The Role of Teacher Interaction In Preschool Children's Dramatic Play

by

Bonnie Louise MacDonald

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J. W. Finney, Chairman

P. S. Zeskind

R. T. Jones

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Abstract

Although practical guidelines in the field of early childhood education recommend a high level of involvement among teachers with children, empirical research on the effects of such involvement has been equivocal. This study assessed the contribution of teacher presence to the appropriate behavior of preschool children in a single area of the childcare setting, the dramatic play area. In addition, parent reports of child behavior problems were used to delineate two groups of children, with high and low scores on this measure. A normative analysis of differences across teacher involvement conditions indicated that children engaged in more social play when the teacher was absent. This was particularly true among those children with fewer behavior problems, and appears to have been due in part to a roughly proportional increase in interactions with an adult. Children's dramatic play also differed across these dimensions: the highest rate of this behavior occurred among low behavior-problem children when the teacher was absent, and the lowest rate was obtained among high behavior-problem children when the teacher was present. Other useful indicators included age, gender, and socialization experience. In general, older children and those with more socialization experience engaged in more appropriate play, while boys exhibited more disruptive behaviors.

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Introduction

Sidney W. Bijou has written, "Fifty years from now it is both possible and likely that educators will claim that preschool is the most important single educational experience in the life of a child" (1977, p. 138). The literature in the areas of child development, early childhood education, and behavioral psychology is replete with studies and suggestions regarding the purposes of this critical experience, and how to attain those goals. Current, state-of-the-art guidelines for preschools come from the National Association for the Education of Young Children (NAEYC), which labels adult behavior that conforms to these standards as "developmentally appropriate practice." Most importantly, this means providing for all areas of a child's development: physical, emotional, social and cognitive, through an integrated approach. Learning in young children is viewed as the result of the interaction between their thoughts and their experiences with materials, ideas and people. Any activity that stimulates one dimension of learning and development also affects the other dimensions (Bredekamp, 1986).

Because the essential goal of developmentally appropriate practice is provision of learning experiences which match each child's developing abilities while also challenging his/her interest and understanding, success in the childcare setting means not only the achievement of certain developmental milestones, but also the ability to operate on an appropriate, challenging, and satisfying level while compiling the skills necessary to attain those milestones. Precise definitions of what this means may vary

across areas of the center. This relates to an important issue from the behavioral assessment literature: because there is some degree of situational specificity in individuals' performance, an understanding of environmental variables is critical to an accurate view of behavior (e.g. Nelson and Hayes, 1986). This point is salient yet subtle in the study of children in preschool settings: although the childcare center for three to five year olds may be contained in a single room, the division of the space into distinct areas, and of the program day into diverse activities, means that children are in fact functioning in a wide variety of "specific situations."

Environmental conditions, including physical and contingency contexts, must support desired behaviors. The physical arrangement of materials communicates to the inhabitants a symbolic message of what is supposed to happen in that area, as well as providing for functional consequences of action there (Proshansky and Wolfe, 1972, cited in Phyfe-Perkins, 1980). Similarly, Shapiro (1975) argues that "space 'speaks' to children, inviting them to behave in some ways and not in others" (p. 237). Accordingly, the different expectations and rules for each activity center are themselves determined by the nature of those subsettings. In addition to behavioral goals, the needs and teaching style of adults must coincide with the physical arrangement of classrooms. Teachers' strategies must adapt to different physical settings, materials, standing behavior patterns, signal systems, and contents of activities; no single teaching style will be equally effective for all (Gump, 1980; Kounin & Sherman, 1979).

Day and Sheehan (1974) maintain that the behavior of children in early childhood settings appears to be a function of their interaction with the factors of space, materials and adult-child contacts. Indeed, the arrangement of the physical environment, along with the roles of adults there, are the two primary areas in which the question of program design has been pursued for early childhood education (Bredekamp, 1986; Phyfe-Perkins, 1980; Weinstein, 1979). In order to facilitate the preschool's goals of fostering child development, these factors must be utilized effectively. This includes division of the space into distinct areas to provide for diverse skill development, and teacher involvement in these "centers" which promotes enhancing activities. The dramatic play area (also called the housekeeping area) primarily provides opportunities for social skill, language, and cognitive-emotional development; it is one of four centers consistently found in scores of preschools and daycares studied (e.g. Shapiro, 1975).

Review of Literature

Goals for the dramatic play area: The importance of play

According to the NAEYC (Bredekamp, 1986), "children's play is a primary vehicle for and indicator of their mental growth...therefore, child-initiated, child-directed, teacher-supported play is an essential component of developmentally appropriate practice" (p. 3). It is through playful interaction with objects and people that children acquire knowlege about the physical and social worlds in which they live; therefore, in order for the childcare center to promote learning and skill development, it must facilitate productive, meaningful play. The dramatic play area, which is characterized by features such as clothes, toys, and equipment which facilitate role playing, is especially designed to promote symbolic play, which numerous authors have discussed as essential for a child's growth.

Younger children have limited experiences and knowledge to utilize in organizing information; this is what Piaget refers to when he says they "assimilate" reality to their own way of viewing it. As children grow, they amass experiences and develop cognitively so that they are better able to adapt their ways of thinking to the information presented to them by the environment; this process is called "accomodation" (Piaget, 1951). Because the form and content of role playing are generated from within the child's own mind, Piaget claims that the essential feature of play is the predominance of assimilation over accomodation. This state of disequilibrium is associated with more symbolic play, which peaks between the ages of two and four (Pulaski, 1980). Cognitive and developmental

theories maintain that active, direct, symbolic play and exploration are essential for a child's cognitive development.

Facilitating the area's goals: Design variables

The importance of the physical setting has been featured prominently in the literature on early childhood education since the nineteenth century when such programs began. In a classic work on childcare center design, Hohmann, Banet, and Weikart (1979) advocated division of the center into distinct work areas; in this way, the children will know what materials are available to them, so that their planning can be purposeful. The NAEYC (Bredekamp, 1986) also supports this design, pointing out that children need to explore and interact with adults, other children and materials; these last should be "concrete, real, and relevant to the lives of young children" (p. 4). Children can make their own choices from among a variety of activities and equipment, and engage primarily in individual and small group interactions. This format facilitates two-way communication, which is essential for the development of skills in expressing oneself and understanding others.

In regard to the house or dramatic play area in particular, Hohmann, Banet, and Weikart (1979) state its purposes as allowing for make-believe, role playing, working together, expressing feelings and ideas, and using language both to communicate roles and to respond to others. Here children can explore the uses of various tools, and dress up to elaborate their roles. The NAEYC includes dramatic play materials such as dolls, dress-up clothes and props, child-sized furniture, and puppets in their description of developmentally appropriate materials and equipment for preschoolers.

Small group play in this area is intended to provide hands-on experience to develop social skills, language development, and creative expression (NAEYC, 1985).

Extent of social interaction and mode of play have been shown to be related both to each other and to areas of the center (Rubin, 1977). Social interaction and dramatic mode were found to characterize the house and vehicle areas; reading and number activities were high in social though not dramatic play. Shure (1963) found similar results: relatively low social exchange in art activities, high in the doll area. Not only social but also destructive or aggressive play were predominant in the block area; (Shapiro, 1975; Shure, 1963). Houseman (1972, cited in Gump, 1978) found most conflict in the blocks, kitchen, and climber areas; the least appeared in the art, clothing, and snack or lunch segments.

These findings suggest that social interaction is not merely the product of numerous children in one place, but rather of the prevailing action structure of the area (Doyle, 1975, cited in Gump, 1978). Of relevance to the present study, these findings describe which behaviors are likely to occur in the dramatic play or house area: frequent social interactions and symbolic play, as well as some degree of conflict. Because it is a popular area, and one where resources may be limited (e.g. only one telephone, only one stove), adults may need to supervise children's sharing, and prevent conflict, so as to facilitate the effective cooperation and social interaction which are the goals of this area.

Role of adults in promoting learning and development

Individual contacts between teachers and children is also a goal of developmentally appropriate practice. In small to medium-sized classrooms, reduction of the child-teacher ratio from 11:1 to 8:1 does raise the number of both individual and group contacts. However, when the class size is above 22, adding another teacher does not increase the number of individual contacts (Shapiro, 1975). Further, although frequent adult contacts and reassurance increase children's social exchange with adults, they may also decrease positive attention to other children (Blurton-Jones, 1972; O'Connor, 1975). Harper and Huie (1985) assert that peer relationships represent an autonomous system that competes with the adult-child relationship; these interactions are mutually exclusive choices for individuals. These seemingly contradictory findings in the literature highlight the need to discern whether teacher involvement affects all children's on-task behavior in the same ways.

Definition of the responsibilities of teachers, especially in the dramatic play or housekeeping area, must build on the foundation established by an understanding of children's play. For instance, Pulaski (1980) explains that as children develop, their play becomes not only more realistic, but also more social. Lay-Dopyera and Dopyera (1987) state that teachers should intervene in children's dramatic play in order to develop the children's ability to engage in social interactions more adequately. Further, as described above, children's play consists of a predominance of assimilation, while their development moves toward equilibrium between

assimilation and accomodation. Therefore, Lay-Dopyera and Dopyera (1987) recommend that teachers help children to accomodate as well as assimilate through play.

One observable way in which teachers can carry out these suggestions is by adding language to children's ongoing actions. Implicit in this injunction is the assumption that the children's activities take priority; as Forman and Fosnot (1982) explain, teachers ought to observe the structure of play and then add language to it, rather than beginning with language instruction and asking the children to react. Teachers should ask questions and make suggestions; for instance, explicitly asking children their plans and goals, to facilitate the experiences that stimulate thinking and development (Bredekamp, 1986; Hohmann, Banet & Weikart, 1979; NAEYC, 1985). They should also simply reflect and provide feedback to children about the consequences of their functioning (Alward, 1976). An environment in which teachers communicate frequently and effectively with children regarding their thoughts and behaviors is essential to children's healthy development and successful performance; the dramatic play area is one where opportunities to facilitate language development are especially salient.

In addition to verbal behavior, physical and emotional behavior by teachers is important to children's achievement. Sitting low and kneeling to communicate with a child on his/her level, in addition to eye contact, confirms understanding (Bredekamp, 1986). Further, physical proximity and focused attention to children while they play facilitates successful completion of tasks. A high level of adult interaction has been found to go

along with a high degree of children's interaction with peers and activities (Tzelepis, Giblen & Agronow, 1983). More specifically, however, some evidence exists to suggest that passive adult attention may diminish children's use of language and friendly interaction (Lay-Dopyera & Dopyera, 1987). These findings have implications for the quality or type of adult involvement, suggesting that teachers should actively participate in and talk about children's play in the housekeeping area, rather than either observing or directing from outside the group.

Affectively, teachers facilitate the development of self-esteem in children by expressing respect, acceptance and comfort for them regardless of their behavior. Therefore, screaming in anger, criticizing by blame or threatening, and laughing at or discussing children in their presence are never acceptable behaviors by adults. "Positive responses such as smiles and interest, and concentrated attention on children's activity, are important" (NAEYC, p. 9).

The above discussion on teacher behavior implies a delicate balance between initiating and responding to children's actions. Spodek (1978), like others, points out that teachers must prepare, plan and guide educational play. It is the responsibility of adults to structure the learning situations, such as equipping the distinct play areas, and to provide additional, more complex materials as children's abilities increase. However, this structure and provision must constantly be developmentally appropriate, that is, responsive to the developmental levels of each of the children. In this we see the basis for a continually changing, transactional model of exchange between children and adults. Children explore and experience challenges in

response to the materials, people and ideas available to them; adults stimulate thinking and social interaction in response to children's expanding competence. Children's physical, social, emotional and cognitive repertoires grow as a result of direct interaction with objects and people; adults provide new opportunities for contact and exploration as a result of children's increasing proficiencies. It is therefore clear that in order for children to experience optimal levels of contact, challenge and performance; the environment, materials and adults must be flexible and responsive to children's needs and abilities. As is stated on the first page of Developmentally Appropriate Practice (Bredekamp, 1986), "Programs should be tailored to meet the needs of children, rather than expecting children to adjust to the demands of a specific program."

Of course, an essential element in the provision of a safe learning environment that will facilitate successful performance for all children is appropriate limit setting and discipline. A clear yet flexible limit-control system gives children some resistive force against which to push in the growth process, and provides information about the world, so as to allow children to make associations, judgements and decisions (Shack, 1976). Therefore, in order for children to benefit from such a system, teachers must make clear to the children the ground rules and expectations of the center. The NAEYC (Bredekamp, 1986) expands on this strategy by suggesting appropriate discipline techniques to support consistent, fair limits and the development of self-control in children. These methods include redirecting children, valuing mistakes as learning, listening to feelings, guiding and modelling conflict resolution, and patiently reminding

children of the rules and the rationale for them. When these strategies are implemented, children are able to learn and succeed in their childcare setting.

Teacher behavior as a reinforcer

Literally hundreds of studies have shown that teachers' delivery of social reinforcement in classrooms can improve academic, cognitive, and linguistic performance, as well as increasing rule-following, good school deportment, and social responsiveness (Strain, Lambert, Kerr, Stagg, & Lenkner, 1983). Teacher approval in the form of verbal praise has been used to alter student behavior, as well as verbal approval supplemented by nonverbal attending behaviors such as smiling, patting, holding, touching, moving toward the child, making eye contact, and varying tone of voice (Kazdin & Klock, 1973). Kazdin and Klock implemented a reversal design to study the effect of nonverbal teacher approval on student attentive behavior. They found that an increase in contingent nonverbal teacher approval, without concomitant increases in verbal approval, tended to improve students' attentive behavior. Taken together, findings from the behavioral literature suggest that modification of teachers' active, reinforcing behaviors is likely to increase the child behaviors upon which that reinforcement is contingent.

However, Strain, Lambert, Kerr, Stagg and Lenkner's (1983) naturalistic assessment of elementary school children's compliance to teacher's requests and consequences for compliance confirmed earlier reports that, in general, teachers provide more negative than positive

feedback to students. In this study in particular, the overall level of all feedback--both positive and negative--was remarkably low, and misplaced contingencies counterproductive to compliance were frequent, particularly with the children who scored lowest on academic and social competence. These results imply that naturally occurring behavior modification techniques leave much to be desired; perhaps this allows for striking improvements when researchers instruct teachers in how to apply contingencies systematically in such classrooms. The specific findings of this study also highlight the need for measures of competence as well as behavior in assessing teachers' interactions with students.

Specific to preschool children, early studies showed that contingent adult social stimulation--again, as manipulated by the researchers--successfully increased a variety of target behaviors (Baer & Wolf, 1968; Harris, Johnston, Kelley, & Wolf, 1964; Hart, Reynolds, Baer, Brawley & Harris, 1968). Relevant to the present study, Hart et al. (1968) presented a case study where they defined teacher reinforcement as remaining near the child, attending closely to her activities, and sometimes supplying her with materials or smiling, laughing, conversing or admiring. The authors were interested in increasing cooperative play, which consisted of active, playful involvement with another child. Their results showed that non-contingent reinforcement, whether continual or intermittent, did not appreciably develop cooperative play; rather, a much smaller amount of reinforcement could drastically alter the subject's behavior, as long as it was made contingent upon that desired behavior. The authors suggest that children's hostile or angry behavior may not be due simply to too little positive

attention from adults, because non-contingent positive attention in abundance did not promote replacement of the subject's undesirable behaviors in this study.

More recently, Atwater and Morris (1988) collected detailed naturalistic data on teachers' instructions, children's compliance, and the context of instructional events in preschool classrooms. They concluded that instructions were more prevalent than verbal approvals in each of the thirteen classrooms studied, and that the form of instruction (imperative, question, or declaration) was not significantly related to child compliance. However, instruction context was clearly related to the likelihood of child compliance. Children were more likely to comply when they were already appropriately engaged in an activity than when they were off-task or being disruptive, and when they were in adult-directed activities than when in low-structure activities. The latter result corroborated previous findings (e.g. Carpenter & Huston-Stein, 1980). Of particular relevance to the present study, lower rates of compliance were associated with less teacher involvement; the authors provide the examples of unstructured art or construction and dramatic play. In fact, the frequency of instructions and approvals were lowest in dramatic play of all the activity segments, as was children's proportional compliance.

These findings recall an earlier comment by Shapiro (1975), who compared child preference for activities with teacher contacts in the same settings. She found that children spent only 21% of their time in the art center, yet 35% of teacher contacts occurred here. Children played in the block and doll areas 37% of the time, yet only 17% of teacher contacts

occurred here; teachers' apparent preferences for areas of the room did not correspond to those of the children. Based on these findings Shapiro suggests that teachers may be missing valuable opportunities to enhance children's learning through their play; rather than a hands-off policy on children's dramatic play, teachers should increase their involvement in this area, which may require setting up the art area so that little adult assistance is necessary.

In summary, contingent positive reinforcement from teachers has been found to increase children's desirable behaviors, yet inconsistent or noncontingent reinforcement has not been found to reduce children's unpleasant behaviors. Children frequently engage in cooperative, dramatic play in the house area, and conflict is not uncommon, yet teacher involvement is particularly low in this area.

This review of the extant literature suggests what to look for in environmental features, and behaviors of adults and children, in the dramatic play area. Materials should be realistic, manipulable, and child-sized, including clothes and props related to role playing. Children are expected to have direct contact with materials, to use language, and to cooperate with others. Adults should sit or kneel close to the child and at his/her level, focusing their attention on the child's play and adding language to it, especially by asking questions and making suggestions which both introduce realistic elements and reflect the children's behavior. If discipline is necessary, adults will not scream at, criticize or threaten the child, but rather will redirect, listen to and remind him/her of rules.

Assessment issues

Throughout the history of early childhood education, which began in the first half of the nineteenth century with Friedrich Froebel, the field has sought to meet the needs and promote the development of individual children. In 1912 Maria Montessori wrote, "toward single individuals, one by one observed, education must direct itself" (1964, p. 104). Similarly, Evans (1982) has recommended a "bottom-up" design in which curriculum planning begins with an analysis of children's developmental characteristics, including their unique needs, interests, and ways of thinking. The NAEYC also affirms that constant attention to individual differences is essential in the preschool setting; this depends on observations and recordings of each child's special interests and developmental progress (Bredekamp, 1986).

