

PARENTAL REPORTS OF PRESCHOOL CHILDREN'S SOCIAL BEHAVIOR: RELATIONS AMONG PEER PLAY, LANGUAGE COMPETENCE, AND PROBLEM BEHAVIOR*

By: Julia L. Mendez and Livy M. Fogle

Mendez, J.L., & Fogle*, L.M. (2002). Parental reports of preschool children's social behavior: Relations among peer play, language competence and problem behavior. *Journal of Psychoeducational Assessment*, 20, 374-389.

Made available courtesy of SAGE Publications (UK and US): <http://jpa.sagepub.com/>

*****Note: Figures may be missing from this format of the document**

Abstract:

This investigation examined relations between preschool children's play behavior, language competence, and problem behavior. Parents and teachers provided information on 113 preschool children enrolled in a Head Start program. A subset of these children ($n = 34$) who participated in a second year of this early intervention preschool program was assessed at 8-month follow-up. Correlational analysis confirmed relations between parent ratings of play performance, parent ratings of problem behavior, and teacher ratings of play performance at time one. Parent ratings of play were also related to assessments of children's language competence at the beginning of the following school year, whereas parent ratings of problem behavior were not related to subsequent language competence. The findings provide additional validity for a parent measure of preschool children's peer play and support the need for greater inclusion of parental assessment of young children's social behavior during early childhood. Implications for the assessment of play behavior, hyperactivity, and attentional difficulties with preschool children are also discussed.

Article:

Numerous developmental theorists have identified children's play as a primary context for the acquisition and expression of key social competencies, including problem solving, communication, and empathy. Piaget (1952, 1962) discussed play as the medium, or the surrounding milieu, through which children build social collaboration skills and learn to coordinate multiple points of view. Other theorists have noted that children's play experiences stimulate developmental progress or adaptation (Sutton-Smith, 1997). For example, Vygotsky's sociocultural theory proposes that children move forward through play activity by rehearsing future roles and becoming familiar with rules and self-imposed restraints. Vygotsky also postulated that children's conceptual abilities are stretched as they demonstrate imagination and creativity in play interaction. A zone of proximal development is created within play, because the child is free to spontaneously attempt behaviors beyond his or her current age. In these multiple ways, "play is a leading activity that determines the child's development" during the preschool years (Vygotsky, 1978, p. 103).

Research findings support the theoretical emphasis on dyadic play interaction as a salient social context for the acquisition of social competence (Coolahan, Fantuzzo, Mendez, & McDermott, 2000; Goncu, 1993; Howes, 1992; Mendez, McDermott, & Fantuzzo, 2002). For example, significant relations have been found between preschoolers' levels of sociodramatic play and measures of social competence and peer acceptance following the transition from preschool to kindergarten (Ladd & Price, 1987; Ladd, Price, & Hart, 1990). Longitudinal research indicates that an inability to successfully negotiate the implicit social rules and exchanges with peers in play often results in peer rejection and negative consequences in later stages of development (Parker & Asher, 1987; Parker, Rubin, Price, & DeRosier, 1995). Different behavioral styles and levels of competence in play have also been linked to adaptive classroom performance and school success. In a study with over 300 low-income children enrolled in Head Start, Coolahan and her colleagues (2000) found that children who demonstrate positive interactive play behaviors also display higher levels of competence motivation, attention,

* This work was supported by a Research and Productive Scholarship awarded to the first author by the University of South Carolina. The authors would like to thank the GLEAMNS Human Resource Agency located in Greenwood, SC, for their support for this research and the teachers, case managers, center director, and families from Columbia, SC, who participated in this project.

task persistence, and a positive attitude toward learning as compared with children who are less engaged in peer play.

Children's play is also viewed as an important social milieu through which language skills are refined. Howes (1987) noted that certain communication skills are essential for peer interaction, because children with delayed communication abilities show less complex peer interaction. Language facilitates children's sharing of information about their own emotional states and provides the foundation for expression that may influence others' affective states, such as comforting others or teasing others (Dunn & Brown, 1991; Sawyer, 1997). During his ethnographic study, Corsaro (1985) reported that concern for other children, as evidenced through verbal phrases and attempts to comfort the hurt child, was commonly observed when a child was injured. In a recent study of 141 African American children attending Head Start, profile analysis revealed the differential importance of language and communicative competence in determining children's peer competence in the classroom. Children with adequate language development showed higher levels of peer play interaction; in contrast, two thirds of the sample demonstrated below-average communication skills as compared with peers and were clustered in profiles characterized by dysregulation, inattentiveness, or reluctance to communicate in the classroom (Mendez, Fantuzzo, & Cicchetti, 2002).

Given the salience of peer play, psychologists need accurate and appropriate tools to assess this domain. The measurement of adaptive and competent behaviors, as opposed to the assessment of problems and pathology, is of additional importance in order to identify and nurture the emerging skills of young children (LaFreniere & Dumas, 1996). Unfortunately, critiques of existing behavior rating systems point to inadequacies because these measures were designed to systematically identify parents' and teachers' concerns about child psychopathology rather than child competence (Raver & Zigler, 1997). Some research has documented relatively little overlap between dimensions of internalizing and externalizing problem behaviors and social competence, suggesting that assessment procedures must account for both areas of functioning (Fantuzzo, Manz, & McDermott, 1998). For these reasons, it is evident that measures of problem behaviors should supplement, not substitute for, measures of social competence.

