

## ***The Effect of Teacher Style on Interactive Engagement of Preschool-Aged Children with Special Learning Needs***

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Many of the instructional practices that have been used with preschool-aged children with disabilities are predicated on the belief that children with disabilities need adult direction to engage in meaningful learning activities. This study investigated the effects of directiveness and other elements of teacher style on the participation of children with disabilities in dyadic play and instructional interactions. The sample included 49 teacher-child dyads. Children ranged in age from 17 to 71 months and had identified disabilities. Two episodes of teacher-child interaction were coded with global and turntaking measures of the participation of teachers and children. Results indicated that teacher interactive style accounted for a significant portion of the variability in children's engagement. Teacher directiveness was negatively associated with children's initiations, while teacher affective involvement correlated positively with both children's attention and initiations. These results are discussed in terms of constructivist educational practices for preschool children with disabilities.

The purpose of this investigation was to examine the effects of different styles of teacher interaction on the engagement of preschool-aged children with disabilities. An ongoing issue in early intervention concerns the adequacy of the spontaneous behavior produced by young children with disabilities. It is commonly assumed that when these children are allowed to choose whether and/or how to participate in activities, they may fail to spontaneously engage in interactions that are well-suited to promoting their developmental and socio-emotional well-being. These concerns are often reflected in teachers and therapists carrying out activities with children that are highly directive and relatively non-supportive of activities children initiate on their own (Goodman, 1992). These activities are based on the assumption that the development of these children can be accelerated only if they

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are (1) guided towards experiences that will stimulate their development; and (2) directed to participate in these experiences in a manner that will enhance their competence (Carta, Schwartz, Atwater, & McConnell, 1991; Wolery, Strain, & Bailey, 1992).

This issue was the focus of the debate that took place in the early 1990s regarding the appropriateness of the Developmentally Appropriate Practice (DAP) model of early child head education (Bredekamp, 1987) for addressing the educational and developmental needs of children with disabilities. The version of DAP being debated at that time had a wide range of recommendations, some of which were based upon the notion that constructivist educational procedures (i.e., educational procedures that emphasized children's self-initiated activities) were the preferred method for conducting early childhood education. Several ECSE professionals expressed general support for the DAP model, but cautioned that children with disabilities may require a level of direction exceeding that which is needed by typically developing children (Carta et al., 1991; Mallory, 1992; Norris, 1991). This caveat reflected their belief that teacher direction may be necessary to help these children engage in greater amounts of developmentally meaningful activities.

In general, little, if any, research has yet been reported that directly assesses the assumption that young children with disabilities require adult direction to engage in developmental meaningful activities. It is well-documented that direct instruction, an educational method that emphasizes adult guided activities, can be effective at teaching targeted developmental and functional skills. However, many of the skills that children learn through this approach either never become a part of their spontaneous behavior, or are used productively only long after the behavior is mastered in the instructional setting (e.g., Kaiser, Yoder, & Keets, 1992). Skills that do become part of children's spontaneous repertoire are often developmental behaviors that most children would acquire at their current stage of development through normal maturation. Thus, in these cases it is unclear whether the instructional guidance provided by adults actually contributed to children's acquisition and use of these behaviors.

Information regarding the effects of nondirective procedures on the learning and development of children with disabilities is extremely limited. This can be attributed to the fact that for the past twenty years professionals have focused almost exclusively on direct instruction and have given little attention to alternative methods. Yet, at least three studies have been published examining children's achievement and developmental growth when provided with nondirective, or child-centered experiences. Each of these studies reported small, but statistically significant, advantages for children who participated in child-centered intervention models compared to children who participated in direct instruction models (Cole, Dale, & Mills, 1991; Cole, Mills, & Dale, 1989; Yoder, Kaiser, & Alpert, 1991). Children attained significant developmental growth with both types of intervention models. Yet, at least some children with disabilities achieved greater developmental gains with the less directive methods.

Results from research examining parental influences on early development have also pointed to the benefits of low directive experiences on the cognitive and communicative functioning of children with disabilities. In a series of studies involving more than 100 children with disabilities between one and three years of age, results have indicated that when parents adopt a nondirective style of interaction that is accepting and supportive of behaviors that children initiate on their own, children are more likely to become actively engaged in social interaction and to attain higher levels of early developmental competence (Bressanutti, Mahoney, & Sachs, 1992; Mahoney, 1988; Mahoney, Finger, & Powell, 1985; Mahoney & Powell, 1988; Mahoney, Wood, & Fors, 1991). None of these studies indicated that elevated levels of parental directiveness were associated with children being either more actively engaged in interaction or achieving high levels of cognitive or communicative competence (Mahoney, Robinson, & Powell, 1992). Findings from these studies are highly compatible with results from research involving typically developing children. Numerous studies have found that parental responsiveness, as opposed to parental directiveness, is the quality most effective at promoting various aspects of early childhood functioning.

