The Effects of Early Education on later Social, Adaptive and Behavioural Functioning

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I would like to dedicate this paper to my parents, who have always been there for me. I am the result of their love, wisdom, and encouragement to fulfil my dreams. You are both my inspiration and I thank you for the person that I have become.

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Abstract

The effects of early education on later social, adaptive and behavioural functioning was assessed using the Child Behavior Checklist and the Teacher's Report Form. Twenty- five primary grade children who had been previously exposed to a pre school programme were compared with twenty- five children who were either cared for by a babysitter or a parent at home prior to entering the primary grade. Results indicated that children exposed to an early education programme were more likely to be rated by parents as socially withdrawn, that is, having poor peer relations, feeling persecuted, preferring to be alone and being teased. In addition, children cared for by a parent in the home, as opposed to a babysitter, were rated by parents as less involved in social activitiies, i.e., sports, clubs. Teacher's described children raised by a babysitter as having anxious qualities such as being shy, timid and clinging to adults. Correlations between length of care and the dependent variables and the association between parent and teacher ratings on various sub- scales of the Child Behavior Checklist and the Teacher's Report Form are also discussed. The social implications of these findings are reviewed.

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Introduction

With the 20th century rapidly waning, society is facing the challenge of providing its children with an environment which promotes and supports their optimum development. Concomitant with this challenge is the demand for alternative child care arrangements which has resulted from the dramatic increases in single parenthood and maternal employment. It is reported that approximately two thirds of all school- aged children and more than half of all pre schoolers have mothers in the out- of- home workforce (Kahn & Kamerman, 1987). According to U. S. Bureau of Census (1982) figures for day care use, twenty- six percent of the children of working parents are in home care, in which the child is cared for by a single person either in the child's home or in the caregiver's residence. Fifty- six percent of all children receiving supplemental care are in family day care (U. S. Bureau of the Census, 1982) and over two -thirds of these children are between the ages of three and five (Select Committee on Children, Youth and Families, 1984). Family care involves placing children in day care homes with a limited number of other children, usually three to ten. Finally, approximately eighteen percent of children in out- of- home care are enrolled in day care centres, which encompass both for- profit and not- for- profit facilities (U. S. Bureau of the Census, 1982). Consequently, parents, psychologists and educators have become concerned about the effects of alternative day care arrangements on children, families and society itself. One of the most fiercely debated issues is the effect of out-

of-home care on pre school children's development. This is a lively and timely area of research and speculation.

The current literature on day care has been analyzed in a variety of substantive reviews (Belsky, 1980, 1984; Belsky & Steinberg, 1978; Belsky, Steinberg & Walker, 1982; Clarke-Stewart & Fein, 1983; Etaugh, 1980; Gamble & Zigler, 1986; Rutter, 1981 and Snow, 1983). In general, these reviewers have examined the vast material available on this topic, particularly since the 1960s, in relation to the question: " Is day care good or bad? " A great deal of research exists on the effects of day care on child development, particularly in relation to attachment, social development, intellectual and cognitive development. There are a range of positions on the issue of day care effects. At one end of this spectrum is the view held by Clarke- Stewart and her colleagues (1973, 1982) who not only believe that day care has no appreciable ill effects on children, but who feel that it may be beneficial. Clarke- Stewart believes day care children to be better off than exclusively mother- reared children, and describes them as more socially mature, independent, and knowledgeable about the world. At the opposite end of the spectrum is the view of White (1975), who states that any type of day care is bad for children. In between these two extremes are a range of views (for example, Frailberg, 1977; Rutter, 1981). Scarr (1984) feels that the effects of day care of reasonable quality are essentially benign. Moore, Snow & Poteat (1988) found no significant differences among children with previous experience in day care centres, family day care settings or

children who had not participated in day care on measures of adaptive behavior, communication skills, daily living skills, socialization or motor skills. It seems clear that day care does have some effect on child development. The magnitude of such effects requires further investigation to specify its' exact nature.

Positive Aspects of Day Care:

Some researchers have concluded that good quality day care does not have an adverse effect on children's development, and that day care attendance may produce long- lasting, positive influences with children (Clarke-Stewart, 1982; Haskins, Finkelstein & Stedman, 1978). Much of the research on the effects of day care has focused on the quality of children's attachment to their mother. According to some sources (for example, Blanchard and Main, 1979; Etaugh, 1980), research in this area has failed to demonstrate any connection between day care and insecurely attached infant- mother relationships. Research conducted on the social relations of day care children versus those reared exclusively at home by parents has yielded mixed findings. Some have demonstrated that positive social effects may accrue from participation in high quality day care (Clarke- Stewart, 1982). Positive outcomes include teacher and parent ratings of considerateness and sociability (Phillips, McCartney & Scarr, 1987), observations of compliance and self- regulation (Howes & Olenick, 1986), and observations of involvement and positive interactions with teachers (McCartney, 1984; Vandell & Powers, 1983). In one investigation, McClinton & Topping

(1981) examined teacher's perception of students' adjustment to first grade. Teachers rated randomly selected groups of either regular or extended day kindergartens. Results showed that teachers judged students from extended day kindergartens to be better adjusted to first grade than those from regular kindergarten.

Some researchers have proposed that exposure to day care can have lasting positive effects on children's patterns of achievement (Schweinhart & Weikart, 1980; Seitz, Apel, Rosenbaum, Zigler & Abelson, 1983). DeLacey (1973) and his colleagues found that after attending a rural compensatory pre school for five half days a week over one year, Australian five and six year old children showed substantial gains on tests of vocabulary, closure, and operational thinking. In a similar investigation, Nitta and Nagano (1975) compared the performance in elementary school of children from upper-, middle-, and lower- class families in three Tokyo prefectures who had attended a kindergarten, a nursery school or neither type of early school. In general, those who had attended kindergarten or nursery school performed best in terms of cognitive functioning.

There also exist a group of researchers who disclaim previous findings that children who attend pre school do better, whether socially, behaviourally or academically, than children who have not been exposed to pre school (Caldwell, Wright, Honig & Tannenbaum, 1970; Kagan, Kearsley & Zelaso, 1979). In their study of the effects of pre school on later school competence, Horn & Darlington (1981) found no significant

effects of early enrichment.

There are certainly enough negative and contradictory findings in the literature to raise questions about the effects of day care, particularly in relation to social and emotional development. It is striking that so much of the early research found no effect or positive effects, whereas more recent research has begun to discover negative consequences from some day care.

Negative Aspects of Day Care:

A notable exception to the " day care for all " trend is the research relating day care to negative child behaviors such as aggression (Bronfenbrenner, 1976; Farran, 1982; Frailberg, 1977; Packard, 1983) and the damaged attachment between child and mother (Blehar, 1974; Ainsworth, 1970). Based on their reviews of the pertinent literature, Rutter (1981) concluded that " group day care may well incline children to be somewhat more aggressive..." (p. 12); Belsky and Steinberg (1978) concluded that all day care may " predispose children toward greater aggressiveness..." (p. 942); and Bronfenbrenner (1976) warned, somewhat ominously, that findings which suggest that day care may harm children warrant " a re-examination of current American practices in group day care..." (p.131).