The superordinate goals of many early childhood programs emphasize the role of family involvement in promoting competencies of young children (Brooks-Gunn, Berlin, & Fuligni, 2000). For example, Head Start performance standards specifically call for the provision of opportunities for parents to increase their child observation skills and to share assessments with staff. These data from parents are intended to assist teachers in creating learning programs for children attending Head Start. To build capacity for family involvement, early childhood programs need to develop mechanisms for sharing knowledge between parents and teachers about important developmental competencies, such as children's peer play. One way to have parents provide input is to use psychometrically sound rating instruments that allow parents to indicate how well their children are functioning within the home environment.

To provide a format for parental input regarding play, researchers developed the Penn Interactive Peer Play Scale (PIPPS; Fantuzzo, Sutton-Smith, Coolahan, Manz, Canning, & Debnam, 1995). The PIPPS rating system consists of a parent and teacher version containing 32 identical items designed to assess competencies within play that differentiate children who demonstrate positive peer relationships from those who are less successful with peers. The teacher version yields a report of play activities at school and in the classroom, whereas the parent version assesses play activity in the home and in the neighborhood. The items that comprise the PIPPS were developed from recordings of play observations conducted with African American children attending Head Start. Items were written in collaboration with early childhood educators and parents in order to create a measure that reflected developmentally and culturally meaningful behaviors that could be rated by these adults. One clear advantage of this scale development process is that the PIPPS rating system obtains complementary reports from home and school on the same play constructs (Fantuzzo, Mendez, & Tighe, 1998b).

In the original construct validity study involving the parent PIPPS, Fantuzzo and colleagues (1998b) demonstrated congruence between parent and teacher reports of play constructs for preschool children. The evidence regarding the psychometric strengths of this parent rating scale is consistent with literature in support

of parents as accurate reporters of their children's behavior (Diamond & Squires, 1993). A logical next step in this research process is to explore how parent reports of children's play behavior within the home ecology relate to other salient developmental domains for preschool children. A previous study using the teacher version of the PIPPS showed considerable overlap between children's play, classroom behavior problems, and learning behaviors (Coolahan et al., 2000). The primary purpose of this study is to examine further the validity of the parent version of the PIPPS. A secondary objective is to study relations among constructs of play, behavior problems, and language competence for African American preschoolers using a brief longitudinal research design.

Several research questions guided this investigation of parental assessment of social behavior and aspects of preschool children's development:

1. How do parent ratings of children's play performance in the home ecology relate to parent ratings of children's hyperactivity, inattention, oppositional behavior, and ADHD symptomatology?
2. How do parent ratings of children's play performance in the home ecology relate to teacher ratings of children's peer play in the classroom?
3. How do parent ratings of children's play performance and behavior problems in the home ecology relate to children's language competence?

These questions serve to inform how children's interactive peer play and behavioral difficulties in the home setting relate to classroom social interaction and language competence for a sample of African American children attending Head Start preschool programs. Overall, we hypothesized that adaptive play performance would positively correlate with language competence, whereas problematic play performance would negatively correlate with language competence. Lastly, we expected problematic play performance to relate to parent reports of problem behavior and teacher reports of problematic play performance.

METHOD

Participants

Participants were parents and teachers of 113 low-income children attending a Head Start preschool program. The sample was recruited from 8 classrooms at one Head Start center within a mid-size city in the southeastern United States. Each classroom contained a maximum of 20 children, and all families were given an opportunity to participate in the study. Children in the study ranged in age from 33.4 months to 67.2 months ($M = 54.8$, $SD = 7.0$). Females comprised 55.7% of the sample. Approximately 130 families were offered a chance to participate in this study, resulting in a high response rate by parents (87%). The majority of parents reported African American background ($n = 100$), and 8 participating teachers were of African American background.

Descriptive information was collected from the parent informants for this study and is presented in Table 1. The majority of respondents were mothers (88%); an additional 10% were either fathers or grandparents. Caretaker age ranged from 20 to 67 years old, with a mean age of 29. Caretaker education levels ranged from 11th grade or below (14%) to a college degree (10%). Nearly 29% of parents reported that the highest level of education they had attained was a high school diploma or GED, while 35% of parents indicated that they had completed some college education. With respect to family composition, 56% of parents were single and 23% were married. The remainder of the sample were widowed, separated, or divorced. Number of children living in the home ranged from 1 to 8, with a mean of almost 3 children living in each household. The number of adults living in the home ranged from 1 to 6, with a mean of 2 adults in each household. Most of the parents in the sample were employed, with 63% holding full-time jobs and 14% holding part-time jobs. Seventeen percent of the sample reported no employment outside of the home, 8% were students, and 5% received disability benefits.