In this study, patterns of interactions between teachers and young children with disabilities are described in two different situations: (a) free play, where the teacher has no specific agenda to accomplish with the child; and (b) instruction, where the teacher is asked to engage in interactions relevant to an instructional objective from the child's Individualized Education Plan (IEP). The design of this study is analogous to the types of procedures used to examine parental influences on children's behavior and development. One of the major criticisms of this design in the parent-child literature, however, has been that the correlational data it yields cannot be used to determine the direction of causality (i.e., "Does the parent influence the child's behavior?" or "Does the child influence the parent's behavior?") (McCollum & Hemmeter, 1997). To address this issue, the current study also examined the relationship between children's activity while playing alone to teacher's interactive style while interacting with children. If teachers' interactive style is responsive to children's activity level, we hypothesized that there should be significant correlations between measures of children's behavior when they play alone and the style of interaction teachers display when they interact with these children. If, on the other hand, no relationship is found between children's level of activity while playing alone and their level of engagement while interacting with teachers, there is stronger reason to interpret significant correlations between the interactive characteristics of teachers and children as indicators of adult influence.

## **METHOD**

### ***Subjects***

Subjects included 49 teacher-child dyads who were recruited from 30 early childhood special education classrooms. (Note: 19 of these classrooms had two

teachers who participated in this study). Teachers who volunteered to participate in this study each selected a child from their classrooms who met the subject selection criteria. In addition to parental consent, children were eligible to participate if they were judged by the research staff to have sufficient physical, sensory, and mental capabilities to enable them handle or manipulate objects in play.

Children who participated in this study included 36 boys and 13 girls. They had disabilities associated with a variety of etiologies including Down syndrome, Spina bifida, Cerebral Palsy, complications at or around birth, Cyanostosis, Muscular Dystrophy, Seizure Disorders, Achondroplasia, Encephalitis, and unspecified genetic disorders. The mean chronological age of the children was 44.7 months (range 17–71 months). Teacher estimates of children's developmental levels ranged from 8 to 39 months with a mean of 23.9 months ( $SD = 6.7$ ). Forty four of the children were white, 3 were black, and 2 were Hispanic.

Thirty of the participating teachers were head teachers and 19 were assistants. The teachers had an average of 16.4 years of education and approximately 51% had formal training in special education. Teachers reported working at their present positions from 1 to 15 years with a mean of 4.98 years ( $SD = 4.0$ ). They had worked with the children who they interacted with in this study for an average of 10.5 months ( $SD = 10.6$ ).

### ***Procedures***

**1. Observational Procedures.** The primary data for this study were videotaped observations of children in three situations. These included seven-minute segments of: the child playing alone with toys (Alone); the teacher and child playing together in a free play situation (Free Play); and the teacher instructing the child using an activity related to the child's IEP (Instruction). The order in which observations were collected was distributed randomly across subjects to minimize practice or burn-out effects. Observations occurred either outside the classroom or in a quiet section of the classroom and were completed in one day, except when children became tired or uncooperative. The following describes each observation:

**Alone.** The child was led by the observer to an isolated area of the classroom or to another room. The teacher accompanied the child but was given a book or magazine to read to prevent her from interacting with the child. The child was provided with a set of toys to play with that was similar to those recommended in the Play Assessment Scale (PAS) (Fewell, 1984). These toys were divided into 2 sets. The first set was placed on the floor in front of the child. She was allowed to play with these toys without interference. After 3-1/2 min, the second set of toys was added to increase the opportunity for varied play behaviors. The child was given an additional 3-1/2 min to play.

**Free Play.** The teacher-child free play observation included the same set of toys used when the child played alone. Teachers were instructed to play with the child as they normally would.

**Instruction.** The teacher was asked to gather any materials needed for working with the child on an instructional objective that she selected from the child's IEP. She was then asked to work with the child on this objective as she typically does.