In order to distinguish person variables which may be relevant to the dependent measure of interest, some studies divide subjects according to performance on an additional, preliminary measure, thereby adding another, specific independent variable to the hypotheses (e.g. Garcia Coll, Kagan, & Reznick, 1984; Strain, Lambert, Kerr, Stagg, & Lenkner, 1983). This procedure conforms to the guidelines of developmentally appropriate practice, in that it recognizes some individual differences rather than regarding all of the children as the same. Both this attention to individual characteristics and direct observation of all subjects are consistent with behavioral concepts as well. For example, Nelson and Hayes (1986) explain that behaviorism is generally interested in understanding the variability in an individual's behavior across situations and across time. Similarly, Cone

and Hoier (1986) have argued for a criterion-referenced, inductive, idiographic approach to the assessment of children. Both the child development and the behavioral assessment literature call for precise, thorough analysis of individual children's behavior and proficiencies.

Classification of children based on reports of behavior

Because the dependent measure in the present study is child behavior, a useful way of grouping the children for hypothesis testing is according to parent ratings of problem behaviors. Scores on such a measure would provide an indication of the child's behavioral style. In a review of empirically derived syndromes of child behavior problems, Achenbach and Edelbrock (1978) found that the two broad-band syndromes revealed in numerous studies of diverse samples of disturbed children were Overcontrolled and Undercontrolled. Other authors have used the terms introversion/ extroversion (Eysenck, 1953), internalizing/externalizing (Achenbach, 1966), and inhibited/aggressive (Miller, 1967), as well as others, to describe these children (all references cited from Achenbach & Edelbrock, 1982). These broad-band syndromes are both considerably robust, and have been shown to be related to numerous school behavior problems; the empirical derivations came from mental health workers, teachers, and parents' reports, and the broad-band syndromes appeared in all three sources. The narrow-band syndromes comprising the internalizing dimension include inhibited, shy-anxious, socially withdrawn, depressed, and somatic complaints. Those corresponding to the externalizing broad-band syndrome are primarily aggressive and delinquent behavior (Achenbach

& Edelbrock, 1982). Initial discrimination of groups of children based on the internalizing-externalizing dichotomy may be made for non-referred populations as well, using a measure which has been normed on such children (Achenbach & Edelbrock, 1983).

Behavioral inhibition to the unfamiliar among non-referred children in the first three years of life has been characterized by crying, withdrawal, and inhibition of vocalization and motor activity; at the opposite pole of reactions lie smiling, approach, and spontaneous interactions (Garcia Coll, Kagan, & Reznick, 1984). Uninhibited young children have also been described as more sociable, and often obtain higher scores on cognitive tasks, perhaps because of their greater willingness to interact with the examiner (Lamb, Garn, & Keating, 1981). Children who were extremely inhibited in the first three years have been found to be easily dominated by their peers and likely to withdraw from social interaction in the next three years, and to show avoidance of dangerous activity, infrequent aggression, conformity to parents, and social timidity between the ages of 6 and 10 (Kagan & Moss, 1962).

Garcia Coll et al. (1984) found the behavioral tendency to be extremely inhibited or uninhibited to unfamiliar people or events to be moderately stable across both time and contexts between 21 and 31 months. At age 4, these same children were again compared (Kagan, Reznick, Clarke, & Snidman, 1984). The inhibited children, in contrast to the uninhibited, had higher and more stable heart rates, looked more often at the examiner, were more reluctant to guess at cognitive tasks, exhibited less restless behavior, and showed more inhibited behavior in play with a peer. That is, they

showed longer latencies to initiate play, made fewer approaches, and spent more time proximal to the mother and staring at the other child. These children were also described as more timid and cautious by their mothers.

When the children were 5 1/2, they were observed in laboratory tasks on two occasions, and in their kindergarten setting in September and February (Reznick, Kagan, Snidman, Gersten, Baak and Rosenberg, 1986). This study again found good preservation of behavioral differences as measured at 21 and 48 months, with the differences better preserved from 4 to 5 1/2 than from 21 months to 5 1/2. Again these children were more hesitant and engaged in less social interaction with peers, even after five months with their kindergarten classmates. The authors also assert that an unfamiliar or challenging event, which is minimally stressful for most children, results in higher levels of physiological response, and more behavioral inhibition among those children classified as inhibited. The consistent data from these studies show that inhibited young children talk, initiate play, and interact with peers less than uninhibited young children.

Other child characteristics

Other demographic variables such as age, gender, socialization experience, and developmental profile may also be relevant (Day, Phyfe-Perkins & Weinthaler, 1979). Socially, older children use verbal skills and social play with peers more often than younger children, who are more likely to use physical assault as a response, to turn to adults for support, and to stare, cry, suck, point, submit and flee (Moore, 1982; Smith & Connolly, 1972). This information pertains not only to chronological age,

but also to adaptive behavior, as a child might be functioning at a different level, in terms of communication, motor, or social skills, than their age suggests.

Harper and Huie's (1985) five-year study of 3-5-year-old children in preschool looked at degree of involvement with peers--defined as alone, parallel, interactive, or cooperative--during free play, and analyzed the role of familiarity with classmates, prior daycare/preschool experience, and age in these various forms of social participation. Consistent with previous findings, familiarity was associated with decreases in the amount of time children spent alone, while time in interactive play increased. Independent of familiarity and age, children who had prior peer experience also spent less time alone and more in interactive and cooperative play than inexperienced children; this was especially true among older children. Younger children spent greater amounts of time alone; increased familiarity did not lead to a reduction in this difference. These data suggest that these variables would contribute to children's performance in the dramatic play area, where cooperative play is encouraged.

Pilot Work

Pilot work was conducted at the laboratory school of a large university in the area. In the dramatic play area of the room, children aged 3 and 4 were both videotaped and observed in vivo from behind one-way glass. The project leader and assistant utilized these observation sequences to implement the coding system, clarify behavioral definitions, obtain preliminary reliability ratings for the code, and estimate the magnitude of difference between two children who seemed to be an internalizer and an externalizer.

Initial usage of the behavioral coding system with an interval recording system revealed considerable overlap between some behavioral categories, suggesting a collapsed code would be more efficient and equally effective. For example, teacher proximity of six feet or less is redundant with teacher presence in an area that is only approximately 35 square feet in size. Also, some behaviors occured so infrequently as to be unnecessary; for instance, nonverbal threatening was subsumed under disruptive behavior. Child behaviors were more clearly specified so as to conform with the literature's recommendations for this area; as a result, the remaining child appropriate behaviors consist of four precise categories.

Preliminary reliability coefficients were calculated for 52 minutes of child observations, and 32 minutes of teacher observations in reference to target children. These percentages must be interpreted with caution for two reasons: the two observers conferred regarding behavioral definitions after every six minutes of observations, and they were not coding both child and teacher behavior concurrently as was done in the actual study.

Combined (occurrence and nonoccurrence) reliability was calculated as the total number of intervals in which both observers coded a behavior identically (agreements) divided by the total number of intervals observed (agreements plus disagreements) and multiplied by 100. For eight child behaviors, combined reliability ranged from 77% to 100%, with the mean being 90% (see Table 1). For seven teacher behaviors, combined reliability ranged from 78% to 100%, with a mean of 89% (see Table 2).

Insert Tables 1-2 about here

Two female children were noted as having very different patterns of behavior, especially when a teacher was or was not present. That is, one child was talkative and engaged in role playing while a teacher was participating in an activity with and talking to her; the other child was quiet and merely observed the ongoing action when no teacher was present or one was talking to other children. The first child was described by her teacher as having difficulty sharing and expressing herself, with a history of temper tantrums and a tendency to become so frustrated that she does nothing but scream. She was described as having few positive interactions with peers, and "certainly not the shy, quiet type." This child appears to fit the description of an externalizer, based on her teacher's account.

The other child was described by her teacher as timid, fragile, and tending to be bullied by the other children. She tends not to stick up for herself but rather to tell the teacher if another child bothers her. Her

teacher reported her to fall toward the withdrawn end of the shy-to-outgoing continuum, suggesting she fits the description of an internalizer. Taken together, this information places these two children in the two categories predicted to be maximally different in this research as originally formulated: an externalizer with a teacher highly involved would have been expected to have significantly more success in the dramatic play area than an internalizer with a teacher minimally involved.

During six minutes of observation with a teacher constantly sitting on the floor near her, the externalizing child was on task for 22 out of 24 (92%) of the intervals, role playing for 20 out of 24 (83%) of the intervals, and interacting socially for 20 out of 24 (83%) of the intervals. Eight out of 20 (40%) of these last were with the teacher. No inappropriate behaviors were observed. In contrast, during six minutes of observation with a teacher involved in the action during only 9 out of 24 (37%) of the intervals, the internalizing child was on task for 2 out of 24 (8%) of the intervals. She was also role playing for 8% of the intervals, and interacting socially for only 1 out of 24 (2%) of the intervals. This single interaction was with the teacher. Further, she engaged in on-looking behavior, which is an off-task (inappropriate) category, during 13 out of 24 (54%) of the intervals. Table 3 portrays this data and indicates a considerable difference between these two children under these two conditions.

Insert Table 3 about here

An extensive teacher interview was conducted with each of three teachers at the laboratory school. In addition to the dramatic play area, questions were asked concerning the other four learning centers, discipline policies, and guidelines for center rotation. Compilation and comparison of the three teachers' responses suggested considerable agreement regarding the role of adults in facilitating children's success in the different areas, as well as regarding expectations or goals for the children. This finding may be due to precise staff training and little emphasis on rules or expectations; all three teachers pointed out that they try to have few rules, and that the children can do virtually anything that is not harmful to anyone. Findings from the laboratory school must be interpreted with caution, however; because teachers there are mostly graduate students in Family and Child Development, they are better educated than most workers in the field of early childhood education. The major finding of interest for the present study was that the interview itself appeared to be useful in discerning teachers' knowledge of guidelines for appropriate practice, as well as similarities and differences among individuals respondents. An abbreviated form, including only the questions relevant to the dramatic play area, was drafted for use in the present study.

Overview of the Present Study

A childcare setting based on the learning center design is divided into distinct work areas such as art, manipulatives, blocks, listening and language, and dramatic play. The dramatic play area (also called the housekeeping area) provides opportunities for social skill, language, and cognitive-emotional development (Bredekamp, 1986; Hohmann, Banet & Weikart, 1979). Equipped with materials such as dolls, dress-up clothes and props, child-sized furniture, and puppets, the area encourages cooperation, expressing feelings and ideas, and symbolic play; according to Piagetian theory, this last peaks in children between the ages of two and four (Pulaski, 1980).

In addition to design variables, teacher involvement is an important determinant of children's play behavior (Day & Sheehan, 1974; Phyfe-Perkins, 1980; Weinstein, 1979). The National Association for the Education of Young Children (NAEYC) points out that individual contacts between teachers and children is a primary goal of developmentally appropriate practice (Bredekamp, 1986; NAEYC, 1985). Children's activities and an understanding of their play provide the basis for adults' roles; teachers should observe children's play and then ask questions, make suggestions, and provide feedback in order to facilitate social interactions, realistic as well as creative play, and self-reflection (Alward, 1976; Bredekamp, 1986; Forman & Fosnot, 1982; Lay-Dopyera & Dopyera, 1987).

While the early childhood education literature recommends a high level of teacher involvement, empirical support for its benefits has been equivocal. Tzelepis, Giblen, and Agronow (1983) found numerous adult

interactions to go along with a high level of children's interactions with peers and activities. Yet others have shown that although frequent adult contacts and reassurance increase children's social exchange with adults, they may also decrease positive attention to other children (Blurton-Jones, 1972; O'Connor, 1975). Passive adult attention may also diminish children's use of language and friendly interaction (Lay-Dopyera & Dopyera, 1987).

Naturalistic assessment studies also suggest that teacher involvement in the dramatic play area tends to be notably low (Atwater & Morris, 1988; Shapiro, 1975). Based on her findings, Shapiro suggests that teachers may be missing valuable opportunities to enhance children's learning through their play. Thus, regardless of discrepant findings in the empirical literature, the majority of practical resources recommend that teachers increase their involvement in children's dramatic play.

An important element which has been consistently underrepresented in these guidelines, however, is attention to individual children's particular abilities and needs. The majority of studies report results of teacher involvement and its effect on child behavior as though all children responded in the same way. Other studies have examined the relationship of child characteristics such as gender, age, and socialization experience to appropriate play, yet have not simultaneously recorded the influence of teacher behavior on these different children (e.g., Harper & Huie, 1985). The result is a missed opportunity to examine potential interaction effects and to refine recommendations for teacher behavior based on additional insight into its benefits for particular children. In fact, the NAEYC specifically defines recognition of and allowance for individual differences as one of the

essential features of developmentally appropriate practice (Bredekamp, 1986).

Numerous instruments are available to measure behavioral characteristics and identify such individual differences. The Child Behavior Checklist (CBCL/2-3, Achenbach, 1986; CBCL/4-16, Achenbach & Edelbrock, 1983) provides an age-related profile of children's behavior, and features internalizing and externalizing dimensions, which have been shown to be related to numerous school behavior problems, sociability, behavioral inhibition, and aggressiveness. For instance, studies have shown that inhibited young children talk, initiate play, and interact with peers less than uninhibited young children (Garcia Coll, Kagan, & Reznick, 1984; Kagan, Reznick, Clarke, & Snidman, 1984; Reznick, Kagan, Snidman, Gersten, Baak and Rosenberg, 1986). At the same time, undercontrolled or externalizing children are more likely to engage in aggressive behaviors or to use toys inappropriately (Achenbach, 1978; Quay & Peterson, 1975).

Thus, it would appear that children with more identified behavior problems might have difficulties in the dramatic play area, where social interaction, appropriate use of language and materials, and cooperation are primary goals. These children may have less well-developed social skills than their peers who demonstrate few behavior problems, and so may tend to play alone, to encounter conflicts, or to manifest deficits in communicating with others. All of these behaviors contradict the goals of the dramatic play area. Further, these children may rely more on the guidance of adults to structure their play effectively, while their low-behavior problem counterparts may be more independent.

As suggested above, other child characteristics which might be related to children's play include age, gender, developmental profile, and socialization experience. The last would include time spent in daycare, number of siblings, and number of playmates in the neighborhood. Research suggests that older children and those with prior peer experience engage in more social interactions (Harper & Huie, 1985; Moore, 1982).

Goals of the present project

The primary purpose of the present study was to analyze whether teacher presence or absence was associated with children's social play (social interaction), role playing (dramatic play), and play with materials in the dramatic play area; these constitute appropriate behavior in this setting. Although a teacher's presence may facilitate children being on-task, she may also captivate their attention to the exclusion of interaction with their peers. A second goal of the project was to compare the differential effects of teacher presence or absence on high- versus low-behavior problem children. If children who exhibit more behavioral problems perform better when they can refer to adults for guidance and support in this peer situation, teacher involvement may bring the high-problem children's frequency of appropriate behavior closer to that of the low-behavior problem children. A third goal of the project was to examine the role of other child variables than behavior problem profiles; age, socialization experience, and competence in adaptive behaviors may affect their performance in the dramatic play area. Confirmation of these expectations would provide useful information that teachers may be able to

use in their interactions with children in this area of the daycare center. A final major goal of the project was to examine how teachers describe the objectives of the dramatic play area and their own roles in promoting attainment of these. If workers in the field provide expectations for themselves and the children which diverge from those advocated by the theoretical and empirical literature, this would have implications for training these staff in improved practice. This finding would also impact the nature of the study's assessment: if teachers' and children's behavior conform to the staff's expectations, the experimenter's a priori assumptions may need modification.

Hypotheses

1) Differences between high- and low-behavior problem children will vary according to the behavior of adults such that an interaction will occur between child behavior profile and teacher involvement condition. More specifically, it is predicted that low-behavior problem children in the teacher present condition will have the highest success rate, while high-behavior problem children in the teacher absent condition will have the lowest success rate.

2) There will be significant differences between the high- and low-behavior problem children on observational measures of appropriate behavior in the dramatic play area. This main effect for behavior profile will reveal that high-behavior problem children exhibit fewer appropriate behaviors than low-behavior problem children, averaged across teacher involvement conditions.

3) There will be a significant main effect for teacher involvement such that the teacher present condition will be associated with more appropriate child behaviors, averaged across children's behavior profiles.

4) There will be a main effect of behavior profile on inappropriate behaviors, with high-behavior problem children showing more disruptive behavior than low-behavior problem children.

5) There will be significant positive correlations between the child variables of age and developmental index scores, and the dependent variables of appropriate behaviors.

Method

Subjects

Thirty children enrolled at a private daycare center in southwestern Virginia and their teachers were the subjects of primary interest in this study. All of the children between the ages of 36 and 66 months with parental consent (n = 39) were included as subjects for demographic, developmental, and behavior problem assessment. Three five-year-old kindergarten children who attended the center after school were also included in the study in order to obtain sufficient numbers; the design, supervision, and activities in their classroom were very similar to those in the preschool rooms.

Setting

The settings for the study were the dramatic play (or "housekeeping") areas of three classrooms within the center, each of which was arranged into distinct areas according to the learning center design (Hohmann, Banet, & Weikart, 1979). One classroom contained three-year-olds, another four-year-olds, and the third, kindergarteners. The two preschool classrooms each had three adults present during most of center time, while the kindergarten room was usually staffed by two teachers. The dramatic play areas had equipment such as a child-sized stove, refrigerator, sink, table, and chairs, and materials such as dress-up clothes, dishes, dolls, and utensils. These items facilitate role-playing and allow for direct manipulation of materials (Bredekamp, 1986; NAEYC, 1985).

Measures

The independent variables assessed included demographic characteristics, developmental index, behavior checklist scores, and teacher involvement in the dramatic play area. The primary dependent variable was child behavior; this and teacher involvement were assessed through direct observation. An interview with teachers provided ancillary information. Table 4 shows these variables and how they were measured.

Insert Table 4 about here

Demographics. To assess demographic characteristics, each child's date of birth, gender, position in the sibling order, socialization experience, special needs, and parents' work and level of education were obtained from parents. The latter two items were converted to a measure of socioeconomic status (SES) using the Hollingshead four-factor index (Hollingshead, 1975; see Appendix A). This instrument was selected for its satisfactory psychometric properties (see Appendix B) and its frequent use in obtaining SES scores in two-income families.

Developmental Index. To assess personal and social competence, the Minnesota Child Development Inventory (Ireton and Thwing, 1974; see Appendix C) was completed by all consenting parents. In addition to a measure of general development, the inventory measures gross motor, fine motor, expressive language, conceptual comprehension, situation comprehension, self-help, and personal-social skills. This measure was selected for its satisfactory reliability and validity (see Appendix D), its

ease of administration, and its specification of domains relevant to the goals of the dramatic play area. It consists of 320 items and requires approximately thirty minutes to complete.