Concept of the Integrated Maturity Level:

Reviews by the Hewitt Research Foundation of more than 8,000 studies failed to turn up any replicable research suggesting that normal children should be schooled before age eight (Moore, 1979). Moore &

Moore (1975) suggest that early childhood education must take into account the development of the child's brain, vision, hearing, perception, sociability, family and school relationships and physical growth. They postulate that for each of these factors, there is a level of maturity at which most children can begin school tasks. The integrated maturity level (IML) is the point at which the developmental variables (affective, psychomotor, perceptual and cognitive) within the child reach an optimum peak of readiness in maturation and cooperative functioning for out-of-home group learning experiences. When all the variables have matured to the point that optimum integration of function is possible, an appropriate state of readiness has been reached for structured school learning experiences. Moore and Moore (1975) believe that the IML is seldom, if ever, achieved earlier than ages eight to ten. Moore and Moore (1975) question the rationale of early pre school education for the masses of children and note that unless the child is handicapped or acutely deprived, he or she should be allowed to develop physically and to explore personal fantasies and intuitions until between the ages of eight to twelve. They suggest that although promoting (perhaps) early cognitive organization, early schooling introduces a host of " iatrogenic " disturbances.

Issues Related to Intellectual and Cognitive Development:

According to some sources (Pontius, 1972; Robinson, 1973; Moore & Moore, 1972), intensive efforts to develop academic skills in early childhood correlate highly with frustration, anxiety, apathy and

underachievement. Hampleman (1959) and Heffernan (1968) note that children who enter school when they are older become better readers and are more highly motivated learners than children who enter school early. Some researchers (Husen, 1967; Rohwer, 1970) have noted that the earlier children go to school, the more negative are their attitudes toward formal instruction. Moore and Moore (1975) suggest that children stimulated too early are likely to reject the whole process of education.

Some researchers argue that many learning disorders are derived from a lack of integration of the senses and the balanced development of the brain (Piaget, 1964; Ayres, 1968; Frostig, 1968). Birch and Lefford (1963) noted that the abilities for learning reach a point of efficient functioning around age ten or eleven. As early as 1898, Dewey recognized that children's eyes should not be required to make the adjustments necessary to concentrate on near work or upon small objects until age eight. Other studies have also pointed to the need for maturity in the visual (Hilgartner, 1962; Gray, 1963); and auditory (Morency, 1968; Wepman, 1968) modalities as a prerequisite to formal learning.

Ilg and Ames (1950) found that a large number of the so called reading disability cases prevalent in schools came not from actual disability on the part of the children, but from the school's attempt to force unready children to perform at levels for which they were not prepared. Andreas (1972) examined the records of two hundred children for

school entrance age range and also concluded that many of the learning problems were either created or worsened by plunging children into learning tasks inappropriate for their ages.

Researchers such as Dewitt (1961) have noted differences in scholastic achievement between children beginning school at an early age and those beginning later, particularly for boys. Carter (1956) studied the achievements of boys and girls separately and found that at the sixth grade level, the late start girls were somewhat superior to the early start girls in reading, spelling and arithmetic. In contrast, the late start boys were significantly superior to the early start boys in all areas of achievement. According to Carter (1956), delaying school entrance age is even more important to achievement with boys than with girls. In a similar study, Hall (1963) examined the relationship of the school entrance age of boys and girls to subsequent school achievement. Hall found that the earlier the entrance age, the lower the level of achievement, especially for boys. In another study, Hall (1963) found that of the elementary school pupils who had been retained or held back from progressing with their classmates, about seventy-eight percent of the boys and eighty percent of the girls were underage when they started the first grade.

Davis (1952) reported a study in which two groups of children were matched by sex, age, intelligence and home conditions. One group began reading at the age of six, the other at the age of seven. In two years, the late beginning group had caught up with the early beginning

group and at the end of their seventh year, the children who had begun reading a year later were one year ahead of the early beginners. Other comparisons of reading achievement of early and late starters were made for children in the third grade (Carroll, 1964), in the fourth and fifth grades (Halliwell & Stein, 1964), and in the sixth grade (Hampleman, 1959). All generally found that later entrants significantly excelled those who started earlier. According to Dickinson & Larson (1963) and Ilika (1969), several months to a year or more of additional age at the time of entrance to school will enable children to achieve faster.

King (1955) compared children who were five years old at the time of school entrance with children who were one year older when they entered school. Achievement testing at the end of the sixth grade showed a distinct difference, strongly in favor of the later entrants. In this study, of the eleven children who had repeated a grade, only one had started school at age six. In addition, nineteen boys and sixteen girls of the younger group appeared to be maladjusted in some way, while only three boys and three girls from the older group were maladjusted. King (1955) discovered a noticeable tendency in the younger group toward speech defects, nervous indications and personal maladjustments.

Elkind (1970) postulated a negative correlation between mental growth and formal instruction and suggested that we are fostering burnout by rushing youngsters into school too early. Forrester (1955) found that very bright but very young pupils at the time of school entrance did not realize their school success potential and achieved far below

their predicted ability. However, the very bright but older group generally excelled throughout their school careers. According to Forrester (1955), children who begin school later excel in achievement and behaviour as well as in sociability and leadership. Early starters tended to be physically immature and emotionally unstable. Elkind (1969) found no support for the claims of lastingness of pre school instruction, but evidence in the opposite direction. According to Elkind (1969), the longer we delay formal instruction, the greater the period of plasticity and the higher the ultimate level of achievement. He described frustrated, anxiety-ridden, intellectually burned out children who lose motivation for intellectual success.

While many of these studies were undertaken with a combination of low and middle SES children, higher SES groups perform similarly. Mawhinney (1964) reported a study of children from elite families who were selected by psychologists because they were considered mature enough or of sufficient potential to be admitted to Kindergarten before age five. An evaluation after fourteen years indicated that more than one-fourth of the selected group were achieving below average or had repeated a grade. Hedges (1978) pointed, likewise, to the higher incidence of scholastic problems among those beginning school at an early age.

With respect to cognitive growth, however, the vast majority of studies show that there are few differences in intelligence between children in varying forms of day care and children cared for by their

mothers (Carew, 1980; Doyle & Somers, 1978; Kagan, Kearsley & Zelaso, 1978; Robertson, 1982; Stith & Davis, 1984). Two studies, however, have reported group differences such that children in centre care score higher on tests of cognitive competence (Clarke-Stewart, 1984; Rubenstein, Howes & Boyle, 1981) than children on other types of child care settings.

Issues Related to Social Development:

Research on the emotional and social development of children in out-of-home care has yielded controversial, and often contradictory, results; consequently, no widely accepted consensus has emerged (see Rutter, 1981). Although some studies report no differences in social behaviour (Golden, Rosenbluth, Grossi, Policare, & Brownlee, 1978; Kagan, Kearsley & Zelaso, 1978), others show that children who have attended child care are more socially competent (Clarke-Stewart, 1984; Gunnarsson, 1978; Howes & Olenick, 1978; Howes & Stewart, 1987; Phillips, McCartney & Scarr, 1987; Roupp et al., 1979), and others suggest lower levels of social competence (Haskins, 1985; Rubenstein & Howes, 1979).

One common rationale for early schooling is that it socializes young children. According to Moore and Moore (1979), children who start school early are generally less socially mature in their later childhood and high school years. Early school entrants are more likely to exhibit social maladjustment problems and become self-centered and peer dependent (Andrus & Horowitz, 1938). Bronfenbrenner (1970)

suggested that, at least until grade five or six, children who spend more time with their peers than with adults are likely to become peer dependent. Others (Brenner & Stott, 1973) note that sending children to school too early will dilute and pervert efforts toward building a positive sociability. Such children are likely to be less secure and more prone to anxiety, frustration and peer dependence.

The first investigation of the social development of preschoolers with infant day care involved the developmental follow-up at three and four years of age of children who began nonmaternal, group care toward the end of their first year at an infant care centre (Schwarz et al., 1974). Schwarz and his colleagues asked teachers and graduate students to rate two groups of children from a single centre on a scale that produced measures of nine personality traits. One group of children had been in the centre since infancy (for an average of 36 months); the second group had been reared at home or by babysitters until between 3.2 and 4.8 years and then entered the centre. Both groups were rated 4 and 8 months after the latter group of children entered the centre; the ratings on these two occasions were averaged. Statistical comparisons of the two groups revealed differences on three of the nine traits: the infant day care group was significantly less cooperative with adults, more aggressive toward peers and adults, and moved about more often.