Data were also collected on a subsample of 38 children who participated in a second year of this early childhood educational program. Four students were later dropped from the sample due to missing data on a questionnaire. Demographic information on the 38 children who participated in the longitudinal portion of this study is also presented in Table 1. No significant differences characterize the home ecology of the subsample of children in comparison to the larger sample, with the exception of child age. Children are eligible to remain in

Head Start until the age of kindergarten entry; therefore, the returning children were more likely to be younger during the first assessment point. The majority of informants were mothers (87%); an additional 13% were either fathers or grandparents. Caretaker age ranged from 20 to 67 years old, with a mean age of 31. Number of children living in the home ranged from 1 to 6, with a mean of approximately 3 children living in each household. The number of adults living in the home ranged from 1 to 5, with a mean of 2 adults per household. Educational attainment of the caretakers for the subsample was also similar to the initial sample of Head Start children.

Table 1
Demographic Information of the Total Sample and the Returning Sample

Variable	Percentage Total Sample	N	Percentage Returning Sample	N
Care Provider				
Mother	88%	98	87%	33
Father	5%	5	5%	2
Stepparent	1%	1	0%	0
Grandparent	5%	6	8%	3
Other	2%	2	0%	0
Education Level				
Some high school	24%	26	16%	6
High school graduate/GED	28%	30	35%	13
Some college	35%	38	35%	13
College degree	10%	11	13%	5
Vocational school	3%	3	0%	0
Marital Status				
Single	56%	62	53%	20
Married	23%	25	16%	6
Widowed	4%	4	5%	2
Separated	11%	12	16%	6
Divorced	7%	8	11%	4
Employment Status				
Full time	63%	69	63%	24
Part time	14%	15	11%	4
Not employed outside home	17%	19	21%	8

Note.— $N = 113$ for Total sample, $N = 38$ for Returning sample. Four cases were dropped from the follow-up analyses due to incomplete data. Percentages are rounded and may not sum precisely.

Measures

Demographics. Variables collected from the Head Start program attendance sheets included the child's birthdate, gender, and race. Questions also addressed parent education and employment status, involvement with the Head Start program, and family composition.

Peer play interaction. Both the teacher and parent versions of the Penn Interactive Peer Play Scale (PIPPS; Coolahan et al., 2000; Fantuzzo et al., 1998b) were utilized within the present study. This rating system was developed in collaboration with Head Start teachers and parents to describe peer play interactions of African American children. The teacher version consists of 32 items identifying common play behaviors that facilitate or interfere with pro- social peer interactions in the classroom. The parent version consists of the same 32 items that assess play behavior that occurs within the home or neighborhood context. Multiple factor analytic studies of the parent and teacher versions (Coolahan et al., 2000; Fantuzzo et al., 1995; Fantuzzo, Coolahan, Mendez, McDermott, & Sutton-Smith, 1998a) yielded three underlying dimensions of children's play behaviors: Play Interaction, Play Disruption, and Play Disconnection. The Play Interaction factor consists of items reflecting creative, cooperative, and adaptive behaviors that facilitate successful peer play interactions. Play Disruption captures children's aggressive, antisocial, and problematic play behaviors, and Play Disconnection accounts for avoidance behaviors that impede active participation in play. Cronbach's alpha indicates strong reliability for these factors ($r = .92, .91, \text{ and } .89$, respectively). Interrater reliability between teachers and teacher assistants was $.85$. Concurrent validity for the teacher PIPPS was established by correlations with other teacher rating

scales, peer nominations, and observations of classroom free play. The parent version of the PIPPS has demonstrated construct validity and concurrent validity through comparisons with the teacher PIPPS (Fantuzzo et al., 1998b).

Behavior problems. The Conner's Parent Rating Scale—Revised: Short Form (CPRS-R:S; Conners, 1997) is a 27-item scale measuring home behavior as well as other environments in which the parent observes the child. The scale consists of four subscales: Oppositional, Cognitive Problems, Hyperactivity, and an ADHD index. Normative data were collected on a large representative sample from all the major regions of Canada and the United States. The scale demonstrates strong reliability, with internal consistency coefficients ranging from .75 to .90 and reliability coefficients from .60 to .90.

Expressive language. The Expressive One-Word Picture Vocabulary Test—Revised (EOWPVT-R; Gardner, 1990) contains 143 items utilized to assess a child's verbal intelligence and expression. The scale was designed for children aged 2 to 12 years old. Internal consistency estimates using KR-20 coefficients ranged from .84 to .92, with a median reliability of .90. Concurrent validity was demonstrated through correlations with the Peabody Picture Vocabulary Test—Revised (PPVT-R; 1981) and the vocabulary subscale of the Wechsler Intelligence Scale for Children-Revised (WISC-R; Wechsler, 1974). Correlations were moderate, ranging from .41 to .61. Concurrent validity analyses conducted with a sample of 100 African American Head Start children found significant correlations with teacher reports of Communication on the nationally normed Vineland Adaptive Behaviors Scale (Mendez & Fantuzzo, 1998).

Receptive language. The Peabody Picture Vocabulary Test—Third Version (PPVT-III; Dunn & Dunn, 1997) is a nationally standardized instrument used to assess receptive vocabulary for individuals ages 2^{1/2} through adulthood. Spearman-Brown split half reliability coefficients ranged from .92 to .98, and test-retest reliability calculated on 226 children across four age groups after 1 month ranged from .91 to .93. Construct as well as criterion-related validity was demonstrated through correlations between the PPVT-III, the Weschler Verbal, Performance, and Full Scale IQ scores (.82 to .92), and several other language measures. The test manual reports that the PPVT-III is an improvement on the PPVT-R, most notably with the larger and more inclusive normative sample.

