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Children's Popularity in The Kindergarten Classroom Based on Child Care Arrangements

Carole Montpetit

A Thesis

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ABSTRACT

CHILDREN'S POPULARITY IN THE KINDERGARTEN CLASSROOM BASED ON CHILD CARE ARRANGEMENTS

Carole Montpetit, M.A.
Concordia University, 1991

The purpose of this study was to explore the relationship between popularity of children attending after-school day care with that of children who return home to their parent(s) after school. It was hypothesized that the kindergarten children with concurrent and previous day care experience would have more positive peer interactions, would display more complex play styles, and would be more popular amongst their kindergarten peers than those who returned home after school. The congruence of teacher ratings and natural observations of tone of peer interactions was also examined.

The sample was comprised of sixty-three French-speaking kindergarten children, thirty boys and thirty-three girls, who were enrolled in two schools. Classroom behaviors (complexity of play and tone of peer interactions) were recorded through naturalistic observations. Data describing receptive verbal ability and peer ratings were collected through individual testing and data pertaining to socioeconomic status and past child care history were obtained through parental interviews. Teacher ratings of children's social behavior were also obtained on a forty-four item Likert-type scale.

Preliminary findings indicated that separate analyses by school was necessary. In School 1, results indicated that there was a significant negative relationship between the number of months spent in preschool day care settings and positive/prosocial tone of peer interactions. In School 2, results showed that day care children had significantly higher peer rating scores than did the home children. There was no significant relationship between peer ratings and complexity of play styles or tone of peer interactions.

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CHILDREN'S POPULARITY IN THE KINDERGARTEN CLASSROOM BASED ON CHILD CARE ARRANGEMENTS

In 1976, the percentage of Canadian women who participated in the labor force and whose youngest child was between the ages of six and twelve was 49.5%. This figure climbed to 72.6% by 1988 (Statistics Canada, 1990). With such a high percentage of women participating in the labor force with children of elementary school age, the problem arises as to who takes care of these children when the school day ends and their mothers are still at work. A practical solution for parents is the creation of after-school child care centers which are located within the children's elementary schools. Another option is for children to attend day care centers which are located off school premises. Very few studies have looked at the effects on the children's development of attending elementary school classes concurrently with these after-school day care centers, either on- or off-school premises.

Two of the studies which have looked at the effects of after-school care on children's peer relations have yielded conflicting results. Howes, Olenick, & Der-Kiureghian (1987) compared the social skills of kindergarten children who attended an after-school program with those of kindergarten children who returned home to their mothers when the kindergarten class was over. They found that, based on their ability to form friendships, the children who attended the after-school program appeared to be more

socially skilled than children who returned home after school. Vandell & Corasaniti (1988) found different results in their study of third graders. They reported that children who attended day care centers after school received more negative peer nominations than children who returned home to their mothers. As one explanation for the poor ratings of the children attending day care centers, the authors reported that the quality of many of these centers was questionable. As well, they speculated that amongst third graders, a negative stigma may have been associated with attending day care centers, and the children who did attend were conspicuous as they were picked up daily in a van bearing the day care centers' logos.

The peer group is an important socializing agent for children (Hartup, 1983). Peers provide children with an opportunity to practice the social skills which are necessary for interacting with others (Roedell, Slaby, & Robinson, 1977). Practicing these skills with a peer may be less threatening than practicing them with adults who are not seen by children as being on the same developmental level. Peers help children grow cognitively through watching and imitating others' behaviors. They help children become less egocentric as they have to learn to accept the points of view of others in order to have successful relationships (Roedell et al., 1977).

Since children who attend day care centers after

kindergarten class have more opportunities to interact with peers, and since the peer group seems to be of such importance in helping children to develop good social skills, it would seem reasonable to assume that day care children would have more refined social skills than children who return home to their parent(s) after kindergarten class. The present study was designed to examine one aspect of kindergarten children's social development. Its main focus was on the relationship which exists between children's care arrangement after-school and their popularity among their kindergarten peers. As well, it compared observers' ratings of tone of peer interactions to teachers' ratings of tone of peer interactions because conflicting results have often been found between studies which assessed peer interactions by teacher ratings and those that used natural observations (Hegland & Rix, 1990).

Background

The purpose of the present study was twofold. First, the relationship which exists between day care and home care children's popularity based on complexity of play styles and tone of interactions was examined. Second, the study explored the relationship between researchers' observed behaviors of subjects in the classroom and the teachers' ratings of these same subjects. Previous research conducted on day care and aggressive behavior was surveyed first. Then the literature concerning popularity and the tone of

interactions was examined along with research which examined age- and sex-related differences in children's play. Subsequently, studies which looked at day care and play behavior, and those which examined complexity of play styles and how this relates to popularity were reviewed. Finally, the peer competence literature was surveyed along with reports and discussions concerning the techniques for the measurement of peer acceptance.

Day care and aggressive behavior. In 1978, Belsky and Steinberg reviewed the day care literature in order to determine whether attending day care centers had any deleterious effects on children's development. Although they concluded that overall it was not harmful for children to spend time in day care centers, they did report greater levels of aggressive behavior towards both peers and adults from children with more day care experience. Subsequently, other researchers have examined the level of aggression in children who attend day care centers. Overall findings of this research support the notion that day care children are no more aggressive than children without any day care experience (Larner, Gunnarsson, Cochran, & Hagglund, 1989; Moore, Snow, & Poteat, 1988; Hegland & Rix, 1990). One study which did report more aggression in the day care sample found that children who had been enrolled in cognitively-oriented programs as preschoolers were rated as being more aggressive by their first and second grade public

school teachers than children who had had little experience in regular day care programs (Haskins, 1985). An interesting finding was that this higher rate of aggressive behavior decreased by the third year of public school. It is important to note that in Haskins' (1985) study, excessive aggressive behavior was limited to the group which attended cognitively-based programs and that the subjects were children who had been labeled as 'at-risk' for poor intellectual development. The findings should, therefore, not be generalized to other populations.

Vlietstra (1981) based her study of aggressive behavior in the classroom on both natural observations by researchers and teacher ratings. She found that although observers rated the children who attended day care centers full-time as having more positive peer interactions than children who attended part-time, the teachers rated the full-time day care children as being more aggressive. The discrepancy in the ratings of the observers and the teachers could be the result of an unclear definition of aggression. That is, a behavior which the teachers labeled as aggressive may have been labeled as assertive by the observers (Hegland & Rix, 1990). Vlietstra (1981) appeared to agree with this explanation as she stated that in her study there seemed to be variations in the teachers' and observers' perception of motoric activity, a category which was included in her study. Moore, Snow & Poteat (1988) found that kindergarten

children who had attended preschool prior to their entry into kindergarten were not more aggressive than children who had not had any preschool experience. These findings were based on teacher ratings only. A study in Sweden by Larner, Gunnarsson, Cochran, & Hagglund (1989) examined a group of ten-year-old children, half of whom had experienced center care from ages one to six, and half of whom had been in home settings until their entry into either kindergarten or grade one. Their analysis, which was based on teacher ratings, revealed no evidence that children who had been in center care displayed more negative or aggressive behavior with either their peers or adults. Hegland & Rix (1990) used both teacher ratings and natural observations to rate the behavior of kindergarten children who had at least one year of 30 hours per week of preschool day care center experience, and children who had been home-reared with no prior day care experience. They found that there was very little aggressive behavior which occurred in the classroom. In fact, the total number of assertive, instrumental aggressive, and hostile aggressive behaviors accounted for fewer than 3% of all of the behaviors observed. There were no significant differences between the center care group and the home-reared group in either aggressive or assertive behaviors toward their peers.

Research findings, therefore, tend to support the notion that attending center care does not lead to increased

aggressive behavior with peers. It is important to note that none of the above studies took into account the quality of the day care centers attended by the children. Considering what is now understood about day care quality, few contemporary studies report on day care experience without taking into account the issue of quality of the day care environment. Most studies which have examined children's peer interactions and have included an index of quality of the day care environment, revealed that day care quality indicators did not appear to be related to positive or negative peer interactions (Holloway & Reichhart-Erickson, 1988; Phillips, McCartney, & Scarr, 1987; Vandell & Powers, 1983). In contrast, a longitudinal study by Vandell, Henderson, and Wilson (1988) reported that children who had attended higher quality day care centers as preschoolers tended to display friendlier peer interactions and were rated by observers as more socially competent and happier at the age of eight years than children who had attended a low quality day care center as preschoolers. It is interesting that this study was an extension of Vandell & Powers (1983), who reported that quality indicators were not related to peer interactions. It is possible that continued exposure to a high quality day care actually enhances social interactions while extended exposure to low quality day care affects peer interactions in a negative way. A second study which reported significant differences in the tone of peer

interactions among children who attended low and high quality day care is that of White, Jacobs and Schlieker (1989). They reported that four-year-olds attending low quality day care exhibited more negative behaviors than those who were attending higher quality centers. These contradictory findings highlight the importance of rating the quality of the environments when doing research on center care.

Many researchers have found that children who spent more time in day care centers did not display more aggressive behavior than children who spent less time in day care centers, and were rated by observers as having more positive peer interactions (Field, Masi, Goldstein, Perry, & Parl, 1988; Schindler, Moely, & Frank, 1987; Vlietstra, 1981). This is an important finding in light of the peer literature which states that children who exhibit more positive interactions with their peers tend to be more popular than children who display more negative peer interactions (Coie & Kupersmidt, 1983; McGuire, 1973; Rubin, 1983; Rubin & Daniels-Beirness, 1983).

Popularity and tone of peer interactions. Although no literature specifically addresses the relationship which exists between attending a day care center and popularity, certain variables such as the tone of peer interactions have been shown to be predictors of children's popularity among their peers and, as has just been reported, day care

children seem to have more positive interactions than do home-reared children. Many studies have found that children who are aggressive in their interactions tend to be less well-liked by their peers than their age-mates who are not as aggressive (Coie & Kupersmidt, 1983; McGuire, 1973; Rubin, 1983; Rubin & Daniels-Beirness, 1983). An interesting finding is that of McGuire (1973) who reported that preschool boys who were rated by trained observers as being more aggressive in their interactions, that is those who displayed more non-compliance, more interference in the others' play, more derogation toward others, and more physical or verbal attack on their peers, were less popular, based on peer nomination ratings, whereas preschool girls who were seen as more aggressive by observers tended to be rated as more popular among their peers. McGuire suggested that the discrepancy in the peer ratings of boys and girls results from the fact that aggressive behavior in boys differs from aggressive behavior in girls. That is, perhaps the aggressive behavior of boys and girls are of different intensities. He also surmised that there may be a lower limit for the amount of aggression in girls, below which they begin to lose status, and a higher limit for the amount of aggression in boys, beyond which they begin to lose status.

Rubin & Daniels-Beirness (1983) used the peer-rating scale in order to assess the popularity of a group of

kindergarten boys and girls. They found that the children who displayed negative peer interactions tended to be rejected by the group. Rubin (1983) reported that cooperative interactions and positive peer interchanges predicted a child's popularity with his or her age-mates, whereas aggressive behavior predicted peer rejection. Tone of interaction is only one among many variables that are thought to be predictors of a child's popularity. Another behavioral characteristic which has been shown to have an effect on children's popularity is the complexity of play in which children take part (Dodge, 1983; Ladd, 1983; Marshall & McCandless, 1957; Rubin, 1983).