Vlietstra (1981) produced a partial replication of these results in a study of children between the ages of 2.5 and 4.5 years in two preschools. Using the same rating scale as that used by Schwarz et al.

(1974), Vlietstra found that teachers judged children who were in full-day care, as compared with children in half-day care, to be more aggressive with peers and adults.

Other investigators have also found evidence of negative behavior in young children attending day care. Schwarz and his colleagues (1981) studied 2-2.5-year-olds in Bermuda who had spent most of their lives either in day care centres (N=22), in some less formal arrangement such as family day care home or with a sitter (N=25), or at home with their mothers (N=28). The investigators obtained several types of data on the children, including IQ, ability to delay gratification, and behavior during mother-child interaction. Of the variables pertinent to this review, centre children were less attentive and less socially responsive to the examiner than those not in centres. In addition, they were more defiant in the test setting than either the group reared at home or the group cared for by the sitters. Subsequent analyses indicated that care of young children in large groups with many other children per caregiver may have enduring undesirable effects on the child's social and cognitive development. An earlier investigation by Gott (1963) produced similar findings.

Findings of a study by Rubenstein, Howes and Boyle (1981) are consistent with the results reported by Schwarz and his colleagues (1974, 1981) and Vlietstra (1981). These investigators collected a wide variety of information on two groups of children, one of which (N=10) had been in day care since age 1 while the other (N=13) had been reared primarily at home since birth. At about age 4, the authors found several

differences between the two groups, three of which concerned negative behavior: (1) day care children were verbally and behaviorally less compliant with their mothers, (2) mothers of day care children made more efforts to induce compliance, and (3) day care children were more assertive with the examiner.

Similar effects have also been found with slightly older and much older children. In one of the earliest studies of day care and negative behavior (see also Brown & Hunt, 1961), Raph, Thomas, Chess and Korn (1968) observed children with two years of nursery school and kindergarten (N=39), one year of nursery school and kindergarten (N=44), or Kindergarten only (N=14). Six categories of behavior were scored in yearly observations of approximately one hour, including a category labeled "negative interaction." There were no differences among the thre groups in negative interactions with peers, and both the 3-year group and the 2-year group declined in frequency of such interactions each year. The results for interactions with teachers, however, were quite different. Children with two years of pre school experience were more negative with teachers in Kindergarten than either children with one year preschool experience or children with no preschool experience. Moreover, the group with two years of preschool experience increased over the two years in frequency of negative interactions with teachers.

Of the studies summarized thus far, none involved children older than five years, thus raising questions about the permanence of day care

effects. That these effects may not be evanescent is suggested by a longitudinal study conducted in England. Moore (1975) identified two groups of children who had participated in a longitudinal study between birth and 17 years of age. Children in the first group (exclusive mothering) had been reared at home by their mothers; the second group of children (diffuse mothering) had been in some type of alternative care (eg., babysitter, day care, care by relatives, family day care homes) for at least twenty-five hours per week for at least 12 months prior to age 5. Data on each of the 105 children in these two groups were collected frequently during the preschool years, and at ages 6,7,8,9,11 and 15. Several types of data, including parent interviews, ratings of the child's behavior by psychologists, school exams, and various child assessments, were collected. The exculsively mothered boys were sensitive, fastidious, and conforming, whereas boys with diffuse mothering were fearless, aggressive and nonconformist. Results for girls were not as clear-cut.

Perhaps most noteworthy, are the results emanating from a longitudinal investigation of Kindergarten and first graders reared since they were three months old in an extremely high-quality day care centre at the University of North Carolina. Comparisons of these children with others reared for varying amounts of time in nonmaternal child care arrangements initiated sometime after the first year of life revealed that children who received centre-based care in the first year of life, in contrast to those receiving care any time thereafter, were rated as more

likely to use the aggressive acts hit, kick, and push than children in the control group. Second, they were more likely to threaten, swear and argue. Third, they demonstrated those propensities in several school settings including the playground, the hallway, the lunchroom and the classroom. Fourth, teachers were more likely to rate these children as having aggressiveness as a serious deficit in social behaviour. Fifth, teachers viewed these children as less likely to use such strategies as walking away or discussion to avoid or extract themselves from situations that could lead to aggression (Haskins, 1985).

Gender Related Issues:

Many researchers have found that gender also interacts with environmental features, including type of care, to produce differential outcomes. Day care boys, but not girls, have often been found to be more aggressive than their parent-care peers (Robertson, 1982; Schwarz, Krolick & Strickland, 1973; Martin, 1981). This effect was often found several years after the child's day care experience (Haskins, 1985; Moore,1975).

Moore and Moore (1986) describe the negative sociability of children who are placed prematurely in formal learning situations. They contend that such children are more likely to display signs of hyperactivity from the frustration of being unable to handle the regimentation of formal lessons. In addition, Moore and Moore (1981) suggest that by subjecting young children to school-size groups, the immature central nervous system is unduly stressed, resulting in over-

excited, over-active, nervous, fearful and anxious behaviour. This view is supported by Schwarz, Strickland & Krolick (1974) and Vlietstra (1981) who also found that young children exposed to early schooling were more likely to be rated by teachers as active and inattentive. Moore (1982) further notes the incidence of learning disabilities, hyperactivity and delinquent behaviour among boys and suggests that their delayed maturity is of paramount concern when considering school entrance age.

Summary and Present Investigation

On balance, then, there is reason for concern about the effects of group day care on social and emotional development. Under some circumstances, group day care is associated with increased levels of aggression, or assertiveness in young children. Metaphorically, Bronfenbrenner's (1976) and Schwarz et. al.'s (1981) conclusion that the literature provides a caution light about day care practices seems warranted. For the most part, research reports on different forms of day care are contradictory and inconclusive. Particularly disturbing are the inconsistent results in the literature, especially those reported by investigators using the same measuring instruments. In addition, studies of day care effects on children in the public schools are especially important since only a limited number of studies have followed children beyond age six (Moore, 1975; Moore, Snow & Poteat, 1988). Finally, research to describe the precise nature of day care's effect on negative behavior is needed. The question of whether day care produces children who are actually more aggressive, active (perhaps hyperactive), non

compliant and undersocialized requires further investigation.

Others argue that a major limitation of the extant research is the use of high quality, university based day care centres as the predominant sites for gathering data (Belsky & Steinberg, 1978). Since few parents have access to care of this quality, much of our existing research cannot be generalized to encompass the typical care experienced by most children.

The research reported below addresses each of these questions and concerns. The purpose of the present study is to compare the social competence, adaptive functioning, school performance and behavior of primary grade children who had pre school experience in a centre day care facility with primary grade children who had not regularly participated in any form of day care during their pre school years. The specific question addressed was: " Does previous day care experience facilitate or impede the social competence, adaptive functioning, school performance and behavior of children in the primary grade classroom? "

This study examined such factors in primary grade children using the Child Behavior Checklist (Achenbach & Edelbrock, 1983) and the Teacher's Report Form of the Child Behavior Checklist (Achenbach & Edelbrock, 1986).

Method

Subjects

Fifty children (30 males, 20 females) with a mean age of 6.510 years (range: 6.17-6.92) and their parents and teachers participated in the present study. Subjects were selected on the criteria that they had failed to meet the age requirements, i.e., five years of age on or before October 1st of that year, necessary to enter the primary grade the previous year. Thus, this group provided a sample of children who had either remained at home or attended a day care centre an extra year due to the calender day cut-off for determining age at admission to the primary grade. This specific group was selected because it provided an optimum sample of children who had been exposed to a pre school program and a sample who had been reared at home.