Procedures

Permission was obtained from the Head Start administration and center director to conduct the present research project within a center serving a high proportion of low-income, African American families. The objectives of the project were reviewed with parents and teachers from participating centers during regularly scheduled meetings. Benefits of participation for the children and Head Start were described, and parents were invited to be involved in the project. Confidentiality procedures and the rights of participants were reviewed, and parents and teachers were informed that participation was voluntary. Parent questionnaires were sent home and returned by parents to their children's teacher. Case managers or research assistants helped families who had questions or needed assistance with completion of the packet. Each family received children's books as a token for their participation in the study.

After obtaining parental consent, teachers were given rating scales to complete for each participating child. Research assistants were available to answer questions. Eight classroom teachers were compensated for their time and effort by receiving a donation of educational materials. Parents and teachers participated in two data collection efforts. The first collection occurred during March and the second collection took place 8 months later, in November of the following school year. Any child who was enrolled in Head Start during the second year and had parental consent participated in vocabulary testing during November. Two graduate students with advanced assessment training served as test administrators and completed the vocabulary testing within a 1-month period. Children's verbal assent was obtained prior to data collection, and children were tested in a quiet area near their classroom. Most children were given the EOWPVT and the PPVT-III on separate days to minimize fatigue factors. These procedures resulted in an initial data set that contained information regarding

113 children attending Head Start. Follow-up data collection during the following year yielded a sample of 38 children who attended Head Start during years 1 and 2 of the project. Four cases were eventually dropped from the analyses due to missing data, yielding a follow-up sample size of 34 children.

Data Analysis

First, canonical correlational analyses were used to examine relations between children's play and behavior problems at home. Canonical correlation analysis is a multivariate procedure that simultaneously compares data sets with multiple variables to provide a parsimonious picture of complex relationships (Weiss, 1972). This procedure is useful for reducing bias associated with repeated bivariate correlational analyses. A minimum of 100 subjects is typically recommended to provide adequate statistical power in canonical analyses (Weiss, 1972). Parent and teacher ratings from the PIPPS yielded the constructs of Play Interaction, Play Disruption, and Play Disconnection. Behavior problems were operationalized as the subscales from the Conners rating scale in the areas of oppositional, inattentive, hyperactivity, and ADHD symptomatology. The first canonical procedure yielded canonical correlations for parent ratings of play and behavior problems in the home. The second canonical procedure compared parent reports of peer play at home with teacher reports of peer play at school.

Following this step, bivariate correlations were used to compare parent reports of peer play and behavior problems with children's performance on two measures of language development: receptive and expressive language. Bivariate correlations were selected because the follow-up subsample included 34 children, and therefore canonical correlations would not be an appropriate procedure. Bivariate correlations were also computed between the two parent measures of play and behavior problems as a confirmation of results from canonical analyses.

RESULTS

Peer Play and Problem Behavior

Table 2 depicts the bivariate correlation matrix that confirms the pattern of convergent and discriminant validity across the PIPPS parent and Conners parent rating scales. Specifically, Play Disruption was positively correlated with all four subscales of the Conners Parent Rating Scale: Oppositional, Inattention, Hyperactivity, and ADHD symptoms. Parent ratings of Play Disconnection were also positively related to each of these subscales, although the magnitude of correlation was less. Finally, parent ratings of positive play behavior, as captured by the Play Interaction scale, were negatively correlated with parent ratings of problem behavior at home.

Table 2
Bivariate Correlations between Parent Reports of Peer Play and Problem Behavior

	Conners Oppositional Scale	Conners Inattention Scale	Conners Hyperactivity Scale	Conners ADHD Scale
PIPPS Parent Scales				
Play Interaction	-.33**	-.37**	-.30*	-.37**
Play Disruption	.58**	.39**	.58**	.51**
Play Disconnection	.37**	.39**	.29*	.40**

N = 104.

* *p* = .01. ***p* = .001.

Table 3 reports the pattern of loadings for the multivariate analysis, which yielded two significant canonical correlations (canonical $R = .73$, $p < .0001$ and $R = .36$, $p < .05$, respectively). The first variate, called Problem Behavior, was characterized by strong positive relationships between the Play Disruption and Play Disconnection scales of the PIPPS and each of the four Conners problem behavior scales. Additionally, Play Interaction loaded negatively on this variate pair. The squared canonical correlation indicates that 53% of the variance in one variate is shared with, or is predictable from, the other variate. The second variate, called Inattentive/Disconnected, was defined by a strong positive relationship between the Play Disconnection scale of the PIPPS and the Inattention scale of the Conners. No other subscales contributed to this variate. The squared canonical correlation indicates that the proportion of variance in common between each of two weighted

variates is 56.25%. It should be noted that each of these weighted variate pairs represents only a portion of the variance within each of the respective larger data sets.

Because each canonical variate accounts for only a fraction of the variance out of the total set of possible variables, canonical redundancy estimates were used to reflect the amount of variance that one entire multivariate data set can explain within the other multivariate data set. Redundancy analyses confirmed the expected degree and direction of relationships. Specifically, the peer play behavior scales were able to explain more of the variance within the problem behavior scales (39%), whereas problem behaviors accounted for 32% of the variance in peer play, Wilks's $X = .40$, $F(12, 256) = 8.86$, $p < .0001$.

