnaire. In the case where two or more staff members appeared to qualify equally, the judgement of whom to select was left to the discretion of the director of the program.

MEASURES

Two types of instruments were used in this study. The first measured the emotionality, activity and sociability of a child's temperament. This was a temperament questionnaire called the Emotionality, Activity and Sociability scale (EAS) developed by Buss and Plomin (1984). The second instrument measured the social interactions of preschool children. This was an observational instrument developed by the researcher (1990-91).

Emotionality, Activity & Sociability

The EAS temperament scale is available in two versions, one developed for parents to rate their children and the other designed for teacher's ratings of children. The EAS consists of 20 questions which measure the emotionality, activity and sociability aspects of a child's temperament. The parent or teacher is asked to rate the child on a five-point scale from one (not characteristic or typical of the child) to five (very characteristic or typical of the child). Each of the three scales consists of five items with the exception of the sociability scale which has an additional five items relating to shyness. Table 4 gives an indication of the content of the items in each scale.

Table 4

ITEMS CONTAINED IN THE EMOTIONALITY, ACTIVITY & SOCIABILITY SCALES

Emotionality

- Cries easily
- Tends to be emotional
- Fusses and cries often
- Gets upset easily
- Reacts intensely when upset

Activity

- Always on the go
- Moves slowly
- Off and running as soon as he/she wakes
- Very energetic
- Prefers quiet, inactive games

Sociability/Shyness

- Tends to be shy
- Likes to be with people
- Prefers playing with others
- Makes friends easily
- Finds people stimulating
- Very sociable
- Takes a long time to get used to strangers
- Is a loner
- If alone feels isolated
- Very friendly with strangers

For a complete copy of the questionnaires and scoring see Appendix C.

Observational Method

The objective of the observational instrument was to obtain information about the child's social interactions in a day care setting. The coding system was designed to measure social interactions of preschool children with the focus on positive and negative interactions. The observational instrument consists of behavioural codes and a time sampling schedule. Each child was observed for approximately 30 minutes, 15 minutes in a structured situation and 15 minutes in an unstructured situation. All subjects were observed for 44 time samples except for 6: two subjects who were observed for 42 time samples and four subjects observed for 41. The number of adults and children present as they were observing was recorded once every two minutes.

Behavioural Codes. The context of behavioural codes included the setting, the activity in which the child was engaged and the manner in which the child was involved in an activity. Two components of setting included the area where the child was playing in the room and the daily schedule of the day care centre. Some examples of the area are: blocks, housekeeping, and puzzles. The daily schedule of the centre included free play, circle time, clean up and meal time. For specific definitions of the codes see Appendix D.

The children's activity included two main categories: structured play, defined as any activity which was planned and implemented by a caregiver, and unstructured play, defined as any activity which was chosen by the child. Within each of these categories, two items were coded. They consisted of five types of play behaviours (imitative, social pretend play, cooperative play, parallel play, and solitary play) and a specific description of the child's activity was narratively noted. As well, the objects the child played with were also coded. The size of the object was noted as large or small and it was specifically named.

The manner of activity, which referred to how the child was involved in play, was noted as positive, negative or neutral. Adjectives were used to identify the child's mood and to verify the child's behaviour as positive, negative or neutral.

In addition, two more categories were coded. These included entry and exit from play. Entry referred to how the child became involved in play. For example, was the child invited to play by a peer or adult or did the child just join in. Exit from play was defined as how the child left play. For example, was the child asked to leave or did he/she just change activities

Behavioural Sampling Schedule. The coding system required a method of collecting information on each subject.

The chosen method was time sampling. Each time sample consisted of five seconds of observation which was followed by twenty-five seconds of recording. The first four time samples were used to record the children's behaviour. The fifth time sample was used to record the number of boys, girls and adults present in the immediate area in which the child was observed. Each child was observed for approximately half an hour, 15 minutes in a structured situation and 15 minutes in an unstructured situation (see Appendix E).

OBSERVER TRAINING

Training of the observers was carried out in a licensed day care centre which was not part of the actual sample. The observers trained until a 95% interobserver reliability was obtained by all three observers on each code and maintained over four, one hour sessions. During data collection the first interobserver reliability was checked after observational data was obtained on ten subjects. It was 95%. (See Table 5).

TABLE 5

Interobserver Reliabilities following Data Collection on First Ten Subjects

	AB*	AC*	BC*
AREA	100%	100%	100%
SETTING	100%	100%	100%
INITIATOR	100%	100%	100%
TYPE OF PLAY	100%	100%	100%
PLAY BEHAVIOURS	88%	98%	100%
OBJECTS USED	100%	100%	100%
ADJECTIVES	100%	100%	90%
SOCIAL INTERACTION	100%	100%	100%

*A= Observer 1

*B= Observer 2

*C= Observer 3

After another ten subjects had been observed, interobserver reliability was checked again. It was found that the reliabilities had decreased to below 95% on some codes. After discussing the discrepancies the observers went back to the day care centre where the initial training was done, and paired in twos (observer AB, AC, BC), practised until they had maintained a 95% reliability for two, one hour sessions each. They then proceeded to collect the remaining data. (See Table 6).

TABLE 6

Interobserver Reliabilities following Data Collection on Twenty Subjects

	AB*	AC*	BC*
AREA	100%	100%	100%
SETTING	100%	100%	100%
INITIATOR	100%	100%	100%
TYPE OF PLAY	100%	100%	100%
PLAY BEHAVIOURS	95%	95%	100%
OBJECTS USED	100%	100%	100%
ADJECTIVES	90%	100%	90%
SOCIAL INTERACTION	95%	100%	100%

*A= Observer 1

*B= Observer 2

*C= Observer 3

The final interobserver reliability was completed over the last ten subjects, The reliability remained at 95% (See Table 7).

TABLE 7

Interobserver Reliabilities following Data Collection on
Thirty Subjects (Final Reliabilities)

	AB*	AC*	BC*
AREA	100%	100%	100%
SETTING	100%	100%	100%
INITIATOR	100%	100%	100%
TYPE OF PLAY	100%	100%	100%
PLAY BEHAVIOURS	98%	100%	88%
OBJECTS USED	100%	100%	100%
ADJECTIVES	100%	100%	100%
SOCIAL INTERACTION	100%	100%	90%

*A= Observer 1

*B= Observer 2

*C= Observer 3

PROCEDURE

Collection of information required for this study involved contacting boards of day care centres, their directors, child care workers and the parents of the children that were participating in this study. First, letters were sent to the chairpersons of the boards of all the full-time non-profit day care centres, with 30-40 licensed spaces in a large metropolitan area with a population of 650,000. In the letters the project was explained and permission to conduct a study in the centres was requested (See Appendix F). A tentative deadline of four weeks was made for receipt of permission, allowing for variability in the frequency of board meetings and differences in policies. The centres that had not replied by this deadline were then contacted by telephone three times. If requested by the board of the day care centre the researcher met with them. In this study no boards requested the researchers to meet with them.

Secondly, after permission was received from the board of directors a phone call was made to all centre directors which was followed by a letter repeating instructions given by phone. The letter explained involvement of parents and staff, instructed how to select day care staff for the project, arranged for distribution of written information to

parents, arranged for distribution of reminder notices to parents, arranged a date for researchers to meet with parents, and arranged for observation times.

Thirdly, the researcher distributed the questionnaires to as many parents as possible on the arranged date and got them to sign consent forms allowing observation of their child and consent for a day care staff to answer questions about their child. Parents who did not receive the questionnaire that day were asked to return the signed consent forms with their completed questionnaires. They were informed that all of their responses were confidential. Parents were asked not to consult with day care staff or other adults present about any of the questionnaire items. The parents were instructed to return their completed questionnaires directly to the researcher through the mail in the self addressed stamped envelope provided. Three weeks (tentative deadline) was allowed for the return of parent questionnaires and consent forms. Reminder notices were given within five to seven days to the parents with repeated reminders if returns were lagging. These reminders were sent to the directors for distribution.

The parents' questionnaire package included questions about the the child's behaviour, (Preschool Behaviour Questionnaire PBQ) about the family's social structure, (Family Environment Scale FES)¹ the child's temperament and demo-

¹For a description of the study using these instruments refer to the Master's thesis of Ms. Ferna Wiebe.

graphic questions (See Appendix G). Fourthly, CCWs participated by filling out EAS questionnaires on the children. After three weeks, the day care director was sent the CCW questionnaires to distribute to the selected staff member. Instructions to the child care worker respondent were to return all of the completed forms together in a self addressed stamped envelope directly to the researcher. A tentative deadline of three weeks was given for the return of the child care worker responses. Instructions to respondents were to describe the child's behaviours as they were occurring now and to describe family as the respondents current family and not the family of origin unless the parent(s) and child(ren) were living in the home of relative. A broad definition of family was given as all the people who were considered to be permanent residents of their households.