The children were enrolled in eleven schools in a large rural school system in Nova Scotia. All children were in the primary grade, that is, grade one at the time of assessment. The sample consisted of twenty- five children who had attended a day care centre prior to entering the primary grade and twenty- five children who had not participated in any type of day care on a regular basis. Centre children (16 males, 9 females) had a minimum of twelve months and a maximum of three years full-time (three or more hours per day for five days per week) experience in the same type of day care facility. The average length of care was 1.5 years, with children being in day care an average of twenty-eight hours per week. Child care may have been received at different

day care centres, but the type of care was consistent. Children selected for the home care group (14 males, 11 females) had not attended day care on a regular basis during their pre school years. They had stayed home with their mothers during the day except for occasional brief periods of care by a relative , friend or paid sitter.

The quality of day care received by the group was judged to be typical of that available to the public in general. All of the fifteen facilities were licensed, private-for-profit centres.

Children with exceptionalities, e.g., physical or mental disabilities, were not included in the study.

Materials

The Child Behavior Checklist (Achenbach & Edelbrock, 1983) was used to assess the social competence and behavior of students. The Child Behavior Checklist is particularly appealing because it has the advantage of a large item pool; a broad range of symptom scales; good reliability; norms that reflect both age and sex differences; and includes indexes of the child's adaptive competencies as reflected in involvement in activities, school performance and social relationships (Cohen, Gotlieb, Kershner & Wehrspann, 1985).

The Child Behavior Checklist yields thirteen scores which are identical for males and females and which were used as dependent variables in the present study. The thirteen scores include a social competence sum with three sub- scores: activities, social and school, a behavior problem sum with six sub- scores: depressed, social

withdrawal, somatic complaints, hyperactive, delinquent and aggressive, and an internalizing and externalizing score. The total raw scores obtained on each scale were transformed into normalized T scores derived from normative samples of each sex and age. A low score on the social competence scale is clinically significant while a high score on the behavior problem scales is considered to be clinically significant.

The Child Behavior Checklist is a well standardized instrument which was normed on a sample of 1,300 children. Individual item intraclass correlations of greater than .90 were obtained between item scores obtained from mothers filling out the Checklist at 1-week intervals and mothers and fathers filling out the Checklist on their clinically-referred children. In addition, stability of intraclass correlations over a 3-month period were .84 for behavior problems and .97 for social competencies. Eight-day test-retest correlations averaged .89, whereas interparent correlations averaged .74 (Achenbach, 1978). With regard to the validity of the Checklist, several studies have supported the construct validity and criterion-related validity of the instrument (Kazdin, Esvaldt-Dawson & Loar, 1983). The Child Behavior Checklist is designed to assess in a standardized format the social competencies and behavior problems of children ages 4 through 16 as reported by their parents or others who know them well (Achenbach & Edelbrock, 1983). The authors reported interparent reliability of .985 for total behavior problem and .978 for total social competencies. Test-retest reliability for non-referred samples is quite high. One-week and three-month test-

retest reliabilities for the total behavior problems were .952 and .838 respectively and similar test-retest reliabilities for the total social competence scale was .996 and .974 (Achenbach & Edelbrock, 1983).

The total behavior problem score has been acquiring impressive construct validity. Weissman, Orvaschel & Padian (1980) found that total scores from mother's reports on the Conners Parent Questionnaire and the Child Behavior Checklist problems correlated very highly (r=.91).

The Teacher's Report Form of the Child Behavior Checklist (Achenbach & Edelbrock,1986) was used to assess the school performance, adaptive functioning and behavior of students. The Teacher's Report Form yields sixteen scores which are identical for males and females and which were used as dependent variables in the present study. The sixteen scores include an adaptive functioning sum with five sub- scores: school performance, working hard, behaving appropriately, learning and happy, a behavior problem sum with seven sub- scores: anxious, social withdrawal, unpopular, self- destructive, inattentive, nervous- overactive and aggressive, and an internalizing and externalizing score. A low score on the adaptive functioning scales is considered clinically significant while a high score on the behavior problem scales is clinically significant.

Intraclass correlation coefficients were computed to assess test-retest reliability, interparent agreement and inter-interviewer reliability of item scores. All coefficients on these assessments were above .90. One-

week test-retest reliability averaged .89 for the behavior problem scales, whereas 2- and 4-month stability averaged .77 and .64 respectively (Edelbrock & Achenbach, 1984). The Teacher's Report Form has also been shown to discriminate ADHD from normal and other psychiatric groups of children (Edelbrock, Costello & Kessler, 1984).

Further details on the reliability, validity and scoring procedures for the Child Behavior Checklist and the Teacher's Report Form of the Child Behavior Checklist are available in the manuals (Achenbach & Edelbrock, 1983; Achenbach & Edelbrock, 1986).

In addition to the parent and teacher rating scales, a questionnaire was used to provide information on individual early education programs.

Procedure

The research used selection criteria to control for the influence of extraneous variables, including age, sex, divorce and physical or mental disabilities. Table 1 (Appendix A) shows that the distribution of background characteristics for the pre school group is comparable to that of the non pre school group in terms of gender and family situation, i.e., parents present in home. Parental permission and demographic data were obtained from all potential subjects. The 50 students who met the selection criteria were then assessed by their classroom teachers, using the Child Behavior Checklist-Teacher's Report Form. Teachers were not informed of the purpose of the study or of the subjects' child care history. Standardized scoring procedures were used to derive standard scores from the information provided by the classroom teachers and the parents.

All students in this investigation were drawn from elementary schools in a large, urban Nova Scotian school district.

A Pre School Experience Questionnaire (developed by the author) was completed by one parent of both the pre school and non pre school group during a visit to the home (Appendix B). The Child Behavior Checklist was administered individually to the parent (usually the mother) of each child.

Results

The effects of early education on later school performance, social competence, adaptive functioning and related behavior was assessed using a multivariate analysis of variance. This statistical procedure was employed because of the presence of multiple dependent variables. As well, Pearson product- moment correlations were performed to assess the correlation between length of care and the dependent variables, and the association between teacher and parent ratings on various sub-scales of the Child Behavior Checklist and the Teacher's Report Form. An initial analysis was performed to determine whether the data was skewed. Table 2 (Appendix C) lists the values of skewness for the dependent variables from the Child Behavior Checklist; Table 3 (Appendix D) lists the values of skewness for the dependent variables from the Teacher's Report Form. When the distribution was positively skewed, a log transformation of the affected variables was used. For negatively skewed data, a square root transformation was used. The transformed results from the skewed data will be discussed in this section.

The effect of gender was assessed using a multivariate one- way analysis of variance. Multivariate tests for the effect of gender observed a significance level of .072, indicating that there are no differences between males and females. Table 4 (Appendix E) presents a summary of these findings. An examination of the univariate results, suggests that differences between the two sexes are evident with

specific dependent variables. A significant difference was noted for the following Child Behavior Checklist scales: school performance, $F(1,48) = 4.28$, $p<.05$; depressed, $F(1,48) = 5.62$, $p<.05$; social withdrawal, $F(1,48) = 6.00$, $p<.05$; and internalizing, $F(1,48) = 5.29$, $p<.05$. Mean comparisons indicate that parents were more likely to rate females, than males, as having difficulties in each of these areas. Table 5 (Appendix F) presents a summary of the means and standard deviations for this data. A significant difference between males and females was also noted on the following Teacher's Report Form scales: behaving appropriately, $F(1,48) = 7.17$, $p<.01$; anxious, $F(1,48) = 6.65$, $p<.05$; unpopular, $F(1,48) = 17.00$, $p<.01$; externalizing, $F(1,48) = 4.74$, $p<.05$; and behavior problem sum $F(1,48) = 4.20$, $p<.05$. Mean comparisons for this data are presented in Table 6 (Appendix G).