**2. Data Coding Procedures.** Coding procedures used for the Alone observation were designed to characterize the quality of the child's play behavior. Procedures for the Free Play and Instruction observations were designed to characterize (1) the manner that the teacher interacted with the child; and (2) the nature of the child's engagement both with the teacher and with the toys and materials.

**Alone.** Measures used to characterize children's play in the Alone situation included Frequency and the global Child Behavior Rating items.

**Frequency.** The intensity of children's play was assessed by the total number of activities observed for each child (Frequency) and the percentage of behaviors that were codeable (% codeable behavior).

**Child Behavior Rating Items.** Child Behavior Rating items were developed to characterize the global quality of children's engagement in the Alone condition. These items were adapted from scales reported previously by Meisels and colleagues (Meisels, Plunkett, Roloff, Pasick, & Stiefel, 1986) and Egeland and Sroufe (1981). Items included:

1. Persistence. The degree to which the child attempts or repeats actions and vocalizations.
2. Attention to Activity. The extent to which the child attends to the activity, independent of the quality of the child's participation or satisfaction.
3. Involvement. The degree to which the child participates in play activities.

Trained observers rated each of these items on a five-point Likert scale, ranging from '1' very low to '5' very high, after watching the videotaped observation of the child playing alone.

**Child With Teacher.** Global ratings and turntaking measures were used to code both of the observations of children with teachers. The global ratings included the Child Behavior Rating items described previously, additional Child Behavior Rating items and a modified version of the Maternal Behavior Rating Scale (MBRS) (Mahoney, Powell, & Finger, 1986). The frequency of teacher and child interactive behavior was assessed with the Turntaking scheme described by Kaye and Charney (1980). The following is a description of each of these schemes:

**Child Behavior Rating Scale.** The three Child Behavior Rating items described in the previous section were used to assess children's participation in play activities. Four additional items were used to assess the child's engagement with the teacher. These were as follows:

1. Initiation: Activity. The extent to which the child initiates different activities during the course of the observation.

2. Compliance/Cooperation. The degree to which the child attempts to comply with the requests or suggestions of the teacher.
3. Initiation: Teacher. The extent to which the child initiates interaction with the teacher.
4. Affect. The child's general emotional state during the interaction.

**Teacher Behavior Rating Scale.** A global rating scale was developed to evaluate the interactive style of teachers. Items included on this scale were adapted from the Maternal Behavior Rating Scale, that was developed to examine the interactive style of mothers while interacting with their children (Mahoney, 1992). The seven items included on the Teacher Behavior Rating Scale reflect general domains of adult behavior that have been reported to influence children's participation in interaction. Each of these items was rated on a five-point Likert scale, ranging from '1' very low to '5' very high immediately after the observation was viewed.

1. Enjoyment. The extent to which the teacher enjoys interacting with the child as expressed by the teacher's responsiveness to the child's displays of behavior and affect.
2. Supportiveness. The degree to which the teacher demonstrates a positive attitude, support and acceptance of the child.
3. Responsiveness. The appropriateness and promptness of the teacher's responses to the child's actions, communications and intentions.
4. Achievement Orientation. The degree to which the teacher encourages the child to perform specific tasks and developmental skills.
5. Directiveness. The frequency and intensity with which the teacher requests, commands, questions, hints or in other ways controls or guides the child's behavior.
6. Verbal Praise. The degree to which the teacher uses verbal praise such as "good boy," "that's a girl" and "good job" during the interaction.
7. Participation. The degree to which the teacher participates actively in the child's play.

**Teacher-Child Turntaking.** An adapted version of Kaye and Charney's turn-taking classification scheme (1980) was used to examine the type and frequency of behaviors produced by children and teachers during interactive exchanges. Each person's interactive bids are characterized according to the manner they relate to the other person's previous behavior.

The first 100 "turns" from each teacher-child observation were transcribed using procedures developed by Kaye and Charney (1980). A turn was defined as any verbal or nonverbal behavior produced by a member of the dyad. Each turn was classified into one of the following turn types:

1. Mand. A turn that requires a response and to which it would be rude not to respond in typical adult discourse (e.g., questions, commands, requests, pointing or calling attention to something new, or an expectant look or gesture).
2. Response. A turn that is a response to the other person. Responses included answering a question, requests for clarification, commenting on the other's behavior, or nonverbal actions such as performing an action or gesturing to a requested object.
3. Response-Mand. A turn that is both a response to a previous turn and simultaneously requires a response from the other person. For teachers, response-mands included: requests for clarification ("What did you say?"), answering mands (a teacher who

offers a toy in response to the child's request), turns that attempt to sustain the interaction (taking a drink and offering a drink), or corrections ("No, give me the plate."). Children's response-mands are generally made up of answering teacher mands in a manner that sustains the interaction.