Peer Play at Home and School

Next, a multivariate canonical procedure was computed to investigate the relation between the parent and teacher versions of the PIPPS. This analysis was previously conducted within the original validation study comparing parent and teacher versions of the PIPPS for a sample of 320 African American children (Fantuzzo et al., 1998). Results confirm the expected relations between the two measures. One significant canonical correlation was obtained (canonical $R = .37$, $p < .01$). Examination of salient loadings revealed a strong positive relationship between the Play Disconnection factor of both the parent and teacher PIPPS. Parent PIPPS ratings of Play Disruption also had a strong positive loading on this variate. Additionally, the Play Interaction dimensions of both the parent and teacher PIPPS had strong negative loadings on this variate. Redundancy analyses were conducted to determine the degree of overlap between the parent and teacher versions of the PIPPS. Analyses revealed a small, but significant overlap between the two measures. The parent PIPPS scales could account for 7.6% of the variance in the teacher PIPPS scales, whereas the teacher PIPPS factors accounted for 8.9% of the parent PIPPS factors, Wilks's $X = .80$, $F(9, 246) = 2.69$, $p < .01$.

Table 3
Canonical Structure of the Penn Interactive Peer Play Scale (PIPPS) Parent Version and the Conners Parent Rating Scale

Variable	Canonical Variate Set	
	Problem Behavior	Inattentive/Disconnected
PIPPS dimensions		
Play Interaction	<u>-.54</u>	-.19
Play Disruption	<u>.88</u>	-.41
Play Disconnection	<u>.76</u>	<u>.56</u>
Conners dimensions		
Oppositional	<u>.89</u>	-.36
Hyperactive	<u>.83</u>	-.37
Inattentive	<u>.78</u>	<u>.62</u>
ADHD	<u>.78</u>	.11

Note.— $N = 104$. Loadings $> .50$ are considered salient and are underlined.

Peer Play, Problem Behavior, and Language Competence

Lastly, bivariate correlations compared parent ratings of peer play and behavior problems in the home ecology with children's language competence as measured at 8-month follow-up. Table 4 depicts the correlations in support of the hypothesis that adaptive play performance would be associated with children's language competence. A positive correlation ($r = .33$; $p < .01$) was obtained between Play Interaction and children's receptive language, as measured by the PPVT-III. Children's receptive language was negatively correlated with parent ratings of Play Disruption ($r = -.42$; $p < .01$) and Play Disconnection ($r = -.39$; $p < .05$). A similar pattern was found for children's expressive language development. Parent ratings of play difficulties were negatively associated with children's expressive vocabulary scores measured at follow-up. Specifically, Play Disruption and Play Disconnection were both negatively correlated with children's expressive vocabulary scores ($r = -.46$; $p < .01$ and $r = -.34$; $p < .05$). Comparisons of children's language competence and parent ratings of behavior problems, as measured by the CTRS, did not yield any significant relations.

DISCUSSION

The findings of this study offer further validity for the PIPPS, a parent measure of preschool children's play behavior within the home ecology. Specifically, parent ratings of their children's disruptive and disconnected play behaviors demonstrated significant overlap with their ratings of children's oppositional, hyperactive, and inattentive behaviors and level of ADHD symptoms. In contrast, parent reports of interactive play were negatively related to ratings of problem behaviors. Findings from the canonical analyses also support a link between parent ratings of disconnected peer play and ratings of inattentive behavior on the Conners measure. Coolahan and her colleagues (2000) obtained this identical finding with teacher ratings of disconnection in play and inattentiveness, providing evidence of co-occurrence for these constructs. Taken together, these results suggest a strong link between preschool children's attentional difficulties and their inability to positively engage other children during play at home and in school.

Parent and teacher ratings of peer play also demonstrated some concordance, providing support for this system in the assessment of preschool children's social competence across contexts. One canonical variate was obtained within the present study, and the relations among the scales were in the expected direction. A previous validation study involving close to 300 subjects (Fantuzzo et al., 1998) documented three canonical variates, each corresponding to one of three play constructs (interaction, disconnection, and disruption). Although this study does not duplicate these findings, the inability to extract more than one variate is likely due to a smaller sample size within the present study (Weiss, 1972). Moreover, redundancy across the two measures, or how much variance can be predicted within one measure by the other, is comparable across the two validation studies. Both the 1998 study and the present study found approximately 10% overlap in variance across parent and teacher PIPPS. Ultimately, findings of small, but significant overlap between the two measures are consistent with those of Fantuzzo et al. (1998b). Numerous researchers have highlighted the difficulty in obtaining high levels of congruence in ratings across settings, because adults have differential access to information as children interact within home or school settings (see Achenbach, 2000, and Achenbach, McConaughy, & Howell, 1987, for discussion).