Child Behavior Scores. To assess all of the children's behavioral profiles, the Child Behavior Checklist (CBCL) for 2-3 year olds (Achenbach, 1986; see Appendix E) or 4-16 year olds (Revised edition, Achenbach and Edelbrock, 1983; see Appendix F) as appropriate was administered to parents. The measure for 4-16 year olds consists of 118 behavior problem items and 20 social competence items, and takes approximately 15-20 minutes to complete (Achenbach & Edelbrock, 1981). The CBCL scales were constructed from analyses of parents' ratings of 2,300 clinically-referred children and normed on 1,300 nonreferred children (Achenbach, 1987). Data obtained were scored on the Revised Child Behavior Profile, a standardized profile for portraying and categorizing the behavioral disorders and competencies of clinically referred children (Achenbach, 1987; Achenbach and Edelbrock, 1981; see Appendix G for a sample profile. This profile shows a child whose behavior is within the normal range but who shows a relatively high number of problem behaviors. In the present study a median split identified this child for membership in the high problem score group.

The CBCL has been shown to yield very good stability over time, and interrater reliability has ranged from moderate to excellent. Construct, criterion-related, and content validity have also been well established (see Appendix H for reliability and validity data).

The instrument for younger preschoolers (CBCL/2-3) consists of 99 items describing behavioral/emotional problems and takes approximately 10

minutes to complete. Factor analysis of 398 completed forms revealed six syndromes and two broad-band groupings, internalizing and externalizing categories comparable to those found on the CBCL/4-16. Data on reliability and validity have shown this to be a robust measure, useful for identifying problems in the early years (see Appendix H).

Direct Observations. To assess behavior of high- and low-behavior problem children and their teachers in the dramatic play area, in vivo behavioral observations were made. Observation and recording of children's behavior focused on occurrence of designated appropriate and inappropriate behaviors (see Appendix I for formative changes, and Appendix J for behavioral definitions). The interval recording method allowed for simple conversion of the data into a percentage of total intervals in which children engaged in these behaviors (Kazdin, 1981). Actual duration of these occurrences was not measured; therefore the data reflect whether or not there is any occurrence, rather than its frequency. Appropriate child behaviors in the housekeeping area included focused attention to materials, role-playing as indicated by use of language or dress-up clothes, and social interaction such as sharing toys, non-accidental physical contact which is not involved in rough or antagonistic play, and talking or listening to an adult or another child (NAEYC, 1985; Bredekamp, 1986). Off-task child behaviors included disruptive behaviors such as yelling, hitting, and grabbing (Shapiro, 1975). Teacher behaviors in relation to the index child focused on presence versus absence in the area, and interaction, including touching and talking (Bredekamp, 1986). Information regarding the behavior of individuals (i.e., interval counts) were retained so that occurrence of

identified behaviors by a single child could be quantified, as well as behaviors of adults in relation to that child, or of all the children in each behavior profile group in the dramatic play area. See Table 5 for a list of behaviors to be observed, and relevant references.

Insert Table 5 about here

Teacher interview. To assess teachers' knowledge and portrayal of the purposes of the this area, individual interviews were conducted with staff members. A semi-structured interview procedure developed by the author and utilized with staff at a nearby child development laboratory school (see Appendix K) was used to collect these data. Interviewees described the rules and expectations for child behavior in the dramatic play area during center time, including the mode of play (solitary, parallel or social) and the rationale or goals for the area. Each staff person also described the role of adults in this center, including number and physical proximity of adults, discipline methods, and strategies to facilitate children's performance that complies with stated expectations. These reports were compared to the views of the current literature on early childhood education, in order to ascertain teachers' understanding of these ideas, and to provide insight into the program's atatinment of its own, self-defined goals.

Procedure

The project leader recruited a senior undergraduate psychology student to serve as the primary research assistant. The project leader and assistant obtained signed consent forms from parents, distributed the demographic information form, CBCL and MCDI to parents when they came to drop off or pick up their children, and collected them after they had been completed at home. These packets included instructions to parents suggesting they complete a single questionnaire at one sitting if possible. Scoring of these standardized measures followed instructions as stated in the manuals (Achenbach & Edelbrock, 1983; Ireton & Thwing, 1974; Hollingshead, 1975). The children's internalizing and externalizing t-scores on the CBCL were then reviewed and divided at the median, such that those with one or both subscale scores at or below 51 were identified as low behavior problem children (n = 20) and those with scores at or above 52 were identified as having a high number of behavior problems (n = 19). Two groups of fifteen children each were then delineated, matched for age and gender. Seven boys and eight girls--six aged 3, seven aged 4, and two aged 5--made up the low behavior problem group, while seven boys and eight girls--five aged 3, seven aged 4, and three aged 5, made up the high behavior problem group (see Table 6).

Insert Table 6 about here

During the same week as these preliminary assessments were being made, observer training took place, following suggestions from Hartmann

(1984). Observers were four undergraduate students, with the author serving as an additional, reliability observer. Training began with general orientation, including rationale for and introduction to the project, while emphasizing the need for remaining naive regarding the purpose of the study and its experimental hypotheses. Observers were warned against attempts to generate their own hypotheses and instructed to avoid private discussions of coding procedures and problems. Next, observers memorized operational definitions and scoring procedures; written tests assured their facility with this material. Members of the team then practiced identifying these behaviors through observation of videotaped sequences of preschool children in the dramatic play area during center time at a facility other than the site of the study. The team discussed definitions and the coding procedure in reference to one videotape, and then practiced coding, without any discussion, using a second tape. Codes were then reviewed and discussed, and the process repeated using a third videotape, until a criterion of at least 80% reliability with each observer was obtained.

Practice in the observation setting itself followed. Three days of practice in the preschool setting served the dual purpose of familiarizing observers with the setting and allowing subjects to habituate to the observation procedures. Reliability and responses were also checked and discussed at this time. Periodic reliability checks continued throughout classroom data collection, by bringing in a second observer (the author). Approximately one quarter of the coding done by each observer was checked for interrater reliability, which was computed for each category of behavior for each subject by dividing the sum of observer agreements by the sum of

agreements and disagreements. The mean occurrence agreement was 94% for play with materials, 86% for role playing, 81% for social play, 81% for disruptive behavior, 76% for interacting with an adult, and 78% for an adult interacting with the child (see Table 7).

Insert Table 7 about here

Following training and practice, members of the observation team continued to observe and record children's and adults' behavior in the settings, with data retained for analysis. Each day one observers was in each of the classrooms with a list of the index children. Initially, observers listed the index children present in the area when they arrived and used this order for determining which child to observe, adding to the list as more children joined the others. As the data collection continued, the author provided the observers with a daily list of children for whom relatively little observation had been achieved, in order from most- to least-needed. Observers followed this list as a guideline in prioritizing children for observation, and enlisted the teachers' cooperation to encourage those children to play in the dramatic area that day. Observers also noted the group size (how many children were present in the area) at the initiation of coding, and whenever this changed during the observation period. At the same time, observers recorded whether a teacher was present or absent, and if she interacted with the index child. Behaviors recorded are defined in Appendix J.

Observers were equipped with small tape recorders and headphones, through which they heard a continuous tape identifying "observe" and "record" sequences. Observations were made for ten seconds, followed by five seconds of recording. One child was the index subject continuously for up to twelve minutes (or until he/she left the area), then a second child was be the index subject continuously for up to twelve minutes, and so on, until center time was over. Observations took place every day until at least 30 minutes of center time play observations were recorded per child ($\underline{M}$ = 42.6, $\underline{SD}$ = 13.0); data collection was completed in six weeks. With no more than twelve minutes per observation, this method provided a minimum of four different observation days per child ($\underline{M}$ = 7.5, $\underline{SD}$ = 2.5), which allowed for a good sample of each child's behavior in a single area of the room, during a segment of the program day which is two hours long.

During the first three weeks of data collection, teacher behavior was simply recorded as it naturally occurred. However, observers pointed out that adults infrequently joined children in the dramatic play area; therefore the teacher present condition of the study was underrepresented. For the subsequent three weeks, teachers were occasionally prompted to play in the area with the children, and verbally reinforced for doing so at the end of observational sequences. Teacher involvement during the second half of data collection was notably higher than during the first half; the average time an adult was present in the area increased from eight to seventy-four percent of the time observed. A true difference in teacher involvement seems to have been obtained between the teacher present and teacher absent conditions.

Teacher interviews were carried out after the collection of observational data was completed, so that the interview experience did not bias teachers' observed behavior. Interviews were scheduled in advance, conducted privately by a research assistant, and audiotaped. Each staff member was asked not to discuss the interview or her answers with other staff. Questions focused on the organization, purposes, and expectations for children in the dramatic play area, as well as the role and strategies of adults in facilitating achievement of these goals (see Appendix K). Each interview took approximately 10-15 minutes to complete. The interviewer then transcribed the conversation from the audiotape, and the answers to each of the questions were compiled, with the coded identities of each respondent retained. This allowed for comparison of these answers to those found in the early childhood education literature, as well as comparison of each teacher's answers to those of her co-workers.

Results

Data were analyzed in the following steps: (1) F tests were used to compare the variances of all dependent and independent variables among two groups of children: low CBCL score children and high CBCL score children; (2) analyses of variance were conducted to examine differences on criterion variables between the two groups and under the two conditions of teacher present and teacher absent; (3) pairwise comparisons were examined to describe further the mean group differences; (4) Pearson correlations and simple linear regression equations were calculated to explore further the relationships between variables; (5) multiple linear regression equations were completed to identify variables predictive of index behaviors; and (6) qualitative analyses of teacher interviews were conducted to assess the match between teachers' stated goals and strategies and those found in the early childhood education literature, as well as the extent of similarity among the responses provided by the individual staff members.

Individual children's data were transformed from the raw number of ten-second intervals in which each behavior occurred to a percentage of the total intervals during which that child was observed. The dependent variables consisted of five child behaviors--play with materials, role playing, social play, disruptive behavior, and interaction with an adult--and one teacher behavior--interacting with the index child.

Group means, standard deviations, and variances were computed for each of the six index behaviors, under each of the two teacher conditions as

well as across teacher conditions. Tables 8-10 show these values, in addition to the obtained F statistics and p-values in tests for no differences between the variances. Social play and disruptive behavior were found to be equal both when the teacher was present and when she was absent, as well as across these two conditions. Play with materials and role playing varied significantly between the two groups of children when the teacher was present ($F_{(13,13)} = .2837$; $p < .25$; and $F_{(13,13)} = .2349$; $p < .25$, respectively, see Table 8) and in the combined present and absent condition ($F_{(28,28)} = .4273$; $p < .25$; and $F_{(28,28)} = 1.806$; $p < .25$, respectively, see Table 10), but not when the teacher was absent ($F_{(14,14)} = 1.343$; $p > .25$; and ($F_{(14,14)} = 1.296$; $p > .25$, respectively, see Table 9). Children interacting with adults varied in the teacher absent and combined conditions ($F_{(14,14)} = .416$; $p < .25$; and $F_{(28,28)} = 1.393$; $p < .25$, respectively, see Tables 8 and 10), while teachers interacting with children varied only in the combined condition ($F_{(28,28)} = 1.393$; $p < .25$).

Insert Tables 8-10 about here

Child Behavior Under Two Teacher Conditions

A repeated measures analysis of variance with each child used as a random effect was computed to examine the effect of CBCL score (high vs. low) and teacher condition (present vs. absent), as well as the interaction of these factors, on each of the five child behaviors and one adult behavior. Since each of the children was observed under each of two conditions, the total number of observations for this test was 58 (15 x 2 for the teacher

absent condition plus 14 x 2 for the teacher present condition, as there were two children for whom data were missing in this condition). Table 11 shows the analyses of variance results.

Insert Table 11 about here

The interaction of the two independent variables on the criterion behaviors was nonsignificant for all of the six child behaviors; hence the main effects were examined without qualification by an interaction effect. The only possible exception here was in the case of social play, where the interaction effect showed a trend toward significance ($F_{(1, 28)} = 2.59$; $p < .25$).

Two main effects were also obtained for social play, which may be qualified by the interaction effect. Low-CBCL score children engaged in social play--that is, they interacted with their peers--more than high-CBCL score children ($F_{(1, 28)} = 5.31$; $p < .05$), and children interacted with each other more when a teacher was absent than when she was present ($F_{(1, 28)} = 29.87$; $p < .0001$). Group differences on other behaviors did not reach significance. As expected, children interacted with an adult more when an adult was present in the area ($F_{(1, 28)} = 45.86$; $p < .0001$) than when they had to leave the area or call out to talk with a teacher. Similarly, adults interacted with children more when they were in close proximity ($F_{(1, 28)} = 43.71$, $p < .0001$). Estimates of effect size for decreased social play (-32.5) and increased teacher contact (25.1) suggest that these two behaviors are reciprocal.

Children's role playing showed a trend toward significance, which suggests that low-CBCL score children engaged in this behavior somewhat more than their high-CBCL score counterparts ($F_{(1, 28)} = 2.71$; $p < .25$). No significant differences were found on either disruptive behavior or play with materials.

Pairwise Comparisons on Group Means

Duncan's Multiple Range test was selected for its moderately conservative property of controlling Type I error rate on a stepwise basis, and applied to those dependent variables for which at least marginally significant results were obtained at the ANOVA level (social play, role playing, interacting with an adult, and the teacher interacting with the index child). Tables 12-14 show these results. Tests performed on the cell means provided additional insights into interactional effects not revealed by the analyses of variance (see Table 14). For instance, two cells were significantly different on children's role playing: the highest rate of this behavior occurred among low-CBCL score children when the teacher was absent; the lowest rate of occurrence was among high-CBCL score children when the teacher was present ($p < .05$).

There were no significant differences in the social play of high-CBCL score children between teacher-present and teacher-absent conditions. However, teacher presence did affect the social play of low-CBCL score children: this behavior was significantly reduced when the teacher was present in the dramatic play area ($p < .05$). At the same time, the lowest

rate of social play among these children was still significantly higher than that of the high-CBCL score children ($p < .05$).

Significant main effect differences were also found between the high- and low-CBCL score groups on the dependent variables of social play ($x_{low} = 56.0$, $x_{high} = 43.2$; $p < .05$), and role playing ($x_{low} = 35.9$, $x_{high} = 23.8$; $p < .05$; see Table 12). Children with fewer reported behavior problems engaged in higher rates of both of these desirable behaviors. Group differences on the teacher interaction behaviors did not reach significance.

Comparison of the teacher involvement conditions also revealed significant differences on social play (see Table 13). When an adult was present, the average percentage of time children interacted with each other was 36.2, while this value was 62% when the teacher was absent ($p < .05$), although the interaction effect suggests that this difference was obtained largely by the change in behavior of low-CBCL score children.

Children interacted with an adult an average of 36.4 percent of the time when the teacher was present, compared to only 5.9 percent when she was absent ($p < .01$). Adults interacted with children 35.2 percent of the time during the teacher present condition, in contrast to only 6.3% when the adult was absent ($p < .01$). These differences were obtained for both groups of children, and there were no differences between the groups in either teacher condition. Differences on role playing under these two conditions did not reach significance.

Insert Tables 12-14 about here

Relationship of Age and MCDI Score to Child Behavior

Pearson correlation coefficients were used to assess the relationship of chronological age to the dependent variables of child behaviors, and simple linear regression equations were employed to examine their relatedness to developmental index (MCDI) scores. Although not all independent and dependent variables may be normally distributed, Pearson correlations were employed throughout for the purpose of uniformity, whereas a decision could have been made to use Spearman correlations as indicated, and then to transform all variables for the purpose of subsequent regression equations.

A trend toward significance was found for age in relation to role playing, but differentially based on teacher condition. Younger children engaged in this behavior less when the teacher was absent (Pearson's r = .30, $p < .25$), and more when the teacher was present ($r = -.32$, $p < .10$; see Table 18). Age was marginally significantly related to social play, but only when the teacher was absent; in this condition older children tended to interact with their peers more ($r = .31$, $p < .10$; see Table 20). Age was not found to be related to any of the other child behaviors.

Performing below age level on any of the MCDI scales was also marginally related to role playing, but only when the teacher was present ($F_{(1, 28)} = 3.52$, $p < .10$; see Table 18). In this condition, children with fewer scales below age level tended to engage in role playing more often

(b = -20.49). None of the other child behaviors were significantly related to obtained score on the developmental index.

Interrelationships Among Dependent Measures

Correlations were also calculated for the dependent measures of child and teacher behavior, under each of the teacher conditions, to illustrate which of these behaviors are associated with each other (see Table 15). Two 6 x 6 matrices were produced; six results were significant. Social play was significantly correlated with role playing when a teacher was present (Pearson's r = .55; p < .005) as well as when she was absent (r = .59; p < .0005), suggesting that children tend to interact together when they engage in dramatic play. Children's interaction with an adult was understandably correlated with a teacher interacting with the child (r = .95, p < .0001; r = .80, p < .0001 under the teacher present and teacher absent conditions, respectively). Disruptive behavior was marginally negatively correlated with play with materials when the teacher was present (r = -.36, p < .10), implying that at times children are entirely off-task--i.e. being disruptive and not playing with toys at all--under this teacher condition. Only when a teacher was absent, disruptive behavior was positively correlated with the teacher interacting with the child (r = .40, p < .05), suggesting that teachers respond to these inappropriate behaviors more when they are outside the housekeeping area. No other significant correlations were found among the dependent measures of behavior.

Insert Table 15 about here

Interrelationship Among Independent Measures

Other, supplementary analyses were also performed to explore further the relationships between variables, and the ability of independent measures to account for the variance in the child behaviors. Pearson correlation coefficients were used to assess the interrelationship among the continuously-measured independent variables, which included CBCL subscales scores (internalizing and externalizing t-scores), age, age when placed in day care, socioeconomic status (SES), number of siblings, and number of playmates in the neighborhood (see Table 16). While the large correlation matrix (6 x 6) introduces the possibility of falsely positive results, these statistics are not being used to test hypotheses, but rather as diagnostics for interpreting subsequent regression equations. Four significant correlations were obtained.

A significant, positive correlation was found between internalizing t-score and externalizing t-score on the CBCL (Pearson's $r = .71$; $p < .0001$), indicating that children with either high or low problem scores on one of these subscales tend also to have a score in the same direction on the other subscale. This result suggests that this sample of children does not feature individuals with distinctively internalizing or externalizing behavior profiles. Further, the highly significant correlation indicates a need for caution in interpreting these covariates in the regression equations, as

either one may singly appear when the other might also be a significant predictor if considered in isolation.

Insert Table 16 about here

These two CBCL subscale values were significantly correlated with only one other independent variable: socioeconomic status (SES). Externalizing t-score was slightly more related to SES ($r = -.40$; $p < .05$) than internalizing t-score ($r = -.39$; $p < .05$). The negative relationships here suggest that higher SES is associated with fewer reported behavior problems.