Fifthly, once consent was received from the parent to observe their child observations began. Consent was obtained from 60 parents at the beginning of the study but because of the four month lapse between parent completion of questionnaires and actual observations, thirty-two children were observed. If any parents had questions or concerns, the researcher contacted that parent. In this study the researcher contacted one parent who was unsure about the nature of the study and did not want her child singled out. The researcher explained that no child would be singled out

in this study. This parent then gave consent for her child to participate.

The researcher contacted the director of each centre to find out the daily schedule of the centre and any days that the centre was going on field trips. Dates were established for each centre and observers were notified of these dates. The morning of each observation date the researcher contacted the director to remind them that the observers were going to be there to observe that day, as well as to ensure the target children were in attendance that day. If there were any changes the observers were notified. If no changes occurred the observers arrived to observe at the arranged time and centre. When the observers arrived at the centre, they asked to see the director and had the director show them their target children. The observers placed two chairs off to the side near the area where their target child was playing. If the child moved to a different area, the observer moved only if they could not clearly see the actions of the child. If a child spoke to them while they were coding they were instructed to continue coding unless the child would not continue to play. If the child did not go back to playing the observers kindly told the child that they were working or writing and they would like to watch them play.

The observers watched the target child for approximately one half hour, fifteen minutes in a structured situation

and fifteen in an unstructured situation. They used a time sampling method where they observed for five seconds and coded for twenty-five seconds. After the observers completed the session, they thanked the director and left.

RESULTS

The main purpose of this study was to investigate the relationship between children's temperament and their social interactions in a day care setting. This relationship focused on children's temperament by using emotionality, activity and sociability as the basis. Children's interactions in a day care setting were also observed. These variables provided a complete picture of the type of world in which the children were living. The relations between temperament and social interactions were also explored. More specifically, relations between the emotionality, activity and sociability as rated by parents and CCWs and the social interactions of the children in a day care setting were examined.

Due to the fact that there were fewer observations than expected, the variables of structured and unstructured situations were combined. As well, the number of time samples per child varied from 41 to 44. Consequently, proportions were derived from the data for total interactions and total positive interactions. The approach to examining the data was basically correlational. First, the means and standard deviations of the parent and CCW temperament ratings, social interactions and child characteristics are presented.

Next, the correlations as related to the hypotheses are discussed. Finally, the relationship between each of the temperament scale scores and interactions are reported as they relate to demographic characteristics.

The means and standard deviations for parent-rated temperament, CCW rated temperament, social interactions and child characteristics are presented in Table 8.

Table 8

Means and Standard Deviations of Parent and Child Care Worker Rated Temperament Scale Scores, Social Interactions and Child Characteristics

	Mean	SD
Parent ratings of temperament		
Emotionality	2.8	.77
Activity	4.1	.61
Sociability	3.7	.65
Child care workers ratings of temperament		
Emotionality	2.6	1.1
Activity	3.6	.99
Sociability	3.3	.59
Social interactions (proportions)		
Total interactions	.31	.13
Total completed interactions	.26	.13
Total positive interactions	.24	.12
Completed positive interactions	.21	.12

Table 8. Means and Standard Deviations (continued)

Child characteristics

Age of child (mos)	54.3	3.8
Time spent at present day care (mos)	20.1	17.6

The parent temperament ratings were highest for activity ($\underline{M} = 4.1$) and lowest on emotionality ($\underline{M} = 2.8$). Similarly, CCW temperament ratings were highest for activity ($\underline{M} = 3.6$) and lowest on emotionality ($\underline{M} = 2.6$). However, for the ratings of activity and emotionality there was greater variability among the CCWs ($\underline{sd} = .99$, and $\underline{sd} = 1.1$, respectively) than the parents ($\underline{sd} = .61$, and $\underline{sd} = .77$, respectively). Parents also rated their children slightly higher on the sociability scale ($\underline{M} = 3.7$) than the CCWs ($\underline{M} = 3.3$).

As expected, slight differences in social interactions occurred. The highest score was for the proportion of total interactions ($\underline{M} = .31$), followed by the proportion of total completed interactions ($\underline{M} = .26$). Similarly, the proportion of total positive interactions ($\underline{M} = .24$) and proportion of completed positive interaction ($\underline{M} = .21$) scores were slightly lower.

Each of the hypotheses was examined by correlational analyses exploring the relation between temperament components of emotionality, activity and sociability, and the proportion of social interactions of children (See Table 9).

Table 9

Pearson Correlations: Parent and Child Care Worker Temperament Ratings and Proportions of Social Interactions

	Proportion Total Interactions	Proportion Total Positive Interaction
Parent Ratings of Temperament		
Emotionality	-.08	.12
Activity	.33***	.34**
Sociability	.05	.08
CCW Ratings of Temperament		
Emotionality	.15	.22
Activity	-.07	-.19
Sociability	-.46*	-.51*

* $p < .01$

** $p < .05$

*** $p < .10$

As mentioned earlier, the variables of structured and unstructured situations were combined. Therefore, each hypothesis was not tested exactly as stated. Instead proportions for each type of interaction were derived from the data. The first hypothesis tested the association between interaction scores and the parent and CCWs ratings of emotionality. The expected result was that highly emotional children would interact more positively than children low on emotionality. This was not found. However, CCWs ratings of

emotionality correlated higher with the proportion of total positive interactions, $r = .22$, $p = \underline{NS}$ than the parents, $r = .12$, $p = \underline{NS}$ neither were significant.

The second hypothesis suggested that children rated high on activity would initiate interactions more frequently and would be involved in more negative interactions. The correlations between parent ratings of activity and proportion of total positive interactions was, $r = .34$, $p < .05$. Therefore, the higher the parent rated the child on activity, the more frequently the child engaged in positive interactions. However, the CCW ratings of activity did not correlate with the proportion of the child's positive interactions, $r = -.19$, $p = \underline{NS}$

The third hypothesis stated that children rated high on sociability would interact positively with peers more frequently, than those rated low on the scale. CCW ratings of sociability are negatively correlated with the proportion of total interactions, $r = -.46$, $p < .01$, and with the proportion of total positive interactions, $r = -.51$, $p < .003$. Therefore, the more sociable the child, as perceived by the CCW, the less frequently they engaged in positive interactions. On the other hand, parent ratings were not correlated with either the proportion of total interactions, $r = .05$, $p = \underline{NS}$ or the proportion of total positive interactions, $r = .08$, $p = \underline{NS}$.

Relations of each of the dimensions of temperament and demographic variables were examined relative to the characteristics of the child and family. The sociability rating of the child by the parent and the age of the child was positively correlated, $r = .36$, $p < .05$. The number of years the parents were married was negatively correlated with CCW rated emotionality, $r = -.48$, $p < .05$. None of the other child and family characteristics were related to the child's temperament when rated by either CCW or parent (Table 10).

Table 10

Pearson Correlations: Parent and Child Care Worker Ratings on Temperament Scales, Social Interactions and Demographic Child and Family Characteristics

	Child's age	Time spent in day care		Years of marriage
		Parent	CCW	
Parent ratings				
Emotionality	.29	.18	.02	-.10
Activity	-.27	-.20	-.28	-.29
Sociability	.36**	.26	.31***	.22
CCW ratings				
Emotionality	.19	-.33***	-.24	-.48**
Activity	.04	.13	.22	.31
Sociability	-.002	.13	.20	.30
Interactions				
Total	-.11	-.12	-.01	.04
Total positive	-.10	-.13	-.20	-.04

* $p < .01$

** $p < .05$

*** $p < .10$

Ordinal measures of family characteristics as they relate to temperament scale ratings and social interactions are presented in Table 11. The employment status of the parent was correlated with emotionality, $r = .53$, $p < .01$ as rated by the CCW. Thus, the higher the CCW rated the child on emotionality, the greater the number of parents were employed. CCW rated activity was also correlated with the employment status of the parent, $r = -.52$, $p < .01$. Therefore, the higher the CCW rated the child on activity the fewer number of parents were working. Sociability, as rated by the CCW, was negatively correlated with parents employment status, $r = -.36$, $p < .05$. So, the higher the CCW rated the child on sociability the fewer number of parents were employed.

A relation between spouses employment status and emotionality rated by the parent was positively correlated, $r = .36$, $p < .05$. Likewise, both the proportion of total interactions, $r = -.56$, $p < .01$ and the proportion of total positive interactions, $r = -.42$, $p < .05$ were correlated with spouses most recent job. CCW rated sociability was related to age of spouse, $r = .43$, $p < .02$, the older the spouse the more sociable the child. As well, sociability as rated by the parent is correlated with family income, $r = .37$, $p = .05$. Therefore, the higher the income the more sociable the child. Furthermore, parents' education was correlated with sociability as rated by the parent, $r = .37$, $p < .04$ and the

proportion of total positive interactions, $r = -.36$, $p < .05$. Also, spouses education was related to the proportion of total interactions, $r = -.42$, $p < .04$ and the proportion of total positive interactions, $r = -.41$, $p < .04$.