A secondary objective of this study was to examine relations between parent ratings of play performance and problem behavior with an important aspect of school readiness, namely, children's language competence. Given the salience of children's language development during preschool, this study compared parent ratings for two salient domains, play and problem behavior, with direct assessments of two aspects of language development, expressive and receptive vocabulary. Results showed that parent ratings of successful peer play interaction were positively correlated with receptive language outcomes over this 8-month interval, indicating that positive engagement with peers is associated with the acquisition of receptive language skills. Parent ratings of disconnected and disruptive peer play had significant, negative relationships with both receptive and expressive language ability, suggesting that impaired play skills are related to deficits in language use and understanding.

The mutual influence of language development and competence in play has been recognized in studies of preschool children's social interactions (Cannella, 1993; Goncu, 1993). Based on the findings of this study, it appears that poor expressive language skills have a strong connection with disruptive and disconnected play. Children who cannot communicate their play ideas or resolve conflicts during play may resort to using more aggressive, intrusive means of obtaining what they want. In addition, children who lack the language skills to approach peers and engage them in reciprocal play interactions may become disconnected and withdrawn from play with others. These play styles may also perpetuate the language deficits for children in that they miss key opportunities to practice and refine their communication with peers.

Receptive language skills are also important in maintaining positive play interactions and preventing disruptive interactions. In order to extend play ideas and negotiate with peers, children must first understand the message of their play partner (Goncu, 1993). Studies using the teacher version of the PIPPS have also confirmed this link between teacher ratings of advanced peer play interaction and enhanced receptive and expressive language ability in preschool children (Mendez, Fantuzzo, & Cicchetti, 2002; Mendez, McDermott, & Fantuzzo, 2002).

This study also provides an interesting comparison between two parent ratings scales and how they relate to children's developmental outcomes. Both measures provide information about problem behaviors, in that ratings of disruptive and disconnected play are highly associated with ratings of inattention, opposition, and hyperactivity. However, the parent PIPPS has demonstrated its capability to identify the strengths and adaptive behaviors of preschool children, instead of only problem behaviors. The parent PIPPS provides information about play strengths and social competence, which cannot be assessed by problem-oriented measures, such as the Conners. The parent PIPPS has also demonstrated its relation to future language competencies, such as emerging language ability, while the results of this study suggest that the Conners lacks this capability. A limitation of these results is that no pretest language scores were available to be used as a covariate; however, these initial results suggest that future research should examine the overlap between the set of constructs in the play, language, and problem behavior domains.

Implications for Assessment and Early Intervention

The pattern of findings may have clear implications for future assessment and intervention involving children with attention problems. Wilson and Gottman (1996) suggested that attention processes are crucial in the attainment of developmental milestones during the early years of life, including the acquisition of basic interpersonal skills and the use of language for regulating emotional states. Clearly, attention-deficit/hyperactivity disorder (ADHD) is the childhood disorder most commonly linked with impaired attention processes and has been the subject of more studies than most disorders of childhood (Campbell, 2000). Although debate exists over the specific etiology of the disorder, most children are referred for attention or hyperactivity difficulties during the early childhood or elementary school years (Applegate et al., 1997; Barkley, 1990). Recent work on this topic, consistent with current categorizations of DSM-IV, has suggested that the pattern of deficits associated with subtypes of ADHD differs (Campbell, 2000). For example, Barkley (1997) proposes that deficits in sustained attention characterize the inattentive subtype of ADHD, whereas poorly focused attention and inhibitory control better characterize the hyperactive impulsive type. An application of Barkley's model suggests that preschool children would demonstrate different behavioral patterns within the context of their play in accordance with the particular subtype of ADHD symptomatology.

Table 4
Bivariate Correlations Involving Receptive Language, Expressive Language, and Parent Ratings of Social Behavior

	PPVT Receptive Language	EOWPVT Expressive Language
PIPPS Parent Scales		
Play Interaction	.33*	.12
Play Disruption	-.42**	-.46**
Play Disconnection	-.39*	-.34*
Conners Parent Scales		
Oppositional	.01	-.19
Inattentive	-.01	.04
Hyperactivity	-.01	-.11
ADHD	-.08	-.15

N = 34.

* *p* = .05. ***p* = .01.

Indeed, longitudinal studies by Campbell and colleagues that involved hard-to-manage preschool boys found that problem boys as a group were rated by observers as both more active and less focused during free play, as compared with age-matched control boys (Campbell, 1994; 2000). We speculate that the difficulties experienced by hard-to-manage boys during play could be explained more precisely by viewing performance within play as linked with distinct patterns of inattentive or hyperactive symptoms. Based on our findings, we hypothesize that play behaviors may directly correspond with the diagnostic criteria or symptoms associated with ADHD predominantly inattentive subtype, predominantly hyperactive-inattentive subtype, or ADHD combined type. Specifically, children who receive high ratings of Play Disconnection likely suffer from deficits

in sustained attention, whereas high ratings of Play Disruption are more closely related to deficits in inhibitory control that also affect attentional processes. Further research would be necessary to substantiate this link between children diagnosed with either ADHD subtype or ADHD combined type and differential play performance. However, assessment of difficulties within peer play, a salient developmental task for preschool children, could provide an early window for the assessment of children at-risk for developing ADHD long before academic difficulties begin to emerge.