SES was also significantly correlated with the child's age when placed in daycare ($r = -.39$; $p < .05$). This negative relationship suggests higher SES families place their children in daycare at a younger age. Again, caution is warranted in interpreting regression equations which contain these covariates, as they have been shown to be correlated.

None of the other correlations, between CBCL subscale score, age, age when placed in daycare, number of siblings, number of playmates, and SES reached significance.

Simple linear regression equations were used to predict each of these continuous, independent variables from the dichotomous, categorical variables of parental divorce, sex, and performance below age level on any MCDI scales (6 x 3 equations were performed; see Table 17). Four significant results were obtained. Internalizing t-score was significantly predicted from parental divorce ($F_{(1, 28)} = 4.435$; $p < .05$), although

externalizing t-score was not ($F_{(1,28)} = .22$; $p < .75$). The beta-weight of 5.85 for divorce in predicting internalizing behavior suggests this is a positive relationship, with children of divorce showing more such behavior.

Insert Table 17 about here

SES could be predicted with marginal significance from parental divorce ($F_{(1,28)} = 3.554$; $p < .10$), with a beta-weight of -7.4 suggesting an inverse relationship, in which divorced families have a lower SES. Externalizing t-score could be predicted from sex with marginal significance ($F_{(1,28)} = 3.027$; $p < .10$; $b = -5.18$), suggesting boys tend to exhibit more externalizing behaviors. Finally, externalizing t- score could also be marginally significantly predicted from MCDI scores ($F_{(1,28)} = 3.40$; $p < .10$; $b = -5.56$), such that children with no developmental subscales below age level tended to exhibit more externalizing behaviors. These significant relationships must be borne in mind when the variables are interpreted as covariates in predictive multiple regression equations. None of the relationships of the dichotomous variables (i. e. parental divorce, sex, and MCDI score) to those of number of siblings or number of playmates reached significance.

Prediction of Child Behavior

Rather than performing multiple linear regression analyses including all ten person variables, correlations and simple linear regression equations were first reviewed to observe simple relationships between independent

and dependent variables. A significance level up to .10 was accepted in this exploratory phase. Multiple regression was then performed to determine to what extent these related variables can account for the variance in the criterion variables. A 10 x 12 matrix was produced; 19 significant correlations were obtained.

The following variables were shown to be related to children's role playing when the teacher was present, in the preliminary phase of analysis: internalizing t-score (Pearson's $r = -.39$; $p < .05$), externalizing t-score ($r = -.32$; $p < .10$), age ($r = -.32$; $p < .10$), number of siblings ($r = .36$; $p < .10$; see Table 18), and MCDI below age level ($F_{(1, 28)} = 3.52$; $p < .10$). When these five predictors were entered into a stepwise multiple linear regression analysis, the result was significant ($F_{(1, 28)} = 5.747$; $p < .005$). The single most significant predictor of this behavior ($R^2 = .15$) was internalizing t-score ($p < .05$). Unique variance was added by MCDI below age level (R^2 change = .17) and number of siblings (R^2 change = .22), with a total of 54% of the variance accounted for by these three descriptors. Overall, those children who engaged in more role-playing were those who were less internalizing (b = -1.82), did not have any MCDI scales below age level (b = -29.56), and had more siblings (b = 19.54; see Table 19).

When the teacher was absent, preliminary analyses suggested role playing was related to internalizing t-score ($r = -.36$; $p < .05$), externalizing t-score ($r = -.31$; $p < .10$), and age ($r = .30$; $p < .10$; see Table 18). Multiple regression showed that the most significant predictor of role playing when the teacher was absent was internalizing t-score ($R^2 = .13$, $p < .05$), followed by age (R^2 change = .16). Together these predictors accounted for

29% of the variance ($p < .05$). Those children who exhibited the most role playing tended to be those who were older (b = 1.04) and less internalizing (b = -1.35; see Table 19).

Insert Tables 18-19 about here

Those independent variables which were initially shown to be related to social play when the teacher was present were internalizing t-score (r = -.57, $p < .005$), externalizing t-score (r = -.57, $p < .005$), number of playmates (r = .34, p < .10) and SES (r = .39, $p < .05$; see Table 20). A regression analysis including these measures showed the best predictors of social play in this condition to be internalizing t-score (R^2 = .32, $p < .005$), number of playmates (R^2 change = .16), and externalizing t-score (R^2 change = .08), which accounted for a total of 56% of the variance. Children who engaged in the highest level of social play tended to be those who were both less internalizing (b = -.75), and less externalizing (b = -1.06), and had more playmates in their neighborhoods (b = 5.52; see Table 21).

Insert Tables 20-21 about here

Only age was significantly related to social play when the teacher was absent (r = .31, $p < .10$; see Table 20). A simple linear regression analysis showed this variable to account for 10% of the variance, with older children engaging in more social play (b = .73; see Table 21). When the teacher was present, only sex was related to disruptive behavior (F = 8.23, p

< .01). This variable accounted for 24% of the variance in children's disruptive behavior, with boys engaging in this more often (b = -6.10; see Table 22).

When the teacher was absent, age when placed in daycare (r = .46, p < .01), number of siblings (r = -.39, p < .05), and sex (F = 8.16, p < .01) were found to be related to children's disruptive behavior (see Tables 22-23). When these independent variables were entered into a multiple linear regression analysis, all three combined to account for 42% of the variance (p < .005; see Table 23), with sex being the best predictor (R^2 = .23, p < .01), followed by age when placed in daycare (R^2 change = .14) and number of siblings (R^2 change = .06). Children who were most disruptive in this condition tended to be boys (b = -3.63), to have been in daycare for a shorter time (b = .16), and to have fewer siblings (b = -1.68).

Insert Tables 22-23 about here

The only child characteristic related to playing with materials when the teacher was present was sex (F = 4.29, p < .05), which accounted for 14% of the variance and indicated that girls engaged in this behavior more often than boys (b = 14.36; see Table 24). Similarly, when the teacher was absent, sex was the only independent variable predictive of a teacher interacting with a child (F = 6.19, p < .05). Teachers interacted more with boys in this condition (b = -3.65), and sex accounted for 18% of the variance here (see Table 25).

Insert Tables 24-25 about here

None of the independent variables were significantly related to children interacting with an adult in either teacher condition, to a teacher attending to a child when she was present in the area, or to children playing with materials when the teacher was absent.

Qualitative analysis of teacher interview data

Seven teachers at the center, three from each of the two preschool classrooms and one from the kindergarten room, responded to a semi-structured interview (see Appendix K) designed to portray the staff's understanding of the goals of the housekeeping area, as well as the extent of agreement between these child care workers both with each other and with the early childhood education literature (see Table 26).

Insert Table 26 about here

All of the staff members identified role-playing or dramatic play as a primary purpose for this area. Common responses also referred to symbolic representation of real-life activities; both of these were consistent with the definition of the area by the NAEYC (Bredekamp, 1986). Only one teacher referred to direct contact with toys and materials, and another individual mentioned sharing and playing together, which are also highlighted in the

literature. Most adults suggested children should play socially in this area, although several said independent play is acceptable here, too.

When asked about expectations for behavior, all teachers referred to rules of conduct and which behaviors are disallowed, such as leaving the area, hitting, or using materials inappropriately, and indicated that the expectations are the same for all of the children. Similarly, they generally stated they do not make different suggestions or offer different toys to individual children, although one teacher provided an anecdote of having set up a doctor's office when one boy was anxious about an upcoming tonsillectomy.

Most teachers said their own role is to play with the children during center time, but did not elaborate on how to facilitate the desired behaviors. Rather, they again referred primarily to minimizing undesirable behaviors, by reminding children of the rules and supervising closely. Several adults also mentioned modeling appropriate behavior for the children when they play in the area themselves; this was the only strategy specified for promoting these goals. Most of the staff emphasized reacting to the children and following their lead, rather than initiating play schemes for them or even making suggestions. Over half of the teachers admitted that during center time they usually just observe the children, rather than actively playing in the area with them. No one mentioned adding language to children's play, praising appropriate actions, or conveying interest and attention through eye contact, touching, physical proximity, or getting down to the child's level, all of which are specified by the NAEYC as adults' roles in participating in the play of young children (Bredekamp, 1986).

Discussion

The major findings from the present study disconfirmed original hypotheses about the effect of teacher involvement on appropriate child behavior in the dramatic play area. That is, children engaged in significantly less social interaction and marginally less role playing when a teacher was present in the area. Consistent with hypotheses, both of these behaviors also differed across behavior problem profiles. Post-hoc tests showed that the decrease in social play when a teacher entered the area occurred only among low behavior problem-score children. Children with more identified behavior problems consistently engaged in lower levels of social interaction, regardless of the teacher's participation. Further, although teacher involvement did not significantly affect all children's role playing, children with more behavior problems were depressed on this behavior when the teacher was present in the area, compared to their low behavior-problem classmates when the teacher was absent.

These results contradict suggestions from theoretically-based views of early childhood education, which advocate a high level of teacher involvement in children's play. For instance, it has been recommended that teachers help children to be increasingly realistic in their play (Lay-Dopyera & Dopyera, 1987), and observe the structure of children's play and then add language to it, consistent with a child-centered approach (Forman & Fosnot, 1982). Similarly, the early childhood education literature recommends that teachers actively participate in children's play as much as possible, by sitting or kneeling at their level, making eye contact, smiling,

asking questions, making suggestions, and providing feedback (Bredekamp, 1986; Hohmann, Banet & Weikart, 1979; Alward, 1976).

In addition, the present study confirmed previous research which found the dramatic play area to be one in which teacher involvement and direct interaction with children were particularly low (Atwater & Morris, 1988; Shapiro, 1975), prior to observers' request that teachers play there more often. However, while other authors suggested that adults may be missing valuable opportunities to enhance learning and compliance--Shapiro explicitly objected to a "hands-off policy" in the dramatic play area, and recommended that teachers participate actively there--the present study actually implemented these suggestions, and found the result to be counterproductive to the area's stated goals.

Thus, the present research helps to clarify the relationship between adult participation and the on-task behavior of children in the preschool setting, for which empirical support has so far been equivocal. Tzelepis, Giblen and Agronow (1983) found that a high level of adult interaction was associated with a high degree of children's interaction with peers and activities. Yet others found that although frequent adult contacts increase children's social exchange with adults, they may also decrease positive attention to other children (O'Connor, 1975; Blurton-Jones, 1972). This was also the finding of the current study. The notion that increased teacher involvement would help children--particularly those who have more difficulty demonstrating appropriate behaviors--to engage in more social interaction and dramatic play was not supported.

An explanation of similar results was provided by Harper and Huie (1985). They assert that peer and adult relationships are mutually exclusive and therefore compete for selection by the individual. This would account for the finding in the present study that children's interactions with adults increased when the teacher was in the area, roughly in proportion to the decrease in social interaction. Thus, although teacher attention in the form of verbal and nonverbal cues has been used as an effective reinforcer for on-task classroom behaviors such as focusing on a worksheet and working independently (Kazdin & Klock, 1973), the use of teacher attention may be counterproductive for enhancing peer social interaction. Further, when Hart et al (1968) employed similar teacher reinforcement to increase cooperative play in a single preschool child, their subject was identified as having few social competencies and a capacity to be aversive to other children; in the present study, non-referred preschool age children seemed to find social interaction to be intrinsically reinforcing, independent of teacher attention.

At the same time, one way in which teachers may have facilitated desirable behavior when they were present in the area was in increasing the role playing of younger children. Older children seemed better able to engage in dramatic play without the help of teachers, but the reverse was true for younger children. This finding is consistent with the recommendation from the NAEYC (Bredekamp, 1986) that teachers tailor their behavior to individual children's needs: younger children may benefit from more guidance in role playing, while this is counterproductive for older ones.

While children's interaction with adults increased if the teacher was present in the dramatic play area, adults' interaction with children also increased, and these two behaviors were positively correlated, suggesting that a reciprocal exhcange was often ongoing. Although it is not possible to determine which behavior occurred first, it is clear that the teacher's presence in the area was essential for these interactions to occur frequently: at any time when a teacher was absent from the area, a child could have called out to or approached her* in order to obtain her attention, yet this happened only rarely. In this way, we see that any potential benefits from an adult participating in children's play seem to require proximity and close attention, although some adult directiveness may govern the action excessively, to the exclusion of some desired behaviors.

In addition to determining how teacher involvement was related to children's performance, a second goal of this study was to ascertain the role of children's behavior profile in their responses to others and their on-task behavior in the dramatic play area. While other studies have found that teacher interaction decreases contact with peers, for instance, they have assumed that this effect is the same for all children. The present study hypothesized that high and low behavior problem children would exhibit different rates of appropriate and inappropriate behavior, and be differentially affected by the involvement of teachers in the area.

Analyses revealed that low CBCL-score children engaged in social play more than high CBCL-score children, and a trend toward significance in

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*Because all of the teachers in the study were women, the feminine pronoun is used here.

the same direction was found for role playing. Thus, the hypothesis that children with fewer behavior problems would exhibit more appropriate play was supported. Because the two behaviors of social and role playing are correlated, which is consistent with previous research (Rubin, 1977), and the definition of role playing in this study included an initial verbalization, which is very often social in nature, the observed difference between these two groups of children may focus on unequivalent social skills or popularity with peers. This is an important finding in a setting where social interaction is a primary goal: using the CBCL, even some non-referred children may be identifiable as having behavioral problems which may in turn predict fewer contacts with peers.

In fact, the CBCL subscale scores were often the best predictors of appropriate child behaviors. Both internalizing and externalizing t-scores were significantly correlated with role playing under both teacher conditions and social play when the teacher was present, and internalizing t-score was the first independent variable to be included in stepwise multiple regression equations predicting these three behaviors. These results show that delineation of children into groups based on behavior profile can provide valuable insight into their play.

Further, as discussed above, not all children showed a significant decrease in social play when the teacher entered the area, only those with fewer behavior problems. This may be due to a near-minimal level of social play having been obtained by the group of high behavior-problem children; the arrival of a teacher could not significantly depress this already low rate of performance. An alternative explanation--that high CBCL-score children

were less affected by the presence of an adult--seems unlikely, as their interactions with a teacher were as frequent as those of their low CBCL-score peers. When the teacher was present in the area, both groups of children had numerous contacts with her. Also, the decreased rate of social play among children with few behavior problems was still significantly higher than the highest rate of social play among children with more behavior problems. These findings suggest that increased attention from adults as provided in the present study did not serve to ameliorate the performance of children with numerous behavior problems, nor even to reduce the discrepancy between them and their peers who have fewer behavior problems.

Similarly, the significant decrease in social interaction among low behavior-problem children did not seem to be due to more contact with adults than their high behavior-problem peers had. Taken together, these results imply that low behavior-problem children may have been able to alternate between and maintain more interpersonal contacts in a busy, dynamic setting. This is additional evidence for the value of the CBCL in identifying children with less well-developed interpersonal skills in the preschool years.

Contrary to expectations, these two groups of children did not exhibit different rates of inappropriate behavior. This may be due to the low level of occurrence of this category across all children. Only sex was a reliable predictor of disruptive behavior when the teacher was present; boys were more often inappropriate regardless of behavior problem score. Sex was also significantly related to this behavior when the teacher was absent.

Because the disruptive behavior category consisted of externalizing behaviors, these findings are not surprising, given that a higher externalizing t-score and male gender were marginally correlated. Finally, the high behavior-problem group contained children with high scores on either the externalizing or the internalizing subscale, or both. The internalizing children may have engaged in lower rates of disruptive behavior, thereby depressing their group's overall score.

Also in contrast to predictions, no differences were obtained on the behavior of play with materials. In this case, a uniformly high level of occurrence across both groups of children and both teacher conditions may have precluded detection of any pattern in this variable.

A third goal of the project was to examine the role of other child characteristics, namely age and developmental index score, in children's behavior. The fact that older children engaged in role playing more when the teacher was absent and less when she was present has been discussed. This finding was only marginally significant, as was the relationship of age to social play when the teacher was absent (older children interacted with peers more). Previous research found that age did affect three- and four-year-olds' social play (e.g. Harper & Huie, 1985), and developmental theory would have predicted that role playing would also be more evident among older children (Pulaski, 1980). With trends in the expected direction, the present findings suggest that greater power, as would be obtained with a larger number of subjects, might have found clearly significant differences here as well.

In general, the MCDI did not prove to be a good predictor of children's behavior in this setting. Only a marginal correlation with role playing when the teacher was present was obtained (children with fewer scales below age level tended to engage in role playing more often). This may be due to the inclusion of this variable as dichotomous, in which children were noted as having any or no MCDI scales below age level; a more sensitive indicator of developmental level might have been more informative.

In addition to chronological age and developmental level, Harper and Huie (1985) and Day, Phyfe-Perkins and Weinthaler (1979) have suggested that factors related to socialization experience are also relevant to children's social development and play. Measures of number of siblings, number of playmates in the neighborhood, and age when placed in daycare address this issue, and were correlated with some of the dependent variables in the present study. Number of siblings was positively related to role playing when the teacher was present, and negatively related to disruptive behavior when the teacher was absent. Number of playmates was positively related only to social play when the teacher was present. Age when placed in daycare was negatively related to children's disruptive behavior when the teacher was absent. Although these findings are relatively few in number, they are significant, and supportive of previous authors' findings that socialization experience is associated with children's behavior in the daycare environment. In general, children with more experience with peers and siblings engaged in more appropriate and less inappropriate behaviors in the dramatic play area.

These independent variables which pertained to socialization experience, along with age, gender, and the CBCL subscales, were found in this study to be useful predictors of both desirable and undesirable child behaviors. The other measures obtained--parental divorce, SES, and MCDI scores--showed little relationship to children's performance in the dramatic play area. In regard to the first two, it appears that a child's own characteristics and experiences are more relevant to his/her play behaviors than factors in the larger family system, such as a history of divorce or an absent father, or socioeconomic status. As suggested above, the limited utility of the MCDI in this study may be due to its reduction to a dichotomous variable.

Finally, this project sought to examine how teachers describe the objectives of the dramatic play area and their own roles in promoting attainment of them. The responses provided by seven teachers were largely similar, indicating consistency among them in their views of these issues. In general, it was found that teachers described some of the goals designated in the NAEYC guidelines (Bredekamp, 1986; NAEYC, 1985), but also omitted some important philosophical and practical points. For instance, when asked about expectations for children's behavior, all teachers referred to rules of conduct and which behaviors are disallowed. This approach emphasized what should not occur, rather than what should. In keeping with this line of thinking, the teachers all indicated that the expectations are the same for all of the children. They did not refer to developmental or skill differences across the children, and so did not suggest that goals and expectations for appropriate behavior might vary

based on individual abilities. Overall, these answers were consistent with one component of developmentally appropriate practice, namely age-appropriate expectations, but omitted the other component, which is individual appropriateness.