Table 11

Spearman Correlations: Parent and Child Care Worker Temperament Scale Ratings, Social Interactions and Demographic Family Characteristics

	<u>Parent ratings</u>			<u>CCW ratings</u>			<u>Interactions</u>	
	Emot	Act	Soc	Emot	Act	Soc	Total	Total pos
Age								
Parent	-.23	-.22	.25	-.17	.19	.10	-.06	-.10
Spouse	-.04	-.23	-.22	-.20	.27	.43**	-.28	-.27
Job								
Parent	-.09	-.01	.22	-.09	.23	-.05	-.06	-.13
Spouse	-.10	.24	.11	.22	.04	.03	-.56*	-.42**
Employment Status								
Parent	.18	-.18	-.20	.53*	-.52*	-.36**	.02	.14
Spouse	.36**	-.02	-.13	.03	.01	.28	-.19	-.16
Income	-.24	-.11	.37**	.03	.22	-.03	-.01***	-.13
Education								
Parent	-.11	-.19	.37**	-.06	.08	-.01	-.34***	-.36**
Spouse	-.06	-.08	-.04	.03	.29	-.02	-.42**	-.41**

* $p < .01$

** $p < .05$

*** $p < .001$

DISCUSSION & CONCLUSION

The focus of this study was on four-year-old children's interactions in a day care setting and their relation to parent and CCW ratings of the child's temperament. It was expected that the degree of structure in the programming for the children in the group would affect children with individual temperaments differently. However, the hypotheses concerning structured and unstructured play situations could not be rejected because of insufficient observations. Consequently, observations from structured and unstructured situations were collapsed and correlations between child's temperament and interactions were explored. There were two major findings. First, there was a correlation of parent ratings on the temperament scale of activity and the proportion of positive interactions observed in the children. Secondly, there was a correlation of CCW ratings on the temperament scale of sociability and both proportion of total positive interactions and proportion of total interactions of the children. These will each be discussed in turn.

The correlations between the observed interactions of children in group settings and ratings of temperament suggest that parents and CCWs view children differently. The

children of parents who rate them as highly active were observed in more positive interactions. On the other hand, CCWs' ratings of level of activity did not correlate with positive interactions. The question that arises from this finding is: Why do parents and CCWs see the same child differently? Do they define activity in a different way or does the variation occur in defining positive interactions? Maybe it is a combination of both. Perhaps, the difference is in the settings: the parent sees the child in a home environment whereas the CCW observes the child in a day care setting. This may be a result of differing norms for the acceptable levels of activity in day care centres and in the home. Activities in the day care are generally structured whereas, in the home, the child is usually allowed a greater choice of activities which often are not preplanned.

On the other hand, perhaps children act differently in a day care setting than they do in a home environment. This may be a result of differing value systems between parents and CCWs. Acceptable behaviour at home may differ from the acceptable behaviours in a day care setting. This difference may also be explained by the stimulation levels in each setting. There usually is more stimulation in a day care setting than in a home environment. This may cause the child to act differently (i.e., to be more active or to engage in less interaction).

However, the children whom the CCWs rated high on sociability were observed in fewer positive interactions in the day care setting. There was no relationship between level of sociability as rated by the parents and interactions. This result partially supports Schinder, Moely & Frankel's (1987) study. They indicated that the more time the child spent in day care the more positive social interactions. As can be seen from this study's results this was true only for CCWs ratings and not parents. This result could be explained in three different ways. First, 50% of the children in this study had no siblings. In such smaller families children have fewer opportunities to interact with peers and, hence, must acquire social interaction skills with playmates. Larger families afford this opportunity while children in smaller families do not often have this type of experience. Secondly, as mentioned previously, the explanation may be in differences of perception. The CCW observes the child in a group setting while the parent's perception of the child is in a home setting. This is further supported by Kochanska (1990) whose results indicate that child rearing beliefs may influence the way one rates the child's behaviour. In a day care centre setting each CCW has individual child rearing beliefs which may influence the way they rate the child. Thirdly, the temperament scale used in this study may account for the difference. The sociability scale in the EAS is broken down into sociability/shyness. This could indicate that the CCWs view the

highly sociable children as shy (the scoring for shyness and sociability in the EAS is the same but the items in the questionnaire try to measure different aspects related to each of these traits) rather than sociable, in which case the children would take part in fewer social interactions.

Differences in the ratings of CCWs and parents were also reported by Ferna Wiebe (1991) whose research included 53% of the same subjects as in this study. She used the PBQ (Preschool Behaviour Questionnaire) and found that when parents rated the child as hyperactive, the CCW rated them as aggressive. She interpreted this result as children who are hyperactive at home may exhibit both hyperactivity and aggression at the day care due to increased levels of stimulation and interactions.

Wiebe also reported that when parents rated girls as aggressive, CCWs rated them as aggressive and anxious. Wiebe interprets this as aggression and anxiety being treated as independent variables. Validity of the PBQ subscales suggests they are separate factors thus supporting the reliability of parent and CCWs ratings of children. Thus, Wiebe's study confirms that parents and CCWs view the children differently. While one may attribute this difference to different environments, what does this mean to the child who has to move from one environment to another?

Ratings of childrens' temperament and observations of their interactions were related to the demographic characteristics of the child and parent. Ratings of sociability by both the parent and CCW were positively related to the child's age. A study by Finkelstein, Dent, Gallacher and Ramey (1978) found that as children get older they tend to interact more frequently with peers than adults. This result is further supported by a study by Lamb et al. (1988) which also suggested that increased social skills were related to the child's age. Also, the age of the spouse was positively correlated with the CCWs rating of the child's sociability. This would suggest that as the parents become older and presumably more experienced, they are able to teach the child more of the necessary interaction skills.

It was also found that the fewer years the parents were married the more emotional the child was perceived by the CCW. This may be explained in several ways. On the one hand, the longer the parents have been married, they may have had other children and thus more experience at raising a child. Inexperienced parents may tend to be inconsistent with their child resulting in unpredictability and the child feeling less secure. On the other hand, the longer the parents have been married the more stable and consistent the home and family environment may be. Therefore, a child in such a home would be expected to exhibit fewer emotional upsets.

Another interesting result was that parents whose spouse was employed perceived their children as highly emotional. The emotionality scale consisted of items such as: "Child cries easily", and "Child reacts intensely when upset". This may reflect the amount of time the parent or spouse has to spend with the child. Less time spent with the child would lessen the feeling of security, thus the child may be more emotional. The CCWs rated children of parents who were unemployed as highly emotional. As the parent is looking for work and worrying about money, the stress level increases. Pardeck (1986) reports differing results: those children from disadvantaged homes experienced no negative emotional effects because of day care experience. Perhaps, for these children day care experience provides the stability and security they may lack at home. Such home conditions may affect the stability and security of the child which may be reflected in the child's level of activity in the day care. As well, children of parents who were working full-time were rated higher on emotionality by CCWs. From an ecological perspective, employed parents may have stressful conditions in the workplace which may affect the climate in the home and in turn, may affect the child's behaviour in the day care. Parents who were employed full-time had children that CCWs perceived as low on sociability (i.e., child likes to be with people). Again, this may reflect the amount of time the parent is able to spend with the child and how secure the child feels. As well, the

teaching of social skills may not be as prevalent when parents are working, as they have less time with their child.

The interactions of the children in a day care setting were associated with some characteristics such as socioeconomic status and job status. Parents and spouses in higher socioeconomic positions (upper management, professionals) had children who engaged in fewer interactions. Even though there is financial security, with both parents working the child may not feel the attachment that they need to their parents. Ainsworth (1973) suggests that a secure attachment to the parent allows the child to use the parent as a base from which to go out and explore and to form new social relationships with others. A good attachment between infant and mother allows the child to gain trust and experience the consistency and predictability needed to allow the child to develop socially. If the attachment is poor, the child will not gain the trust and may have a hard time acquiring the necessary social skills for interacting with others.

Lieberman (1977) also reports that children with secure attachments to the mother are more responsive to other children and participate in more social interactions with peers. Maslow's (1970) theory of self-actualization supports the above result. He suggests that when children experience disturbances in their environment, their security is threatened. He further states that the environment they live in

needs to be consistent and systematic. "Erratic behaviour of parents can be especially debilitating" (p. 39). In addition, with both parents working, the child may not be taught the interaction skills needed to participate with others. Dunn & Kendrick (1981) found that the type of interactions which take place between siblings depends on the child's relationship with their parents. The first born child who has a close relationship with the mother shows more negative behaviours to siblings. This shows that when a parent has less time to interact with the child, the type of behaviour exhibited tends to be in a negative direction. With more parents working now than ever before, the interaction skills and behaviours of the child will need close attention so they may learn and execute the appropriate social skills. Water, Wippman & Sroufe (1980) found that the more secure the child's attachment to the parents, the greater the degree of peer competence and thus, a greater number of interactions. The more time parents spend with their children, the greater the amount and more secure the attachment. Frankel and Bates (1990) data also supports this. They reported that more secure toddlers show less aggressive and negative behaviours.