4. Unlinked. Turns that have no explicit or implicit connection to the other's behavior. Unlinked turns generally included solitary play with toys.
5. Noncodeable. Behaviors were described as noncodeable if they were not characterized by any of the four preceding categories. Noncodeable turns for teachers included rearranging toys and talking to the camera person. For children they included looking around the room and leaving the interaction.

**Reliability.** Videotapes were transcribed and coded by three research associates. Two people were responsible for each of the classification schemes described above. Raters were trained for approximately 40 hours on each rating scheme or until they attained 85% exact agreement. Once acceptable level of interrater reliability was achieved, one rater coded the entire sample. During the coding period, a second coder rated a 20% random sample of the videotapes.

Interrater agreement within one point on each item of the Child Behavior Rating Scale ranged from 90–100%, with a mean of 95%. Exact agreement ranged from 45–70%, with a mean of 58%. Interrater correlations ranged from .57 to .74, with a mean of .71.

Interrater agreement within one point on the Teacher Behavior Rating Scale ranged from 90–100%, with mean of 96%. Exact agreement ranged from 50–80%, with a mean of 63%. Interrater correlations ranged from .42 to .91, with a mean of .85.

Reliability of the Turntaking measures was assessed by the percent agreement between observers using videotapes of the Free Play and Instructional conditions. One coder segmented turns and classified them by type for the entire sample. A second coder used a random sample of 20 videotapes to assess the reliability of segmenting turns and type classification. Interrater agreement for segmenting turns was 89% and for classifying turn type was 79%.

## RESULTS

The results are organized into three sections. The first section presents the mean values for each of the schemes used to classify child and teacher behavior across the three observations. The second section presents findings from the correlational analyses conducted to identify patterns of association between these variables. The third section presents the results from regression analyses that examined the unique contribution of teacher behavior to children's interactive engagement.

### A. Descriptive Data

**Alone.** Children produced a mean of 18.8 play segments during the seven-minute observations ( $SD = 7.78$ ; Range = 4–41). 17.5% of these behaviors were judged to be uncodeable. Mean global Child Behavior Ratings were 3.41 ( $SD = 1.29$ ) for Persistence; 2.57 ( $SD = 1.41$ ) for Attention to Activity; and 3.10 ( $SD =$

**Table 1. Global Characteristics of Teacher and Child Behavior in Free Play and Instruction**

Global Behavior Variable	Free Play		Instruction		T
	Mean	SD	Mean	SD	
<i>Teacher Behavior</i>					
Enjoyment	3.45	(.54)	3.24	(.72)	-2.11*
Supportiveness	3.94	(.72)	3.57	(.94)	-2.70**
Responsiveness	3.65	(1.13)	2.90	(1.31)	-4.85***
Achievement Orientation	1.86	(1.00)	3.39	(1.53)	7.42***
Directiveness	2.98	(1.22)	3.84	(1.20)	6.41***
Praise	1.63	(.99)	3.06	(1.51)	7.07***
Participation	4.24	(.93)	4.29	(.96)	0.26
<i>Child Behavior</i>					
Persistence	4.08	(.86)	4.28	(1.00)	1.28
Attention: Activity	3.47	(.87)	4.20	(1.00)	4.70***
Involvement	3.92	(1.09)	3.86	(1.16)	-0.37
Initiation: Activity	3.65	(1.16)	2.92	(1.40)	-3.99***
Compliance	3.76	(.72)	4.06	(.90)	2.31*
Initiation: Teacher	3.39	(1.25)	3.14	(1.19)	-1.43
Affect	3.61	(.76)	3.55	(.71)	-0.50

Notes: \* $p < .05$ ;

\*\* $p < .01$ ;

\*\*\* $p < .001$ .

1.34) for Involvement. These data indicate that the majority of children displayed moderate levels of engagement in meaningful developmental play activities in the Alone condition.