Due to the documented relationship between ADHD and poor peer relationships (Pelham & Bender, 1982; Whalen & Hencker, 1985), it is important to assess both problem behaviors (e.g., hyperactivity, inattention) as well as social competencies (e.g., play interaction skills) in this population. Results of the current study emphasize the need to use multiple measures, such as the PIPPS, that capture the social competencies of the child while also providing diagnostic information about problem behaviors. The PIPPS may also be unique because of its relation to future language outcomes. As the primary goal of Head Start and other early intervention programs is to promote school readiness, assessment instruments that are capable of predicting language acquisition are essential for use within these contexts. Assessment instruments for parents such as the PIPPS provide a valuable mechanism by which home- school communication can be enhanced. Collaboration between parents and teachers is considered a crucial component for enhancing school readiness among preschool children (Corner & Haynes, 1991; Epstein & Salinas, 1993).

Although this study provides promising directions for the assessment of young children, several limitations should be noted. First, because this study specifically intended to investigate peer play, problem behavior, and language in a sample of low-income, African American preschool children, the results are mainly applicable to that population of children. Second, the correlational analyses used in this study do not allow for inferences about the direction of causality between events. Longer-term longitudinal studies of peer play behavior, ADHD symptoms, and language competence are needed to fully explicate the causal pathways between these variables. Third, the small sample size of the children assessed during the follow-up period limits the generalizability of these results. Our findings can encourage investigations using larger samples to examine more fully the predictive validity of parent measures of children's social behavior. In addition, the influence of classroom activities or involvement in summer programs was not assessed in this study. Because exposure to different levels of cognitive stimulation impacts the development of children's social competence and language ability, it may be important to include these variables in future studies. Finally, the assessment of ADHD symptoms involved only the use of one rating scale and should not be equivocated with a medical diagnosis of the disorder. The overarching aim of this research is to foster the inclusion of parents as key informants in the assessment of adaptive and maladaptive outcomes during early childhood.

REFERENCES

- Achenbach, T. M. (2000). Assessment of psychopathology. In A. J. Sameroff, M. Lewis, & S. M. Miller (Eds.), *Handbook of developmental psychopathology* (2nd ed., pp. 41-56). New York: Kluwer Academic/Plenum Publishers.
- Achenbach, T. M., McConaughy, S., & Howell, C. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situational specificity. *Psychological Bulletin*, *101*, 213-232.
- Applegate, B., Lahey, B. B., Hart, E. L., Biederman, J., Hynd, G. W., Barkley, R. A., Ollendick, T., Frick, P. J., Greenhill, L., McBurnett, K., Newcorn, J. H., Kerdyk, L., Garfinkel, B., Waldman, I., & Schaffer D. (1997). Validity of the age of onset criterion for ADHD: A report from the DSM-IV field trials. *Journal of the American Academy of Child and Adolescent Psychiatry*, *36*, 1211-1221.
- Barkley, R. A. (1990). *Attention-deficit hyperactivity disorder: A handbook of diagnosis and treatment*. New York: Guilford Press.
- Barkley, R. A. (1997). Behavioral inhibition, sustained attention, and executive functions: Constructing a unifying theory of ADHD. *Psychological Bulletin*, *121*, 65-94.