The parent's level of education was correlated with the employment status of the parent, $r = .38$, $p < .05$. Also the education level of the parent was associated with sociability. However, as the level of education of the parent and

spouses increases their children are observed in fewer positive interactions. Perhaps, highly educated parents tend to expect more sociable behaviour from their children but have not been able to give them the necessary interaction skills. This may be a result of the parents having less time to teach their child interaction skills, as they may be involved in many out-of-home or work-related activities. This may also be a reflection of a more demanding and stressful job among those parents with the higher education.

Comparing this study to Billman and McDevitt's (1980), the results have slight similarities. Each study used naturalistic observations and a temperament instrument. The current study reported highly active children to be involved in more positive social interactions. Billman and McDevitt's study found that highly active children were involved in more conflict situations and were more sociable. Their definition of sociable was a frequent exchange of toys. This current study went further to actually record who initiated and whether the initiation was attempted or completed. Perhaps the differences between these studies lie in the definitions. Billman and McDevitt's study focused on objects while this study focused more on the interactions between people.

As mentioned in the results chapter, none of the hypotheses could be rejected as stated considering the number of subjects and number of observations for each subject.

We encountered loss of subjects as we observed four-year-old children who were turning five and by the time we were able to observe them all, we lost subjects who were moving on to kindergarten. Furthermore, the data would have been strengthened if each subject had been observed for a longer period of time and more time samples had been collected through repeated observations. Despite these problems, the results obtained from this study provide valuable insights into differences between the perceptions of parents and CCWs of the same child in the home and day care environment. These differences in perception are conflicts that children encounter each day, and when they do they must learn to adapt to different settings where inconsistencies occur. This may lead to less security and, therefore, more emotional problems, higher activity and less sociability amongst children. If these inconsistencies could be resolved, the day care experience for the child may be more positive and the negative effects they have on the child may be reduced.

The main purpose of this study was to answer the proposed hypotheses. In order to answer the hypotheses only part of the data collected was used. Other information was also obtained from observation of children in the day care setting. Included in this was how the child entered and exited play, setting, and objects used (see Appendix D). This information could be used further, to look at the relationship between objects used and social interactions in other studies.

Conclusion

Interesting results emerged from this study. Although the hypotheses could not be rejected as stated, several valuable insights were provided. There were differences in the way CCWs and parents perceived the children. There were also relationships between the ratings of children's temperament, observed social interactions and demographic characteristics such as parent's income and parent's employment status.

Children's temperament, especially dimensions of activity and sociability, were related to the children's interactions. As could be expected, the child who was highly active was also involved in more positive interactions as perceived by the parent. These results partially support the hypothesis that children high on activity would initiate interactions more frequently.

Surprisingly, children whom CCW's perceived as high on sociability were also involved in fewer positive interactions. These results show partial support for the third hypothesis that highly sociable children would interact positively with peers more frequently than those rated low on the scale.

Both of these results provoke more questions than answers. Why do parents and CCWs see the children differently? How do these differing perceptions affect the child?

Perhaps, if this could be resolved the children could encounter more consistencies between settings and develop in a more secure environment. If parents and CCWs can get a similar understanding of the child, that child will no longer need to adapt to each new setting. This may also relate to the need for open lines of communication between parents and CCWs. Perhaps, the busy working parents need to stop after work and talk to the CCW about their child's behaviour. As well, maybe the day care needs to create ways to communicate quickly and effectively with the parent, such as a short note giving the parent a quick point by point idea of what the child's day was like. If the lines of communication can be opened, the children in day care may benefit both in the day care and the home environment as the two become more consistent and understanding of the children's needs.

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Appendix A
SUMMARY OF SOCIAL INTERACTION STUDIES

Social Interaction
Summary of Social Interaction Studies

Studies	Specific Def'n of interaction Yes -Specify No	If no def'n Observation Method	Other terms Used	Age of children	Context
Antia, 1988	Yes -Interaction communication between two individuals through spoken words, signs, gestures, or pantomime; cooperative play; exchange of materials and physical contact between two or more individuals			5 years	Hearing impaired school classroom kindergarten setting
Bjorkman et al, 1986	Yes-Social Interactions with peers defined as any verbal or nonverbal interaction between the target child and another child (p. 274). With adult-defined as verbal or nonverbal interaction between target child and adult (p. 274).			4 years	Day care
Bronson, 1981	No	Single contacts initiator directs an act to agemate he either ignores it or responds with a single action - afterwards diverting attention to another person or activity and no more contact for at least 10 sec. (p. 15.) Parallel Play Contact Bursts some form of contact occurs within 10 secs. but no adult interference		3.5 to 5 years	Child study Center
Carson, 1987	No		Social Competence extent to which child cooperates with peers and	12 to 36 months	Center based group care

			caregivers, situational appropriate behavior social responsiveness and ease, Other scale measures include readability, consistency and predictability of behavioral experiences and the extent to which the child initiates social interactions (p. 292).		
Connolly, Doyle & Resnick, 1988	Yes -Social Interaction - an interactive sequence in which a child's social gesture (verbal or physical) was responded to by another child within 10 seconds (p. 305).			4 and 5 years	Day care center children observed during social pretend play and nonpretend activities
Factor, 1984	No	Children rated on peer compatibility, noncompatibility, peer responsiveness (positive or negative) neglected, social maturity, aggression and compliance Coded for: unoccupied child onlooker solitary play parallel group positive play group negative play child directed play		35-73 months	Attend preschool five half days per week

Fox, 1987	Yes - Social Interaction - behaviors directed by one person to another, the purpose or function of which is to initiate and maintain the exchange of behaviors between the two interactants (p.277).				
Howes, 1987	Yes - Social Interaction - skills which include ease of entry into play with peers, affective expressions, and other behaviors that lead to peer acceptance and popularity (p.2).		Social Competence; behavior that reflects successful social functioning with peers (p.1).	1-6 years	Full time child care centers
Kreimeyer, 1988	No	Sharing - child offers to share or trade materials, simultaneously used the same materials, involved in cooperative play activity, deliberately imitates a peer's behaviour or assists another child (p. 224). Conversation - the child communicates with another about past, present or future activities. The child obtains attention by calling, greeting, or showing materials to another child, points to direct a peers attention to an	Linguistic - at least one intelligible word. Non linguistic head nods, gestures and unintelligible vocalizations	39-54 months	Hearing impaired school - classroom setting

		object or event, invites peer to join activity, indicates approval of peers work or behaviour or politely refuses an invitation or request from another child (p. 225). Negative Interaction child takes materials or toys from another child without permission, hit, pushed away or shouted at a peer (p. 225).			
Lamb et al, 1988	No	Positive peer related behavior including: observation of initiate play, imitate, vocalize, touch, proffer, accept and laugh or smile. Negative peer related behaviour including: reject, turn away, take away toy, take toy from, have taken from, throw, defensive struggle, offensive struggle, strike/hit and cry.	Other measures taken: quality of care at home, personality of the child, sociability towards adult stranger on a five point scale	Firstborn 11-24 months	Waiting lists for Centers Home care Center care
Ramsey, 1986	Yes - Peer Social Interaction; verbal and/or physical exchange between two or more children in which the participants demonstrated awareness of the others presence (p.318).			3-4.5 years	Campus day care center
Roopnarine,	No	Positive behaviors		48-61 months	University

1987		eg: help-giving, cooperative play Negative behaviors eg: yelling, physical attacks			based preschool
Tremblay et al, 1980	No	High social interactors - eight responses in 10 minutes. Low social interactors - four responses in 10 minutes. Categories child coded in: observer, isolate parallel, game, cooperative and fantasy		36-72 months	Children enrolled in day care for at least two months
Tremblay et al, 1981	No	Vocal/Verbal - child asks peer for something. Motor/Gestural -the target child offers or exchanges an object with a peer or both cooperate in the use of one object or toy (p.241).		3-5 years	Day care centers and kindergartens
Vandell, 1980	Yes -Social Interaction - not only must child A direct a behavior to child B but child A must make the behavior interesting enough to elicit a response from B (p.185).			2 years and less	

Appendix B

SUMMARY OF STUDIES OF SOCIAL BEHAVIOUR IN DAY
CARE SETTINGS

SUMMATION OF STUDIES ON SOCIAL BEHAVIOUR OF CHILDREN IN DAY CARE OR
A GROUP SETTING

	Prosocial Behavior	Cooperative Behavior	Aggressive Behavior
Hartup, 1980	more time spent with peers		Rates of aggression increase in 2-4 age range, same age children more aggressive interactions
Pinkelstein et al (1978)	as children increase in age they interact less frequently with teachers and more frequently with peers		
Schwarz (1974)		child attending since infancy less cooperative with adults	more physically and verbally aggressive aggressive with adults
Schenk & Grusec, 1987	more prosocial behavior towards peers	no day care experience more concern for others; day care experience less response to adult needs	
Becker, 1977	day care children more socially competent than home-reared		greater experience with peers facilitates antisocial behavior
Heathers, 1980	four year olds more social overtures to peers than adults, seek more attention and approval		
Schindler, Moely & Frank, 1987	day care experience shows increase in social participation and associative interaction	increase in time in day care and more positive social interaction	
Pardeck, 1986		Day care children more peer oriented	more physical and verbal aggression
Jennings, Curry & Connors, 1986		No difference in frequency of interaction between peers and dyads	
Kolvin et al, 1988		child takes active role in influencing others	
McGurk, 1978	four year olds more positive giving of attention and affection	with increasing age children engage in more associative and cooperative activities	
Waters, Wippman & Sroufe, 1980	More secure attachment to mother the greater the peer competence		
Billman & McDevitt, 1980	highly active children more sociable		
Chipperfield, 1989		older children less active than younger	