Age-related differences in children's play. In 1932, a classic study was undertaken by Mildred Parten in which she sought to examine children's social participation. She noted that as children matured their level of social participation increased in sophistication. Parten labeled her social participation categories as unoccupied behavior (apparently not playing, but occupying oneself with anything that is of momentary interest), solitary play (playing alone), onlooker behavior (watching others play), parallel play (playing in similar ways with similar toys, but not interacting), associative play (interacting but not playing the same game), and cooperative play (playing together, helping or taking turns). She determined that children who range in age between 2 and 2-1/2 years usually engage in

more solitary play. Children of 2-1/2 to 3-1/2 years tend to play in a more parallel manner, and children of 3-1/2 to 4-1/2 years engage in more associative play. Children from 4-1/2 to 6 years engage in more cooperative play which Parten considered to be the most complex level of social participation. It has been argued by some researchers (Rubin, Maioni, & Hornung, 1976; Moore, Evertson, & Brophy, 1974) that solitary play is not the least mature level of social participation as was suggested initially by Parten (1932). Rubin et al. (1976) contended that older children who play in more solitary ways may not be less skilled socially, but may consciously choose to remove themselves from their peers to spend some time exploring and learning on their own. They suggested that parallel play may be the least mature social participation level since older children who play beside others may want to initiate contact with their peers, but may lack the necessary skills to do so. Moore et al. (1974) undertook a study to identify the types of solitary play in which kindergarten children were most often engaged. Their findings suggested that solitary play can take on more or less mature levels. They found that 84% of the solitary play observed in kindergarten classrooms belonged to more mature forms of play (i.e., goal-oriented activities, large muscle play, educational play, and onlooking), rather than more immature forms of solitary play (i.e., role playing, daydreaming or wandering, sulking or

pouting, and seeking out the teacher). One point worth noting in this study was that the teachers performed the observations of the participating children in their classes, albeit according to the researchers' instructions. It is quite probable that the teachers were not as objective or as attentive to the solitary play behaviors in their classrooms as neutral observers would have been because of the tremendous demands that the classroom environment makes on the teachers. Consequently the results may not be as accurate as they might have been had observations been made by unbiased researchers. The discussion as to whether solitary play is a mature or immature level of play remains unresolved.

Another important early source of information regarding children's play behaviors is that of Piaget (1962), who stated that children's play increases in cognitive complexity as they get older. Smilansky (1968) elaborated upon Piaget's original categories and labeled them as follows: Functional (simple, repetitive muscle movements either with or without objects), constructive (using materials or objects to create something), dramatic (role playing or make-believe transformations to satisfy one's wishes or needs), and games-with-rules (recognition of and conformity with pre-established rules). Research has shown that functional play decreases with age (Rubin, Watson, & Jambor, 1978). For children who range in age from 14 to 30

months, functional play has been observed to constitute as much as 53% of all free play activity (Sponseller & Jaworski, 1979, as stated in Rubin, Fein, & Vandenberg, 1983), whereas between the ages of 4 and 5 years this figure drops to between 17% and 33% (Rubin et al., 1976, 1978). Constructive activity has been reported to be the most common type of activity exhibited in kindergarten classrooms (Rubin et al., 1983). The frequency of constructive activity ranges from 40% of all activity at the age of 3-1/2 to 51% between the ages of 4 and 6 years (Rubin et al., 1976, 1978). It is generally accepted that the frequency of dramatic activity increases from the age of 3 years, until approximately the age of 6 or 7 years (Rubin et al., 1976, 1978). Finally, games-with-rules behaviors have also been shown to become more evident from the early to late preoperational years (Rubin et al., 1976, 1978).

While both the Parten (1932) and Smilansky (1968) studies have afforded researchers considerable insight into children's play, Rubin et al. (1976) sought to discover the relationship which existed between them by nesting Smilansky's cognitive play categories within Parten's social participation levels. The social participation levels which Rubin et al. (1976) included in their observations were as follows: Solitary, parallel, associative, and cooperative behavior. In a further study (Rubin et al., 1978), associative and cooperative behaviors were combined to form

a 'group' category, as it was found that particular activities which were coded as associative when observed in preschoolers were consistently being coded as cooperative when observed in the kindergarten sample. The combination of the social participation levels and the cognitive play categories permitted Rubin et al. (1978) to see more immature social-cognitive play behaviors in preschoolers than in kindergartners. The use of the Parten scale alone would not have revealed this difference. However, one difficulty arises in that Rubin did not outline a hierarchy of play behaviors from least to most complex. Although researchers would probably agree that the 'group dramatic' and 'group games-with-rules' categories are two of the more complex types of play, disagreement may occur when trying to identify the least complex types of play. While some may assert that solitary-functional is the most immature play behavior, others who agree with Rubin et al. (1976) that parallel play is a less mature form of social participation than solitary play may argue that parallel-functional play is even more immature. This ambiguity in rating the maturity of play behaviors is outlined in a previously mentioned study on solitary behaviors of kindergarten children (Moore et al., 1974), where it was stated that role-playing was a less mature form of play than goal-oriented activities, large muscle play, educational play, and onlooking behavior. One could argue when comparing

these behaviors to Smilansky's (1968) cognitive play categories that role-playing, which could be equated to Smilansky's dramatic category, is a more mature behavior. Therefore, in order to ensure that there is general agreement on how the complexity of play behaviors are categorized, a formal hierarchy needs to be developed. Research has shown that sex differences also play a role in the types of play in which children engage (Goodenough-Pitcher & Hickey-Schultz, 1983; Maccoby & Jacklin, 1974), a topic which is addressed in the following section.

Sex differences in children's play. When research on sex differences in human beings is surveyed, it is consistently found that men and women differ in their personalities and in the manner in which they perform their social roles. It is reported that men are more active and aggressive, whereas women are more passive, affiliative, and nurturant (Maccoby & Jacklin, 1974). These sex differences are also apparent in the way children play. In their observations of children ranging in age from 2 to 5 years, Goodenough-Pitcher & Hickey-Schultz (1983) found that boys and girls differ not only in the roles that they adopt in their play, but also in the types of behaviors in which they engage. For example, they found that girls usually tend to be nurturant, whereas boys prefer rough-and-tumble play. These sex differences in children's play were also reported by Moore et al. (1974) and by Rubin et al. (1976, 1978). In

their observations of the solitary play of kindergarten children, Moore et al. (1974) discovered that girls tended to engage in more educational, sedentary play than did boys. Rubin et al. (1976) reported that when they nested the Parten (1932) social participation levels within Smilansky's (1968) cognitive play behaviors, boys displayed significantly more solitary-functional and associative-dramatic play behaviors and significantly less solitary-constructive and parallel-constructive play behaviors than did girls. This finding is in accordance with Moore et al.'s (1974) findings as their educational category corresponds to Rubin et al.'s (1976) constructive category. Findings for Rubin et al.'s (1976) study were replicated in Rubin et al. (1978) in which results indicated that girls engage in more constructive play than do boys. Since there seems to be a definite difference in the play behaviors of boys and girls, it is essential when studying these behaviors that they be analysed separately. In order to have a better understanding of the relationship between care arrangements and children's play, the relationship between the play of children with day care experience and without day care experience needs to be examined.

Day care and play behavior. Only a small number of studies have examined the relationship which exists between day care center experience and the complexity of children's play. Field, Masi, Goldstein, Perry, & Parl (1988) observed

a group of preschool children and reported that those who spent less time in day care centers displayed more onlooker and solitary play behavior than children who spent more time in center care. Schindler, Moely, & Frank (1987) also found in their observations of a group of preschool children that more time spent in a group care setting resulted in more associative play and less onlooker and unoccupied behavior on the part of the children. Rubenstein & Howes (1979) observed two groups of 18 month-old children, the first in a day care setting, the second at home. They found that upon comparison of the day care group to the group who were home alone with their mothers, the day care group displayed higher developmental levels of play. However, when they compared the day care group's developmental level of play to the home group with peers present, the levels did not differ. These findings were in agreement with Rubenstein & Howes (1976), who had studied a group of toddlers in their homes and found that when peers were present, the developmental level of play was higher. These findings suggest that regular contact with peers may be partly responsible for higher levels of play. The authors propose that this finding may be due to the greater variety of activities that two peers can engage in with one toy than when one child is playing alone. Rubenstein & Howes (1976, 1979) speculate that skills which are already acquired by the children become more sophisticated when imitating, or

being imitated by other children, and when children are reinforced by the shared joy of an activity. It would appear, therefore, that peer experience due to day care center attendance results in the children engaging in more mature types of play than children without any day care experience. Since it has been shown that a link exists between the complexity of play styles and children's popularity (Dodge, 1983; Ladd, 1983;, Marshall & McCandless, 1957; Rubin, 1983), more research needs to be done which compares the play of day care and home-reared children.

Popularity and complexity of play styles. Play patterns have been shown to be predictors of a child's popularity. Children who exhibit immature play patterns tend to be less popular than children with more sophisticated play patterns. That is, children who display more functional types of cognitive play behaviors tend to be less popular with their peers than children who display more dramatic types of cognitive play behaviors (Rubin, 1983). Ladd (1983) found that kindergarten children who were more popular with their peers, based on the peer nomination measure, spent significantly more time engaged in cooperative play than did children who were less popular with their peers. As well, the children who spent more time engaged in unoccupied behaviors were rated as being less popular by their peers. Marshall and McCandless (1957) found that children who had more social interactions of a

friendly nature were rated more favorably by their peers and were also rated by their teachers as having a higher social status among their peers. Dodge (1983) found that boys who engaged in inappropriate play behaviors, such as standing on tables or disrupting others' activities, were less popular among their peers. The discussion thus far has centered on which behaviors are more likely to make children popular amongst their peers, but has not addressed the importance of being liked by the peer group.

Peer competence. It is important that children be socially competent in their interactions as their peer relations affect their adjustment in many ways. Peer relations permit children to develop fundamental skills which are needed in order to have successful interactions, they help children to develop a sense of social support and security, and they are thought to contribute to the development of the self-concept (Bukowski & Hoza, 1989). It is important for children to have interactions with their peers as egalitarian relationships are thought to contribute positively to mental health, both in childhood and later in life (Hartup & Moore, 1990). When children interact with age-mates they learn to negotiate instead of just complying as they often do in their relationships with adults. Egalitarian relationships with peers give children opportunities for social experiences which adults cannot give them, such as mutuality, affective sharing, and

practice in resolving conflicts (Hartup & Moore, 1990). Research has shown that children who are rated as rejected or neglected by their peers are more likely to drop out of school (Ullmann, 1957), become juvenile delinquents (Roff, Sells, & Golden, 1972), and to experience emotional problems later in life (Cowen, Pederson, Babijian, Izzo, & Trost, 1973). Peer acceptance is often used as a measure of social competence and consists of two elements: Popularity and status (Hartup, 1983). Popularity refers to likability, or "the extent to which a child is sought by others for associative contact" (pp. 124-125). Status refers to standing, or "the extent to which a child is thought to be a worthy or valuable member of a group" (p. 125). Two measures are commonly used to assess children's acceptance among their peers: The peer nomination measure and the peer-rating scale.