**Teacher With Child.** Table 1 shows the global ratings of teachers and children for both the Free Play and Instruction observations. With only one exception, the mean ratings for the Child Behavior Rating Scale were above the midpoint of the five point scale. The high ratings in Persistence, Involvement and Compliance recorded for both observations indicate that children were highly engaged in each of these settings. Paired  $t$ -tests were used to compare teacher and child behavior across the two observations. Results (See Table 1) indicated that children Initiated Activities more often during Free Play, but Complied and Attended more often during Instruction. Teachers had significantly higher ratings on Enjoyment, Supportiveness and Responsiveness but lower ratings in Achievement Orientation, Directiveness and Praise during Free Play as compared to Instruction.

Data from the Turntaking classification scheme are presented in Table 2. These data present a picture of teacher-child interaction that parallels results reported for the global ratings. In both observational settings, there were balanced levels of interaction between teachers and children. Children's high percentage of unlinked turns indicates that a significant amount of their time was spent interacting with toys as opposed to the teacher. During both observations teachers were more directive (mands) than responsive. However, during Free Play they were significantly



**Table 2. Teacher-Child Turntaking Behavior in Free Play and Instruction**

Variable	Free Play		Instruction		T
	Mean (%)	SD	Mean (%)	SD	
<i>Teacher Behavior</i>					
Total Turns	50.71	(3.19)	51.90	(4.35)	1.97
Mands	37.67	(15.36)	46.06	(16.89)	3.42***
Responses	31.00	(14.56)	25.49	(13.33)	-2.36*
Response-Mands	16.63	(6.84)	17.22	(8.48)	0.41
Unlinked	14.47	(9.98)	10.37	(6.95)	-2.76**
Noncodeable	.55	(1.14)	.41	(.91)	-0.67
<i>Child Behavior</i>					
Total Turns	49.29	(3.19)	48.10	(4.35)	-1.97
Mands	6.35	(6.05)	3.02	(3.46)	-3.62***
Responses	39.43	(12.50)	51.35	(19.84)	4.66***
Response-Mands	3.65	(4.56)	4.12	(8.52)	0.36
Unlinked	50.73	(12.63)	40.82	(17.16)	-4.14***
Noncodeable	.16	(.69)	.39	(1.69)	0.98

Notes: \* $p < .05$ ;

\*\* $p < .01$ ;

\*\*\* $p < .001$ .

more responsive and less directive than they were during Instruction. Children produced a very low percentage of mands during both observations; yet, they produced twice as many mands in Free Play as compared to Instruction. In general, results of the turntaking analysis depict patterns of teacher-child interaction in which teachers' role was leading or guiding the child, and children's role was responding to their teachers' direction. This pattern was more pronounced during Instruction than Free Play.

### ***B. Correlations Between Teacher and Child Interactive Behaviors.***

**Data Reduction.** For the following analyses, global ratings and turntaking measures were converted to scale scores. Scales were empirically derived from factor analyses. Factor solutions were used to describe the general dimensions of behavior reflected by each of the rating scales and to identify the individual variables within each dimension.

Ratings from the Teacher Behavior Rating Scale were reduced to two scale scores for each observation. These were 'Performance Orientation' (achievement orientation + directiveness + praise) and 'Child Orientation' (participation + enjoyment + supportiveness + responsiveness). Child Behavior Rating Scale ratings were also reduced to two scale scores: 'Attention' (attention to activity + persistence + involvement + compliance) and 'Initiation' (initiation of activities + initiation with teacher + affect).

Results from the Turntaking measures for teachers were also reduced to two sub-scale scores. These included *Directiveness* (mands + total turns - responses) and *Involvement* (response mands - unlinked turns). Scale scores for children's Turn-

Table 3. Correlation Between Teacher and Child Interactive Behaviors in Free Play and Instruction

Teacher Engagement Factors	Child Engagement Factors							
	Free Play				Instruction			
	Attention	Initiation	Involvement	Social Initiation	Attention	Initiation	Involvement	Social Initiation
<i>Free Play</i>								
Global:								
Performance Orientation	-.13	-.49***	.47***	-.08				
Child Orientation	.21	.42**	-.07	.13				
Turntaking:								
Directiveness	-.06	-.31*	.51***	.11				
Involvement	-.23	-.02	-.19	.45***				
<i>Instruction</i>								
Global:								
Performance Orientation	.00	-.45***	.44***	.33*				
Child Orientation	.20	.54***	-.07	.17				
Turntaking:								
Directiveness	-.02	-.31*	.55***	.38**				
Involvement	-.13	-.01	-.35***	.52***				

Notes: \* $p < .05$   
\*\* $p < .01$   
\*\*\* $p < .001$

taking measures were *Social Involvement* (unlinked + total turns - response) and *Social Initiation* (mand + [response - mand]).