Appendix C
EAS QUESTIONNAIRES AND SCORING

The EAS Temperament Survey for Children: Parental Ratings

1. Child tends to be shy.
2. Child cries easily.
3. Child likes to be with people.
4. Child is always on the go.
5. Child prefers playing with others rather than alone.
6. Child tends to be somewhat emotional.
7. When child moves about, he usually moves slowly.
8. Child makes friends easily.
9. Child is off and running as soon as he wakes up in the morning.
10. Child finds people more stimulating than anything else.
11. Child often fusses and cries.
12. Child is very sociable.
13. Child is very energetic.
14. Child takes a long time to warm up to strangers.
15. Child gets upset easily.
16. Child is something of a loner.
17. Child prefers quiet, inactive games to more active ones.
18. When alone, child feels isolated.
19. Child reacts intensely when upset.
20. Child is very friendly with strangers.

The scoring for this scale is done by adding the scores for the five items on each scale (emotionality, activity and sociability) and dividing each scale score by 5. Reverse scores occur for items 7, 8, 12, 16, 17, and 20, 5=1, 4=2, 3=3, 2=4 and 1=5.

The EAS Temperament Survey For Children: Teacher Ratings

1. Child tends to be shy.
2. When with other children, this child seems to be having a good time.
3. Child cries easily.
4. At recess, child is always on the go.
5. Child tends to be somewhat emotional.
6. When child moves about, s/he usually moves slowly.
7. Child makes friends easily.
8. Child is full of vigor when s/he arrives in the classroom in the morning.
9. Child likes to be with people.
10. Child often fusses or cries.
11. Child likes to chat with neighbors.
12. Child is very sociable.
13. Child is very energetic.
14. Child takes a long time to warm up to strangers.
15. Child prefers to do things alone.
16. Child gets upset easily.
17. Child prefers quiet, inactive games to more active ones.
18. Child tends to be a loner.
19. Child reacts intensely when upset.
20. Child is very friendly with strangers.

The scoring is done by adding the scores for the five items on each scale (emotionality, activity and sociability) and dividing each scale score by 5. Reverse scores occur for items 6, 7, 12, 15, 17, 18 and 20. The score indicates whether that individual has a high, medium, or low score on that temperament scale.

Appendix D
CODES

Codes used for Observing

AREA:

SBA - standing between areas

SINK - SINK

WATER - water table

SAND - sand table

P - puzzles

BL - blocks

H - housekeeping

T - toilet

G - gym

LIB - library

MUSIC - music area

SCIE - science area

B - Boy

G - Girl

SETTING:

Group

Circle Time

Meal -Snack

Clean up - Washing

Activity

Free Play

ENTRY:

V - verbal

G - gesture

P -I- peer invitation

No-I - no invitation

INITIATOR:

TC - target child

A - adult

V - verbal

PH - physical

ATT - attempted

COM - completed

Example: TC-PH-P-C

TYPE OF PLAY:

S - structured

US - unstructured

I - imitative

P - social pretend play

C - cooperative play

II - parallel play

S - solitary

Target child -physical-peer-completed

C1 - 1 child with one child

C2 - 2 children with one child

A00 - adult one on one

BEHAVIORS DURING PLAY:

L - laughing

C - concern for others

PP - protecting peer

PA - protecting adult

COMP - comforts peer

COMA - comforts adult

EIAW - engages in activity willingly

AATT - adult aided turn taking

NAATT - no adult aided turn taking

ST - sharing toys

RTL - role taking leader

RTF - role taking follower

Seeks Affect - seeks affection

SA - seeks attention

CRYC - crying conflict

CRYS - crying scared

CRYH - crying hurt

VA - verbal aggression

PA - physical aggression

P - protesting

TT - temper tantrums

I - ignoring

TH - throwing

DO - damaging objects

OBJECTS USED IN PLAY:

Small

Large

Give a one word

description of the

object the child is

using.

eg: doll

truck

ball

EXIT:

A to L - Asked to leave

TC L AA - Target child

leaves for another

activity

TC L IAA - Target child

leaves when invited

to another activity

C in S - Change in schedule

Definitions of Observation Codes

Time Sample: This consists of a five second observation period followed by a twenty-five second recording period. The total observation time for each child was thirty minutes. Fifteen minutes in a structured setting and fifteen minutes in an unstructured setting. The observation of the structured situation was divided between two situations, such as circle time and a meal if one is not long enough. The number of children and adults present was taken once every two minutes.

Social Interaction: For the purposes of this study social interaction was defined as a positive or negative, verbal or physical exchange between child-child or adult-child where the participants in the exchange become aware of each other. The interactions and their responses were coded as an "attempt" - when the target child tries to gain another persons attention but receives no response to their actions. For example, the child tugs on a teachers' sleeve and the teacher ignores or tells the child to wait because he/she is busy.

Completed was coded when the target child tries to initiate an act towards a peer or adult and the target child receives an immediate and direct response from the other child or teacher. For example, the target child smiles at a peer, the peer walks over to him, pats him on the back and then says "let's go play over here."

B or G. Boy or Girl - this indicates whether the target child is a boy or a girl.

Where the child is playing - Area: This is a one or two word code which states in which area the child is playing. (e.g., puzzles, blocks, housekeeping, activity table, water, sandbox, sink-washing, toilet, gym, outside, on climber.)

SBA - Standing between areas is coded when the child is not in any particular area or is between two places, the coders cannot determine in which area the child is planning to play. The child is not involved in any activity or type of play. He/she may be standing or sitting in a neutral state.

Sink- coded when the child is using the sink area to wash, brush their teeth, or get a drink of water.

Water (water table) is coded when the child is playing in the water table. Water table being a table or tub that is generally filled with water and toys.

Sand (Sand table) This is a table that has sand in it daily and remains inside.

P (Puzzles) an area set up for children so they can do puzzles, lacing, stacking, and sorting.

B1 (Blocks) an area set up for children so they can build toys for themselves out of lego, and/or blocks. This area may also have cars trucks, roads and farm animals.

H (Housekeeping) an area setup for children so they can pretend and engage in dramatic play. Items such as dress up clothes, dolls, toy appliances, food and cooking utensils may be found in this area.

T (Toilet) coded when the child is using the bathroom.
Library Area - This is an area set aside for children so they can look at books. This is a quiet area.

Music Area - an area with headphones and tape recorder, record player where the children can listen to music. This area may also have musical instruments available to use.

Science or Nature Area - the child has access to different types of seeds, plants, shells, rocks. They may also have animals such as hamsters, gerbils, fish, or lizards.

Setting - A brief description of the day's schedule, e.g., meals, circle time or free play.

Group - This is either a free play or group situation with more than five children.

Circle Time - This is an activity specifically set up by the CCWs.

Meal Time coded when the child is at the tables where they eat. The child may be eating or at the tables for another purpose.

Free Play - The child is able to choose with whom and what they want to play with. Clean up - This is the time when the children put away toys, wash hands for meals or are going to change to another activity.

Gym - Physically active indoor or outdoor play.

Activity Time - Art or Game - This is a specific activity set up for the children by the CCWs.

Toileting - Going to the washroom or washing hands.

Entry Into Play - This category defines how a child gets involved in play. This may occur in several ways, each follows:

V (Verbal) coded when the child asks if he/she can be involved in the play or activity. The child is facing his/her peers or teachers and is directing the words towards them. e.g., (Can I play? I want to do that.) This is not coded when the target child's words are inaudible whispers or mumbling. If the target child has his/her back to peers - this is not coded.

G (Gestures) coded when the target child tries to join play using a gesture. Examples include smiling, tapping

the other children, holds hand out for an object, points from him/herself to group or individual he/she wants to play with. This is not coded if it includes a verbal communication.

P-I (Peer Invitation) coded when the target child is invited by a peer to play with him or his group. This can be a verbal or gestural invitation. e.g., verbal - Do you want to play with us? gesture - peer beckons target child with a wave or finger, smiles. This is not coded when a staff or adult tries to get the child involved.

NO-I (No Invitation) coded when the target child is not invited to play but joins in without asking. e.g., Child is driving cars on a road, the target child comes over, sits down and starts driving his car on the road as well. Not coded when the child asks to be involved in the play or when peers invite them to play.