Although they did not mention many of the specific strategies enumerated by the NAEYC for facilitating children's play, the teachers did emphasize allowing the children to guide play sequences, and the importance of participating with them during center time. At the same time, most teachers admitted they usually just observe the children, and highlighted supervising and disallowing inappropriate behavior as important parts of their role. In this sense, the observed behavior of teachers was consistent with what they reported doing, if not with their own stated goals for themselves. To illustrate, when a teacher was absent from the dramatic play area, disruptive behavior was positively correlated with attention from the teacher. Also under this condition, sex was the only independent variable predictive of attention from a teacher. Taken together, these findings suggest that when they were supervising the area from a distance, teachers interacted mostly with those children who were engaging in inappropriate behaviors, most of whom were boys. In turn, adults engaged in more talking and playing when they were in the area, and therefore may have been less responsive to inappropriate behavior.

Overall, the present study supports and extends some previous research, and contributes to the necessary process of empirically validating the NAEYC's guidelines for developmentally appropriate practice. By showing that teacher presence in the dramatic play area reduces children's

social play, this work confirms the findings of O'Connor (1975) and Harper and Huie (1985), and adds to them by highlighting that this effect is not uniform across children, but rather is detectable only among those with fewer behavior problems. Indeed, the utility of the CBCL in identifying children who may exhibit deficits in peer interactions and symbolic play adds a dimension to early childhood educational research which has so far been largely ignored. While other, more obvious child characteristics such as age, gender, and socialization experience were also found to be useful predictors of child behavior--which is consistent with previous research--the CBCL was often the best, most reliable one, in that its subscales were most highly correlated with two dependent variables, and entered first into three stepwise regression procedures. Only gender was a better predictor overall, being most highly correlated with three dependent variables. The inclusion of the CBCL along with these other variables represents a merging of psychological constructs such as internalizing and externalizing behavior profiles with established principles and goals in the early childhood education literature, and appears to indicate a promising direction for future work.

Methodologically also, this study sought to integrate some of the purposes and strategies of the early childhood education field with those of behavioral psychology. A basic goal of education for young children is attention to the needs and development of individuals. Obtaining CBCL profiles for each child in the present study addressed this concern, as they allowed for recognition of individual differences. Although some of the analyses combined children into dichotomous profile groups based on a

cutting score, inclusion of multiple regression techniques allowed for the internalizing and externalizing t-scores to be treated as continous, which is not only more accurate but also more sensitive to individual differences. Extensive, direct observation of all subjects across numerous days permitted the focus on individuals which is the hallmark of behavioral psychology as well. Finally, teacher interviews provided a "bottom-up" component to this procedure, by taking into account the perspectives of some of the subjects, rather than imposing a priori assumptions generated from theory and potentially inconsistent with actual practice.

These commonly-valued methods have been applied to a process which also appears to be beneficial to both fields: empirical validation of the NAEYC's guidelines for early childhood educators (NAEYC, 1985; Bredekamp, 1986). The organization's literature is largely theoretically based, referring to the work of Piaget, Erikson and Montessori, but includes little scientific data to support these ideas. As stated earlier, a primary recommendation is numerous, in-depth contacts between adults and individual children. Yet the present study's major findings suggest that adults' general participation in children's play may in fact be incompatible with the goals for the dramatic play area, specifically frequent interactions with peers and extensive symbolic play. However, a precise account of teachers' actual behaviors, such as directing play, asking questions, making suggestions, providing feedback, and following children's initiative was not obtained in the current work. Therefore, the question becomes, which behaviors by an adult facilitate children's appropriate behavior without captivating their attention? Answering this will be the essential next step

in validating or reformulating the NAEYC guidelines, and provides a direction for future research.

Despite some important findings, this study is limited by a number of factors. Firstly, the small sample size limits statistical power, and therefore cannot provide conclusive evidence. Secondly, this non-referred population of children tended to exhibit both internalizing and externalizing problem behaviors if they exhibited many; the "high behavior problem" group is a heterogeneous one, and findings may not generalize to more precisely delineated groups of children. At the same time, these youngsters may in fact represent their age group among non-referred children; heterogeneity may be the norm. Thirdly, limitations in employing novice behavioral observers meant that more detailed accounts of teacher behavior could not be reliably obtained.

Summary

Children ages three to five were found to engage in significantly less social interaction with peers when an adult was present in the dramatic play area of the room. This was particularly true among those children with fewer identified behavior problems. The decrease in social play seems to have been due in part to a roughly proportional increase in interactions with an adult. Children's dramatic play also differed across these dimensions: the highest rate of this behavior occurred among low behavior-problem children when the teacher was absent, and the lowest rate was obtained among high behavior-problem children when the teacher was present. CBCL subscale scores were reliably related to both appropriate and inappropriate child behaviors. Other useful indicators included age, gender, and socialization experience, as measured by number of playmates in the neighborhood, number of siblings, and age when placed in daycare. In general, older children and those with more socialization experience engaged in more appropriate play, while boys exhibited more disruptive behaviors.

Table 1

Interrater Reliability on Child Behaviors During Pilot Work

Behavior	Reliability		
	Combined	Occurrence	Non-occurrence
Focus on task	93	93	53
Role playing	83	79	70
Solitary play[a]	100	--	100
Parallel play	95	73	84
Social play	83	74	63
Undefined mode of play	77	54	75
Random behavior	98	0	94
On-looking	94	28	79

Note. Values represent mean percentages, averaged across children.
[a]Was not observed to occur at all.

Table 2

Interrater Reliability on Teacher Behaviors During Pilot Work

Behavior	Reliability		
	Combined	Occurrence	Non-occurrence
Within 6 feet of child	96	96	87
At child level	96	96	90
Physical contact	92	71	91
Verbal comments	79	53	83
Role playing	82	82	69
Directing play	78	64	69
Observing[a]	100	--	96

Note. Values represent mean percentages, averaged across children.

[a]Was not observed to occur at all.

Table 3

Behaviors by Two Pilot Children in Two Teacher Involvement Conditions

Behavior	Internal/Low Inv'mt	External/High Inv'mt
Focus on task	8	92
Role playing	8	83
Social interaction	2	83
Disruptive behavior	0	0
On-looking behavior	54	0

Note. Values represent occurrence in percentage of intervals observed.

Table 4
Independent and Dependent Variables and their Measurement

Measure	References	Score to be Measured
Demographics (IV)	Day, Phyfe-Perkins & Weinthaler, 1979	age, gender, birth order, SES (Hollingshead Four Factor Index)
Minnesota Child Development Inventory (IV)	Ireton & Thwing, 1974	Seven subscales plus a measure of General Development
Child Behavior Checklist (IV)	Achenbach & Edelbrock, 1983	Total Problem Score and Internalizing and Externalizing Scores
Direct Observation of Teacher Behavior (IV)	see Table 5	Frequency count, occurrence in percentage of intervals
Direct Observation of Child Behavior (DV)	see Table 5	Frequency count, occurrence in percentage of intervals
Teacher Interview (DV)		Self-report statements

Table 5
Behaviors observed and references cited

Behaviors	References
Adult Behavior	
Presence	Bredekamp, 1986; Hohmann, Banet, & Weikart, 1979
Absence	Garvey, 1977; Pellegrini, 1984; Shapiro, 1975
Interacts with child	Bredekamp, 1986; Forman & Fosnot, 1982; Tzelepis, Giblen, & Agronow, 1983
Child Behavior	
Play with materials	Bredekamp, 1986; NAEYC, 1985
Role playing	Bredekamp, 1986; Hohmann, Banet, & Weikart, 1979; NAEYC, 1985
Social play	Bredekamp, 1986; Hohmann, Banet, & Weikart, 1979; NAEYC, 1985
Interacts with adult	Bredekamp, 1986; NAEYC,1985 O'Connor, 1975; Shapiro, 1975;
Disruptive behavior	Shapiro, 1975

Note. All behaviors were recorded as occurring or not occurring in each ten-second interval.

Table 6
Composition of Groups

	Age 3	Age 4	Age 5	Gender Total
Low Behavior Problem	4 boys	2 boys	1 boy	7 boys
	2 girls	5 girls	1 girl	8girls
Age Total	6	7	2	
High Behavior Problem	2 boys	3 boys	2 boys	7 boys
	3 girls	4 girls	1 girl	8girls
Age Total	5	7	3	

Table 7

Interrater Reliability

Behavior	% Agreement	SD	Range
Play with Materials	94.4	8.0	69-100
Role Playing	86.3	13.4	53-100
Social Play	81.3	14.6	58-100
Disruptive Behavior	80.9	15.0	54-100
Interacts with Adult	75.9	19.3	67-100
Adult interacts with child	77.8	18.8	67-100

Table 8

Average Child Behavior with Teacher Present

Behavior	x	SD	s^2	F[a]	p-value
Play with materials					
Low CBCL Score	89.0	12.9	165.9	.284	< .25
High CBCL Score	81.2	24.2	584.6		
Role playing					
Low CBCL Score	31.2	34.1	1164.2	2.349	< .25
High CBCL Score	18.9	22.3	495.6		
Social play					
Low CBCL Score	46.2	19.0	358.6	1.198	> .25
High CBCL Score	26.2	17.3	299.3		
Disruptive behavior					
Low CBCL Score	4.3	5.9	34.5	.704	> .25
High CBCL Score	4.5	7.0	48.8		
Interacts w/adult					
Low CBCL Score	40.8	24.2	583.6	1.152	> .25
High CBCL Score	31.9	22.5	506.4		
Teacher Interacts with Child					
Low CBCL Score	39.6	23.2	538.7	1.001	> .25
High CBCL Score	30.7	23.2	538.4		

[a]Two tailed F tests for no differences between the variances: $p < .25$ when $F_{(13,13)\,.25} < .680$ or > 1.47.

Table 9

Average Child Behavior with Teacher Absent

Behavior	x	SD	s^2	F[a]	p-value
Play with materials					
Low CBCL Score	88.5	11.5	131.6	1.343	> .25
High CBCL Score	88.5	9.9	98.0		
Role playing					
Low CBCL Score	40.3	23.1	531.4	1.296	> .25
High CBCL Score	28.4	20.3	410.1		
Social play					
Low CBCL Score	65.1	21.5	460.8	1.090	> .25
High CBCL Score	59.1	20.6	422.7		
Disruptive behavior					
Low CBCL Score	4.3	6.2	38.0	1.624	> .25
High CBCL Score	5.7	4.8	23.4		
Interacts w/adult					
Low CBCL Score	5.9	3.6	13.0	.416	< .25
High CBCL Score	5.9	5.6	31.2		
Teacher Interacts with Child					
Low CBCL Score	7.1	4.4	19.1	1.012	> .25
High CBCL Score	5.5	4.3	18.8		

[a]Two tailed F tests for no differences between the variances: $p < .25$ when $F_{(14, 14)\,.25} < .690$ or > 1.45.

Table 10

Average Child and Teacher Behavior Across Teacher Conditions

Behavior	x	SD	s^2	F[a]	p-value
Play with materials					
Low CBCL Score	88.8	11.9	142.8	.427	< .25
High CBCL Score	85.0	18.3	334.3		
Role playing					
Low CBCL Score	35.9	28.8	827.7	1.806	< .25
High CBCL Score	23.8	21.4	458.4		
Social play					
Low CBCL Score	56.0	22.1	489.5	.776	> .25
High CBCL Score	43.2	25.1	630.6		
Disruptive behavior					
Low CBCL Score	4.5	5.9	35.0	1.008	> .25
High CBCL Score	5.1	6.0	34.8		
Interacts w/adult					
Low CBCL Score	22.7	24.4	592.8	1.393	< .25
High CBCL Score	18.5	20.6	425.5		
Teacher Interacts with Child					
Low CBCL Score	22.8	23.1	534.1	1.393	< .25
High CBCL Score	18.5	20.6	425.5		

[a]Two tailed F tests for no differences between the variances: $p < .25$ when $F_{(28, 28)}\ .25 < .769$ or > 1.30.

Table 11

Relationship of Teacher Condition (Present vs. Absent) and CBCL score (Low vs. High) to Child and Teacher Behaviors

Independent Variable	F	Effect Estimate	p-value
	Play with Materials		
Teacher condition	.76	-7.07	.39
CBCL score	.71	4.32	.40
Interaction	.90	7.36	.35
	Social Play		
Teacher Condition	29.87	-32.50	.0001
CBCL Score	5.31	33.11	.05
Interaction	2.59	14.79	.25
	Role Playing		
Teacher Condition	1.59	-7.86	.25
CBCL Score	2.71	14.96	.25
Interaction	.01	1.07	.93

Table 11

Continued

Independent Variable	F	Effect Estimate	p-value
	Disruptive Behavior		
Teacher Condition	.23	-1.29	.63
CBCL Score	.28	-0.95	.62
Interaction	.13	1.11	.72
	Interacts with an Adult		
Teacher Condition	45.86	25.79	.0001
CBCL Score	1.01	-4.46	.33
Interaction	1.00	8.93	.33
	Adult Interacts with Child		
Teacher Condition	43.71	25.07	.0001
CBCL Score	1.43	-5.68	>.05
Interaction	.72	7.36	.41

Table 12

Duncan's Multiple Range Test Comparing Group Means

	Low CBCL	High CBCL		
	x	x	Difference	p-value
Role playing	35.9	23.8	12.1	.05
Social play	56.0	43.2	12.8	.05
Interacts w/adult	22.7	18.5	4.2	ns
Adult interacts w/child	22.8	17.7	5.1	ns

Table 13

Duncan's Multiple Range Test Comparing Means Between Teacher Conditions

	Present	Absent		
	x	x	Difference	p-value
Role playing	25.1	34.4	9.3	ns
Social play	36.2	62.1	25.9	.01
Interacts w/adult	36.4	5.9	30.5	.01
Adult interacts w/child	35.2	6.3	28.9	.01

Table 14

Duncan's Multiple Range Test on Cell Means

	Social Play			
	x_3	x_4	x_1	x_2
x_3 = 26.2	--	2.2	20.0*	38.9**
x_4 = 28.4		--	17.8*	36.7**
x_1 = 46.2			--	18.0*
x_2 = 65.1				--

	Role Playing			
	x_3	x_4	x_1	x_2
x_3 = 18.9	--	9.5	12.3	21.4*
x_4 = 28.4		--	2.8	11.9
x_1 = 31.2			--	9.1
x_2 = 40.3				--

Note. x_1 = Low CBCL, Teacher Present; x_2 = Low CBCL, Teacher Absent; x_3 = High CBCL, Teacher Present; x_4 = High CBCL, Teacher Absent.

*$p < .05$.

**$p < .01$.

Table 14

Continued

Interacts with an Adult

	x_2	x_4	x_3	x_1
x_2 = 5.87	--	.06	26.03**	34.93**
x_4 = 5.93		--	25.97**	34.87**
x_3 = 31.9			--	8.90
x_1 = 40.8				--

Adult Interacts with Child

	x_4	x_2	x_3	x_1
x_4 = 5.5	--	1.6	25.2**	34.1**
x_2 = 7.1		--	23.6**	32.5**
x_3 = 30.7			--	8.9
x_1 = 39.6				--

Note. x_1 = Low CBCL, Teacher Present; x_2 = Low CBCL, Teacher Absent; x_3 = High CBCL, Teacher Present; x_4 = High CBCL, Teacher Absent.

*$p < .05$.

**$p < .01$.

Table 15

Significant Correlations Between Child and Teacher Behaviors within Teacher Conditions

Variables	Teacher Condition	Pearson's *r*	*p*-value
Social play & role playing	Present	.55	.003
Social play & role playing	Absent	.59	.0005
Disruptive behavior & play with materials	Present	-.36	.10
Disruptive behavior & adult interacts w/child	Present	.40	.05
Adult interacts w/child & child interacts w/adult	Absent	.80	.0001
Adult interacts w/child & child interacts w/adult	Present	.95	.0001

Table 16

Significant Correlations Between Independent Measures of Child and Family Characteristics and Experiences

Variables	Pearson's *r*	*p*-value
Internalizing & Externalizing *t*-scores	.71	.0001
SES & Internalizing *t*-score	-.39	.05
SES & Externalizing *t*-score	-.40	.05
SES & Age Placed in Daycare	-.39	.05

Note. No other correlations between the measures of CBCL subscale score, MCDI score, age, age when placed in daycare, number of siblings, number of playmates in the neighborhood, and SES reached significance.

Table 17

Simple Linear Regression Findings for Predicting Internalizing t-score, Externalizing t-score, and SES from Categorically Measured Child Characteristics and Experiences

	F_{obs}	p-value	beta
		Internalizing t-score	
Divorce	4.435	.05	5.85
Marriage	5.282	.05	-7.02
		Externalizing t-score	
Marriage	4.995	.05	-7.61
Sex	3.027	.10	-5.18
		Socioeconomic Status	
Divorce	3.554	.10	-7.40
Marriage	3.441	.10	8.13

Note: None of the relationships of these categorically measured variables to those of number of siblings, number of playmates, or MCDI score, or divorce, marriage, and sex where omitted, reached significance.

Table 18

Significant Correlations Between Independent Variables and Role Playing

Variables	Pearson's *r*	*p*-value
	Teacher Present	
Internalizing *t*-score	-.39	.05
Externalizing *t*-score	-.32	.10
MCDI below age level	-.35	.10
Age	-.32	.10
Number of siblings	.36	.10
	Teacher Absent	
Internalizing *t*-score	-.36	.05
Externalizing *t*-score	-.31	.10
Age	.30	.25

Table 19

Stepwise Multiple Regression Findings for Role Playing

Independent Variable	F value of increment	Beta weight	Increment in R^2	p-level of increment	Multiple R^2
		Teacher Present			
Internalizing t	4.72	-1.82	.15	.05	.15
MCDI	5.94	-29.56	.17	.01	.32
Siblings	9.32	19.54	.22	.0005	.54
		Teacher Absent			
Internalizing t	4.22	-1.35	.13	.05	.13
Age	5.51	1.04	.16	.01	.29

Table 20

Significant Correlations Between Independent Variables and Social Play

Variables	Pearson's *r*	*p*-value
	Teacher Present	
Internalizing *t*-score	-.57	.005
Externalizing *t*-score	-.56	.005
Number of playmates	.34	.10
SES	.39	.05
	Teacher Absent	
Age	.31	.10

Table 21

Stepwise Multiple Regression Findings for Social Play

Independent Variable	F value of increment	Beta weight	Increment in R^2	p-level of increment	Multiple R^2
		Teacher Present			
Internalizing t	12.25	-0.75	.32	.0025	.32
Playmates	11.33	5.52	.16	.0005	.48
Externalizing t	10.11	-1.06	.08	.0005	.56
		Teacher Absent			
Age	2.94	0.73	.10	.10	.10

Table 22

Significant Correlations Between Independent Variables and Disruptive Behavior when the Teacher was Absent

Variable	Pearson's r	p-value
Age placed in daycare	.46	.01
Siblings	-.39	.05

Note. The only significant relationship when the Teacher was Present is shown on the regression table.