Psychometric measurement of peer acceptance. The peer nomination measure (McCandless & Marshall, 1957) is based on the number of friendships that a child has, whereas the peer-rating scale (Asher, Singleton, Tinsley, & Hymel, 1979) assesses the child's likability among his/her peer group (Gresham, 1981; Perry & Bussey, 1984). In the peer nomination measure, status is determined by asking each child to select the three classmates with whom he or she would like to play the most and the three classmates with whom he or she would like to play with the least. The peer-

rating scale evaluates the child's likability. A picture of each student in the classroom is presented to the subject being tested, who is then asked to rate each one as a child with whom he or she would like to play with a lot, a little bit, or not at all (Perry & Bussey, 1984).

The peer-rating scale has some advantages over the peer nomination method in that each child rates every member of the peer group being studied. This gives an indication of each child's attitude toward each member of the peer group. Another advantage in this procedure is that a child's sociometric rating is based on ratings received by all of the members of the peer group, and therefore, yields a considerably larger number of data points (Hymel, 1983). Furthermore, Asher et al. (1979) found that the rating-scale measure is more reliable than the nomination measure when working with elementary school and preschool-aged children. One reason why it is thought to be more stable over time is that each child's score is an average of the ratings received by all same-sex classmates. Therefore, the child's final score is less likely to be affected if one or two raters change their perceptions of the child being rated. Nominations, on the other hand, would be greatly affected by this change in perception.

Conclusion. In summary, research has found that children who attend day care centers are no more aggressive than children who are reared at home (Larner et al., 1989;

Moore et al., 1988; Hegland & Rix, 1990). In fact, many researchers have reported more positive interactions for the children who attend day care centers (Field et al., 1988; Schindler et al., 1987; Vlietstra, 1981). Moreover, children who attend day care centers have also been found to exhibit more complex play styles than children who are home-reared (Field et al., 1988; Rubenstein & Howes, 1989; Schindler et al., 1987). Further, a negative relationship has been reported between exhibiting aggressive behavior and popularity (Coie & Kupersmidt, 1983; McGuire, 1973; Rubin, 1983; Rubin & Daniels-Beirness, 1983), and between displaying more complex play styles and popularity (Dodge, 1983; Ladd, 1983; Marshall & McCandless, 1957; Rubin, 1983).

Statement of the Problem

The purpose of this study was to examine the relationship which exists between the popularity of kindergarten children who attend day care centers concurrently with their kindergarten classes and kindergarten children who return home to their parent(s) after classes. To date, very few studies have looked at the relationship which exists between attending after-school care and children's social development. Children who attend day care centers before or after school have more opportunities to be with their peers, and children who have multiple contacts with their peers are usually rated as, and observed to be, more socially competent than children who

have less contact with peers (Howes, 1987). One reason for this seems to be that peer experience fosters peer competence by allowing children to learn by imitating others (Lieberman, 1977). Children who have had day care experience have been shown in many studies to have more positive tone of peer interactions and more complex play styles (Field et al., 1988; Schindler et al., 1987; Vlietstra, 1981). Since there is a correlation between popularity and tone of interactions and between popularity and complexity of play styles, it seems reasonable to assume that day care children, who have been shown to have more positive peer interactions and more complex play styles would be rated as more popular by their kindergarten peers.

Previous studies have found conflicting results when both natural observations and teacher ratings have been used to measure aggressive or negative tone of peer interactions (Field et al., 1988, Vlietstra, 1981). Furthermore, conflicting results occur between studies which measure aggressive behavior through teacher ratings and those who use naturalistic observations (Haskins, 1985; Raph, Thomas, Chess, & Korn, 1968; Rubenstein & Howes, 1979; Schwarz, Strickland, & Krolick, 1974). It was previously mentioned that this could be due to an unclear definition of aggression whereby teachers may have been labeling assertive behaviors as aggressive behaviors, whereas the trained observers were not (Hegland & Rix, 1990). Another goal of

this study was, therefore, to compare the naturalistic observations gathered by trained observers with the teachers' ratings of tone of peer interactions.

The present investigation extended past research which stated that day care children have more positive peer interactions and more complex play styles by looking at these behaviors in after-school day care. Kindergarten children who also attend day care centers must deal with multiple environments daily, each with its own rules of conduct, and the effect that this has on the children remains unclear. This study attempted to clarify the effects which these environments have on social development in the kindergarten classroom using multivariate analyses to investigate the relationship among tone of peer interactions, complexity of play styles, and past day care experience.

This study improved on past research in that extensive data were collected concerning the children's past child care history. Both natural observations and teacher ratings were gathered in order to assess the subjects' tone of interactions with their peers. The specific questions which addressed the topic of negative or aggressive behaviors in the teacher rating scale were formulated so as to eliminate the possibility of misconstruing assertive with aggressive behaviors. Finally, although it was possible to obtain a measure of quality for the subjects' current after-school

day care environment, it was not possible to procure a rating of the quality of the day care centers which the subjects had attended in previous years. This is an inevitable shortcoming of retrospective studies. Day care quality will therefore not be an issue broached in this investigation.

The hypotheses of this study were, therefore, that kindergarten children with concurrent and previous day care experience would have more positive peer interactions, would display more complex play styles, and would be more popular in the kindergarten classroom than children who returned home after school, and that teacher and observer ratings of children's aggressive behaviors would be similar.

METHOD

Subjects

The study included 63 subjects whose first language was French and who attended Francophone kindergarten classes in two schools located on the West Island section of Montreal. Their ages ranged from 62 to 77 months with a mean age of 70 months. Of the 63 subjects, 15 girls and 13 boys attended a day care center on- or off-school premises either before or after school during the period when the data were being collected, and 18 girls and 17 boys returned home to their parent(s) after the school day ended. Tabachnick and Fidell (1989) recommend a minimum of 5 subjects per predictor variable when using a hierarchical multiple regression to analyse the data. As there were ten predictor variables in this study (SES, PPVT-R score, number of months spent in day care during the child's preschool years, current child care arrangement, four social-cognitive levels of group play, and positive/prosocial and negative/aggressive tone of peer interactions), this criterion was met.

Procedure

A number of school administrators were contacted by the project coordinator to determine whether they were interested in having their schools participate in the study. This initial contact was followed by an explanatory letter. Letters of explanation and consent forms were then brought to the consenting schools and the kindergarten teachers were asked to distribute them to each of the children. Copies of

these letters and of the consent form can be found in Appendix A. A trained telephone interviewer contacted the consenting parents to gather information concerning child care history and socioeconomic status.

Two research assistants conducted naturalistic observations in the kindergarten classroom of the participating schools during the free play period. Children's sociometric status was assessed using the peer rating-scale (Asher et al., 1979). The research assistants also administered a French language version of the Peabody Picture Vocabulary Test-Revised (PPVT-R) to the target children. Finally, the kindergarten teachers were asked to complete a modified version of the Vandell and Corasaniti (1988) rating scale pertaining to the social behavior of the participating children in the classroom.

Measures

Socioeconomic status (SES). Socioeconomic status of the families was determined using the Hollingshead Four Factor Index of Social Status (1975). The Two Factor Index of Social Position which was developed in 1957 has been widely used in research, but the social and cultural changes that have occurred since its inception have revealed three shortcomings: It is dated, the range of occupations is too narrow, and the family's position is based solely on an evaluation of the head of the household (Hollingshead, 1975). The Four Factor Index takes into consideration that

SES is a multidimensional concept and includes scores for education, occupation, sex of the parent, and marital status. The index takes into account the education and occupation of both spouses in determining the family's status. The scale for education was developed by Hollingshead to allow for classification relevant to the United States' school system and has been adapted to fit the Quebec school system. The educational scale used in the computation of SES can be found in Appendix B.

Occupation was scored on a nine-point scale. This scale was matched, where possible, to the occupational titles used by the United States Census (1970), although some titles which were not precise enough were altered. The computed scores had a possible range from 8 to 66. Both the occupational and the educational scales were validated by analysing the data collected from the 1970 United States Census. A positive link between completed years of education and occupational pursuits was found. That is, the more years of schooling that have been completed, the higher the occupational standing of the person. A copy of the equations used to compute SES can also be found in Appendix B.

Child care arrangements. Each consenting parent was interviewed by telephone to gather information pertaining to their child's current as well as past group care arrangements. The interviewer obtained detailed information

concerning the type of care, the location of the care, the number of children that were in the care environment, and the number of hours per day that the child spent in that arrangement. A copy of the questionnaire can be found in Appendix C.

Peer acceptance. Using the peer rating scale measure (Asher et al., 1979), a training exercise preceded the actual test to ensure that subjects were able to understand and follow the instructions. Each child was shown a number of cards depicting various foods and was asked to classify each food in one of three boxes provided by the experimenter: A happy face box (J'aime beaucoup manger cette nourriture), a neutral face box (J'aime un peu manger cette nourriture), and a sad face box (Je n'aime pas du tout manger cette nourriture). Once the child had experience using all three boxes and the experimenter was sure that the subject understood the 'game', the actual test began. Each child was shown a series of portrait photographs of each of his/her classmates and was asked to categorize each one into the happy face box (J'aime beaucoup jouer avec cet enfant), the neutral face box (J'aime un peu jouer avec cet enfant), or the sad face box (Je n'aime pas du tout jouer avec cet enfant). Sociometric scores were obtained for each child according to the box in which his/her photograph was placed. A score of three was allotted if the photograph was placed in the happy face box, a score of two if the photograph was

placed in the neutral face box, and a score of one if it was placed in the sad face box. A total score was obtained for each child by summing each same-sex sociometric score and dividing it by the number of same-sex children in the class who participated in the rating process.

Teacher's perception of child competence. An adaptation of the Vandell and Corasaniti (1988) rating scale was used to determine the teacher's perception of the child's level of social development. Vandell and Corasaniti's rating scale is comprised of 32 items which can be grouped into four categories: Peer relations, work/study skills, emotional well-being, and adult/child relationship. Their sample consisted of 349 third graders who attended seven different elementary schools in the Dallas, Texas area. Vandell and Corasaniti calculated Cronbach's coefficient alphas for these items and reported an alpha of .91 for the peer relations score, .85 for work/study skills, .82 for emotional well-being, and .85 for adult/child relationships scores. The version of the rating scale which was used in this study was adapted by Dr. Donna White and is comprised of some new items along with some of the original Vandell & Corasaniti items. The additional items have to do with children's relations with their peers. The result of this adaptation was that the following new categories were formed: 'Aggression', 'withdrawal', 'rejection', and 'liked'. Cronbach's coefficient alphas were calculated

using a sample of 333 kindergarten to Grade 2 children in the Montreal area. Scores of .88 were reported for the aggression category, .85 for the withdrawal category, .89 for the rejection category, and .77 for the liked category. A copy of the rating scale can be found in Appendix D. The additional items have been indicated by an asterisk.

Verbal skills. A French version of the Peabody Picture Vocabulary Test-Revised (Dunn, 1981) was administered to every subject and was used as a control measure to ensure that all children had a minimum level of receptive vocabulary. This test was selected because it has been translated into French by Dr. Helga Feider of the Université du Québec à Montréal, it is easy to administer, and it has good validity and reliability.