Initiator of Interaction - defined as the person who approaches another to become involved in an interaction. The interactions will be defined as attempted, or completed. Attempted will be coded when the initiator tries to interact physically or verbally but gets no reaction. Completed will be coded when the initiator gets a direct and immediate response. Zero or no response will be coded if there is no interaction at all. Interactions can be between peer (P) and target child (TC), or between target child (TC) and adult (A).

For example, if the target child tried to interact with an adult, wanting to show that adult something and the adult said you will have to wait, it would be coded TC V A - A. Verbal interaction defined as using words or language to interact. This is not coded if any physical interaction occurs. Physical interaction defined as use of actions such as touching, hitting, pushing, biting, etc.

TYPE OF PLAY

S (Structured) this involves play that has been planned or activities that have been planned by adults. Examples - group or circle time, meal times - breakfast, lunch, supper, snacks, nap time, activities closely supervised by staff or initiated by staff (crafts- art work games).

US (Unstructured) allows the child to play with what and who they want. There are as few limits as possible. eg: free play. Under the two different types of play (structured and unstructured) the target child may be engaged in different types of play.

I (Imitative) the child imitates an adult or another child. e.g., teacher writes on chalk board; child takes chalk and writes on chalk board too. Another example would be a parent is using a bottle to feed target child's baby brother; the target child takes a pretend bottle and feeds a doll.

P (Social Pretend play) this occurs with or without a partner. E.g., playing doctor, riding motorcycles.

C (Cooperative Pretend Play) more than one child is present. The children involved use complementary pretend roles. E.g., teacher - student, bus driver-passenger, police-robber.

11 (Parallel Play) children are playing in similar activities, but there is no interaction. If there is interaction it is not coded as parallel play.

S (Solitary Play) child is playing alone - there is no interaction with other children or adults.

C1 One child is playing with one other child - the interest of both children is on the same toy or activity.

C2 One child is playing with two other children

C3 One child is playing with three other children

A00 (Adult one on) the adult is playing or doing an activity with a child.

BEHAVIOR DURING PLAY The contents of the child's interactions can be either people-oriented or object-oriented. The content of the child's behavior can be positive (P) or negative (N). Some of the positive (P) behaviors can be coded as:

L - laughing, smiling and giggling.

C (Concern for others) e.g., the child watches while another child cries and then goes over and hugs him. Another example, staff comes to an area where all children are sitting on chairs and the target child without being asked goes and gets that staff a chair. Helping behavior is also included in this category, helping another child to carry a large object or helping staff to set the table.

P-P or P-A (Protecting another child or protecting an adult) An example of protecting another child would be when a child steps in when a fight is going to occur between two children. Another example When a staff is disciplining another child, the target child pulls on the staff and says "leave him alone".

Child Protecting an Adult - e.g., When staff are teasing each other, the child sticks up for staff member that he/she is closest to.

Com -P or Com-A (Comforts peer or Comforts adult) The target child realizes that a peer is upset. The target child tries to comfort them by saying "Don't cry" or hugging them, wiping their nose. Comforts adult - The target child realizes that the adult is upset. He/she comes and gives them a hug. This category does not include any comforting action that staff initiates, it must be child initiated.

EIAW (Engages in an Activity Willingly) The target child, when asked to participate in an activity by an adult does so

willingly. E.g., "Come and join us, we are going to sing some songs.

AATT (Adult Aided Turn Taking) An adult reminds or physically guides a child to wait for his/her turn. This can be coded when children are playing a game, waiting in line to wash or use toilets, waiting to use bikes or some other favored toy.

NAATT (No Adult Aid in Turn Taking) The child without adult aid or reminder takes turns. (E.g., While waiting in line, while waiting for lunch.)

ST (Sharing Toys) coded when the target child gives or allows another child to play with his/her toys (toys they are using at the moment - this can be day care equipment not necessarily the child's own toys from home). Not coded if adult is continually reminding children about sharing.

RT-L (Role Taking Leader) The target child takes on the role of leader. This is coded when he/she is the one in the play giving directions, making decisions, assigning roles to others. Not coded if the target child is not discernibly in a leading position.

RT-F (Role Taking Follower) The target child takes the role of follower in play. They follow others' directions. They do not initiate play as much and do not assign roles. In play they take on subordinate roles, such as the dog when another child is the owner taking the dog for a walk.

Seeks Affect (Seeks Affection) The child seeks out adults and/ other children for affection. Coded when the target child approaches another child or adult and spontaneously hugs or kisses that person. Also coded if the child goes to an adult or child and asks for a hug. Not coded if the adult or child asks target child for a hug first. Negative Behaviors:

SA (Seeks Attention) The target child tries to gain another adults or child's attention by showing them something, tugging or pulling at their hands or clothes, asking questions, or interrupting. This is only coded when the child's actions succeed in getting that persons attention. Not coded if that child does not gain the persons' attention.

CRY-C (Crying because of conflict) Coded when the target child is crying due to a conflict where two children are involved. Also coded when there is an adult- child conflict. (eg:disciplining situations when child is taken to time out - child retaliating against the rules).

CRY-S (Crying because the child is scared) coded when crying occurs because child is frightened. Examples include - parents leaving when the child is dropped off, they wake up from a nightmare, loud noise such as the bell for a fire drill.

CRY-H (Crying because the child is hurt) The child is sick or has been hurt by another child or toy.

VA (Verbal Aggression) the child shows that he is upset with a situation request, or a person (adult or child) using words. Coded when the child yells, screams, and/or swears. Not coded if the child physically hits someone.

PA (Physical Aggression) The target child attempts to injure or intimidate another person. Coded when the target child hits, slaps, pushes, bites, pinches, kicks, punches, pulls hair or suggests that he/she is going to fight the other children or adults.

P (Protesting) Coded when the target child is asked to do something by an adult or another child and they refuse. Some verbal and/or physical aggression may be involved. Can be verbal, when the child says for example, "no I don't want to." or physical where the child needs physical guidance or lashes out.

TT (Temper Tantrums) This involves both physical and verbal aggression. The child is sitting, standing or lying on the floor or a chair. The child will be yelling, screaming, crying, and/or swearing. Physically he/she may be lashing out - kicking, flailing arms and legs, punching, biting, spitting. The child can not be reasoned with at this point of time.

I (Ignoring) The target child makes no response but obviously hears the request made of him/her. Knowledge that the child has heard the request is observed by seeing the head

or body move, a glance by the child. A switch of activities may also indicate that a child has heard but is ignoring. Not coded if the noise level is high or if the request is made from across the room.

TH (Throwing) The child picks up any object and throws it. This includes chairs, toys, food, shoes, boots, sand, water. In coding specify what it is that the child is throwing to determine if it is an object normally thrown (eg: a ball).

DO (Damaging Objects) The child deliberately destroys an object. Coded when the child tears another child's picture, writes on another child's pictures, writes on the wall or table, breaks windows or mirrors, breaks toys by throwing, jumping, or kicking the toy or object.

OBJECTS USED IN PLAY The objects were divided into small or large. Small objects were defined as any object a child can pick up and carry with little or no effort. Large objects were defined as any object that remains stationary such as climbing equipment or an object that the child has difficulty lifting or carrying. An example of a small object was a puzzle, an example of a large object would be a bike.

EXIT FROM PLAY

A to L (Asked to Leave) The target child is asked verbally by an adult to leave a play situation due to physical or verbal aggression or conflicts arising because of this.

TC-L-AA (Target Child Leaves for Another Activity) The child leaves an activity that they are currently involved in for one that they are more interested in. Not coded if the child is asked to leave or if invited to play elsewhere. It is the child's decision to move.

TC-L-IAA (Target Child Leaves when Invited to Another Area) Target child can be invited to another area by a peer or an adult. The invitation can be verbal, "come play over here", or gestures such as a wave of the hand. Not coded when the child moves from one area to another on their own.

C-in-S (Change in Schedule) The child moves from play to another activity when change in schedule occurs. Eg: from free play to structured activity or meal time.

POSITIVE (P) OR NEGATIVE (N) INTERACTION

P (Positive Interaction) defined as an exchange between adult and child or peer and child that includes two or more of the following - laughing, concern for others, protecting, comforting, engaging in an activity willingly, turn taking, sharing toys, role taking, seeking affection, and seeking attention. There is minimal conflict in the observed session and the mood is happy and light.

N (Negative Interaction) defined as an exchange between peer and child or adult -child where two or more of the following occur: crying, verbal aggression, physical aggression, protesting, temper tantrums, ignoring, throwing and damaging objects. There are conflicts and confrontations in the observed session and the mood is tense and unhappy.

0 (Neutral Interaction) defined when a child was not specifically involved in any defineable interaction. The predominant emotion was not clear or could not be identified from the actions of the child.