Table 23

Regression Results for Prediction of Disruptive Behavior

Independent Variable	F value of increment	Beta weight	Increment in R^2	p-level of increment	Multiple R^2
			Teacher Present[a]		
Sex[c]	8.23	-6.10	.24	.01	.24
			Teacher Absent[b]		
Sex[c]	8.16	-3.63	.23	.01	.23
Age placed in daycare	7.73	.16	.14	.0025	.36
Siblings	6.26	-1.68	.06	.0025	.42

[a]Simple Linear Regression.
[b]Stepwise Multiple Linear Regression.
[c]0 = boys, 1 = girls.

Table 24

Independent Variables Significantly Related to Play with Materials When the Teacher was Present[a]

Variable	F-value	Beta weight	R^2	p-value
Sex[b]	4.293	14.36	.14	.05

Note. None of the independent variables were significantly related to this variable when the teacher was absent.

[a]Simple Linear Regression.

[b]0 = boys, 1 = girls.

Table 25

Independent Variables Significantly Related to Adult Interacts with Child when the Teacher was Absent[a]

Variable	F-value	Beta weight	R^2	p-value
Sex	6.192	-3.65	.18	.05

Note. None of the independent variables were significantly related to this variable when the teacher was present.

[a]Simple Linear Regression.

[b]0 = boys, 1 = girls.

Table 26

Teacher Interview Data

	Responses[a]		
Question/Issue	Most Common	Others	Rarely or Not Mentioned
Purpose of the area	Dramatic play	Symbolically representing real life actions. Social play	Play with materials
Expectations for behavior	Don't throw materials.	Remain in area. No hitting, etc.	Share toys. Use language. Creative expression
Same expectations for all children?	Yes	Rules are same for all.	Individuals have different needs and abilities. Make suggestions according to these individual differences.
Mode of play	Social	Independent	

Note. Underlined responses conform to NAEYC guidelines.

[a]Most common responses were provided by a majority of teachers; rarely or not mentioned responses were not provided by more than one teacher; other responses were provided by at least two teachers.

Table 26

Continued

	Responses[a]		
Question/Issue	Most Common	Others	Rarely or Not Mentioned
Role of Adults	Supervise	Participate Model Observe Follow children's lead.	Add language. Stimulate creativity Encourage socializing Add realism. Ask questions. Provide feedback. Get down to child level. Make eye contact. Smile and verbally praise. Make physical contact.

Note. Underlined responses conform to NAEYC guidelines.
[a]Most common responses were provided by a majority of teachers; rarely or not mentioned responses were not provided by more than one teacher; other responses were provided by at least two teachers.

Table 27

Time Subjects Were Observed

	$\bar{x}$	s.d.	Range
Time observed (minutes)			
Total	42.6	12.978	28-76.6
Low CBCL	44.2	12.237	30-67.3
High CBCL	41.0	13.490	28-76.6
Time observed (days)			
Total	7.467	2.473	4-12
Low CBCL	7.933	2.265	4-12
High CBCL	7.000	2.582	4-12
Percentage of total time observed during which Teacher was present			
Total	33.5	26.15	7-89
Low CBCL*	23.8	18.51	8-64
High CBCL*	43.2	28.92	7-89

* n = 14 (Each group had one child who was never oberved under this condition).

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Appendix A

Hollingshead Four-Factor Index of Social Status

Name _____

Sex _____

Marital Status _____

Mother's Education (Circle one)

1. Graduate Professional Training
2. College Graduate
3. Partial College Training (completed at least one year of college)
4. High School Graduate
5. Partial High School Graduate (completed tenth or eleventh grade)
6. Junior High School (completed seventh through ninth grade)
7. Less than seven years of school

Mother's Occupation _____

Spouse's Name _____

Father's Education (Circle one)

1. Graduate Professional Training
2. College Graduate
3. Partial College Training (completed at least one year of college)
4. High School Graduate
5. Partial High School Graduate (completed tenth or eleventh grade)
6. Junior High School (completed seventh through ninth grade)
7. Less than seven years of school

Father's Occupation _____

Appendix B
Reliability and Validity Data for
Hollingshead Four Factor Index of Social Status

Validation for the education and occupation scales involved linkage to U. S. Census data from 1970 concerning years of school completed and occupational pursuits. Correlation of median years of school completed by occupational score and sex was r = .835, where R2 = .697, intercept = 6.648, slope = .797, significance level = .00001, and standard error of estimate = 1.352 for males. For females, r = .849, where R2 = .722, intercept = 7.396, slope = .689, significance level = .00001, and standard error of estimate = 1.133.

The Pearson product moment coefficient of correlation between the nine step occupational index of the four factor index and the National Opinion Research Center prestige scores was r = .927, where the coefficient of determination was R2 = .860.

Appendix C

minnesota child development inventory

Harold Ireton, Ph.D. and Edward Thwing, Ph.D.

A Word to Mothers

Your observations of your child can provide important information about your child's development. The Minnesota Child Development Inventory is a means of gathering this information.

As children grow and develop from birth to school age, many changes occur in their behavior. Some of these changes are temporary but are steps toward more mature and permanent behaviors. A good example is the way children learn to move from place to place. At birth, infants can do little more than kick and thrash their arms. As they grow, they learn to roll. Later, they learn to crawl, and still later to walk and run. When walking and running come in, they stay, but rolling and crawling drop out as more mature behaviors develop. A similar, step-like development occurs in learning to talk from babbling and learning to write from scribbling.

In a moment you will be completing the Minnesota Child Development Inventory. You will be reading statements describing behaviors of children. It is important to remember that statements describing past behaviors of your child should be answered YES, as well as statements describing your child's present behaviors. The care with which you answer each statement will determine the accuracy with which the Minnesota Child Development Inventory pictures your child's development.

Instructions

First, print your child's name in the boxes at the top of the answer sheet. Print last name first, skip one box, then print as much of the first name as space will allow. Next, indicate your child's sex by filling in the correct circle. Then, fill in your child's birthdate and the date you complete the Minnesota Child Development Inventory. Finally, complete the Family Information section at the bottom of the answer sheet.

This booklet contains statements describing behaviors of children. These statements describe the things that children do as a part of growing up. Read each statement carefully. If the statement describes either your child's past or present behavior, answer YES. If the statement does not describe your child's past or present behavior, answer NO. Answer YES or NO by what you have seen your child do, not by what you think he may be able to do. Answer YES by filling in the circle marked Y on the answer sheet; answer NO by filling in the circle marked N.

Example for a YES answer: ● Ⓝ

Example for a NO answer: Ⓨ ●

Be sure the number of the statement you are reading in the booklet agrees with the number you are marking on the answer sheet. If you wish to change an answer, erase your first mark thoroughly. Do not make any marks in the booklet.

If your child is very young, many of the statements will not describe his behavior. Even so, read all 320 statements and answer every statement with YES or NO.

Please do not make any marks in this booklet.

1. Walks without help.
2. Unbuttons one or more buttons.
3. Says two or more words clearly.
4. Rides tricycle using pedals.
5. Increases activity when shown a toy.
6. Actively refuses to obey.
7. Says "Thank you."
8. Plays games with guns, such as cowboys, cops and robbers, or spaceman.
9. Tells what an object is made of.
10. Feeds self a cracker or cookie.
11. Responds to sounds.
12. Refers to other children as boys or girls correctly.
13. Climbs up and slides down slide without help.
14. Prints the numbers 1 through 9.
15. Plays with clay or other molding materials.
16. Washes and dries hands.
17. Understands the meaning of at least three prepositions – for example, in, on, beside, under, etc.
18. Sticks fingers in bottle openings or small holes in other objects.
19. Counts three or more objects.
20. Washes face without help.
21. Runs smoothly, turning sharp corners and making sudden stops with ease.
22. Prints two or more simple words from memory.
23. Tries to act like a lady or like mother; imitates mother's expressions, walk, gestures, etc.
24. Follows moving objects with eyes.
25. Tries to put on shoes.
26. Refers to self as boy or girl correctly.
27. Pours a drink.
28. Buttons one or more buttons.
29. Plays "house" with other children.
30. When defining an object, describes it in terms of the group it belongs to – for example, a horse is an animal, an orange is a fruit.
31. Hops on one foot.
32. Builds a tower of four or more blocks.
33. Dresses and undresses without help.
34. Helps set the table.
35. Colors within the lines in a coloring book.
36. Bangs toys or other small objects on tray or table.
37. Gets excited about approaching birthday or holiday involving presents.
38. Asks questions beginning with "why."
39. Plays simple table games, such as checkers.
40. Responds to voices.
41. When defining an object, tells about characteristics of the object -- for example, a horse has a tail, a ball is round, the sky is blue.
42. Holds two objects at the same time, one in each hand.
43. Climbs on playground equipment.
44. Uses forefinger to poke, push, rub, and roll objects on tray or table top.
45. Ties shoelaces.
46. Shakes head to express "No."
47. Raises self to a crawling position on hands and knees.
48. Reaches for familiar persons.
49. Makes sounds like da, ba, ga, ka, ma.
50. Tells what he (she) dreams about.
51. Refers to his (her) things as "mine" or "my . . . ."

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52. Picks up a spoon by the handle.
53. Snaps fingers.
54. Smiles.
55. Uses short sentences to express simple ideas.
56. Puts shoes on the correct feet.
57. Picks up crumbs or bits of dry cereal, such as Rice Krispies or Cheerios, one at a time.
58. Squeals.
59. Jumps from steps with feet together.
60. Recognizes mother.
61. Takes toys apart.
62. Prints first name.
63. Asks for food or drink with single words or sounds.
64. Says "Hi."
65. Insists on doing things himself (herself).
66. Goes to a playmate's house alone.
67. Sidesteps around play-pen or crib while holding onto rails.
68. Defends self when taken advantage of.
69. Says or sings a TV commercial from memory.
70. Uses table knife for spreading.
71. Responds to his (her) name.
72. Attempts to cut with small scissors.
73. Laughs.
74. Draws recognizable pictures.
75. Initiates activities involving others.
76. Helps with little household tasks.
77. Makes running and standing broadjumps.
78. Dresses up in parents' old clothes and "play-acts."
79. Says when something is heavy.
80. Makes or builds things with other children.
81. Recites at least one nursery rhyme, such as "Little Bo Peep" or "Little Miss Muffet."
82. Carries out a short series of simple instructions correctly in the right order, such as "First . . . . then . . . , then . . . . "
83. Draws pictures which include more than one object, such as a house and a tree, a man and a dog, etc.
84. Draws or copies circles.
85. Sits without support.
86. Rides a two-wheeled bike.
87. Operates a gum machine.
88. Says his (her) own first name when asked "What's your name?"
89. Says "Please."
90. Counts to ten.
91. Understands what "early" and "late" mean.
92. Asks questions beginning with "what."
93. Throws a ball while standing.
94. Has a word or sound for drink.
95. Plays table games with cards, such as Old Maid, Go Fish, etc.
96. Lifts a cup to his (her) mouth and drinks.
97. Stands on one foot without support.
98. Talks clearly; is easily understandable.
99. Sympathetic toward other children, trying to help and comfort them.
100. Buttons a shirt, blouse, or coat, having all the buttons in the correct holes.
101. Makes conditional statements, such as "If I do . . . , then I can . . . ," or "When I . . . , then . . . ."
102. Chews food.
103. Toilet trained for bowel movements.
104. Points to familiar objects when asked to do so.
105. Plays "patty-cake."
106. Makes excuses.
107. Resists having a toy taken away from him (her).
108. Plays with dolls.
109. Insists on feeding self.
110. Sometimes says "No" when interfered with.

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111. Recites the alphabet in order.

112. Cuts with scissors, following a simple outline or pattern.

113. Draws simple designs.

114. Shakes a rattle.

115. Goes about neighborhood unattended.

116. Stays dry all night.

117. Kicks a ball.

118. Tells jokes or riddles.

119. Knows that a minute is shorter than an hour.

120. Looks at picture books, holding the book rightside up.

121. Keeps time to music by clapping, beating drum, or stamping foot.

122. Plays "peek-a-boo."

123. Imitates same-sexed parent – for example, boy shaving or girl cooking.

124. Pulls self to a standing position.

125. Asks the meaning of words.

126. Shakes or crumples paper.

127. Makes things out of boxes, spools, paper clips, or other odds and ends.

128. Tells where he (she) lives by street and number.

129. Uses plurals correctly – for example, says "men," not "mans," "mice," not "mouses," etc.

130. Points to at least three body parts, such as eyes, nose, mouth, hands, or feet, when asked to do so.

131. Makes sounds like ma-ma, da-da, ba-ba.

132. Takes care; avoids hazards such as the street, knives, fire, broken glass, animals.

133. Hums or sings.

134. Runs ahead of mother when out on a walk and investigates things along the way.

135. Points.

136. Holds a toy put in his (her) hand with a firm grasp.

137. Acts in a protective way toward younger children.

138. Draws a picture of a man or woman that has at least 6 parts – for example, head, body, arms, legs, eyes, nose, mouth, hands, feet, hair, or ears.

139. Tells whether a sound is loud or soft.

140. Uses table knife for cutting.

141. Plays with toy guns.

142. Uses a hammer to pound nails.

143. Picks up two small toys in one hand at the same time.

144. Associates sounds with things; uses word-sounds, such as "dada" or "mama" for parents, "ba" for baby, "moo" for milk, etc.

145. Whispers.

146. Talks or asks about death.

147. Uses at least five words.

148. Knows how many fingers there are on each hand.

149. Refuses by saying "No."

150. Counts to 100 by ones without help.

151. Recognizes and names at least five capital letters of the alphabet.

152. Hands empty dish to mother.

153. Identifies familiar things seen on TV.

154. Uses two hands to pick up large objects.

155. Turns pages of picture books one page at a time.

156. Uses both gestures and words to communicate.

157. Looks around the room.

158. Gets ready for bed without help.

159. Responds to simple gestures – for example, looks at things pointed to.

160. Does a forward somersault.

161. Shows or offers a toy to visitors.

162. Walks with a pull toy.

163. Runs.

164. Puts on boots without help.

165. Cooperates in dressing by holding out an arm or leg.

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166. Transfers objects from one hand to the other.

167. Finds a toy or other object which is hidden while he (she) is watching.

168. Opens door by turning knob.

169. Asks questions beginning with "when."

170. Anticipates a spoon being put into his (her) mouth.

171. Reacts to the presence of other children.

172. Talks in the past tense correctly – for example, says "went" rather than "goed," "did" rather than "do," "bought" rather than "buyed."

173. Tells about things that happened two or three days before.

174. Uses more than one color in coloring, drawing, or painting.

175. Believes in Santa Claus, the Easter Bunny, etc.

176. Draws or copies a cross.

177. Screams or cries if he (she) doesn't get his (her) way.

178. Crawls on hands and knees.

179. Babbles.

180. Has a favorite playmate.

181. Skips.

182. Follows a moving person with his (her) eyes.

183. Names at least three body parts, such as eyes, nose, mouth, hands, or feet, when asked to do so.

184. Names at least one opposite, such as boy – girl, light – dark, man – woman, fast – slow.

185. Shows preference in the use of one hand over the other.

186. Asks for help in doing things.

187. Knows right hand from left hand.

188. Offers to help others.

189. Understands the meaning of "up" and "down."

190. Walks up and down stairs alone, one foot to a step.

191. Identifies at least one color correctly.

192. While sitting, leans forward to obtain objects out of reach.

193. Cuts across paper with scissors from one side to the other.

194. Uses at least ten words.

195. Pulls off socks.

196. Collects things.

197. Asks questions beginning with "who."

198. Takes off shoes and socks.

199. Puts small objects in a cup, glass, or other container.

200. Crosses the street alone.

201. Tears paper, using two hands.

202. Uses at least one pronoun, such as "me," "I," "he," "she," "you," "it."

203. Responds to simple questions with gestures indicating yes or no.

204. Shows shoes when asked to do so.

205. Puts two sentences together with the words "and," "or," or "but."

206. Expresses feelings in words; says he (she) feels "sad," "bad," "mad," or "happy."

207. Careful with breakable objects.

208. Swings, pumping by self.

209. Imitates simple acts, such as spanking, hugging, or loving a doll.

210. Has one or more favorite TV programs.

211. Draws or copies a square.

212. Tells birthdate, saying month and day, if asked.

213. Plays with musical toys, such as whistles, horns, etc.

214. Pretends that he (she) is an animal, crawling around on all fours and making animal noises.

215. Prints a few simple words from a copy.

216. Knows the cost of a few common things, such as gum, candy.

217. Stands without support.

218. Scolds playmates, dolls, or animals.

219. Tells what he (she) is going to draw before drawing it.

220. Follows simple instructions.

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221. Uses the words "fast" and "slow" correctly.

222. Asks questions beginning with "how."

223. Reads four or more words.

224. Looks both ways when crossing streets.

225. Looks for an object after it disappears from sight – for example, looks for food or a toy after it has fallen off the tray.