The children were taken individually to a separate room for this test so as to avoid disturbing the activities of the class. The subject was shown a number of plates which are comprised of four black and white pictures, each of which depict a particular word. The researcher said a test word, and the child was asked to point to the picture which best corresponded to that word. The researcher stopped the test when the child missed six out of eight answers.

Observations of play. Play categories were defined using a procedure which was originally used by Rubin et al. (1976), where Smilansky's (1968) cognitive play behaviors are nested within Parten's (1932) social participation

levels. Parten's social participation levels are the following: Solitary, parallel, group, onlooker, and unoccupied behavior. In the original study by Parten, group was divided into associative and cooperative behavior, but as was mentioned in a previous section, Rubin et al. (1978) found that a particular behavior was consistently labeled as associative when observed in preschoolers and as cooperative when seen in kindergarten-aged children. Smilansky's cognitive play behaviors are an adaptation of Piaget (1962) and consist of functional, constructive, dramatic, and games-with-rules play. A copy of the recording sheet can be found in Appendix E. The tone of the children's play, which refers to whether the children are playing in a neutral, positive, negative/aggressive, or prosocial way was also recorded. Complete operational definitions of these three dimensions are found in Appendix F.

Observational data was collected in the kindergarten classrooms using a time sampling method. The procedure was as follows: The observer was seated at the periphery of the play area and did not interact with the children. The observer selected target children in a pre-determined random order during a thirty minute free play period in the kindergarten classroom. The data were collected in fifteen second intervals, during which the observer had five seconds to locate the target child, five seconds to observe the behavior, and five seconds to record the behavior before

moving on to the next target child. A total of 50 observations over a period of two to three weeks were collected for each of the target children. Prior to the data collection, inter-observer reliability was established by having two observers independently rate the behavior of a group of five-year-old children in a day care center, which was not used in the study, in the same manner as it would be done for the study. The observers continued to do this until they consistently reached at least 85% agreement. Agreement was verified every third day throughout the actual data collection period to ensure that it remained above 85%. This was accomplished by having the two observers independently and concurrently rate the behavior of the target children in the kindergarten classroom. Agreement ranged from 86% and 100% with a mean of 94%. Reliability was calculated by counting the number of agreements and dividing by the number of agreements plus the number of disagreements. For purposes of analysing the complexity of play data in this investigation, it was decided to include only the 'group' social category nested within the four cognitive categories. This decision was made because of the uncertainty which lies in categorizing the behaviors from least to most complex, and because the focus is on peer interactions.

RESULTS

Descriptive data for the whole sample

The total sample consisted of 63 subjects for whom complete data were available. The range, mean, and standard deviation for each of the variables included in the analysis can be found in Table 1.

As can be seen from Table 1, there is a wide range of scores in the total sample for SES ratings, total number of months spent in day care during the subjects' preschool years, PPVT-R scores, number of positive/prosocial and negative/aggressive interactions between peers, and all four complexities group play categories. The number of negative/aggressive interactions is very low. These behaviors accounted for only 1.5% of all peer interactions. This finding is consistent with other research on tone of peer interactions (Field et al., 1988; Hegland & Rix, 1990; Holloway & Reichhart-Erickson, 1988; Vandell & Powers, 1983). The mean SES score is middle-class while the ratings range from lower to upper class.

Tests of assumptions

The data included in the study were analysed to ensure that all assumptions regarding multivariate statistical analyses were met. The tests of skewness coefficients revealed that the following variables were positively skewed: Number of months in preschool day care, all four group play categories and both positive/prosocial and negative/aggressive peer interaction categories. Base 10

Table 1

Ranges, Means, and Standard Deviations for All Variables for Whole Sample.

Variable	Range	Mean	Standard Deviation
Peer rating	1-3	2.32	0.40
SES	14-66	41.68	12.97
Number of mos. in preschool day care	0-41	5.17	9.76
PPVT-R scores	47-141	101.46	19.58
Number of group 'functional' play occurrences per subject	0-7	0.79	1.43
Number of group 'constructive' play occurrences per subject	0-16	3.79	3.69
Number of group 'dramatic' play occurrences per subject	0-28	7.34	6.84
Number of group 'games-with-rules' play occurrences per subject	0-6	1.09	1.50
Number of positive/prosocial interactions per subject	0-16	4.76	3.47
Number of negative/aggressive interactions per subject	0-4	0.76	1.05

logarithmic transformations reduced the skewness of the distributions of all of these variables. Z-score transformations and examination of Mahalanobis distance revealed no univariate or multivariate outliers. In order to test for the assumptions of linearity and homoscedasticity, a scatterplot of residuals was examined. It revealed no serious departures from either linearity or homoscedasticity.

Variable selection and limitations

The number of subjects available in this study made certain restrictions necessary. It was decided not to analyse the subjects separately by sex as t-tests showed that there were no overall significant differences between the sexes on the four complexities of group play, the negative/aggressive tone of peer interactions, SES, PPVT-R scores, or number of months of preschool day care experience. The sexes did differ significantly on two variables. The first was the peer rating variable, whereby the girls rated same-sex peers higher than boys and was significant at the .01 level. The second variable on which they differed significantly was on positive/prosocial tone of peer interactions, whereby the girls had more positive/prosocial interactions than did the boys. Results of this t-test can be found in Appendix G. This element, combined with the fact that data from the two schools had to be run separately because of significant differences in the

majority of the variables under study, meant that further refinement in the data analysis was not warranted.

Finally, peer interaction data originally consisted of four categories: Neutral, positive, prosocial, and negative/aggressive. The positive and prosocial categories were combined as the prosocial category alone accounted for only 0.4% of the total observations.

Descriptive data comparing day care and home groups

The sample was separated into two groups. The first was comprised of 28 subjects who attended a day care center either on- or off-school premises prior to, or after, attending kindergarten classes. Of these 28 subjects 13 were boys and 15 were girls. The second group included 35 subjects who stayed with their parent(s) in their own home prior to or after attending kindergarten classes. Of these 35 subjects 17 were boys and 18 were girls. The means and standard deviations for all the variables included in the analysis can be found in Table 2. Since it is difficult to gain an intuitive understanding of the differences when looking at the transformed variables, means and standard deviations of these variables before the transformation can be found in Appendix H.

As can be seen in Table 2, the two groups have similar means for many of the variables. One variable on which they differ considerably is the number of months that children who attended a day care center at the time of the study

Table 2

Means and Standard Deviations for All Variables for Day Care Versus Home Care Groups.

	Day care	Home
Variable	Mean (St. Dev.)	Mean (St.Dev.)
	n=28	n=35
Peer rating	2.34 (0.43)	2.30 (0.38)
SES	41.32 (10.41)	41.85 (14.65)
Log (number of mos. in preschool day care)	0.64 (0.63)	0.11 (0.37)
PPVT-R scores	101.03 (19.20)	101.80 (20.15)
Log (number of gr. 'func.' play occurrences per subject)	0.18 (0.26)	0.14 (0.25)
Log (number of gr. 'const.' play occurrences per subject)	0.53 (0.35)	0.57 (0.34)
Log (number of gr. 'dram.' play occurrences per subject)	0.79 (0.34)	0.73 (0.44)
Log (number of gr. 'games-with-rules' play occurrences per subject)	0.17 (0.25)	0.26 (0.29)
Log (number of pos./ pros. interactions per subject)	0.69 (0.19)	0.66 (0.32)
Log (number of neg./ agg. interactions per subject)	0.23 (0.24)	0.14 (0.20)

spent in a day care setting during their preschool years.

Differences between the schools

Preliminary analyses, as reported in Table 3, revealed that there were significant differences between the two schools in the study for all four group play categories as well as for positive/prosocial tone of peer interactions. Table 3 shows means and standard deviations of all variables by school along with t-values. Again, means and standard deviations of the variables before they were transformed can be found in Appendix H.

Because of these differences the analysis was done separately for each school in this study. It is unfortunate that because of the necessity to analyse the schools separately, the recommended ratio of five subjects to one variable (Tabachnick & Fiddell, 1989), which was met initially when the data was analysed in a combined form, was no longer met.

School 1

The sample from the first school was comprised of 29 subjects. Of these 29 subjects, 15 (6 boys and 9 girls) attended a day care center either prior to or after kindergarten classes, and 14 (3 boys and 11 girls) returned home to either one or both parents after kindergarten classes. Table 4 shows the means and standard deviations for each of these groups along with their t-values. Means and standard deviations of the variables before the

Table 3

Means and Standard Deviations for All Variables by School.

	School 1	School 2	
Variable	Mean (St. Dev.)	Mean (St. Dev.)	t-value
	n=29	n=34	
Peer rating	2.31 (0.44)	2.33 (0.36)	-.19
SES	40.00 (14.28)	43.00 (11.52)	-.92
Log (number of mos. preschool day care)	0.41 (0.59)	0.29 (0.55)	.81
PPVT-R scores	99.13 (19.21)	103.44 (19.96)	-.87
Log (number gr. 'func.' play occurrences)	0.33 (0.29)	0.01 (0.07)	5.60**
Log (number gr. 'const.' play occurrences)	0.37 (0.27)	0.70 (0.33)	-4.26**
Log (number gr. 'dram.' play occurrences)	0.99 (0.27)	0.56 (0.39)	4.99**
Log (number 'games-with-rules' play occurrences)	0.30 (0.28)	0.16 (0.26)	1.99*
Log (number of pos./pros. interactions)	0.81 (0.19)	0.56 (0.28)	3.99**
Log (number of neg./agg. interactions)	0.22 (0.26)	0.14 (0.18)	1.48

* $p < .05$
** $p < .001$

Table 4

Means and Standard Deviations for All Variables by Care Arrangement for School 1.

Variable	Day care Mean (St. Dev.)	Home Mean (St.Dev.)	t-value
	n=15	n=14	
Peer rating	2.20 (0.43)	2.42 (0.44)	1.34
SES	41.13 (12.17)	38.78 (16.64)	-.44
Log (number of mos. preschool day care)	11.13 (10.35)	0.00	**
PPVT-R scores	97.20 (21.70)	101.21 (16.70)	.56
Log (number gr. 'func.' play occurrences)	0.30 (0.30)	0.35 (0.28)	.41
Log (number gr. 'const.' play occurrences)	0.34 (0.24)	0.41 (0.29)	.72
Log (number gr. 'dram.' play occurrences)	0.96 (0.20)	1.03 (0.33)	.71
Log (number 'games-with-rules' play occurrences)	0.21 (0.26)	0.39 (0.28)	1.71
Log (number of pos./pros. interactions)	0.73 (0.15)	0.89 (0.20)	2.43*
Log (number of neg./agg. interactions)	0.29 (0.27)	0.16 (0.24)	-1.35

* $p < .05$
** $p < .001$

transformation can be found in Appendix H.

As can be seen in Table 4, only two variables yield significant differences between the day care and home groups. The day care group had significantly more preschool day care experience than did the home care group. The second finding reveals that the home-reared group engaged in significantly more positive/prosocial peer interactions than did the day care group.