A multivariate one- way analysis of variance was performed to determine whether there was a difference between children raised by a sitter in the home and children raised by a parent in the home. A significant difference was found for the Child Behavior Checklist- social score, $F(1,23) = 6.67$, $p<.05$, and the Teacher' Report Form- anxious score, $F(1,23) = 4.35$, $p<.05$. Mean comparisons for this data indicate that parents were more likely to rate children raised by a parent in the home, as opposed to a sitter, as less involved in social activities and teacher's were more likely to rate children raised by a parent as anxious. Tables 7 & 8 (Appendices H & I) present a summary of the means and standard deviations for this data.

The effect of type of care was then evaluated using a multivariate one- way analysis of variance. The sitter and parent groups were combined into a single category, given the lack of significant differences between these groups, with the exception of those variables noted previously. The analysis sought to determine whether there was a difference between children with pre school experience versus those with no prior pre school experience. No significant differences were found for the Teacher's Report Form scales among those children with pre school experience and those without pre school experience. The means, standard deviations and F values for this analysis are presented in Table 9 (Appendix J). There was a significant difference between these two groups for the Child Behavior Checklist- social withdrawal score, $F(1,48) = 4.95$, $p<.05$. A comparison of means for the pre school and no pre school groups indicates that the children who had been exposed to an early education program were more likely to be described by parents as socially withdrawn. Table 10 (Appendix K) presents a complete summary of the means, standard deviations and F values for the variables used in this analysis.

A two way factorial design was used to assess the interaction between the main effects of gender and care. Multivariate tests of significance for the gender by care interaction observed a significance level of .523, indicating that there is no interaction between these factors. A summary of this analysis is presented in Table 11 (Appendix L). Examination of the univariate results shows no differences among the

groups. The means, standard deviations and F values for this data are presented in Tables 12 & 13 (Appendices M & N).

To examine the relationship between the length of time in years the pre school group participated in day care and each of the dependent variables, Pearson correlations were calculated. As illustrated in Table14 (Appendix O), there was a strong correspondence between the time children spent in care (1-3 years) and the Aggressive sub- scale on the Child Behavior Checklist ($p<.05$). As well, various sub- scales on the Teacher's Report Form correlated highly with the length of time in care. Specifically, the sub- scales Anxious, Social Withdrawal, Inattentive, Nervous- Overactive, Internalizing, Externalizing and Behavior Problem Sum produced moderate to high correlations ($p<.05$, $p<.01$). The correlation coefficients for this analysis are presented in Table 15 (Appendix P).

Product- moment correlations between similar scales on the Child Behavior Checklist and the Teacher's Report Form were computed. As shown in Table 16 (Appendix Q), there was a strong positive relationship between most of these scales. Specifically, scores on the Child Behavior Checklist profile scales labeled Social Withdrawal, Hyperacive, Aggressive, Internalizing, Externalizing and Behavior Problem Sum correlated highly ($p<.01$) with scores on the Teacher's Report Form scales labeled Social Withdrawal, Inattentive, Aggressive, Internalizing, Externalizing and Behavior Problem Sum, respectively. Correlations between the Child Behavior Checklist Social Competence

Sum and the Teacher's Report Form Adaptive Functioning Sum did not reach statistical significance.

Discussion

The present study sought to examine whether primary grade children with previous pre school experience differed from primary grade children with no earlier pre school education on measures of social competence, school performance, adaptive functioning and behavior problems. An examination of the skewed data reveals that there exists a floor effect for the behavior problem sum sub- scales for both the Child Behavior Checklist and the Teacher's Report Form. This indicates that there were few high or significant scores for the behavior problem sum sub- scales. According to Edelbrock & Achenbach (1984), profile types in which scores are very low represent an empirically defined group and have distinctive correlates. Thus, the scales are considered to be valid despite the very low behavior problem scores. Although some of the data was skewed, the results produced a number of significant and interesting findings; however, the presence of skewed data may account for the failure to obtain generalized significant results.

The results of the present study revealed that children who had been exposed to an early education program were more likely to be rated on the Child Behavior Checklist, completed by parents, as socially withdrawn. This finding supports the results obtained by researchers such as Schwarz et. al. (1974); Haskins (1985), and Rubenstein, Howes & Boyle (1981), that children who attend day care have lower levels of social competence. In general, studies of children with pre school experience suggest that such children are significantly more

aggressive, defiant and less cooperative. The present examination, however, found these children to be described, at least by parents, as socially withdrawn. Brenner & Stott (1973) and Moore & Moore (1979) also found a similar characteristic with children who attended early education programs. It should be noted, however, that such children were not considered socially withdrawn based on responses on the Teacher's Report Form.

The present findings did not support the hypothesis that children exposed to pre school education score lower on overall social competence and adaptive functioning sums. These findings are consistent with those obtained by Golden, Rosenbluth, Grossi, Policare, & Brownlee (1978) and Kagan, Kearsley & Zelaso (1978) that there are no differences in adaptive functioning and social competence. The failure to find a significant difference in overall social functioning between students with day care experience and those cared for in their own homes was somewhat unexpected in view of past trends in the literature which suggest that children exposed to early pre school education are more socially competent than children not exposed to such education (Clarke- Stewart, 1984; Gunnarsson, 1978).

The results of the present study, also, do not support the conclusions reached by researchers (for example, Schwarz, Strickland & Krolick, 1974; Vlietstra, 1981; Moore, 1975; Moore and Moore, 1979, 1981) who suggest that children exposed to early group care are likely to display behavioural problems including aggression and hyperactivity.

The theory that children exposed to group care will show notable signs of over-activity based on the premise that the immature central nervous system is over-stimulated (Moore, 1975; Moore and Moore, 1979, 1981; Schwarz, Strickland & Krolich, 1974) appears unsubstantiated based on the present findings.

The findings of the present study are consistent with those obtained by Carew (1980); Doyle & Somers (1978); Kagan, Kearsley & Zelaso (1978); Robertson (1982) and Stith & Davis (1984), that there are no differences in school performance between children in varying forms of day care and children cared for in the home. The results do not support the conclusions of Clarke-Stewart (1984) and Rubenstein, Howes & Boyle (1981) that children in centre care score higher on tests of cognitive competence and do better in school than children in other types of child care settings. Both groups performed equally well with respect to school performance.

A further analysis compared children who had been raised by a sitter in the child's home with children raised by a parent, typically the mother. Results indicated that children cared for in the home by a parent were more likely to be rated on the Child Behavior Checklist as less involved in social activities. This activities score simply encompasses the mean number of activities, i. e., sports, organizations, that a child is involved with and their level of skill with the particular activity. As well, responses on the Teacher's Report Form indicated that children raised by a parent in the home were more likely to be rated by teacher's as

being anxious. Ratings on the Child Behavior Checklist were not in agreement with this observation. Moore, Snow & Poteat (1988) did not find any significant differences between children with previous experience in family day care and children who had not participated in day care on measures of adaptive behavior, communication skills, daily living skills, socialization or motor skills. The family day care group in the Moore, Snow & Poteat (1988) study is similar to the sitter- raised group in the present study.