226. Unwraps candy.

227. Talks in single words.

228. Competes in games with other children, such as tag, hide-and-seek, hopscotch, etc.

229. Climbs into an adult's chair and seats self.

230. Picks up objects with one hand.

231. Does simple number additions up to 10, such as 2 + 2, 3 + 5, 1 + 4.

232. Understands simple phrases, such as "All gone," "No no," etc.

233. Knows the meaning of "same" and "different."

234. Makes stepping movements when held by both hands.

235. Names a few familiar objects in picture books.

236. Tells name of home town or city when asked.

237. Dances in response to music.

238. Knows what "half" means.

239. Takes a bath without help.

240. Scribbles with a pencil or crayon.

241. Teases other children.

242. Rolls over from back to stomach.

243. Plays with other children.

244. Plays with two or more objects at the same time.

245. Imitates simple sounds, such as coughs, grunts, smacks, clucks, or clicks.

246. Uses money to buy things.

247. Picks up a small glass or cup with two hands.

248. Plays catch.

249. Identifies red, green, yellow, blue by name correctly.

250. Turns faucet handle on and off.

251. Glances from one object to another.

252. Understands the meaning of "now."

253. Pretends a box or a piece of furniture is a car, horse, airplane, train, etc.

254. Points to or names the bigger of two objects when asked to do so.

255. Hands a toy to mother when asked to do so.

256. Knows the meaning of "first," "last," "middle," "second," and correctly follows directions using these words.

257. Claps hands.

258. Uses a basket, pail, or some other container for carrying things.

259. Looks at toys or other objects.

260. Pulls off hat.

261. Dresses and undresses dolls or toy animals.

262. Feeds self with a spoon.

263. Names the days of the week in correct order.

264. Laughs at funny things that happen.

265. Rolls over from stomach to back.

266. Recalls past events; says things such as "Remember when we went . . . ."

267. Asks for "more" or "another one."

268. Puts together jigsaw puzzles of three or more pieces.

269. Waves "bye-bye."

270. Puts toys or other objects in his (her) mouth.

271. Wants a doll, teddy bear, blanket, etc., in bed with him (her).

272. Goes to the toilet without help.

273. Makes stepping movements when supported under the arms.

274. Uses the words "today," "yesterday," and "tomorrow" correctly.

275. Tells the difference between an old and a young person.

276. Talks about or play-acts killing or getting killed.

277. Talks on the telephone.

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278. Anticipates being lifted by raising arms.

279. Repeats single words said to him (her).

280. Takes part in conversations.

281. Rolls a ball while sitting.

282. Gives directions to other children.

283. Apologizes – for example, says "I'm sorry" when he (she) does something wrong.

284. Tattles or tells on other children.

285. Brushes teeth without help.

286. Talks or play-acts about witches or monsters.

287. Uses the word "you" in sentences.

288. Unzips zippers.

289. Walks up and down stairs alone.

290. Builds a tower of two or more blocks.

291. Stoops.

292. Says "I can't," "I don't know how," or "You do it."

293. Combs or brushes own hair acceptably without help.

294. Pushes a toy car along in play.

295. Tells when one object is longer or shorter than another object.

296. Draws a picture of a man or woman that has at least three parts, such as head, body, arms, legs, eyes, nose, mouth.

297. Recognizes and names all the letters of the alphabet.

298. Eats with a fork.

299. Sings simple songs.

300. Removes and replaces covers or caps of jars and bottles.

301. Names or describes drawing after completing it.

302. Jumps rope.

303. Turns pages of books or magazines two or three at a time.

304. Responds to simple questions appropriately with "yes" or "no."

305. Comes when called.

306. Uses plural pronouns, such as "we," "you," "they," "them," "us," correctly.

307. Toilet trained for bladder control.

308. Uses names of familiar objects.

309. Puts two or more words together to make a short sentence.

310. Asks questions beginning with "where."

311. Climbs on chair, stool, or box to reach things.

312. Knows names of playmates.

313. Tells what action is going on in pictures – for example, "Kitty is eating."

314. Goes to the toilet by self during the night.

315. Remembers where things are kept in the house.

316. Crawls up stairs.

317. Pretends to feed a doll or toy animal.

318. Describes self or others with words such as "good" and "bad" – for example, "Billy is a good boy."

319. Feeds self without help.

320. Expresses likes and dislikes in words.

Appendix D
Reliability and Validity Data for the MCDI

The normative sample for the Minnesota Child Development Inventory consisted of 796 individuals (395 males and 401 females) aged six months to six and one-half years. The sample included a minimum of five children of each sex for each one-month interval of the age range. Split-half reliability coefficients are as follows: for the Gross Motor Scale, from .65 to .96 (Mdn r_{xx} = .77) for the first three and one-half years, after which they become somewhat erratic; for the Fine Motor Scale, from .40 to .88 (Mdn r_{xx} = .71), where only the 18-24 and 24-30 month age ranges fall below .70; for the Expressive Language Scale, they range from .75 to .92 (Mdn r_{xx} = .88) between age nine months and six and one-half years; for the Comprehension-Conceptual Scale, they range from .79 to .93 (Mdn r_{xx} = .89) between ages six months and six and one-half years; for the Situation Comprehension Scale, they range from .59 to .80 (Mdn r_{xx} = .68); for the Self-Help Scale they arange from .68 to .84 (Mdn r_{xx} = .78); and for the Personal-Social Scale they range from .55 to .86 (Mdn r_{xx} = .80). The split-half reliability coefficients for the General Development Scale range from .87 to .93 (Mdn r_{xx} = .90).

Concurrent validity was established by correlating the MCDI with several intelligence and achievement tests. With the McCarthy and Stanford-Binet tests, the General Development, Expressive Language, and Comprehension-Conceptual Scales obtained correlations ranging from .41 to .84 (Mdn r_{xx} = .63). Correlations with the WRAT-R were as follows: General Development, .62; Comprehension-Conceptual, .59; Fine Motor, .48; Expressive Language, .33.

Discriminative validity for each scale was based on the power of mean cumulative scores to discriminate among children of different age groups. For the General Development and Comprehension-Conceptual Scales, mean scores increase steadily across the ages studied (up to six and one-half). For the Situation Comprehension, Personal-Social, and Expressive Language Scales, mean scores increase in age through the first three years and then level off. For the Gross Motor and Self-Help Scales, mean scores increase until age 3 and one-half and five years, respectively, and then level off. For the Fine Motor Scale, mean scores show a rapid increase in the first two years, a gradual increase to age five, and then level off.

Correlations were obtained with the MCDI General Development, Expressive-Language, and Comprehension-Conceptual scales, and the McCarthy and Stanford-Binet. The range fell from .41 to .81, with a median of .63.

The MCDI was correlated with the Wide Range Achievement Test. Correlations were as follows: General Development, .62; Comprehension-

Conceptual, .59; Fine Motor, .48; and Expressive Language, .33. After three years of school (kindergarten through second grade), certain scales correlated highly with difficulty in reading, particularly General Development (r = .52).

CHILD BEHAVIOR CHECKLIST FOR AGES 2-3

For office use only
ID #

CHILD'S NAME

SEX ☐ Boy ☐ Girl

AGE

ETHNIC GROUP OR RACE

TODAY'S DATE

Mo. _____ Day _____ Yr. _____

CHILD'S BIRTHDATE

Mo. _____ Day _____ Yr. _____

Please fill out this form to reflect *your* view of the child's behavior even if other people might not agree about the behavior.

PARENT'S TYPE OF WORK *(Please be specific – for example, auto mechanic, high school teacher, homemaker, laborer, lathe operator, shoe salesman, army sergeant, even if parent does not live with child.)*

FATHER'S TYPE OF WORK: _____

MOTHER'S TYPE OF WORK: _____

THIS FORM FILLED OUT BY:

☐ Mother (name): _____

☐ Father (name): _____

☐ Other – name & relationship to child: _____

Below is a list of items that describe children. For each item that describes the child **now or within the past 2 months**, please circle the **2** if the item is **very true or often true** of the child. Circle the **1** if the item is **somewhat** or **sometimes true** of the child. If the item is **not true** of the child, circle the **0**. Please answer all items as well as you can, even if some do not seem to apply to the child.

0 = Not True (as far as you know) **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

0 1 2 1. Aches or pains (without medical cause)
0 1 2 2. Acts too young for age
0 1 2 3. Afraid to try new things
0 1 2 4. Avoids looking others in the eye
0 1 2 5. Can't concentrate, can't pay attention for long
0 1 2 6. Can't sit still or restless
0 1 2 7. Can't stand having things out of place
0 1 2 8. Can't stand waiting; wants everything now
0 1 2 9. Chews on things that aren't edible
0 1 2 10. Clings to adults or too dependent
0 1 2 11. Constantly seeks help
0 1 2 12. Constipated, doesn't move bowels
0 1 2 13. Cries a lot
0 1 2 14. Cruel to animals
0 1 2 15. Defiant
0 1 2 16. Demands must be met immediately
0 1 2 17. Destroys his/her own things
0 1 2 18. Destroys things belonging to his/her family or other children
0 1 2 19. Diarrhea or loose bowels when not sick
0 1 2 20. Disobedient
0 1 2 21. Disturbed by any change in routine
0 1 2 22. Doesn't want to sleep alone
0 1 2 23. Doesn't answer when people talk to him/her
0 1 2 24. Doesn't eat well (describe): _____
0 1 2 25. Doesn't get along with other children
0 1 2 26. Doesn't know how to have fun, acts like a little adult
0 1 2 27. Doesn't seem to feel guilty after misbehaving
0 1 2 28. Doesn't want to go out of home
0 1 2 29. Easily frustrated
0 1 2 30. Easily jealous
0 1 2 31. Eats or drinks things that are not food (describe): _____
0 1 2 32. Fears certain animals, situations, or places (describe): _____
0 1 2 33. Feelings are easily hurt
0 1 2 34. Gets hurt a lot, accident-prone
0 1 2 35. Gets in many fights
0 1 2 36. Gets into everything
0 1 2 37. Gets too upset when separated from parents
0 1 2 38. Has trouble getting to sleep
0 1 2 39. Headaches (without medical cause)
0 1 2 40. Hits others
0 1 2 41. Holds his/her breath
0 1 2 42. Hurts animals or people without meaning to
0 1 2 43. Looks unhappy without good reason
0 1 2 44. Angry moods
0 1 2 45. Nausea, feels sick (without medical cause)
0 1 2 46. Nervous movements or twitching (describe): _____
0 1 2 47. Nervous, highstrung, or tense
0 1 2 48. Nightmares
0 1 2 49. Overeating
0 1 2 50. Overtired
0 1 2 51. Overweight
0 1 2 52. Painful bowel movements
0 1 2 53. Physically attacks people
0 1 2 54. Picks nose, skin, or other parts of body (describe): _____
0 1 2 55. Plays with own sex parts too much
0 1 2 56. Poorly coordinated or clumsy
0 1 2 57. Problems with eyes without medical cause (describe): _____
0 1 2 58. Punishment doesn't change his/her behavior
0 1 2 59. Quickly shifts from one activity to another
0 1 2 60. Rashes or other skin problems (without medical cause)
0 1 2 61. Refuses to eat
0 1 2 62. Refuses to play active games
0 1 2 63. Repeatedly rocks head or body
0 1 2 64. Resists going to bed at night

Please see other side

0 = Not True (as far as you know) 1 = Somewhat or Sometimes True 2 = Very True or Often True

0	1	2	65. Resists toilet training (describe): _____	0	1	2	82. Sudden changes in mood or feelings
			_____	0	1	2	83. Sulks a lot
0	1	2	66. Screams a lot	0	1	2	84. Talks or cries out in sleep
0	1	2	67. Seems unresponsive to affection	0	1	2	85. Temper tantrums or hot temper
0	1	2	68. Self-conscious or easily embarrassed	0	1	2	86. Too concerned with neatness or cleanliness
0	1	2	69. Selfish or won't share	0	1	2	87. Too fearful or anxious
0	1	2	70. Shows little affection toward people	0	1	2	88. Uncooperative
0	1	2	71. Shows little interest in things around him/her	0	1	2	89. Underactive, slow moving, or lacks energy
0	1	2	72. Shows too little fear of getting hurt	0	1	2	90. Unhappy, sad, or depressed
0	1	2	73. Shy or timid	0	1	2	91. Unusually loud
0	1	2	74. Sleeps less than most children during day and/or night (describe): _____	0	1	2	92. Upset by new people or situations (describe): _____
			_____				_____
0	1	2	75. Smears or plays with bowel movements	0	1	2	93. Vomiting, throwing up (without medical cause)
0	1	2	76. Speech problem (describe): _____	0	1	2	94. Wakes up often at night
			_____	0	1	2	95. Wanders away from home
0	1	2	77. Stares into space or seems preoccupied	0	1	2	96. Wants a lot of attention
0	1	2	78. Stomachaches or cramps (without medical cause)	0	1	2	97. Whining
				0	1	2	98. Withdrawn, doesn't get involved with others
0	1	2	79. Stores up things he/she doesn't need (describe): _____	0	1	2	99. Worrying
			_____				100. Please write in any problems your child has that were not listed above.
0	1	2	80. Strange behavior (describe): _____	0	1	2	_____
			_____	0	1	2	_____
0	1	2	81. Stubborn, sullen, or irritable	0	1	2	_____

PLEASE BE SURE YOU HAVE ANSWERED ALL ITEMS. UNDERLINE ANY YOU ARE CONCERNED ABOUT.

CHILD BEHAVIOR CHECKLIST FOR AGES 4-16

For office use only
ID #

CHILD'S NAME

SEX ☐ Boy ☐ Girl

AGE

ETHNIC GROUP OR RACE

TODAY'S DATE

Mo. _____ Day _____ Yr. _____

CHILD'S BIRTHDATE

Mo. _____ Day _____ Yr. _____

GRADE IN SCHOOL

PARENT'S TYPE OF WORK *(Please be specific – for example, auto mechanic, high school teacher, homemaker, laborer, lathe operator, shoe salesman, army sergeant, even if parent does not live with child.)*

FATHER'S TYPE OF WORK: _____

MOTHER'S TYPE OF WORK: _____

THIS FORM FILLED OUT BY:

☐ Mother (name): _____

☐ Father (name): _____

☐ Other – name & relationship to child: _____

I. Please list the sports your child most likes to take part in. For example: swimming, baseball, skating, skate boarding, bike riding, fishing, etc.

☐ None

	Compared to other children of the same age, about how much time does he/she spend in each?				Compared to other children of the same age, how well does he/she do each one?			
	Don't Know	Less Than Average	Average	More Than Average	Don't Know	Below Average	Average	Above Average
a. _____	☐	☐	☐	☐	☐	☐	☐	☐
b. _____	☐	☐	☐	☐	☐	☐	☐	☐
c. _____	☐	☐	☐	☐	☐	☐	☐	☐

II. Please list your child's favorite hobbies, activities, and games, other than sports. For example: stamps, dolls, books, piano, crafts, singing, etc. (Do not include T.V.)

☐ None

	Compared to other children of the same age, about how much time does he/she spend in each?				Compared to other children of the same age, how well does he/she do each one?			
	Don't Know	Less Than Average	Average	More Than Average	Don't Know	Below Average	Average	Above Average
a. _____	☐	☐	☐	☐	☐	☐	☐	☐
b. _____	☐	☐	☐	☐	☐	☐	☐	☐
c. _____	☐	☐	☐	☐	☐	☐	☐	☐

III. Please list any organizations, clubs, teams, or groups your child belongs to.

☐ None

	Compared to other children of the same age, how active is he/she in each?			
	Don't Know	Less Active	Average	More Active
a. _____	☐	☐	☐	☐
b. _____	☐	☐	☐	☐
c. _____	☐	☐	☐	☐

IV. Please list any jobs or chores your child has. For example: paper route, babysitting, making bed, etc.

☐ None

	Compared to other children of the same age, how well does he/she carry them out?			
	Don't Know	Below Average	Average	Above Average
a. _____	☐	☐	☐	☐
b. _____	☐	☐	☐	☐
c. _____	☐	☐	☐	☐

3-81 Edition

V. 1. About how many close friends does your child have? ☐ None ☐ 1 ☐ 2 or 3 ☐ 4 or more

2. About how many times a week does your child do things with them? ☐ less than 1 ☐ 1 or 2 ☐ 3 or more

VI. Compared to other children of his/her age, how well does your child:

	Worse	About the same	Better
a. Get along with his/her brothers & sisters?	☐	☐	☐
b. Get along with other children?	☐	☐	☐
c. Behave with his/her parents?	☐	☐	☐
d. Play and work by himself/herself?	☐	☐	☐

VII. 1. Current school performance—for children aged 6 and older:

☐ Does not go to school

	Failing	Below average	Average	Above average
a. Reading or English	☐	☐	☐	☐
b. Writing	☐	☐	☐	☐
c. Arithmetic or Math	☐	☐	☐	☐
d. Spelling	☐	☐	☐	☐
Other academic subjects—for example: history, science, foreign language, geography. e. _____	☐	☐	☐	☐
f. _____	☐	☐	☐	☐
g. _____	☐	☐	☐	☐

2. Is your child in a special class?

☐ No ☐ Yes—what kind?

3. Has your child ever repeated a grade?

☐ No ☐ Yes—grade and reason

4. Has your child had any academic or other problems in school?

☐ No ☐ Yes—please describe

When did these problems start?

Have these problems ended?

☐ No ☐ Yes—when?

VIII. Below is a list of items that describe children. For each item that describes your child **now or within the past 6 months**, please circle the **2** if the item is **very true** or **often true** of your child. Circle the **1** if the item is **somewhat** or **sometimes true** of your child. If the item is **not true** of your child, circle the **0**. Please answer all items as well as you can, even if some do not seem to apply to your child.