Positive/prosocial tone of interactions, past day care experience, and current child care arrangement

As a significant difference was found between the positive/prosocial tone of peer interactions for the home care and day care sample of School 1, the relationship which exists between SES, PPVT-R scores, number of months spent in preschool day care, current child care arrangement, and positive/prosocial tone of peer interactions was explored. First, Pearson product-moment correlation coefficients were examined. As can be seen in Table 5, a significant negative correlation exists between the positive/prosocial tone of peer interactions and the number of months spent in preschool day care.

A two-step hierarchical multiple regression analysis was performed to discover whether current child care arrangement added to the prediction of positive/prosocial tone of peer interactions above and beyond that which was predicted by the control variables.

Table 5

Pearson Correlations Between Positive/Prosocial Tone and Other Variables for School 1.

	Positive/Prosocial Tone
SES	0.15
PPVT-R scores	0.18
Log (number of mos. in preschool day care)	-0.45*
Log (group functional play)	0.10
Log (group constructive play)	0.17
Log (group dramatic play)	0.27
Log (group games-with-rules play)	0.16

* $p < .01$

Socioeconomic status, PPVT-R scores, and the number of months of preschool day care experience were entered concurrently on the first step and current child care arrangement was entered on the second step. As indicated in Table 6, SES, PPVT-R scores, and the number of months of preschool experience accounted for a significant proportion of the variance in predicting the positive/prosocial tone of peer interactions ($\underline{R}^2$=.27, $\underline{F}$(3,25)=3.23, $\underline{p}$<.05). On the second step, current child care arrangement did not significantly increase the proportion of explained variance.

The standardized regression coefficient (Beta), semi-partial correlations squared ($\underline{sr}^2$), and $\underline{R}^2$ for the regression are presented in Table 6. The squared semi-partial correlations show the unique variance contributed by each variable separately. The number of months in preschool care is the only variable which demonstrated significant unique predictive variance over and above the other two predictors.

The same analysis was repeated in School 2 to determine whether the results would be replicated. First, Pearson product-moment correlations were surveyed. As is reported in Table 7, none of the variables yielded significant correlations with positive/prosocial tone of peer interactions.

A two-step hierarchical regression was performed to determine whether the current child care arrangement in the

Table 6

Staged-hierarchical Regression Predicting Positive/Prosocial Tone for School 1.

Variable	Beta	sr^2	
Step 1			
SES	.27	.06	
PPVT-R Scores	.01	.00	
Log (mos. in preschool day care)	-.51 **	.22	
			R^2= .27 *
Step 2			
SES	.25	.05	
PPVT-R scores	.03	.00	
Log (mos. in preschool day care)	-.38	.06	
Current child care arrangement	-.17	.00	
			R^2= .29

* p < .05
** p < .01

Table 7

Pearson Correlations Between Positive/Prosocial Tone and Other Variables for School 2.

	Positive/Prosocial Tone
SES	-0.10
PPVT-R scores	-0.26
Log (number of mos. in preschool day care	0.02
Log (group functional play)	0.28
Log (group constructive play)	-0.12
Log (group dramatic play)	-0.12
Log (group games-with-rules play)	-0.18

second school added to the proportion of variance beyond that which was predicted by the control variables. Results from Table 8 indicate that none of the variables significantly predicted positive/prosocial tone of peer interactions.

School 2

The sample from the second school consisted of 34 subjects. Thirteen of these subjects (7 boys and 6 girls) attended a day care center either on- or off- school premises before or after attending kindergarten classes. Twenty-one of the subjects stayed home (14 boys and 7 girls) with either one or both of their parents before or after attending kindergarten classes. The means, standard deviations, and t-values of all variables can be found in Table 9. The means and standard deviations of the variables before they were transformed can be found in Appendix H.

As shown in Table 9, the day care and home groups differed significantly on only one variable. The day care group had a significantly higher peer rating score than the home-reared group. In contrast from the sample from School 1, the day care children from School 2 tested higher on PPVT-R scores and engaged in more group functional, constructive, and dramatic play than did the home-reared group. The day care group in School 2 also had more positive and negative interactions with their peers.

Table 8

Staged-hierarchical Regression Predicting Positive/Prosocial Tone for School 2.

Variable	Beta	sr^2	
Step 1			
SES	-.10	.01	
PPVT-R scores	-.28	.07	
Log (mos. in preschool day care)	.12	.01	R^2= .08
Step 2			
SES	-.07	.00	
PPVT-R scores	-.29	.07	
Log (mos. in preschool day care)	.05	.00	
Current child care arrangement	.23	.05	R^2= .14

Table 9

Means and Standard Deviations for All Variables by Care Arrangement for School 2.

Variable	Day care Mean (St. Dev.)	Home Mean (St.Dev.)	t-value
	n=13	n=21	
Peer rating	2.50 (0.37)	2.22 (0.32)	-2.31*
SES	41.53 (18.43)	43.90 (13.19)	.58
Log (number mos. preschool day care)	7.23 (11.51)	3.09 (9.40)	-1.14
PPVT-R	105.46 (15.50)	102.19 (22.56)	-.46
Log (number gr. 'func.' play occurrences)	0.04 (0.11)	0.00	-1.48
Log (number gr. 'const.' play occurrences)	0.75 (0.32)	0.67 (0.34)	-.66
Log (number gr. 'dram.' play occurrences)	0.59 (0.38)	0.54 (0.40)	-.42
Log (number 'games-with-rules' play occurrences)	0.12 (0.24)	0.18 (0.27)	.62
Log (number of pos./pros. interactions)	0.65 (0.22)	0.51 (0.30)	-1.38
Log (number of neg./agg. interactions)	0.16 (0.19)	0.13 (0.17)	-.53

* $p < .05$

Peer rating, complexity of play styles, and tone of interactions

In order to explore the significant difference in peer rating found in School 2, Pearson product-moment correlation coefficients were examined to determine the relationship between SES, PPVT-R scores, number of months spent in preschool day care, complexity of group play, and tone of peer interactions. As can be seen in Table 10, none of the variables are significantly correlated with peer rating. No further analysis was therefore explored.

The analysis was repeated for School 1 in order to determine whether a relationship existed between complexity of group play styles, tone of peer interactions, and peer rating in that sample. Pearson product-moment correlation coefficients were examined. Results which can be found in Table 11 show that, as with School 2, there were no significant relationships between peer rating scores and the other variables. Again, no further analysis was pursued.

Relationship between observations and teacher ratings

The second goal of this study was to examine the relationship which existed between the observed behaviors in the classroom as rated by neutral researchers and the teacher ratings of the children's behavior. A study by Vlietstra (1981) found that teachers and observers differed in the labels used for the behaviors they observed. That is, what teachers tended to label as aggressive behavior,

Table 10

Pearson Correlations Between Peer Rating and Other Variables for School 2.

	Peer Rating
SES	0.19
PPVT-R scores	0.32
Log (number of mos. preschool day care)	-0.28
Log (group functional play)	-0.18
Log (group constructive play)	0.16
Log (group dramatic play)	0.26
Log (group games-with-rules play)	-0.07
Log (positive/prosocial interactions)	0.17
Log (negative/aggressive interactions)	-0.17

Table 11

Pearson Correlations Between Peer Rating and Other Variables for School 1.

	Peer Rating
SES	0.09
PPVT-R scores	0.11
Log (number of mos. in preschool day care)	-0.02
Log (group functional play)	0.08
Log (group constructive play)	0.16
Log (group dramatic play)	-0.15
Log (group games-with-rules play)	-0.08
Log (positive/prosocial interactions)	0.24
Log (negative/aggressive interactions)	0.26

observers did not. Correlations were used in order to examine this relationship. Due to the differences outlined earlier in tone of peer interactions in each school, and due to the composition whereby there was an almost inverse proportion of boys and girls in each school (i.e., School 1 had 9 boys and 20 girls, and School 2 had 21 boys and 13 girls), correlations were run separately by school. Results from School 1, as demonstrated in Table 12, indicated a high positive correlation between behaviors which were labeled as negative/aggressive by the observers and teacher ratings of aggressive behavior. A moderately high positive correlation existed between negative/aggressive behaviors observed by researchers and the teachers' ratings of rejection. That is, children who were seen by observers as having negative/aggressive interactions were rated by the teachers as being rejected among the peer group. Finally, moderate negative correlations were found between negative/aggressive behaviors observed by the researchers and teacher ratings of peer relations as well as between the teacher ratings of whether or not children were liked by their peers.

Results in School 2, as can be seen in Table 13, were not replicated. Although there was a moderately low positive correlation between observed negative/aggressive behaviors and teacher ratings of aggressive behavior, this was significant only at the .10 level. As well, a moderately low negative correlation was found between

Table 12

Pearson Correlations Between Teacher Ratings and Observational Categories for School 1.

	Teacher Ratings			
Observational Categories	Peer Relations	Aggression	Rejection	Liked
Log (pos./pros. interactions)	.02	-.02	-.03	.05
Log (neg./agg. interactions)	-.42*	.47***	.45**	-.42*

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

Table 13

Pearson Correlations Between Teacher Ratings and Observational Categories for School 2.

	Teacher Ratings			
Observational Categories	Peer Relations	Aggression	Rejection	Liked
Log (pos./pros. interactions)	.00	.05	-.01	-.06
Log (neg./agg. interactions)	-.28*	.30*	-.09	-.21

* $p < .10$

observed negative/aggressive behaviors and teacher ratings of peer relations. Again, this is only significant at the .10 level. No other teacher rating correlated significantly with observed negative/aggressive behavior, and the correlations which were significant were weaker than in School 1. As with School 1, none of the teacher ratings correlated significantly with observed positive/prosocial behaviors.

DISCUSSION

The first purpose of this study was to explore the relationship which existed between the popularity of children who attended after-school day care centers concurrently with kindergarten and that of children who returned home to their parent(s) after the formal school day ended. The second aim was to examine the congruence of teacher ratings of children's tone of peer interactions and neutral observers ratings of peer interactions.

The most significant finding to emerge from this investigation was the magnitude of the difference in complexity of group play styles and positive/prosocial tone of peer interactions between the two schools under study. This indicated that the environment in which the children were placed had an impact on their behaviors.

A possible reason that the schools differed as to the complexity of group play variable could be due to the material available in the classroom. Rubin et al. (1983) reported that even when children are involved in a 'free play' period, they are limited in their choice of play by the materials which are supplied by the teacher. The materials that were available in the classrooms of these two schools did in fact seem to have an effect on the children's play behavior. School 1, in which subjects displayed a significantly greater amount of functional play, had toys which favored this type of activity. For example, each classroom was equipped with a few toy cars on which the

children could and did ride back and forth without any organized theme to their play. School 2 did not have any toys which encouraged this type of activity. Also, School 1, in which subjects displayed significantly more dramatic play, had an area in each of the classrooms that was designated as the 'dramatic play center'. These centers were equipped with toy stoves, refrigerators, tables and chairs, etc. which were installed permanently and which were always available to the children during the free play period. School 2 had no such designated area available on an on-going basis. Also, School 2, in which the subjects exhibited a significantly greater amount of group constructive play, had more toys available which encouraged this type of activity. They had many different types of blocks, Lego, and coloring books available, whereas School 1 had only a few puzzles and wooden blocks available during free play periods.