The effect of gender was assessed to determine whether first, males and females differed on each of the dependent variables, and second, whether there was a significant interaction between gender and type of care, i. e., pre school versus no pre school. Results indicated that, according to the Child Behavior Checklist, females were more likely to be described as having difficulties with school performance, depression, social withdrawal and to internalize their feelings. Responses on the Teacher's Report Form indicated that teacher's were more likely to rate females as not behaving appropriately, as well as being anxious and unpopular. There were no significant differences found in school performance, social competence, adaptive functioning and behavior problems as a function of the gender and type of care interaction. As such, these findings do not support the conclusions of some researchers (for example, Martin, 1981; Schwarz, Krolick & Strickland, 1973) who contend that males are more likely to display behavioral difficulties related to early exposure to pre school.

The relationship between the length of time in years the pre school group participated in day care and each of the dependent variables was assessed. There was a strong correlation between the time children spent in care (1-3 years) and the aggression sub- scale on the Child Behavior Checklist. As well, the sub- scales anxious, social withdrawal, nervous- overactive, inattentive, internalizing, externalizing and the behavior problem sum of the Teacher's Report Form produced moderate to high correlations. These findings suggest that there is a strong degree of correspondence between the amount of time children spend in day care and measures of behavioral functioning. Similar findings have been reported by Raph, Thomas, Chess & Korn (1968) who found that children with two years of pre school experience were rated by teacher's as having behavioral difficulties, i. e., disruptive in class, more than children with one year pre school experience or children with no pre school experience. Future research should consider the length of time children spend in care as an independent variable.

A final analysis examined the correlation between similar scores on the Child Behavior Checklist and the Teacher's Report Form. Pearson product- moment correlation coefficients ranged from .54 to .75 for those variables listed in Table 16 (Appendix Q). This indicates a highly positive association between parent and teacher ratings of the same children. The authors of the Child Behavior Checklist and the Teacher's Report Form are presently conducting research into the correlation between the obtained results on these scales.

Overall, the findings of the present study are consistent with studies which have found no differential effects between children with previous day care and those with no early day care (Winett, Fuchs, Moffatt & Nerviano, 1977; Moore, Snow & Poteat, 1988). There was one significant result, however, which indicated that children exposed to an early education program were more likely to be rated by parents as socially withdrawn.

A major difference between the present study and much of the previous research (excluding Moore, Snow & Poteat, 1988) is the type and quality of care investigated. Other studies have typically used high quality, experimental day care facilities in university settings. The children in the present study attended a variety of day care centres avaliable in the general community. Another difference between the present study and much of the previous research (excluding Moore, 1975 and Moore, Snow & Poteat, 1988) is that there are few studies which have followed children beyond the age of six years. As well, previous studies have typically used children as subjects, with assessments being made while they were participating in day care. The present study examined the effects of group day care attendance on children who were in the primary grade and who had attended a day care in their pre school years. These children had a mean age of 6.510 years.

There are specific studies which bear some resemblance to the results of the present study and which merit comparison. Two

researchers, Finkelstein (1982) and Haskins (1985), found that children from low socioeconomic backgrounds who attended a cognitively-oriented day care program exhibited more aggressive behavior upon entering kindergarten than did their classmates. In both studies, the increased aggressiveness of the day care children was attributed to the cognitively- oriented curriculum, since control subjects who had attended other "regular" day care programs did not display a similar level of aggression. The day care received by subjects in the present study more closely resembles the type of care received by the control group in Haskin's study, since these chiidren did not participate in a cognitively- oriented program. However, the socioeconomic status of the subjects in the present study was not controlled. Subjects were from lower to upper class backgrounds. Given this finding, it is clear that future studies in this area would profit by conducting comparisons of children with cognitively-oriented day care versus other types of care to determine why some care produces different effects in children. More specifically, future research should attempt to delineate the factors related to cognitively-oriented day care which result in negative consequences to children.

There are several cautions with regard to the implications of the present findings. One caution concerns the effects of nonmaternal care of children during the first year of life. Belsky & Rovine (1985) found a relationship between surrogate care in excess of twenty hours per week during the first year of life and the development of secure maternal

attachment. The magnitude of this relationship was relatively small, however, it raises an issue that should be addressed in ongoing research. Unfortunately, in the present investigation, no members of the sample entered out-of-home care prior to their first birthday.

A final issue resulting from this study concerns the long-term implications for children in full time day care. Other studies of older populations based on teacher ratings indicate that early day care attendance is related to less cooperation with adults and more aggression (Schwarz, Strickland & Krolich, 1974). Similarly, Moore (1973) found early day care children, particularly boys, to conform less well to punishment in later years. The present study failed to suggest that day care children were generally negatively impacted by the day care experience, as assessed when they had entered the primary grade, nearly a year later. It is possible that any effects of day care, whether positive or negative, diminished during the period that the child was in the primary grade. Certainly, any negative effects were not evident in the later primary grade. Further long-term research is needed to determine whether early avoidance resulting from full time day care attendance generalizes to much later relationships with either peers or adults or has long term implications directed at parents or other adults. A longitudinal study which would follow day care children and a control group over several years, while continually assessing the children on cognitive, social and behavioral measures, would address many of these unanswered questions.

Much remains to be learned about the effects of day care on children of all ages. The absence in the present findings of overall negative consequences resulting from participation in day care of average or typical quality during the pre school years offers reassurance to parents whose children attend day care programs generally available in the community. However, this cannot be an excuse for inaction on the part of those concerned with the welfare of children and families. The quality of care remains crucial in making placement decisions.
This study supports earlier assertions (for example, Moore, Snow & Poteat, 1988; Snow, 1985) that day care centres and staying at home are both acceptable options for parents. In the absence of reliable differential effects of the various types of care, parents may be best advised, according to Moore, Snow & Poteat (1988), to examine the ecological variation among settings and to make decisions about placement on the basis of their personal child- rearing goals and values.

The inconsistent findings in the literature indicate the importance of closer study of the people, activities, roles and social relations in different kinds of caregiving settings in order to understand better there impact on the people they serve. Simply stated, we must broaden our assessment of the direct impact that day care is having on children and their development. Though the sample was small and the focus limited to primary grade children, the present findings demonstrate that we can improve our study of the effects of day care by doing research that specifies the social dimensions of the day care program in question.

Finally, since this study suffers from several apparent limitations in scope as well as in procedure, additional research in this area is recommended. For example, there is a dearth of knowledge concerning the differential effects of alternative child care arrangements such as centre- based care, family day care, and in home care by substitute caregivers. There is also a paucity of research investigating specific features of day care programs that contribute to quality care and optimum development. Moreover, there has been little determination of the long- term developmental consequences of early substitute care. A more definite conclusion could be drawn from a study that involves more schools, comparisons of children from lower and middle SES, more sensitive measures of behavior and social competence, and longitudinal follow- up. Indeed, we have only begun to integrate day care research, evaluation, and program implementation. Whatever the effects on our children, there is little doubt that more extensive study is needed before educational policy can be based on the data from existing empirical research. Only through further investigation of the impact of programs can decisions be based on our knowledge of what is best for pre school children.

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Appendix A

Table 1

Distribution of Background Characteristics

	Group	
	Pre School (n=25)	Non Pre School (n=25)
Characteristics		
Sex		
Female	(9) 36%	44% (11)
Male	(16) 64%	56% (14)
Parents in Home		
Two	(23) 92%	88% (22)
One	(2) 8%	12% (3)

Appendix B

Pre School Experience Questionnaire

Dear Parent:

The following questions concern the nature of your child's pre school experience prior to entering the primary grade:

Please indicate whether your child remained at home prior to entering grade primary? YES NO

a. If yes, who stayed at home with your child, i.e., mother, babysitter, relative? _____

b. If no, did your child attend a pre school programme, i.e., day care, nursery school? YES NO

Please describe your child's pre school programme(s):

a. Name of facility (if there was more than one facility attended, please indicate this):_____

b. What was the approximate size of your child's class(es)___

c. What was the length of time, in months or years, your child attended this facility(s)?_____

ii. Please use the space below to provide any additional information or comments that you feel may be relevant to this study.