Appendix E
OBSERVATION INSTRUMENT

SOCIAL INTERACTION AMONG PRESCHOOL CHILDREN

CHILD'S NO. _____

E	AREA	SETTING	ENTRY	INITIATOR	TYPE OF PLAY		PLAY BEHAVIOURS	OBJECTS USED		EXIT FROM PLAY	ADJECTIVES	+, -, 0
					STRUC.	UNSTR.		SMALL	LARGE			

NO. BOYS _____ NO. GIRLS _____ NO. ADULTS _____

NO. BOYS _____ NO. GIRLS _____ NO. ADULTS _____

NO. BOYS _____ NO. GIRLS _____ NO. ADULTS _____

NO. BOYS _____ NO. GIRLS _____ NO. ADULTS _____

NO. BOYS _____ NO. GIRLS _____ NO. ADULTS _____

NO. BOYS _____ NO. GIRLS _____ NO. ADULTS _____

Appendix F
LETTERS AND CONSENT FORMS

Letter to Chairperson

The BCD & H Survey
Family Studies
Human Ecology Bldg.
University of Manitoba
Winnipeg, Manitoba
R3T 2N2

(Date)

Dear Chairperson,

We are graduate students in the Faculty of Human Ecology (Family Studies) at the University of Manitoba. Our masters theses are concerned with the behaviour and adjustment of children attending day care centres. This work is being conducted under the direction of Dr. Lois Brockman and with the assistance of Dr. Laura Mills. In order to conduct this research we are asking for the co-operation of a number of day care centres in Winnipeg.

If your centre agrees to be a part of this study parents of the four year old children in your centre will be given an information letter and a form to complete to indicate their willingness to participate in the study. The parents who agree to participate will be given a questionnaire to complete and return to us by mail in self addressed stamped envelopes. The parents will also be asked to give their permission for a staff person to answer a questionnaire about the behaviours of their child and to allow us to spend some time at the centre observing the children. This research does not involve physical contact with any of the children nor is it designed to alter their behaviour in any way. In addition to answering questionnaires about children's behaviour the staff will be asked to answer some background questions about themselves. Each questionnaire takes about 5 minutes to complete. All answers will be confidential and will not be shared with the parents. In order to distribute questionnaires to the parents, we will need to spend one afternoon at your centre so that we can meet the parents as they pick up their children. This time will be arranged at your centre's convenience.

Our interest in this project comes from several years of personal experience as child care workers in Winnipeg. We trust that with your help, our study will build knowledge and understanding of children's behaviour so that the child care system will continue to grow in it's ability to provide sensitive and high quality care.

Your director will be contacted in a few days time so that we can answer questions, describe the centre's involvement in more detail, and hopefully learn of your consent.

Please leave the enclosed consent form with your director or mail it to the address given above. Upon receipt of your consent, we will be contacting your director to make arrangements. If you have any questions or concerns please do not hesitate to call Ferna (453-6597) or Vickie (254-4896)

Thank you in advance for your support.

Sincerely yours,

Ms. Ferna J. Wiebe

Ms. Vickie Gross

Consent For Centre Participation In Survey

On behalf of the Board of Directors of

(Name of Centre)

I agree to allow Ferna Wiebe and Vickie Gross to conduct a research project in our day care centre.

I understand that the research project involves the answering of questionnaires by parents and staff and observations of children at the day care centre and that all information is maintained in confidence.

(signature)

(date)

Letter to Director

The BCD & H Survey
Family Studies
Human Ecology Bldg.
University of Manitoba
Winnipeg, Manitoba
R3T 2N2

(Date)

Dear Director:

We are pleased that your day care centre has agreed to participate in the "The Behaviour of Children in Day Care and at Home Survey" (BCD & H Survey) and we are looking forward to meeting you and your staff on (date arranged). In follow-up to our recent telephone conversation we are writing to review the procedures that involve your participation.

First, we will need your help to contact the parents of the four year old children who have been attending your centre full-time for the (average 5 hours per day or more for the past six weeks or longer). We are asking you to distribute to the parents the enclosed information letters and a short participation survey. Please remind the parents to pick these up and to place their completed forms in the BCD & H Mailbag. We will be dropping by in three or four days to pick these up.

Secondly, we are asking you to select a staff member who can complete a short behaviour questionnaire on each of these children. They will receive a few background questions to answer about themselves as well. Each questionnaire should take about 5 minutes to complete. All answers are confidential. The staff person whom you select should have spent an average of 2 hours a day over the past six weeks in the same group or room with the child and should have a Class I, II, or III certification. In effect, your selection of staff should be based on the best combination of experience, education and amount of time spent with the child. Please select only one staff member to complete the questionnaires.

Thirdly, we will need your help to distribute reminder notices to parents.

These are the steps we plan to take:

1. Distribution of explanatory letters to parents through your centre's usual means of passing on notices.

2. Distribution of the questionnaires by one of the researchers (Vickie or Ferna) to the parents on the date arranged in our telephone conversation. Questionnaires will be left for parents who do not come at that time.
3. Distribution by you (through your usual method of passing written information to parents) of two reminder notices, one week apart, to the parents in the study. A poster will also be left at your centre to remind parents to complete and mail their questionnaires. The reminder notices and poster will be left with you on the day that we distribute the questionnaires to the parents.
4. Distribute to you the questionnaires for your selected staff member, to be completed 3 weeks after the distribution of parent questionnaires.
5. Observe the children at your centre over a period of about one week. (Further arrangements for observations to be given at a later date).

Confidentiality is important to this study. We ask that your staff do not discuss the answers to the questionnaire with parents or other staff members. When the study is completed, all of the questionnaires are destroyed.

You will find enclosed the letters for the parents of the four year old children in your centre. Please distribute these one week before the day we have arranged to be at your centre.

Once again, we want to thank you for your assistance. This is an exciting project for us and we are fully aware that our success depends completely on your assistance.

Ms. Ferna Wiebe

Ms. Vickie Gross

Letter to Parents

(date)

Dear Parent:

Your day care centre has been selected for a research project, named the Behaviour of Children in Day Care and at Home Survey, (BCD & H Survey) which is about the behaviours of 4-year children who attend day care. We are Ms. Vickie Gross and Ms. Ferna Wiebe, graduate students from the Faculty of Human Ecology (Family Studies) at the University of Manitoba, working under the supervision of Dr. Lois Brockman. Our interest in children and day care comes from a number of years of personal experience as child care workers. More and more children are attending day care and we feel that our research can add to the quality of child care services to children and their families.

The research project involves observations of children at the day care centre as well as questionnaires to be answered by parents and day care staff. On (date) either Vickie or Ferna will be at your centre when you pick up your child to give you a questionnaire to take home and fill out at your convenience. It will take about 15 to 20 minutes to complete. Pre-stamped, self-addressed envelopes will be provided for you to return the questionnaires to Vickie and Ferna by mail.

When you receive your questionnaire you will be asked to sign a consent form allowing the researchers to observe your child at the centre and allowing day care staff to answer questionnaires about your child. If you decide not to participate in the study or if you give consent and later wish to withdraw this will in no way affect access to child care services. All of your answers are strictly confidential and will not be discussed with the day care staff. Your name, the name of your child, and the name of your day care centre will not appear on the questionnaire nor in the results of the study.

Your participation and consent are voluntary. However, the willingness of parents and staff members to complete and send the questionnaires will determine the success of the study. Attached to this letter is a short form asking you to indicate your interest in participating in this study. Please fill out the form, seal it in the envelope provided and place it in the BCD & H Mailbag. If you have indicated that you need more information we will call you as soon as possible.

We are grateful for your anticipated support and look forward to meeting you.

Ms. Ferna Wiebe

Ms. Vickie Gross

BCD & H PARTICIPATION SURVEY

PARENTS Please fill out this form to let us know if you are interested in participating in this study. You may seal it in the envelope provided and drop it in the BCD & H Mailbag.

THIS IS NOT A CONSENT Your name:

(first)

(last

Mailing Address:

(apt. or street no.)

(street)

(postal

code)

PHONE: (HOME) _____ (WORK) _____

Your 4 year-old-child's first name _____

Name of the day care centre: _____

Place a check mark in the appropriate box.

I am interested and willing to
participate in the BCD & H SURVEY. []

I am interested in participating in
the survey but would like more information. []

Signature _____ Date _____

Parental Consent Form

I _____

(parent's signature)

give consent to allow Ms. Vickie Gross and Ms. Ferna Wiebe to observe my child at the day care centre and to ask a member of the day care staff to answer questions about my child's behaviour.

I understand that all of the information given is confidential and that I may withdraw my consent at any time without affecting child care services or access.

(Name of Child)

(Date)

Appendix G
QUESTIONNAIRES

THE BEHAVIOUR OF CHILDREN IN DAY CARE
AND AT HOME SURVEY

PLEASE ANSWER THE FOLLOWING QUESTIONS AS ACCURATELY AS POSSIBLE.