Another possible reason for the significant difference in the complexity of group play categories could be due to the inverse proportion of boys and girls in each school. Past research has shown that boys and girls engage in different types of play (Moore et al., 1974; Rubin et al., 1976, 1978). Moore et al. (1974) reported that girls tended to engage in more educational, sedentary play than did boys. Rubin et al. (1976) found that boys displayed significantly more solitary-functional and associative-dramatic play

behaviors and significantly less solitary-constructive and parallel-constructive play behaviors than did girls. This variation in the way that boys and girls play could account for the significant difference in complexity of group play between the two schools. It is unfortunate that the sample size of this study was too small to permit a meaningful investigation of these sex differences.

The extent to which the two schools differed on positive/prosocial tone of peer interactions could also be explained by the inverse proportion of boys and girls in each school (School 1 had twenty girls and nine boys, whereas School 2 had thirteen girls and twenty-one boys). Past research has found that boys and girls interact differently (Goodenough-Pitcher & Hichey-Schultz, 1983; Maccoby & Jacklin, 1974). If indeed girls are more positive and boys more negative in their interactions, this could have had an effect on the overall number of instances of positive/prosocial tone of peer interactions in the two schools. However, it would seem reasonable to assume that this inverse proportion of boys and girls would also have affected the number of negative/aggressive tone of peer interactions, which was not the case. As was reported by Holloway & Reichhart-Erickson (1988) in their study, measurement difficulties in this sample may have been responsible for the absence of significant differences in negative/aggressive tone. On the whole these interactions

occurred so infrequently that they may not have been recorded by the observers when they did occur. The way that the time sampling method works, the researchers may not have been focusing on the particular child at the exact time when he/she exhibited aggressive behavior.

Factors related to positive/prosocial tone of interactions

Amount of day care experience is a factor thought to be related to exhibiting more positive peer interactions (Field et al., 1988; Schindler et al., 1987: Vlietstra, 1981). Results from a hierarchical regression analysis revealed that, in School 1, the number of months of preschool day care experience significantly accounted for the variance in positive/prosocial peer interactions.

The findings revealed that the more day care experience that the children had had as preschoolers, the less positive they were in their interactions with their peers. This conclusion is contrary to the findings of many studies which reported on day care attendance and tone of peer interactions. These studies indicated that day care children were either more positive or not different in their interactions with their peers than children without day care experience (Field et al., 1988; Hegland & Rix, 1990; Larner et al., 1989; Moore et al., 1988; Schindler et al., 1987; Vlietstra, 1981). However, the findings of this study were consistent with Vandell & Corasaniti's (1990) results which indicated that past child care history was the single best

negative predictor of children's peer relationships. Vandell & Corasaniti speculated that lower child care quality may have accounted for this since the state in which their study took place had only minimal child care standards. This explanation could also account for the findings of the present study. That is, it is possible that the centers in which the children in this investigation were enrolled as preschoolers were of low quality which resulted in these children exhibiting more negative interactions when they reached kindergarten. As the data on child care history was collected many months after the children had actually attended the day care center, an accurate assessment of day care quality was not possible.

It is also possible that the difference in School 1 stems from the fact that the home care sample had not had any type of preschool day care experience, and that some of their behaviors with their peers were in fact more positive/prosocial than those of the day care sample. In School 2, although day care children had experienced more months of preschool day care than the home children, the home children had experienced a certain amount of preschool day care. This slight exposure to day care in their preschool years may have accounted for a decrease in incidence of positive/prosocial behavior which rendered the difference between the home and day care groups in School 2 insignificant.

Another reason that there was a difference in positive/prosocial tone of peer interactions in School 1, but not in School 2, could again be due to the ratio of boys to girls in each group. The home care sample for School 1 was comprised of eleven girls and three boys, whereas the home care sample for School 2 was comprised of seven girls and fourteen boys. Given that girls are more positive in their interactions (Goodenough-Pitcher & Hickey-Schultz, 1983; Maccoby & Jacklin, 1974), this may account for the higher mean of positive/prosocial tone of peer interactions for the home sample in School 1.

Factors related to popularity

One goal of this study was to examine the difference in popularity ratings of day care-reared groups with those of home-reared groups based on complexity of play styles and tone of peer interactions. Although no significant difference in peer rating between the day care-reared and home-reared group was found in School 1, a significant difference was found in School 2. However, when the relationship which existed between complexity of group play behaviors and popularity, and between tone of peer interactions and popularity was examined, no significant correlations were discovered.

There are a number of possible explanations for the fact that no relationship was found between complexity of group play styles and popularity or between tone of peer

interactions and popularity. First, the small sample size of this study may have been responsible for the lack of findings. Second, other factors in this sample which were not controlled may have actually accounted for the prediction of popularity. Complexity of play and tone of interactions are but two of the many correlates which have been found to predict popularity. Nonbehavioral correlates such as birth order (Miller & Maruyama, 1976), name (McDavid & Harari, 1966), or physical attractiveness (Dion & Berscheid, 1974; Lerner & Lerner, 1977), as well as behavioral correlates such as self-esteem (Helper, 1958; Withycombe, 1973) have also been found to be predictors of popularity. Some of these variables may have been stronger predictors of popularity in this sample than were complexity of group play styles and tone of peer interactions.

Comparison of teacher ratings and natural observations

Past research has produced conflicting results when both natural observations and teacher ratings were used to assess negative or aggressive tone of peer interactions (Field et al., 1988; Vlietstra, 1981). In addition, conflicting results were found amongst studies which have assessed aggressive behavior using teacher ratings only and those that have used observations only (Haskins, 1985; Raph et al., 1967; Rubenstein & Howes, 1979; Schwarz et al., 1974). Hegland & Rix (1990) have suggested that this discrepancy may be the result of the teachers and observers

not agreeing on the definition of aggression. In the present study, however, it was found that children who were rated by the researchers as being more aggressive were also labeled by the teachers as being more aggressive. This may be due to the fact that a concerted effort was made to clarify the meaning of aggression for both the teachers and the observers. The questions on the rating scale used by the teachers clearly depicted acts of aggression, and the observers were rating anti-social behaviors which were distinctly negative or aggressive in nature (e.g., hitting, kicking, pushing, or threatening). Therefore, the likelihood of confusion between assertive and aggressive behaviors was minimal.

This distinction between assertive and aggressive behaviors is critical when studying a group of experienced day care children. Hegland & Rix (1990) suggested that children who have extensive group experience begin their formal schooling with more confidence and hence are more assertive than children without group experience. Consequently, to ensure accurate results the differentiation between aggressive and assertive behaviors must be well established prior to the teachers' rating of the children. The consistency of the ratings in this study indicates that the questionnaire addressed this issue successfully.

Directions for future research

The finding of the difference between the schools for

all of the variables under study underlines the importance of looking at homogeneous environments when studying children's behavior. Different environments may encourage different behaviors, and combining different environments in an analysis would make it difficult to ensure that any significant differences which were reported were actually due to the independent variables and not to the different environments. This problem might be overcome by having researchers rate the environment for homogeneity prior to data collection.

Although there were no overall significant differences in popularity between the children who attended day care centers concurrently with kindergarten and children who returned home to their parent(s) after kindergarten class was over, the profile of the day care child did appear to differ from that of the home-reared child. Day care children in this sample had entered group care at a younger age (mean = 40.78 months compared to 51.80 months for the home group), they had experienced a greater number of different types of care during their preschool years (mean = 2.10 types compared to 1.14 types for the home group), and they had experienced more changes in the types of care that they received during their preschool years (mean = 1.53 changes compared to 0.31 changes for the home group). This highlights the importance of taking into account the day care history of children when studying their

behaviors in current care arrangements. It is inevitable that children are affected by the experiences which they have at every age. This fact needs to be taken into account if valid results are to be obtained when studying their behavior.

A significant variable which should be taken into consideration in future studies when comparing day care-reared and home-reared groups is that of the family environment. Studies have shown that families who selected different types of child care arrangements often differed in their child-rearing values (Phillips et al., 1987), level of family stress (Howes & Olenick, 1986), level of education of the parents (Andersson, 1989), social class (Vandell et al., 1988), and in marital status (Andersson, 1989; Goelman & Pence, 1987). The identification and quantification of these differences require further development.

It would be instructive to replicate this study using a larger sample size in order to be able to examine possible sex differences. Longitudinal studies which would permit the researcher to evaluate the quality of the day care settings attended by the subjects as infants and preschoolers might help to determine what effects these environments have on the children upon entering the formal school system.

After-school day care has not received much attention from researchers. Children who attend a day care center in

addition to attending kindergarten classes must deal with the particular rules of each setting. It seems inevitable that they would be affected by the variation between these two environments. Determining which aspects of children's behavior are affected most significantly by this variation is another interesting subject for future study. Although the day care-reared group and the home-reared group in this study did not differ dramatically, it must be kept in mind that the small sample size may have accounted for the absence of differences, and that larger samples could have revealed more pronounced differences.

Summary

Results from this study indicated that the environment in which children were placed had an impact on their behaviors. This fact should always be taken into consideration when examining children's behavior. Results also indicated that the amount of day care experience had an effect on positive/prosocial peer interactions. That is, children who had months of preschool day care experience exh less positive/prosocial tones of peer interactions tha ildren who had fewer months of preschool day care experience. It was found that tone of peer interactions and complexity of group play were not related to children's popularity. Finally, the study showed that children who were rated as aggressive by their teachers were also rated as aggressive by neutral observers.

Although this sample did not reveal any significant correlation between tone of peer interactions and popularity, past research has reported such a relationship (Coie & Kupersmidt, 1983; McGuire, 1973; Rubin, 1983; Rubin & Daniels-Beirness, 1983). In light of these findings and the findings of this study which revealed that, in one of the two schools, children who had more months of preschool day care experience had less positive/prosocial tone of peer interactions, it may be interesting to kindergarten teachers to monitor these children's peer interactions in order to help those who appear to have more troubled interactions.

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APPENDIX A

Letters of explanation and consent form

Le 6 novembre, 1989

Cher Monsieur,

Nous préparons présentement un projet de recherche qui sera l'une des parties d'un projet conjoint de recherche dirigé par les chercheures suivantes: Dr. Raquel Presser de l'Université de Montréal, Dr. Madeleine Baillargeon de l'Université Laval, ainsi que Dr. Donna White et Prof. Ellen Jacobs, toutes deux de l'Université Concordia. Cette recherche est subventionnée par le Ministère de Santé et Bien-être Social du Canada et le Ministère de l'Education du Québec.

Nous vous écrivons dans le but d'obtenir l'autorisation de mener notre projet de recherche au sein de votre école. Notre étude, dirigée par Ellen Jacobs et coordonnée par Louise Chartrand, s'intéresse aux effets de l'environnement du service de garde sur le développement social des enfants de maternelle.

Si vous acceptez notre projet, nous vous rencontrerons ainsi que les enseignantes de votre école et les éducatrices du service de garde pour mieux vous expliquer le projet et répondre à vos questions à ce sujet. Ceci fait, nous ferons parvenir aux parents la lettre, le feuillet d'information à propos du projet et le formulaire de participation ci-joints et les inviterons à nous retourner le formulaire dûment rempli autorisant leur enfant à participer au projet de recherche.