Name of Child:_____
Date of Birth:_____
School:_____

Appendix C

Table 2
Values of Skewness for the Dependent Variables
(Child Behavior Checklist)

Variable	Skewness	S. E. Skew	Valid N
Child Behavior Checklist-			
Social Competence Sum	-.26	.34	50
Activities	-1.01**	.34	50
Social	-.80	.34	50
School	-1.26**	.34	50
Behavior Problem Sum	.22	.34	50
Depressed	2.54*	.34	50
Social Withdrawal	2.29*	.34	50
Somatic Complaints	1.47*	.34	50
Hyperactive	2.39*	.34	50
Delinquent	1.21*	.34	50
Aggressive	2.35*	.34	50
Internalizing	.26	.34	50
Externalizing	.25	.34	50

Note: The symbol * denotes those data positively skewed, thus requiring a log transformation; the symbol ** denotes those data negatively skewed, thus requiring a square root transformation.

Appendix D

Table 3
Values of Skewness for the Dependent Variables
(Teacher's Report Form)

Variable	Skewness	S. E. Skew	Valid N
Teacher's Report Form-			
Adaptive Functioning Sum	.65	.34	50
School Performance	.21	.34	50
Working Hard	.29	.34	50
Behaving Appropriately	-.19	.34	50
Learning	.77	.34	50
Happy	.60	.34	50
Behavior Problem Sum	.41	.34	50
Anxious	2.37*	.34	50
Social Withdrawal	1.63*	.34	50
Unpopular	1.93*	.34	50
Self-Destructive	1.10*	.34	50
Inattentive	3.49*	.34	50
Nervous- Overactive	2.38*	.34	50
Aggressive	2.26*	.34	50
Internalizing	.67	.34	50
Externalizing	.72	.34	50

Note: The symbol * denotes those data positively skewed, thus requiring a log transformation; the symbol ** denotes those data negatively skewed, thus requiring a square root transformation.

Appendix E

Table 4
Multivariate Tests of Significance for the Effect of Gender

Test Name	Value	Exact F	Hypoth. DF	Error DF	Sig. of F
Pillais	.73245	1.88798	29.00	20.00	.072
Hotellings	2.73757	1.88798	29.00	20.00	.072
Wilks	.26755	1.88798	29.00	20.00	.072
Roys	.73245				

Note: F statistics are exact.

Appendix F

Table 5

Summary of Means, Standard Deviations and F Values for the Effect of Gender (Child Behavior Checklist)

	Male (N=30)		Female (N=20)		
	M	SD	M	SD	F Value
Variable					
Social Competence Sum	42.53	9.51	43.25	10.33	.063
Activities	6.53	.922	6.91	.605	2.64
Social	44.63	9.63	41.10	11.57	1.37
School	7.26	.305	7.03	.357	4.28*
Behavior Problem Sum	45.36	10.60	51.65	11.71	3.87
Depressed	1.75	.020	1.77	.045	5.62*
Social Withdrawal	1.76	.024	1.78	.054	6.00*
Somatic Complaints	57.46	3.86	59.15	6.04	1.44
Hyperactivity	1.75	.023	1.77	.042	3.72
Delinquent	1.77	.038	1.78	.032	.757
Aggressive	1.76	.037	1.77	.048	.560
Internalizing	47.73	9.54	54.50	11.09	5.29*
Externalizing	48.36	11.80	52.90	11.55	1.79

Note: * $p<.05$.

Appendix G

Table 6

Summary of Means, Standard Deviations and F Values for the Effect of Gender (Teacher's Report Form)

	Male (N=30)		Female (N=20)		
	M	SD	M	SD	F Value
Variable					
Adaptive Functioning Sum	53.13	9.91	49.60	7.98	1.77
School Performance	55.63	8.36	55.55	6.36	.001
Working Hard	57.36	9.93	55.80	8.16	.342
Behaving Appropriately	56.73	9.01	50.35	6.94	7.17*
Learning	57.00	9.06	55.00	8.16	.631
Happy	58.43	9.19	54.80	8.84	1.93
Behavior Problem Sum	44.46	9.76	50.25	9.77	4.20*
Anxious	1.75	.009	1.76	.021	6.65*
Social Withdrawal	1.75	.021	1.77	.028	3.31
Unpopular	1.75	.021	1.78	.029	17.00**
Self- Destructive	1.76	.033	1.78	.021	2.90
Inattentive	1.75	.021	1.75	.018	.019
Nervous- Overactive	1.75	.027	1.77	.036	1.66
Aggressive	1.76	.026	1.77	.036	1.78
Internalizing	47.90	5.99	51.15	7.84	2.75
Externalizing	47.06	8.41	52.30	8.18	4.74*

Note: * $p<.05$; ** $p<.01$.

Appendix H

Table 7

Means, Standard Deviations and F Values for the Effect of Care: Parent Versus Sitter Raised (Child Behavior Checklist)

	Parent (N=15)		Sitter (N=10)		
	M	SD	M	SD	F Value
Variable					
Social Competence Sum	40.66	9.89	45.80	9.30	1.69
Activities	6.74	.747	6.78	.555	.021
Social	38.53	10.37	47.90	5.82	6.67*
School	7.04	.414	7.30	.164	3.54
Behavior Problem Sum	48.13	13.21	40.80	7.43	2.52
Depressed	1.77	.043	1.74	.000	3.64
Social Withdrawal	1.76	.031	1.74	.002	3.09
Somatic Complaints	58.46	5.01	56.60	3.37	1.05
Hyperactivity	1.77	.045	1.74	.002	3.29
Delinquent	1.78	.039	1.75	.022	3.69
Aggressive	1.76	.039	1.74	.002	2.29
Internalizing	50.33	11.82	45.10	7.27	1.55
Externalizing	50.20	13.28	42.40	8.43	2.69

Note: * $p<.05$.

Appendix I

Table 8

Means, Standard Deviations and F Values for the Effect of Care: Parent Versus Sitter Raised (Teacher's Report Form)

	Parent (N=15)		Sitter (N=10)		
	M	SD	M	SD	F Value
Variable					
Adaptive Functioning Sum	50.46	9.19	53.80	8.81	.814
School Performance	55.00	7.76	55.00	5.33	.000
Working Hard	55.33	9.67	58.30	8.01	.642
Behaving Appropriately	52.06	8.27	57.80	7.09	3.21
Learning	54.33	9.61	57.50	8.55	.708
Happy	54.86	10.53	55.50	7.20	.027
Behavior Problem Sum	48.60	10.90	44.90	6.55	.921
Anxious	1.76	.021	1.74	.000	4.35*
Social Withdrawal	1.77	.026	1.75	.010	3.98
Unpopular	1.77	.037	1.75	.020	2.68
Self- Destructive	1.78	.033	1.76	.028	1.58
Inattentive	1.75	.022	1.74	.000	1.59
Nervous- Overactive	1.76	.033	1.74	.000	2.73
Aggressive	1.76	.027	1.75	.014	2.15
Internalizing	51.20	7.67	48.60	4.11	.955
Externalizing	50.86	9.09	46.10	5.23	2.23

Note: * $p<.05$.