***Relationship Between Teacher Style and Child Engagement.*** Correlations reported on Table 3 examine the relationship between teacher interactive style and children's engagement during each observation. Findings indicate similar relationships between teacher style and children's engagement in the Free Play and Instruction observations. Global ratings from both observations indicated that teacher Performance Orientation correlated negatively with children's Initiation and positively with children's Social Involvement. In contrast, global measures of teachers' Child Orientation correlated positively with children's Initiation. In both observations, the Turntaking measure of teacher Directiveness correlated negatively with children's Initiation and positively with children's Social Involvement. In both Free Play and Instruction observations, Turntaking measures of teacher Involvement correlated negatively with children's Social Involvement and positively with children's Social Initiation. Similarly, Turntaking measures of teacher Directiveness correlated negatively with children's Initiation and positively with Children's Social Involvement.

***Relationship of Child Behavior While Alone to Teacher-Child Interaction.*** Correlations were computed between children's engagement while playing Alone (e.g., Persistence, Attention to Activity, Involvement, Number of Activities, Percent of Codeable Behavior) with each of the teacher style and child engagement variables from the Free Play and Instruction observations. None of the measures of children's behavior in the Alone condition correlated with teacher's style during both Free Play and Instruction. However, there were several correlations between children's behavior in the Alone condition and their behavior while interacting with their teacher. Children's Involvement while Alone correlated significantly with their Involvement in both Free Play ( $r = .36$ ;  $p < .01$ ) and Instruction ( $r = .45$ ;  $p < .001$ ) and with their Attention in Instruction ( $r = .43$ ;  $p < .001$ ). Persistence in the Alone condition correlated positively with Attention in Instruction ( $r = .34$ ;  $p < .01$ ). These results indicate that there was continuity between children's activity level while playing alone and their level of engagement while interacting with their teachers. However, they provide no evidence that the manner teachers interacted with children was related to children's activity level when they were playing alone.

### ***C. Factors Contributing to Children's Interactive Engagement***

A series of multiple regressions were computed to determine the relative contributions of teacher and child variables to the quality of children's engagement with their teachers. The first set of analyses used global interactive style measures to examine the associations of teacher style (e.g., Performance Orientation, Child Orientation), children's estimated Developmental Level and children's Involvement while Alone with the global assessments of children's engagement (e.g., Attention, Initiation) in both observations (Table 4). All four regression equations

Table 4. Regression Analyses of the Relationship of Teacher Interactive Behavior and Child Characteristics to Children's Global Interactive Behavior

Child Behavior Factors	Predictor Variables Teacher Global Factors				R <sup>2</sup>	F
	Performance Orientation <sup>a</sup>	Child Orientation <sup>a</sup>	Estimated Child Development <sup>a</sup>	Child Involvement Alone <sup>a</sup>		
<i>Free Play</i>						
Attention	.01	.22	.56**	-.08	.27	5.39**
Initiation	-.38*	.32*	.19	-.04	.30	6.16**
<i>Instruction</i>						
Attention	.05	.11	.43*	.19	.26	5.30**
Initiation	-.21	.39*	.09	.01	.26	5.22**

Notes: <sup>a</sup>Beta Values from Regression Analyses;  
\*p < .01;  
\*\*p < .001.

Table 5. Regression Analyses of the Relationship of Teacher Interactive Behavior and Child Characteristics to Child Turntaking

Child Turntaking Factors	Teacher Turntaking Factors				R <sup>2</sup>	F
	Directiveness <sup>a</sup>	Involvement	Child Development (Est) <sup>a</sup>	Child Involvement Alone <sup>a</sup>		
<i>Free Play</i>						
<i>Observation</i>						
Social Involvement	.50***	.20	.11	.03	.25	5.09***
Social Initiation	.07	.47***	.06	.19	.20	3.94**
<i>Instructional</i>						
<i>Observation</i>						
Social Involvement	.46***	.26	.19	.07	.34	7.15***
Social Initiation	.26	.45***	-.14	.21	.32	6.56***

Notes: <sup>a</sup>Beta Values;  
\*\**p* < .01;  
\*\*\**p* < .001.

were significant, accounting for more than 25% of the variance in children's engagement. In Free Play, children's Attention was only associated with children's Developmental Level. However, children's Initiation was not related to their Developmental Level, but was positively associated with teachers' Child Orientation and negatively with their Performance Orientation. In Instruction, there were positive relationships between children's Attention and their Developmental Level and children's Initiation and teachers' Child Orientation.