Dans ce projet, les enfants prendront part individuellement à une ou deux sessions d'environ 20 minutes chacune où ils recevront différentes mesures portant sur l'expression orale, leur auto-perception de compétence sociale et d'acceptation. (Vous trouverez, ci-joint, une courte description de ces mesures). De plus, nous aimerions aussi voir des groupes de trois enfants pour des périodes de jeux de 15 minutes qui seraient enregistrées sur magnétophone. Nous souhaitons aussi observer dans la classe de maternelle et en service de garde. Ces observations de l'enfant ne requièrent que la présence discrète d'une observatrice à plusieurs occasions et peuvent être fixées selon les exigences des enseignantes et du personnel de service de garde. Ces observations nous permettront

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d'étudier les rapports sociaux de l'enfant ainsi que l'environnement dans lequel il évolue.

De plus, les enseignantes de maternelle auraient à remplir un questionnaire portant sur le comportement en classe des enfants participants. (Vous trouverez, ci-joint, un exemplaire du questionnaire). Les parents seraient invités à participer à une entrevue téléphonique portant sur leur état civil, leur occupation et le nombre d'enfants dans leur famille.

En tant que chercheures et professionnelles dans la formation d'enseignants, nous souhaitons promouvoir une évolution rapide des services de garde en milieu scolaire et l'intégration de ces services aux programmes d'éducation. Nous n'avons que très peu d'information sur l'effet de tels services sur le développement de l'enfant et cette étude nous permettra de mieux comprendre le rôle que ces services jouent dans la croissance sociale de l'enfant et dans son ajustement au programme de maternelle. Ainsi, les informations obtenues par le biais de ce projet devraient fournir les bases d'une bonne organisation des services de garde en milieu scolaire et bénéficier tant aux enseignantes et aux éducatrices qu'aux enfants et à leurs familles.

Le temps requis pour obtenir les données du projet dépendra du nombre de famille qui participeront au projet et de la disponibilité des participants. Nous estimons cependant nécessiter environ de un à deux mois de travail pour la cueillette des données. Nous réalisons que la participation d'une école à un tel projet est une charge supplémentaire pour les enseignantes et éducatrices qui sont déjà très occupées. Nous entendons faire tout ce qui est possible pour ne pas déranger leur horaire et faire notre travail sans les importuner. En ce qui concerne les enfants et leurs parents, nous avons beaucoup d'expérience face aux techniques d'entrevue et d'évaluation que nous utilisons et avons souvent observé que la plupart des enfants et des parents apprécient leurs sessions avec les chercheures.

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Si vous avez des questions au sujet de notre projet ou du programme de recherche, veuillez communiquer avec Louise Chartrand, attachée de recherche au 848-2256 ou Prof. Ellen Jacobs, directrice du projet de recherche au 848-2016. Nous vous remercions à l'avance et vous prions de croire, Monsieur, à l'expression de nos sentiments les plus respectueux.

Louise Chartrand, Attachée de recherche
Ellen Jacobs, Directrice du projet de recherche

Pièces jointes.
EJ/lc

FEUILLET D'INFORMATION AUX PARENTS

Les enfants participant au projet rencontreront individuellement une assistante de recherche pour deux courtes sessions d'environ 20 minutes. Pendant ces rencontres, nous étudierons l'expression orale de l'enfant ainsi que son auto-perception de son développement social. Un photographe professionnel viendra prendre la photo des enfants de la classe. Ces photos seront utilisées pour aider les enfants participants à nous indiquer ceux avec qui ils partagent leurs jeux. Les enfants pourront garder leur photo après avoir terminé cet exercice. Nous souhaitons ensuite voir des groupes de trois enfants pour des périodes de jeux de 15 minutes afin d'enregistrer leurs interactions sur magnétophone. Nous ferons aussi des observations en classe et au service de garde, si cela s'applique. Ces observations ne requièrent aucune participation active de l'enfant. Enfin, nous demanderons à l'enseignante et, si cela s'applique, l'éducatrice du service de garde, de remplir un questionnaire concernant le développement social des enfants qui participent au projet. Toutes les données recueillies resteront strictement confidentielles.

Notre expérience en recherche auprès des enfants a toujours été que les enfants appréciaient beaucoup les rencontres avec les chercheures et se sentaient même privilegiés d'être parmi ceux qui avaient la possibilité de participer au projet.

Cette recherche est subventionnée par le Ministère de Santé et Bien-être Social du Canada et par le Ministère de l'Education du Quebec.

Encore une fois, n'hésitez pas à contacter Louise Chartrand au 848-2256 ou Prof. Ellen Jacobs au 848-2016 si vous souhaitez obtenir plus d'informations au sujet de ce projet.

FORMULAIRE DE PARTICIPATION

J'ai pris connaissance de la description du projet de recherche et j'en comprends les objectifs et la méthodologie. J'accepte que mon enfant_____ (nom de l'enfant) participe à ce projet de recherche. J'accepte aussi que vous communiquiez avec son enseignante et/ou son éducatrice pour lui demander de remplir un questionnaire portant sur le développement social de mon enfant.

Nom de l'école de l'enfant:_____
Votre nom:_____
Lien de parenté avec l'enfant:_____
Signature:_____

Nous aimerions pouvoir entrer en contact avec vous pour compléter nos données sur votre occupation, votre état civil, le nombre d'enfants dans votre famille, etc... Veuillez, s'il-vous-plaît, indiquer votre adresse et numéro de téléphone. Nous communiquerons avec vous d'ici peu. Merci.

Adresse:_____
_____
_____

Téléphone:_____

Désirez-vous une copie des résultats lorsqu'ils seront publiés? oui_____ non_____

APPENDIX B

Hollingshead Four Factor Index of Social Status (1975)

Hollingshead Four Factor Index of Social Status (1975)

SES Computation

EDUC (Education, years completed)

1 = less than 7th grade
2 = junior high (grade 7,8/ Secondary 1,2)
3 = partial high school (grade 9,10/ Secondary 3,4)
4 = high school graduate (grade 11,12/ Secondary 5)
5 = partial college (minimal 1 year/college finished/specialized training)
6 = standard University graduation (B.A.)
7 = graduate professional training (graduate degree)

FOCCUP: Father's occupation
MOCCUP: Mother's occuaption

FEDUC: Father's education
MEDUC: Mother's education

IF single income family:

SES = (OCCUP x 5) + (EDUC x 3)

IF double income family:

SES = [(FOCCUP x 5) + (FEDUC x 3) +
(MOCCUP x 5) + (MEDUC x 3)]/2

APPENDIX C

Child care history questionnaire

QUESTIONNAIRE D'INFORMATION GENERALE
ETUDE SUR LES SERVICES DE GARDE

Nom de l'enfant:_____
Nom du parent:_____
Nom de l'école:_____
Année à l'école:_____ Interviewer:_____
Durée de l'entrevue:_____ Date:_____

Arrangements de Garde Présents:

Expérience Antérieure:

De 0 à 1 an:

De 1 à 2 ans:

De 2 à 3 ans:

De 3 à 4 ans:

De 4 à 5 ans:

Première Expérience de Groupe de l'Enfant:

Age de l'enfant lors de son premier groupe:_____
Date de naissance de l'enfant (jour, mois, année):_____

La Famille:

Qui d'autre que vous et (nom de l'enfant) habite chez vous?
Conjoint?_____
Autres enfants?_____
Si oui, quels sont leurs noms et leurs âges?
1._____
2._____
3._____
4._____
Autres personnes habitant à la maison_____
_____
Est-ce que les autres enfants qui habitent à la maison avec vous fréquentent le même, ou un autre service de garde que (nom de l'enfant)?_____

Information sur le Niveau Socio-économique de la Famille:

Quel est votre emploi?_____
Quelles sont vos tâches principales?_____
_____
Quel est l'emploi de votre conjoint?_____
Quelles sont ces tâches principales?_____
_____
Quel est le niveau de scolarité le plus élevé que vous avez atteint?_____
Votre conjoint?_____

Est-ce que le français est la langue la plus parlée à la maison?_____
Si non, laquelle?_____
Quelle est votre langue maternelle?_____
Votre conjoint?_____

APPENDIX D

Vandell rating scale for classroom teacher

ECHELLE VANDELL -- CLASSE

Nom de l'enfant:_____ Sexe:_____
Ecole:_____ Classe:_____
Date:_____

Instructions:

Les items suivants concernent le comportement de l'enfant en classe. Veuillez faire une croix sur le chiffre qui représente le mieux vos observations et impression de cet enfant pendant le mois qui vient de s'écouler.

Exemple:

Joue seul	1	2	3	4	5	Joue avec d'autres enfants

Si cet enfant joue presque toujours seul, faites une croix sur le 1. S'il joue habituellement seul, faites une croix sur le 2. S'il joue à peu près la moitié du temps seul et la moitié du temps avec les autres, faites une croix sur le 3. Faites une croix sur le 4, s'il joue habituellement avec les autres. Faites une croix sur le 5 s'il joue presque toujours avec d'autres enfants.

Veuillez compléter les items suivants:

1.	Taquine les autres enfants	1	2	3	4	5	Ne taquine pas les autres enfants
2.	Attend que ses compagnes/compagnons de classes l'approchent	1	2	3	4	5	Fait elle/lui-meme les premiers contacts avec ses compagnons/compagnes de classe
3.	Est facilement distrait/e de son travail	1	2	3	4	5	Se concentre durant les classes
4.	Est cachottier/ère en ce qui concerne ses activités	1	2	3	4	5	Est ouvert/e et honnête avec les autres
5.	Est rebel/le en classe	1	2	3	4	5	Coopère en classe et est obéissant/e
6.	Sourit	1	2	3	4	5	Fait la moue et des grimaces

7.	Ne partage pas jeux, jouets et matériaux	1	2	3	4	5	Partage jeux, jouets et matériaux
8.	Joue avec les autres enfants	1	2	3	4	5	Joue seul/e
9.	Ne menace pas verbalement les enfants	1	2	3	4	5	Menace verbalement les enfants
10.	Est alerte	1	2	3	4	5	Est 'dans la lune'
11.	N'aide pas les autres enfants	1	2	3	4	5	Aide les autres enfants
12.	Résoud lui/elle-même ses conflits	1	2	3	4	5	Demande l'aide de l'enseignante pour résoudre ses conflits
13.	N'écoute pas quand d'autres enfants lui parlent	1	2	3	4	5	Ecoute quand les autres enfants lui parlent
14.	Est craintif/ve et a peur du nouveau	1	2	3	4	5	N'est pas craintif/ve et n'a pas peur du nouveau
15.	Montre de l'intérêt et participe	1	2	3	4	5	Est apathique et renfermé/e
16.	Ne donne pas de coups de poings, de coups de pied et ne mord pas les autres enfants	1	2	3	4	5	Donne des coups de poings et des coups de pied et mord les autres enfants
17.	Ignore les invitations à jouer des autres enfants	1	2	3	4	5	Accepte les invitations à jouer des autres enfants
18.	Est indépendant/e de l'enseignante	1	2	3	4	5	Cherche à être près de l'enseignante
19.	Respecte la propriété des autres	1	2	3	4	5	Détruit la propriété des autres
20.	Parle aux autres enfants	1	2	3	4	5	Ne parle pas aux autres enfants
21.	Ne persiste pas lorsqu'il/elle joue des jeux	1	2	3	4	5	Persiste lorqu'il/elle joue des jeux