Appendix J

Table 9

Summary of Means, Standard Deviations and F Values for the Effect of Care: Pre School Versus No Pre School (Teacher's Report Form)

	Pre School (N=25)		No Pre School (N=25)		
	M	SD	M	SD	F Value
Variable					
Adaptive Functioning	51.64	9.70	51.80	9.01	.003
School Performance	56.20	8.36	55.00	6.77	.310
Working Hard	56.96	9.60	56.52	8.99	.027
Behaving Appropriate	54.00	9.46	54.36	8.19	.020
Learning	56.80	8.32	55.60	9.16	.234
Happy	58.84	8.89	55.12	9.18	2.11
Behavior Problem	46.44	10.89	47.12	9.42	.055
Anxious	1.75	.014	1.76	.018	1.12
Social Withdrawal	1.76	.028	1.76	.023	.001
Unpopular	1.76	.023	1.77	.032	.400
Self- Destructive	1.77	.028	1.78	.031	.062
Inattentive	1.75	.022	1.75	.017	.033
Nervous- Overactive	1.76	.035	1.75	.027	1.04
Aggressive	1.76	.037	1.76	.023	.315
Internalizing	48.24	7.28	50.16	6.51	.965
Externalizing	49.36	9.38	48.96	8.01	.026

Appendix K

Table 10

Summary of Means, Standard Deviations and F Values for the Effect of Care: Pre School Versus No Pre School (Child Behavior Checklist)

	Pre School (N=25)		No Pre School (N=25)		
	M	SD	M	SD	F Value
Variable					
Social Competence Sum	42.92	9.90	42.72	9.80	.005
Activities	6.61	.968	6.76	.665	.403
Social	44.16	11.18	42.28	9.87	.397
School	7.14	.325	7.15	.356	.001
Behavior Problem Sum	50.56	10.63	45.20	11.66	2.88
Depressed	1.76	.033	1.76	.035	.089
Social Withdrawal	1.78	.050	1.75	.025	4.95*
Somatic Complaints	58.56	5.31	57.72	4.44	.367
Hyperactivity	1.76	.030	1.76	.037	.017
Delinquent	1.78	.036	1.77	.035	.418
Aggressive	1.77	.049	1.76	.031	2.64
Internalizing	52.64	10.57	48.24	10.40	2.19
Externalizing	53.28	10.93	47.08	12.03	3.63

Note: * $p<.05$.

Appendix L

Table 11

Multivariate Tests of Significance for the Gender by Care Interaction

Test Name	Value	Exact F	Hypoth. DF	Error DF	Sig. of F
Pillais	.61463	.98994	29.00	18.00	.523
Hotellings	1.59491	.98994	29.00	18.00	.523
Wilks	.38537	.98994	29.00	18.00	.523
Roys	.61463				

Note: F Statistics are exact.

Appendix M

Table 12
Means, Standard Deviations and F Values for the Gender by Care Interaction (Child Behavior Checklist)

	Male				Female				
	Pre School (N=16)		No Pre School (N=14)		Pre School (N=9)		No Pre School (N=11)		
	M	SD	M	SD	M	SD	M	SD	
Variable									
Social Competence	41.81	10.71	43.35	8.27	44.88	8.52	41.90	11.85	.609
Activities	6.41	1.10	6.66	.677	6.95	.566	6.88	.660	.465
Social	43.43	12.16	46.00	5.69	45.44	9.73	37.54	12.15	3.07
School	7.19	.286	7.26	.333	7.06	.388	7.00	.346	.434
Behavior Problem	48.68	10.28	41.57	9.98	53.88	11.03	49.81	12.45	.234
Depressed	1.75	.016	1.75	.024	1.78	.048	1.77	.044	.031
Social Withdrawal	1.76	.027	1.75	.019	1.81	.067	1.76	.031	2.47
Somatic Complaint	58.43	4.39	56.35	2.92	58.77	6.96	59.45	5.52	.951
Hyperactivity	1.75	.023	1.75	.024	1.77	.038	1.77	.047	.126
Delinquent	1.77	.040	1.76	.036	1.78	.030	1.78	.034	.334
Aggressive	1.77	.047	1.75	.012	1.78	.055	1.77	.044	.348
Internalizing	49.87	9.68	45.28	9.10	57.55	10.84	52.00	11.15	.027
Externalizing	52.50	11.48	43.64	10.66	54.66	10.39	51.45	12.73	.734

Appendix N

Table 13

Means, Standard Deviations and F Values for the Gender by Care Interaction (Teacher's Report Form)

	Male				Female				
	Pre School (N=16)		No Pre School (N=14)		Pre School (N=9)		No Pre School (N=11)		
Variable	M	SD	M	SD	M	SD	M	SD	
Adaptive Func. Sum	53.50	9.85	52.71	10.33	48.33	9.02	50.63	7.31	.324
School Performance	56.68	9.42	54.42	7.12	55.33	6.50	55.72	6.55	.349
Working Hard	57.50	10.53	57.21	9.59	56.00	8.18	55.63	8.54	.000
Behaving App.	56.68	9.19	56.78	9.14	49.22	8.36	51.27	5.79	.160
Learning	57.93	8.59	55.92	9.77	54.77	7.88	55.18	8.76	.220
Happy	60.87	9.16	55.64	8.70	55.22	7.53	54.45	10.14	.732
Behavior Problem	44.50	10.64	44.42	9.07	49.88	11.07	50.54	9.12.	.015
Anxious	1.74	.000	1.75	.014	1.75	.022	1.76	.021	.003
Social Withdrawal	1.75	.022	1.75	.021	1.77	.035	1.77	.023	.036
Unpopular	1.75	.015	1.75	.026	1.78	.026	1.78	.032	.101
Self- Destructive	1.76	.028	1.77	.039	1.79	.023	1.77	.019	1.40
Inattentive	1.75	.021	1.75	.021	1.75	.024	1.75	.012	.090
Nervous- Overactive	1.76	.027	1.75	.028	1.77	.045	1.76	.027	.364
Aggressive	1.76	.032	1.75	.019	1.77	.046	1.77	.027	.022
Internalizing	46.93	6.28	49.00	5.65	50.55	8.70	51.63	7.47	.060
Externalizing	47.50	9.18	46.57	7.76	52.66	9.32	52.00	7.58	.002

Appendix O

Table 14

Correlations Among Child Behavior Checklist Sub- Scales and the Length of Time in Day Care

	Length of Time in Day Care Correlation Coefficients
Child Behavior Checklist-	
Social Competence Sum	-.0062
Activities	-.0036
Social	-.1145
School	-.0085
Behavior Problem Sum	.2741
Depressed	.2978
Social Withdrawal	.1855
Somatic Complaints	.1166
Hyperactive	.3648
Delinquent	.2522
Aggressive	.4390*
Internalizing	.1669
Externalizing	.3638

Note: * $p<.05$.

Appendix P

Table 15

Correlations Among Teacher's Report Form Sub- Scales and the Length of Time in Day Care

	Length of Time in Day Care Correlation Coefficients
Teacher's Report Form	
Adaptive Functioning Sum	-.1598
School Performance	-.1647
Working Hard	-.1625
Behaving Appropriately	-.1213
Learning	-.1793
Happy	-.1931
Behavior Problem Sum	.4468*
Anxious	.4894*
Social Withdrawal	.5326**
Unpopular	.2682
Self- Destructive	.2918
Inattentive	.4307*
Nervous- Overactive	.5491**
Aggressive	.6109**
Internalizing	.4716*
Externalizing	.4848*

Note: * $p<.05$; ** $p<.01$.

Appendix Q

Table 16

Correlations Between Similar Scales on the Child Behavior Checklist and the Teacher's Report Form

	Teacher's Report Form-						
	Adaptive Functioning	Social Withdrawal	Inattentive	Aggressive	Inter	Exter	Behavior Problem
Child Behavior Checklist-							
Social Competence	.2743						
Social Withdrawal		.5474*					
Hyperactive			.7522*				
Aggressive				.6740*			
Internalizing					.5760*		
Externalizing						.6956*	
Behavior Problem							.6826*

Note: * p<.01.