The second set of regression analyses used Turntaking scale scores to examine the relationship of teacher style, children's Developmental Level, and child Involvement while Alone with the Turntaking measures of children's engagement (e.g., Social Initiation, Social Involvement) (Table 5). All of these equations were significant, accounting for 20 to 34% of the variance in children's engagement. In Free Play, children's Social Involvement was associated positively with teacher Directiveness, and children's Social Initiation was associated positively with teacher Involvement. In Instruction, children's Social Involvement was associated positively with teacher Directiveness, while children's Social Initiation was associated positively with teacher Involvement.

In summary, results from regression analyses indicate that teachers' interactive style contributed significantly to both the quality and frequency of children's engagement with their teachers. In most comparisons, teacher responsiveness (i.e., Involvement, Child Orientation) correlated positively with children's Initiation. Teacher directiveness (i.e., Directiveness, Performance Orientation) correlated positively with children's Social Involvement but negatively with children's Social Initiation. Furthermore, the contributions of teacher style to children's engagement appeared to be independent of the effects of children's Developmental Level and children's level of involvement while playing Alone.

## **DISCUSSION**

In the present study, teachers' style of interacting with children was examined in two situations, Free Play and Instruction. The Global and Turntaking measures used to assess teachers revealed two dimensions of their interactive style. Directiveness included the characteristics of achievement orientation, praise, mands, and turn dominance. Responsiveness, on the other hand, included participation, enjoyment, supportiveness, response-mands, and turns linked to the child's behavior.

Two main findings are reported with regard to these dimensions of teacher interactive style. First, teachers' style of interaction changed according to the demands of the situation. Compared to their style of interaction during Free Play, teachers were considerably more directive and less responsive when the situation required them to instruct children. Second, there appeared to be a causal relationship between these two dimensions of teacher interactive style and the manner in which children participated during the interaction. Directiveness encouraged children to become involved in an interaction with the teacher, while Responsiveness encouraged children to initiate social and nonsocial behaviors.

These two dimensions of teacher style appeared to complement each other. When teachers used a style of interaction characterized by high directiveness and low responsiveness, children were more likely to attend to teachers than engage in solitary play. Yet, in this type of interaction, children adapted a more passive role in the interaction, indicated by their responding to the requests of teachers rather than initiating interactions and behaviors related to their own interests. Conversely, when teachers were highly responsive and nondirective, children were more likely to initiate activities of their own choosing, but less likely to include the teacher in the interaction. Our findings suggest that optimal style of interaction was one in which teachers were highly responsive but also used a moderate level of directiveness to maintain the child's involvement.

The shift in the intensity of teachers' directiveness from Free Play to Instruction was associated with children receiving higher ratings on attention and compliance. The co-occurrence of these findings suggests that elevated levels of teacher directiveness may be effective at promoting these behaviors commonly characterized as prerequisites to children's learning. However, none of the regression analyses conducted to identify causal influences on children's interactive engagement were supportive of this type of relationship. That is, measures of children's attention during teacher-child interactions were not statistically associated with the level of directiveness their teachers displayed. However, since all of the teachers observed in this study displayed at least minimal levels of directiveness in both situations, it appear that a moderate level of teacher directiveness is necessary for encouraging children to interact with teachers. Yet, given that adults attain a threshold level of directiveness, the present findings suggest that the keys to encouraging children's attention are the responsive elements of teacher style that we have identified as Involvement and Child Orientation.

In spite of our failure to find linkages between teacher directiveness and children's attention, we found compelling evidence that teacher directiveness reduces children's initiations. These findings are not surprising considering what directiveness entails. To direct means to attempt to control the behavior of another person. By definition, highly directive teachers place considerable effort into encouraging children to perform behaviors or activities that they themselves have selected. The more often children engage in teacher selected activities, the less opportunities they have to initiate behaviors or activities of their own choosing.

Findings from this study regarding the features of teacher style that we identified as Affective Involvement (e.g., Participation, Supportiveness, Responsiveness, Enjoyment) seem equally reasonable. To initiate is to pursue activities of one's own choosing. It seems likely that Affective Involvement was associated positively with children's initiation because highly responsive teachers engaged in interactions that supported and encouraged children to continue to pursue activities that they selected on their own accord.