22. Est malheureux/se et mécontent/e	1	2	3	4	5	Est content/e et heureux/se
23. Attend son tour pour utiliser du matériel ou des jouets	1	2	3	4	5	N'attend pas son tour pour utiliser du matériel ou des jouets
24. Se bagarre avec les les autres enfants	1	2	3	4	5	Ne se bagarre pas avec les autres enfants
25. Ne respecte pas les règlements	1	2	3	4	5	Respecte les règlements
26. Est 'porte-panier'	1	2	3	4	5	N'est pas 'porte-panier'
27. Est extraverti/e	1	2	3	4	5	Est introverti/e
28. Maîtrise rapidement de nouveaux sujets	1	2	3	4	5	Est lent/e à maîtriser de nouveaux sujets
29. Persiste jusqu'à ce que son travail soit terminé	1	2	3	4	5	Abandonne son travail aussitôt qu'un problème se présente
30. Est très désorganisé/e	1	2	3	4	5	Est très organisé/e
31. Résiste aux changements d'activités	1	2	3	4	5	Passe facilement d'une activité à une autre
32. Est difficile à discipliner	1	2	3	4	5	Est facile à discipliner
33.*Déplaît aux autres enfants	1	2	3	4	5	Ne déplaît pas aux autres enfants
34.*A confiance en lui/elle	1	2	3	4	5	Est facilement blessé/e par les remarques des autres
35.*Ne dérange pas les autres	1	2	3	4	5	Dérange les autres
36.*Se fâche facilement	1	2	3	4	5	Ne se fâche pas facilement

37.*A plusieurs amis/es	1	2	3	4	5	A peu d'amis/es
38.*Est aimé/e des autres enfants	1	2	3	4	5	N'est pas aimé/e des autres enfants
39.*N'est pas beaucoup remarqué/e	1	2	3	4	5	Est remarqué/e
40.*Les autres l'évitent	1	2	3	4	5	Les autres ne l'évitent pas
41.*Accepte les suggestions de l'enseignante	1	2	3	4	5	Rejette les suggestions de l'enseignante
42.*Est rejeté des autres enfants	1	2	3	4	5	Est accepté/e
43.*N'est pas choisi/e comme compagnon/compagne de jeux	1	2	3	4	5	Est souvent choisi/e comme compagnon/compagne de jeux
44.*Est invité/e à jouer avec les autres	1	2	3	4	5	N'est pas invité/e à jouer

APPENDIX E

Recording sheet for observations

Name:_____ Observation Day:_____
Date:_____ # Children:_____
Observer:_____ School:_____

ACTIVITY / Social Levels / Cognitive levels	Solitary	Parallel	Group
PLAY — Functional			
PLAY — Constructive			
PLAY — Dramatic			
PLAY — Games-With-Rules			

NON PLAY	Solitary	Parallel	Group
Unoccupied			
Onlooker			

Tone

(0) neutral
(1) positive
(2) negative/aggressive
(3) prosocial

APPENDIX F

Definitions - Observation categories

Definitions

Activity:

Play: Any activity which includes all of the following characteristics: Nonlinearity (the child ignores the usual meanings of objects and uses them in new ways), intrinsic motivation (the child is internally motivated to play), process over product (the child's attention is focused on the activity itself rather than on the goal of the activity), free choice (the child must choose to do the activity as opposed to being told to do the activity), and positive affect (the child shows signs of pleasure and enjoyment) (Johnson, Christie, & Yawkey, 1987).

Non Play: "Activities which must conform to a pre-established pattern, as in academic activities, teacher-assigned tasks. Activities involving coloring books, worksheets, computers, and educational toys (shoelace boards)". (Johnson, Christie, & Yawkey, 1987, p. 150). Non play cannot have cognitive levels as these, by definition, are play levels.

Social Levels:

Solitary: "The child plays alone and independently with toys that are different from those used by the children within speaking distance and makes no effort to get close to other children. He pursues his own activity without reference to what others are doing" (Parten, 1932, p.250).

Parallel: "The child plays independently, but the activity he chooses naturally brings him among other children. He plays with toys that are like those which the children around him are using, but he plays with the toy as he sees fit, and does not try to influence or modify the activity of the children near him. He plays beside rather than with the other children. There is no attempt to control the coming or going of children in the group" (Parten, 1932, p.250).

Group: "...playing with other children; roles may or may not be assigned" (Johnson, Christie, & Yawkey, 1987, p.150).

Unoccupied: "The child apparently is not playing, but occupies himself with watching anything that happens to be of momentary interest. When there is nothing exciting taking place, he plays with his own body, gets on and off chairs, just stands around, follows the teacher, or sits in one spot glancing around the room" (Parten, 1932, p.249).

Onlooker: "The child spends most of his time watching the other children play. He often talks to the children whom he is observing, asks questions, or gives suggestions, but does not overtly enter into the play himself. The child stands or sits within speaking distance of the group so that he can see and hear everything that takes place" (Parten, 1932, p.249).

Cognitive Levels:

Functional: "Repetitive muscle movements with or without objects. Examples: Running and jumping, gathering and dumping, manipulating objects or materials, informal games" (Johnson, Christie, & Yawkey, 1987, p.150).

Constructive: "Using objects (blocks, Legos, Tinkertoys) or materials (sand, Play-Doh, paint) to make something" (Johnson, Christie, & Yawkey, 1987, p.150).

Dramatic: "Role playing and/or make-believe transformations. Examples include: a) Role playing: Pretending to be a parent, baby firefighter, shark, superhero, or monster. b) Make-believe transformations: Pretending to drive a car (arm movements) or give an injection with a pencil (object use)" (Johnson, Christie, & Yawkey, 1987, p.150).

Games-with-rules: "Recognition and acceptance of and conformity with preestablished rules. Examples include: Tag, Mother May I, marbles, and checkers" (Johnson, Christie, & Yawkey, 1987, p.150).

Tone:

Positive/ Prosocial :	The child is engaged in an activity alone or with one or more children and is displaying positive affect (i.e., smiles, gives compliments, displays affection). The child offers to help, cooperate or share with one or more other children.
Negative/ Aggressive :	The child is engaged in anti-social behavior, either alone or with one or more other children (i.e., hits, pushes, hurts, fights, insults, or threatens).
Neutral:	All behaviors in which the child is engaged either alone or with one or more other children which is not coded as positive/prosocial or negative/aggressive.

APPENDIX G

T-tests comparing for sex differences

T-tests comparing for sex differences

Variable	Boys' mean (n=30)	Girls' mean (n=33)	T-value	Significance
Peer rating	2.19	2.43	-2.51	p < .01
SES	43.26	40.12	.97	p < .33
Log (number mos. preschool day care)	0.36	0.33	.24	p < .80
PPVT-R scores	102.86	100.18	.54	p < .59
Log (number of gr. 'func.' play occurrences)	0.14	0.17	-.56	p < .57
Log (number of gr. 'cons.' play occurrences)	0.63	0.47	1.86	p < .06
Log (number of gr. 'dram.' play occurrences)	0.75	0.77	-.23	p < .82
Log (number of gr. 'games-with-rules' play occurrences)	0.18	0.25	-.98	p < .33
Log (number of pos./pros. interactions)	0.60	0.75	-2.33	p < .02
Log (number of neg./agg. interactions)	0.17	0.19	-.39	p < .70

APPENDIX H

Means and standard deviations by care arrangement, by school, and by care arrangement within each school before the variables were transformed

Means and Standard Deviations Before The Transformation of The Variables for Day Care Versus Home Care Group

	Day care	Home
Variable	Mean (St.Dev.)	Mean (St.Dev.)
	n=28	n=35
Number of mos. in preschool day care	9.32 (10.88)	1.85 (7.37)
Number of gr. 'func.' play occurrences per subject	0.89 (1.37)	0.71 (1.50)
Number of gr. 'const.' play occurrences per subject	3.71 (4.27)	3.85 (3.21)
Number of gr. 'dram.' play occurrences per subject	6.96 (4.94)	7.65 (8.10)
Number of gr. 'games-with-rules' play occurrences per subject	0.82 (1.36)	1.31 (1.58)
Number of pos./ pros. interactions per subject	4.50 (2.56)	4.97 (4.08)
Number of neg./ aggr. interactions per subject	1.00 (1.18)	0.57 (0.91)

Means and Standard Deviations Before The Transformation of The Variables By School

	School 1	School 2	
Variable	Mean (St. Dev.)	Mean (St. Dev.)	t-value
	n=29	n=34	
Number of mos. preschool day care	5.75 (9.25)	4.67 (10.29)	.44
Number of gr. 'func.' play occurrences	1.65 (1.75)	0.05 (0.23)	4.85**
Number of gr. 'const.' play occurrences	1.86 (1.80)	5.44 (4.09)	-4.59**
Number of gr. 'dram.' play occurrences	10.96 (7.49)	4.26 (4.37)	4.24**
Number of gr. 'games-with-rules' play occurrences	1.44 (1.61)	0.79 (1.34)	1.75*
Number of pos./ pros. inter-actions	6.24 (3.55)	3.50 (2.89)	3.38**
Number of neg./ aggr. inter-actions	1.03 (1.32)	0.52 (0.70)	1.84*

* $p < .10$
** $p < .001$

Means and Standard Deviations Before The Transformation of The Variables By Care Arrangement for School 1

Variable	Day care Mean (St.Dev.)	Home Mean (St.Dev.)	t-value
	n=15	n=14	
Number of mos. preschool day care	11.13 (10.35)	0.00	**
Number of gr. 'func.' play occurrences	1.53 (1.59)	1.78 (1.96)	.38
Number of gr. 'const.' play occurrences	1.53 (1.35)	2.21 (2.19)	1.01
Number of gr. 'dram.' play occurrences	9.13 (4.64)	12.92 (9.46)	1.39
Number of gr. 'games-with-rules' play occurrences	1.00 (1.46)	1.92 (1.68)	1.59
Number of pos./ pros. inter-actions	4.80 (2.00)	7.78 (4.22)	2.40*
Number of neg./ aggr. inter-actions	1.33 (1.39)	0.71 (1.20)	-1.27

* $p < .05$

Means and Standard Deviations Before The Transformation of The Variables By Care Arrangement for School 2

Variable	Day care Mean (St.Dev.)	Home Mean (St.Dev.)	t-value
	n=13	n=21	
Number of mos. preschool day care	7.23 (11.51)	3.09 (9.40)	-1.14
Number of gr. 'func.' play occurrences	0.15 (0.37)	0.00	
Number of gr. 'const.' play occurrences	6.23 ((5.11)	4.95 (3.36)	-.88
Number of gr. 'dram.' play occurrences	4.46 (4.15)	4.14 (4.59)	-.20
Number of gr. 'games-with-rules' play occurrences	0.61 (1.26)	0.90 (1.41)	.60
Number of pos./ pros. inter-actions	4.15 (3.13)	3.09 (2.73)	-1.04
Number of neg./ aggr. inter-actions	0.61 (0.76)	0.47 (0.68)	-.55

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