- Brooks-Gunn, J., Berlin, L. J., & Fuligni, A. S. (2000). Early childhood intervention programs: What about the family? In J. P. Shonkoff & S. Meisels (Eds.), *Handbook of early childhood intervention* (2nd ed., pp. 549-588). New York: Cambridge.
- Campbell, S. B. (1994). Hard to manage preschool boys: Externalizing behavior, social competence, and family context at two-year follow-up. *Journal of Abnormal Child Psychology*, 22, 147-166.
- Campbell, S. B. (2000). Attention-deficit/hyperactivity disorder: A developmental view. In A. J. Sameroff, M. Lewis, & S.M. Miller (Eds.), *Handbook of developmental psychopathology* (2nd ed., pp. 383-401). New York: Kluwer Academic/Plenum Publishers.
- Cannella, G. S. (1993). Learning through social interaction: Shared cognitive experience, negotiation strategies, and joint concept construction for young children. *Early Childhood Research Quarterly*, 8, 427-444.
- Comer, J. P., & Haynes, N. M. (1991). Parent involvement in the schools: An ecological approach. *The Elementary School Journal*, 91(3), 271-278.
- Conners, C. K. (1997) *Conners' Rating Scales manual*. Toronto: Multi-Health Systems.
- Coolahan, K. C., Fantuzzo, J., Mendez, J., & McDermott, P. A. (2000). Preschool peer interactions and readiness to learn: Relationships between classroom peer play and learning behaviors and conduct. *Journal of Educational Psychology*, 92(2), 367-376.
- Corsaro, W. A. (1985). *Friendship and peer culture in the early years*. Norwood, NJ: Ablex Publishing.
- Diamond, K. E., & Squires, J. (1993). The role of parental report in the screening and assessment of young children. *Journal of Early Intervention*, 17, 107-115.
- Dunn, J., & Brown, J. (1991). Relationships, talk about feelings, and the development of affect regulation in early childhood. In J. Garber & K. A. Dodge (Eds.), *The development of emotion regulation and dysregulation: Cambridge studies in social and emotional development* (pp. 89-108). New York: Cambridge University Press.
- Dunn, L. M., & Dunn, L. M. (1997). *Peabody Picture Vocabulary Test-Third Edition*. Circle Pines, MN: American Guidance Service.
- Epstein, J. L., & Salinas, K. C. (1993). *School and family partnerships: Questionnaires for teachers and parents in elementary and middle grades*. Baltimore: Center on School, Family, and Community Partnerships, Johns Hopkins University.
- Fantuzzo, J., Coolahan, K. C., Mendez, J. L., McDermott, P. A., & Sutton-Smith, B. (1998a). Contextually relevant validation of constructs of peer play with African American Head Start children: Penn Interactive Peer Play Scale. *Early Childhood Research Quarterly*, 13(3), 411-431.
- Fantuzzo, J., Manz, P. & McDermott, P. (1998). Preschool version of the social skills rating system: An empirical analysis of its use with low-income children. *Journal of School Psychology*, 36, 199-214.
- Fantuzzo, J., Mendez, J., & Tighe, E. (1998b). Parental assessment of peer play: Developmental and validation of the parent version of the Penn Interactive Peer Play Scale. *Early Childhood Research Quarterly*, 13(4), 655-672.
- Fantuzzo, J. W., Sutton-Smith, B., Coolahan, K. C., Manz, P., Canning, S., & Debnam, D. (1995). Assessment of play interaction behaviors in young low-income children: Penn Interactive Peer Play Scale. *Early Childhood Research Quarterly*, 10, 105-120.
- Gardner, M. F. (1990). *The Expressive One-Word Picture Vocabulary Test (Revised)*. Novato, CA: Academic Therapy Publications.
- Goncu, A. (1993). Development of inter-subjectivity in the dyadic play of preschoolers. *Early Childhood Research Quarterly*, 8, 99-116.
- Howes, C. (1987). Social competence with peers in young children: Developmental sequences. *Developmental Review*, 7, 252-272.
- Howes, C. (1992). Sequences in the development of competent play with peers: Social and social pretend play. *Developmental Psychology*, 28(5), 961-974.
- Ladd, G. W., & Price, J. M. (1987). Predicting children's social and school adjustment following the transition from preschool to kindergarten. *Child Development*, 58, 1168-1189.
- Ladd, G. W., Price, J. M., & Hart, C. H. (1990). Preschoolers' behavioral orientations and patterns of peer contact: Predictive of peer status? In S. R. Asher & J. D. Coie (Eds.), *Peer rejection in childhood* (pp. 90-115). New York: Cambridge University Press.

- LaFreniere, P. J., & Dumas, J. E. (1996). Social competence and behavior evaluation in children ages 3 to 6 years: The short form (SCBE-30). *Psychological Assessment, 8*(4), 369-377.
- Mendez, J. L., & Fantuzzo, J. (1998). *Reliability and validity of temperament and language measures with urban Head Start children*. Unpublished manuscript.
- Mendez, J. L., Fantuzzo, J. W., & Cicchetti, D. (2002). Profiles of social competence among low-income African American preschool children. *Child Development, 73*(4), 1085-1100.
- Mendez, J. L., McDermott, P. A., & Fantuzzo, J. W. (2002). Identifying and promoting social competence with African American preschool children: Developmental and contextual considerations. *Psychology in the Schools, 39*, 1111-1123.
- Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? *Psychological Bulletin, 102*, 357-389.
- Parker, J. G., Rubin, K. H., Price, J. M., & DeRosier, M. E. (1995). Peer relationships, child development, and adjustment: A developmental psychopathology perspective. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology, 2: Risk, disorder, and adaptation* (pp. 96-161). New York: Wiley.
- Pelham, W., & Bender, M. E. (1982). Peer relations in hyperactive children: Description and treatment. In K. Gadow & I. Bialer (Eds.), *Advances in learning and behavioral disabilities* (pp. 365-436). Greenwich, CT: JAI Press.
- Piaget, J. (1952). *The origins of intelligence in children*. New York: International Universities Press.
- Piaget, J. (1962). *Play, dreams, and imitation in childhood*. New York: Norton.
- Raver, C. C., & Zigler, E. F. (1997). Social competence: An untapped dimension in evaluating Head Start's success. *Early Childhood Research Quarterly, 12*, 363-385.
- Sawyer, R. K. (1997). *Pretend play as improvisation: Conversation in the preschool classroom*. Mahwah, NJ: Erlbaum.
- Sutton-Smith, B. (1997). *The ambiguity of play*. Cambridge, MA: Harvard University Press.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Wechsler, D. (1974). *Wechsler Intelligence Scale for Children—Revised*. San Antonio, TX: The Psychological Corporation.
- Weiss, D. J. (1972). Canonical correlation analysis in counseling psychology research. *Journal of Counseling Psychology, 19*(3), 241-252.
- Whalen, C. K., & Hencker, B. (1985). The social worlds of hyperactive (ADHD) children. *Clinical Psychology Review, 5*, 447-478.
- Wilson, B., & Gottman, J. (1996). Attention—the shuttle between emotion and cognition: Risk, resiliency, and physiological bases. In E. M. Hetherington & E. A. Blechman (Eds.), *Stress, coping, and resiliency in children and families. Family research consortium: Advances in family research* (pp. 189-228). Hillsdale, NJ: Erlbaum.