Our data do not dispute the notion that children's interactive behavior influences the manner that adults interact with them. According to our definitions, teacher turns identified as responses were interactive behaviors produced in direct response to children's behavior. Every teacher observed in this study produced

several turns classified as responses. As a result, it is clear that the manner in which teachers interacted with children was determined partly by the behaviors children produced during the interaction.

However, two additional findings are also noteworthy in this regard. First, there was considerable variability in the extent to which teachers responded to children, ranging from 3 to 68 percent of their interactive turns. Second, all teachers responded to children at a rate that far exceeded the frequency that children produced mands (i.e., turns that require a response from the other person). Thus, while a portion of teacher responses to children were influenced by the demand characteristics of children's interactive behavior, an even greater portion of their responses were to child behaviors not directed at the adult. Highly responsive teachers inserted themselves into children's activities by responding to play and communicative behaviors that were unlinked to the interaction.

We found no evidence that the interactive style that teachers displayed while playing with children was influenced by children's activity level, at least as assessed by an independent measure of the play behavior. Our failure to find this relationship could be discredited by arguments that our procedures for assessing children's independent activity level were invalid. Yet, correlations between measures of children's behavior in the independent play situation with similar measures of children's activity in the interactive observation support the validity of these procedures. The seemingly contradictory findings regarding child influences on teacher behavior reported in this study can be explained by the fact that only a relatively small proportion of children's behavior demands teacher responses, while teacher interactive style is determined by all interactions that transpire between teachers and children.

Our failure to find statistically significant associations between teacher style and independent measures of children's activity increases the likelihood that correlations between teacher-child behavior reflect adult influences on children's interactive behavior. Moreover, since correlations between teacher and child behavior reflect logical causal outcomes (i.e., children's activity is a logical result of the types of behaviors teachers produced), and since the balance of interactive power unquestionably resides with adults, we find no compelling rationale to refute the notion that teachers are causal influences on children's participation in interaction.

While the focus of this study was teachers, the purpose was to obtain greater insight into the capabilities of children with disabilities. In this regard, one of the most noteworthy findings was related to children's level of involvement both while playing alone and interacting with their teachers. Contrary to common conceptions regarding children with disabilities (e.g., Carta et al., 1991; Wolery et al., 1992), we found that these children were actively engaged in all situations and perhaps most strikingly in the Alone condition. Children spent almost 85% of their time in the Alone condition engaged in meaningful play with toys. Furthermore, the correlations between children's level of play in the Alone condition with measures of their developmental functioning suggest that their unstructured play constituted developmentally appropriate and stimulating activity. This is a partic-



ularly noteworthy finding in view of the fact that the majority of children in this study had moderate disabilities.

In spite of some of the limitations of this study (e.g., brief observation; one-on-one versus group activity), we believe that the findings have important implications for educational practices with children with disabilities. The assumption that children with disabilities need adult direction is based upon the belief that these children do not engage spontaneously in developmentally significant behaviors. Our findings indicate that children with disabilities both engage in developmental play activities on their own, and initiate meaningful, and perhaps developmentally critical, behaviors when they interact with adults who are responsive, supportive and relatively nondirective. If developmental learning occurs as a result of children's involvement in routine activities, then results from this study suggest that elevated teacher directiveness may prevent children from engaging in critical developmental behavior. On the other hand, if children's attainment of higher level skills requires that they participate in advanced activities, our results also suggest that teacher responsiveness and affective involvement, as opposed to directiveness, are critical to promoting children's attention to teacher selected activities.

As observed at the outset of this study, the few studies that have compared high and low directive instructional curricula suggest that low directive approaches may be more successful at promoting the competence of low functioning children (Cole et al., 1991; Dale & Cole, 1988; Yoder et al., 1991). Based upon the findings from this study, it is possible that such results reflect effects that are consistent with constructivist views of learning. Young children with disabilities might benefit more from low directive instructional practices because they support and encourage constructive learning processes such as exploration, persistence, practice and problem-solving. We believe that results from this study, as well as findings from previous curriculum studies, point to the potential value of providing young children with disabilities the opportunity to participate in instructional activities and interactions that are responsive to their individual interests and capabilities. Perhaps we will begin to realize the vision of early childhood special education as we explore the possibility that some of the time honored conceptions of the learning processes of children with disabilities are more consistent with our understanding of the constructive processes by which all children learn.

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