0 = Not True (as far as you know) **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

0 1 2 1. Acts too young for his/her age
0 1 2 2. Allergy (describe): _____
_____
0 1 2 3. Argues a lot
0 1 2 4. Asthma
0 1 2 5. Behaves like opposite sex
0 1 2 6. Bowel movements outside toilet
0 1 2 7. Bragging, boasting
0 1 2 8. Can't concentrate, can't pay attention for long
0 1 2 9. Can't get his/her mind off certain thoughts; obsessions (describe): _____
_____
0 1 2 10. Can't sit still, restless, or hyperactive
0 1 2 11. Clings to adults or too dependent
0 1 2 12. Complains of loneliness
0 1 2 13. Confused or seems to be in a fog
0 1 2 14. Cries a lot
0 1 2 15. Cruel to animals
0 1 2 16. Cruelty, bullying, or meanness to others
0 1 2 17. Day-dreams or gets lost in his/her thoughts
0 1 2 18. Deliberately harms self or attempts suicide
0 1 2 19. Demands a lot of attention
0 1 2 20. Destroys his/her own things
0 1 2 21. Destroys things belonging to his/her family or other children
0 1 2 22. Disobedient at home
0 1 2 23. Disobedient at school
0 1 2 24. Doesn't eat well
0 1 2 25. Doesn't get along with other children
0 1 2 26. Doesn't seem to feel guilty after misbehaving
0 1 2 27. Easily jealous
0 1 2 28. Eats or drinks things that are not food (describe): _____
_____
0 1 2 29. Fears certain animals, situations, or places, other than school (describe): _____
_____
0 1 2 30. Fears going to school
0 1 2 31. Fears he/she might think or do something bad
0 1 2 32. Feels he/she has to be perfect
0 1 2 33. Feels or complains that no one loves him/her
0 1 2 34. Feels others are out to get him/her
0 1 2 35. Feels worthless or inferior
0 1 2 36. Gets hurt a lot, accident-prone
0 1 2 37. Gets in many fights
0 1 2 38. Gets teased a lot
0 1 2 39. Hangs around with children who get in trouble
0 1 2 40. Hears things that aren't there (describe):
_____
_____
0 1 2 41. Impulsive or acts without thinking
0 1 2 42. Likes to be alone
0 1 2 43. Lying or cheating
0 1 2 44. Bites fingernails
0 1 2 45. Nervous, highstrung, or tense
0 1 2 46. Nervous movements or twitching (describe):
_____
_____
0 1 2 47. Nightmares
0 1 2 48. Not liked by other children
0 1 2 49. Constipated, doesn't move bowels
0 1 2 50. Too fearful or anxious
0 1 2 51. Feels dizzy
0 1 2 52. Feels too guilty
0 1 2 53. Overeating
0 1 2 54. Overtired
0 1 2 55. Overweight
56. Physical problems without known medical cause:
0 1 2 a. Aches or pains
0 1 2 b. Headaches
0 1 2 c. Nausea, feels sick
0 1 2 d. Problems with eyes (describe):
_____
0 1 2 e. Rashes or other skin problems
0 1 2 f. Stomachaches or cramps
0 1 2 g. Vomiting, throwing up
0 1 2 h. Other (describe): _____
_____

Please see other side

0 = Not True (as far as you know) 1 = Somewhat or Sometimes True 2 = Very True or Often True

0 1 2 57. Physically attacks people
0 1 2 58. Picks nose, skin, or other parts of body (describe): _____
_____ 80
0 1 2 59. Plays with own sex parts in public 16
0 1 2 60. Plays with own sex parts too much
0 1 2 61. Poor school work
0 1 2 62. Poorly coordinated or clumsy
0 1 2 63. Prefers playing with older children 20
0 1 2 64. Prefers playing with younger children
0 1 2 65. Refuses to talk
0 1 2 66. Repeats certain acts over and over; compulsions (describe): _____
_____
0 1 2 67. Runs away from home
0 1 2 68. Screams a lot 25
0 1 2 69. Secretive, keeps things to self
0 1 2 70. Sees things that aren't there (describe):
_____
_____
0 1 2 71. Self-conscious or easily embarrassed
0 1 2 72. Sets fires
0 1 2 73. Sexual problems (describe):
_____
_____ 30
0 1 2 74. Showing off or clowning
0 1 2 75. Shy or timid
0 1 2 76. Sleeps less than most children
0 1 2 77. Sleeps more than most children during day and/or night (describe): _____
_____
0 1 2 78. Smears or plays with bowel movements 35
0 1 2 79. Speech problem (describe): _____
_____
0 1 2 80. Stares blankly
0 1 2 81. Steals at home
0 1 2 82. Steals outside the home
0 1 2 83. Stores up things he/she doesn't need (describe):
_____ 40

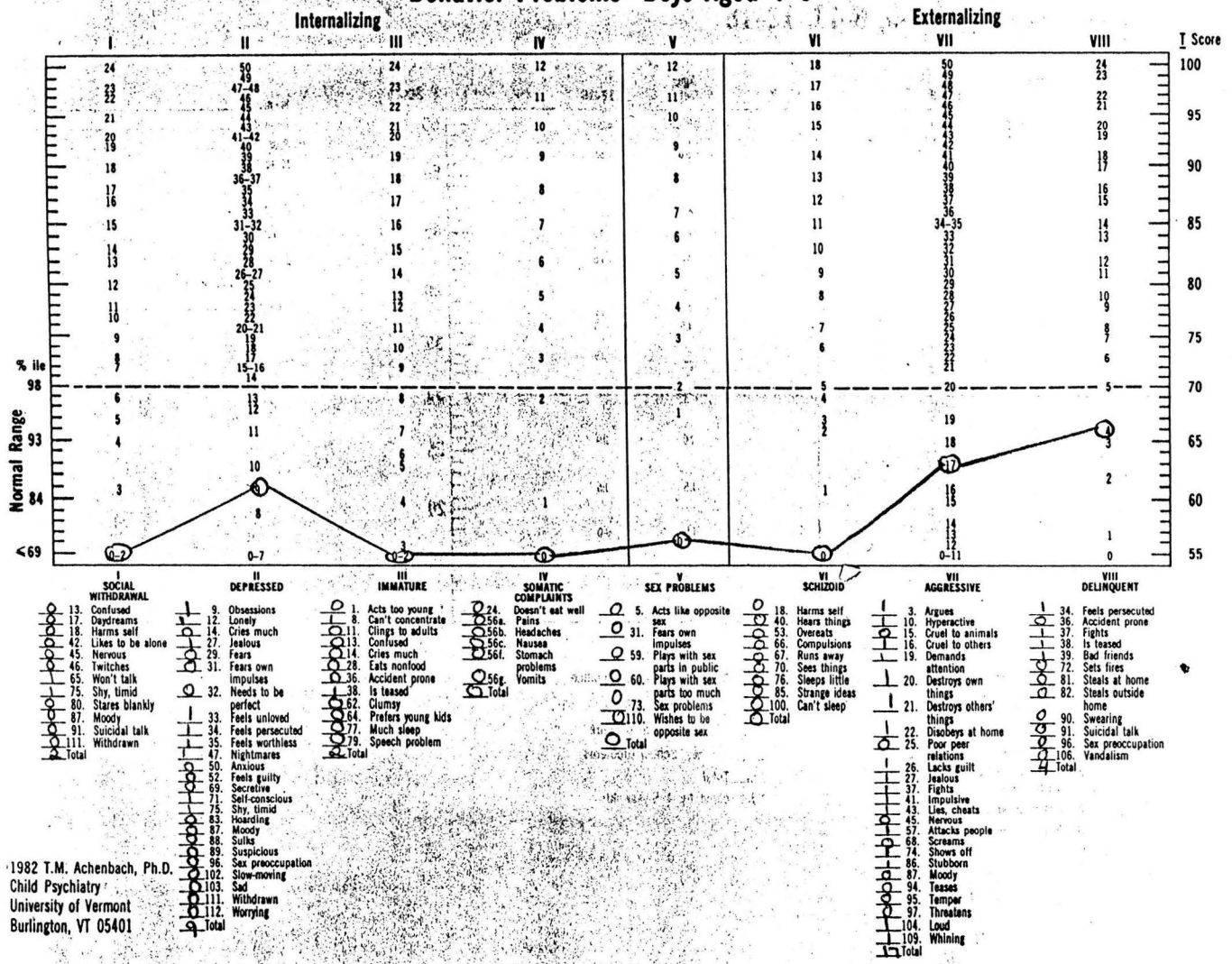
0 1 2 84. Strange behavior (describe): _____
_____
0 1 2 85. Strange ideas (describe):
_____
0 1 2 86. Stubborn, sullen, or irritable
0 1 2 87. Sudden changes in mood or feelings
0 1 2 88. Sulks a lot 45
0 1 2 89. Suspicious
0 1 2 90. Swearing or obscene language
0 1 2 91. Talks about killing self
0 1 2 92. Talks or walks in sleep (describe):
_____
0 1 2 93. Talks too much 50
0 1 2 94. Teases a lot
0 1 2 95. Temper tantrums or hot temper
0 1 2 96. Thinks about sex too much
0 1 2 97. Threatens people
0 1 2 98. Thumb-sucking 55
0 1 2 99. Too concerned with neatness or cleanliness
0 1 2 100. Trouble sleeping (describe):
_____
0 1 2 101. Truancy, skips school
0 1 2 102. Underactive, slow moving, or lacks energy
0 1 2 103. Unhappy, sad, or depressed 60
0 1 2 104. Unusually loud
0 1 2 105. Uses alcohol or drugs (describe):
_____
0 1 2 106. Vandalism
0 1 2 107. Wets self during the day
0 1 2 108. Wets the bed 65
0 1 2 109. Whining
0 1 2 110. Wishes to be of opposite sex
0 1 2 111. Withdrawn, doesn't get involved with others
0 1 2 112. Worrying
113. Please write in any problems your child has that were not listed above:
0 1 2 _____ 70
0 1 2 _____
0 1 2 _____

PLEASE BE SURE YOU HAVE ANSWERED ALL ITEMS. PAGE 4 UNDERLINE ANY YOU ARE CONCERNED ABOUT.

Appendix G

REVISED CHILD BEHAVIOR PROFILE

Behavior Problems—Boys Aged 4-5



Child Psychiatry
University of Vermont
Burlington, VT 05401

Name #22
Case #
Filled out by
Age 4
Date
Sum Int
Int I
Sum Ext
Ext I
No. of Items
Sum
Sum I

OTHER PROBLEMS
2. Allergy
4. Asthma
6. Encopresis
7. Brags
23. Disobeys at school
30. Fears school
44. Nailbiting
48. Unliked
49. Constipated
51. Dizziness
54. Overtired
55. Overweight
56d. Eye problems
56e. Rashes
56h. Other physical problems
58. Picking
61. Poor schoolwor
63. Prefers older k
78. Smears b.m.
84. Strange behavi
92. Walks, talks in sleep
93. Excess talk
98. Thumbsucking
99. Too neat
101. Truant
105. Alcohol, drugs
107. Wets self
108. Wets bed
113. Other problems

Appendix H
Reliability and Validity Data for the CBCL

On the CBCL/4-16, over a one-week interval, total scale scores of 80 nonreferred children showed test-retest reliability (Pearson's r correlation) of .91 for behavior problems and .89 for social competence (Achenbach and Edelbrock, 1983). From interviews with 12 mothers of nonreferred children, over a three-month interval test-retest r_I was .838 for behavior problems and .974 for social competence (Achenbach and Edelbrock, 1981).

Interparent reliability, computed from CBCLs filled out independently by the fathers and mothers of 207 children being evaluated in mental health settings, was r = .64 for behavior problems and .59 for social competence (Achenbach and Edelbrock, 1983). Inter-interviewer reliability, computed from CBCLs obtained by 3 full time interviewers on 241 triads of children matched for age, gender, race, and SES was r = .959 for behavior problems and .927 for social competence (Achenbach and Edelbrock, 1981).

Construct validity of the CBCL is based primarily on correlations of its scores with those of other, roughly analogous instruments. Pearson correlations with the Connors (1973) Parent Questionnaire and the Quay-Peterson (1983) Revised Behavior Problem Checklist range from .71 to .92. Mash and Johnston (1983) reported that parents' ratings on the Connors Abbreviated Rating Scale and the Werry-Weiss-Peters Activity Scale correlated significantly with T scores for Externalizing (r = .82 to .87) and Internalizing (r = .62 to .72) in a sample of 91 hyperactive and normal children.

Criterion-related and content validity are based on the ability of the CBCL to discriminate clinically-referred from nonreferred children. On 116 of the 118 behavior problem items, clinically-referred children scored significantly higher ($p < .005$) than demographically similar nonreferred children; on all of the 20 social competence items the clinically-referred group scored significantly lower ($p < .01$; Achenbach and Edelbrock, 1983).

With the CBCL/2-3, test-retest reliability among 61 mothers' ratings over a one-week interval was .87 (mean for eight scales; total problem scores' reliability was .91). One-year stability in a sample of 73 children averaged .69 (total problems: r = .76). Inter-parent reliability was moderate for 3- and 4-year-olds, r = .57 (N = 54) and .58 (N = 57) respectively, but fairly low for 2-year-olds, r = .49 (N= 61).

Few 2- and 3-year-olds receive mental health services for the particular syndromes identified by the CBCL/2-3; therefore discriminative validity was determined from a comparison of the scores for nonreferred children to those deemed in need of mental health services on other grounds. Comparison of 96 clinically-referred children to 96 nonreferred, demographically-matched children showed higher scores for referred

children than for nonreferred children on all scales at $p < .001$. Predictive validity was assessed by correlating CBCL/2-3 scores with CBCL/4-16 scores in a sample of 87 children at ages 2, 3, 4 and 5. Mean predictive $\underline{r}$'s were as follows: 1-year $\underline{r}$ from age 3 to 4 = .63; 2-year $\underline{r}$ from age 2 to 4 = .52; 2-year $\underline{r}$ from age 3 to 5 = .56; 3-year $\underline{r}$ from age 2 to 5 = .49 (Achenbach, Edelbrock, and Howell, 1987).

No concurrent $\underline{r}$'s between CBCL total problem scores and Minnesota Child Development Inventory, Bayley, or McCarthy scores were significant at any of the three ages; indicating that the CBCL as a whole is not merely reflecting the same variance as the developmental measures (Achenbach, Edelbrock, and Howell, 1987). This is relevant for the present project because differences in behavior profiles are expected to be distinct from differences in developmental status.

Appendix I
Changes in Behavioral Code

From the initiation of pilot work until the beginning of collection of data which was retained for analysis, some changes were made in the behavioral code. Most changes were made to simplify the system when categories were observed to be redundant or otherwise unnecessary. Among child behaviors, for instance, several mode of play categories were eliminated, as the behavior of interest was social play; solitary play, parallel play, and undefined mode of play were all determined to be equivalent to the absence of social play, and therefore unnecessary. During the habituation period at the site of the study, random behavior was observed to occur so infrequently that it was eliminated from the code. "Focus on task" was defined more explicitly and changed to "play with materials."

Among adult behaviors, "within six feet of child" was replaced by "present" in this small area. Physical contact, verbal comments, and role playing were subsumed under the category of "interacts with index child." Reliability was inadequate for "observing" and "directing play," so these were dropped from the code. The teacher behaviors were simplified to be only "present" and "interacts with index child," making "at child level" unnecessary.

Appendix J
Behavioral Definitions

Child Appropriate Behaviors (On Task)

Task Involvement

Play with materials: Direct, physical contact with concrete materials. E.g. playing with toys or using materials appropriately, such as carrying a doll, wearing a hat, or stirring with a spoon. Excludes attention to materials that another child or adult is manipulating.

Role playing: Engages in play related to a character role as indicated by verbalizations by the target child or one playing with him/her. E.g. "I'll be the mommy," or "We're cowboys." Talks as though mimicking such a character, e.g. "Aren't I a good driver?" or "Do you want some cake?" or encourages others to take on roles e.g. "You be the baby." Begin coding this category when the child initially verbalizes his/her role. Stop coding this category when the child has made a change in activity which lasts for at least one entire interval. E.g. if the child initially says "We're going to Disney World" and then sits and pretends to drive, continue coding role playing. If she gets up and goes to the refrigerator for an entire interval, do not code role playing any longer. An exception, of course, is if she then verbalizes her role again, e.g. says "We need to take some food with us." This category also includes playing with toys as characters, if a role-specific action is verbalized (e.g. farm animals or Barbies).

Mode of Play

Social play: Child plays with another child or children, including either nonverbal or verbal interaction with them according to the nature of the behavior. Interactions here include conversation, borrowing or sharing toys, following or chasing one another, appropriate physical contact, and organized play involving different roles which is initiated by a verbalization. E.g. If the child says, "I'm baking a cake. Do you want some?" and the other child just stands and watches him for a while, this would be social play (as well as role playing) for both of them. However, if the one child had not said anything but was stirring and the other child was watching, do not code social play. If the child talks to another child and is totally ignored, do not code social play.

Interacts with adult: Target child plays, talks, or otherwise directly interacts with an adult. If the adult is addressing the group in general, the target child must indicate attention by looking at the teacher and pausing to listen in order to be scored in this category.

Child Inappropriate or Non-involved Behaviors (Off Task)

Disruptive behavior: Agonistic behavior involving gross physical contact, disturbance of property, or inappropriate motor or verbal behavior. E.g. hitting, kicking, grabbing an object from some one, banging, throwing, or tearing toys or materials. Includes threatening gestures toward or an attempt to disturb another child or his/her property. Also includes running around, standing on furniture, opening fire door, or verbalizations such as insulting, shouting, or repetitive requests for attention.

Teacher Behaviors (of the adult closest to the target child)

Present: An adult is inside the housekeeping area or within two feet of its periphery.

Interacts: An adult talks to, touches, plays with, reprimands, or otherwise interacts with the target child. Includes a child sitting on her lap. Includes general comments to the group of which the target child is a part, e.g. "All of you are going to Disney World?" or "It's time to start cleaning up the housekeeping area."

Appendix K
Teacher Interview

Semi-structured interview for director and all adults present in the center.
Purpose: To describe adults' definitions of the goals, expectations, and rules of the dramatic play area of the center. To ascertain whether staff agree on these, and whether these match those found in the child development and early childhood education literature.

"If I could have just about 10 minutes of your time, Clif said it would be o.k. if I talked with you. I am interested in having you tell me, in your own words, a littel bit about the housekeeping area.

What is the purpose of this area, what are the goals for the children here?
How are children expected to behave in housekeeping; that is, how would a "well-behaved child" act here?
Are these expectations the same for all of the children, or how are they different--based on age, individuals, etc.?
Are there any special rules for this area?
Is this an area in which children are expected to play independently, or to interact socially with other children?

What are adults supposed to be doing during center time?
What do you usually do during center time?
When an adult is in the housekeeping area, what does she mostly need to be doing?
What does she need to do to promote the behaviors of the "well-behaved child" you described above?
Are there some special things <u>you</u> do, some strategies you like to use in the housekeeping area?
Do you offer different tasks, toys, suggestions, etc. to different children?
Can you give me some examples?"

Appendix L
Demographic Information for Low CBCL and High CBCL Score Groups

Variable	$\bar{x}$	SD	Range
Age			
Low CBCL	50.8	9.0	37-68
High CBCL	51.4	8.2	36-63
Age placed in daycare			
Low CBCL	8.6	11.0	01-36
High CBCL	12.6	3.0	01-41
Siblings			
Low CBCL	.8	.8	0-3
High CBCL	.8	.8	0-3
Playmates			
Low CBCL	1.3	1.7	0-4
High CBCL	1.7	1.5	0-5
Internalizing t			
Low CBCL	45.5	5.0	34-51
High CBCL	56.3	5.3	49-68
Externalizing t			
Low CBCL	43.9	3.3	36-49
High CBCL	56.5	6.8	36-65
MCDI within age level			
Low CBCL	6.3	2.1	0-8
High CBCL	7.3	.8	6-8
SES			
Low CBCL	54.7	6.9	42-65
High CBCL	47.9	12.1	18-62

Appendix M
Additional Sample Information

	Low CBCL	High CBCL
Divorce	4	6
Age		
36-47 m.	6	5
48-59 m.	7	7
60-68 m.	2	3
Age placed in daycare		
</= 12 m.	11	9
>/= 13 m.	4	6
Number of Siblings		
0	5	5
1	8	9
2-3	2	1
Number of Playmates		
0	8	5
>/= 1	7	10

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