1. Child's age in months _____
2. Child's sex. M F

3. Date of child's enrollment in this centre ____d ____m ____y

4. Does this child have any physical handicap or developmental delay?
NO YES If YES please describe _____

"WHAT THIS CHILD IS LIKE" QUESTIONS

INSTRUCTIONS: Rate each of the items for your child on a scale of 1 (not characteristic of your child) to 5 (very characteristic of your child).

(CIRCLE YOUR ANSWER)

- | | | | | | |
|--|---|---|---|---|---|
| 1. Child tends to be shy. | 1 | 2 | 3 | 4 | 5 |
| 2. When with other children , this child seems to be having a good time. | 1 | 2 | 3 | 4 | 5 |
| 3. Child cries easily. | 1 | 2 | 3 | 4 | 5 |
| 4. At recess, child is always on the go. | 1 | 2 | 3 | 4 | 5 |
| 5. Child tends to be somewhat emotional. | 1 | 2 | 3 | 4 | 5 |
| 6. When child moves about, s/he usually moves slowly. | 1 | 2 | 3 | 4 | 5 |
| 7. Child makes friends easily. | 1 | 2 | 3 | 4 | 5 |
| 8. Child is full of vigor when s/he arrives in the classroom in the morning. | 1 | 2 | 3 | 4 | 5 |
| 9. Child likes to be with people. | 1 | 2 | 3 | 4 | 5 |

- | | | | | | |
|--|---|---|---|---|---|
| 10. Child often fusses and cries. | 1 | 2 | 3 | 4 | 5 |
| 11. Child likes to chat with neighbours. | 1 | 2 | 3 | 4 | 5 |
| 12. Child is very sociable. | 1 | 2 | 3 | 4 | 5 |
| 13. Child is very energetic. | 1 | 2 | 3 | 4 | 5 |
| 14. Child takes a long time to warm,
up to strangers. | 1 | 2 | 3 | 4 | 5 |
| 15. Child prefers to do things alone. | 1 | 2 | 3 | 4 | 5 |
| 16. Child gets upset easily. | 1 | 2 | 3 | 4 | 5 |
| 17. Child prefers quiet inactive games
to more active ones. | 1 | 2 | 3 | 4 | 5 |
| 18. Child tends to be a loner. | 1 | 2 | 3 | 4 | 5 |
| 19. Child reacts intensely when upset. | 1 | 2 | 3 | 4 | 5 |
| 20. Child is very friendly with
strangers. | 1 | 2 | 3 | 4 | 5 |

PARENTS

Parental consent: As part of this study, children at the centre will be observed and the day care workers will be asked questions about your child's behaviour. In order for us to do this we need your consent. Please sign the attached consent form and return with your completed questionnaire in the separate envelope marked CONFIDENTIAL. (You may disregard this instruction if you have given a signed form to Ferna Wiebe or Vickie Gross.)

The Questionnaire: You have been given a booklet containing questions about your child and your family. It is up to you to decide which parent completes the questionnaire but it is suggested that it be completed by the parent who spends the most time with the child. Your answers are confidential so do not place any identifying marks on the questionnaire booklet. You find a cover paper with your child's name on it attached to the outside of the questionnaire please detach and discard it. The questions in the booklet are arranged in sets. Instructions are given about how to answer each set. Read these carefully before proceeding. Answer the questions as quickly and as accurately as you can. It will take about 15 minutes to answer all of the questions. You may find that sometimes you are not sure of the answer. Give your best guess and move on. Answer as many questions as you can.

When you have completed the questionnaire please enclose the questionnaire booklet and the consent form in the large envelope provided. Postage has already been paid so that all you have to do is seal the envelope and drop it in a mailbox. We hope to receive your responses in the next two weeks.

Request for a summary of the results can be made by writing to the following address. Also, your day care centre will receive a copy when the study has been completed.

The BCD & H Survey
c/o F. Wiebe or V. Gross
Family Studies
Human Ecology Building
University of Manitoba
Winnipeg, Manitoba
R3T 2N2

Confidentiality of your answers will be maintained. They will not be discussed with day care staff, nor will any names appear in the written results. Questionnaires are destroyed when the study is completed.

THANK YOU FOR YOUR COOPERATION IN THIS PROJECT.

Ms. Ferna J. Wiebe

Ms. Vickie Gross

THE BEHAVIOUR OF CHILDREN IN DAY CARE
AND AT HOME SURVEY

PLEASE ANSWER THE FOLLOWING QUESTIONS AS ACCURATELY AS POSSIBLE.

1. Child's age in months _____ 2. Child's sex M F
3. Has your child attended this day care centre for 6 weeks or more?
No Yes If Yes, how long? _____
4. Has your child attended any day care centre(s) before this one?
No Yes If YES, how long? _____
5. Does your child have a physical handicap or developmental delay?
No Yes
If YES, please describe _____

"WHAT MY CHILD IS LIKE" QUESTIONS

INSTRUCTIONS: Rate each of the items for your child on a scale of 1 (not characteristic of your child) to 5 (very characteristic of your child).

	(CIRCLE YOUR ANSWER)				
1. Child tends to be shy.	1	2	3	4	5
2. Child cries easily.	1	2	3	4	5
3. Child likes to be with other people.	1	2	3	4	5
4. Child is always on the go.	1	2	3	4	5
5. Child prefers playing with others rather than alone.	1	2	3	4	5
6. Child tends to be somewhat emotional.	1	2	3	4	5
7. When child moves about, s/he usually moves slowly.	1	2	3	4	5
8. Child makes friends easily.	1	2	3	4	5
9. Child is off and running as soon as s/he wakes up in the morning.	1	2	3	4	5
10. Child finds people more stimulating	1	2	3	4	5

than anything else.

- | | | | | | |
|---|---|---|---|---|---|
| 11. Child often fusses and cries. | 1 | 2 | 3 | 4 | 5 |
| 12. Child is very sociable. | 1 | 2 | 3 | 4 | 5 |
| 13. Child is very energetic. | 1 | 2 | 3 | 4 | 5 |
| 14. Child takes a long time to warm,
up to strangers. | 1 | 2 | 3 | 4 | 5 |
| 15. Child gets upset easily. | 1 | 2 | 3 | 4 | 5 |
| 16. Child is something of a loner. | 1 | 2 | 3 | 4 | 5 |
| 17. Child prefers quiet, inactive
games to more active ones. | 1 | 2 | 3 | 4 | 5 |
| 18. When alone, child feels isolated. | 1 | 2 | 3 | 4 | 5 |
| 19. Child reacts intensely when upset. | 1 | 2 | 3 | 4 | 5 |
| 20. Child is very friendly with
strangers. | 1 | 2 | 3 | 4 | 5 |

BACKGROUND INFORMATION

The following are some questions about yourself and your family:

1. What is your sex? Male Female

2. What is your approximate age?

19 years or younger

20 to 24 years

25 to 29 years

30 years or older

3. What is your spouse's approximate age? (if applicable)

19 years or younger

20 to 24 years

25 to 29 years

30 years or older

4. Your current Marital Status:

Single (never married)

Married or common-law how many years? _____

Single but previously married

Married, but previously divorced

5. What was your most recent job? _____

6. What was your spouse's most recent job? (if applicable)

7. Employment status:

	YOU	YOUR SPOUSE (if applicable)
Working full-time	<input type="checkbox"/>	<input type="checkbox"/>
Working part-time	<input type="checkbox"/>	<input type="checkbox"/>
Unemployed & looking for work	<input type="checkbox"/>	<input type="checkbox"/>
Full-time student	<input type="checkbox"/>	<input type="checkbox"/>
Part-time student	<input type="checkbox"/>	<input type="checkbox"/>
Full-time Homemaker	<input type="checkbox"/>	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	<input type="checkbox"/>

8. What was your total family income from all sources and before taxes for the past year?

- Under \$10,000
- \$10,000 - \$19,999
- \$20,000 - \$29,999
- \$30,000 - \$39,999
- \$40,000 - \$49,999
- \$50,000 or over

9. Do you receive child care subsidy? No Yes

10. What was the last grade, diploma or degree that you have achieved?

11. What was the last grade, diploma or degree that your spouse (if applicable) has achieved?

12. Is the same language spoken at home as in the day care centre?

NO YES

13. Were you born in Canada? NO YES

14. What is your relationship to this child?

mother father other specify _____
 step mother step father

15. What is the sex and year of birth of each of your children living with you (starting with the youngest child and including the child in this study)

If you require extra space to answer this question, please use the space on the bottom of this page.

Year of Birth

<input type="checkbox"/> Male	<input type="checkbox"/> Female	_____
<input type="checkbox"/> Male	<input type="checkbox"/> Female	_____
<input type="checkbox"/> Male	<input type="checkbox"/> Female	_____
<input type="checkbox"/> Male	<input type="checkbox"/> Female	_____
<input type="checkbox"/> Male	<input type="checkbox"/> Female	_____

16. Do you or your spouse have children living with you from a previous relationship? No Yes

17. Counting all of the children and all of the adults how many persons live in your home? _____

18. How many bedrooms are in your home? _____

19. Date of completion of this questionnaire _____