

A Microanalysis of Teachers' Verbalizations in Inclusive Classrooms

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Abstract:

The present study examined the verbalizations of 16 teachers from inclusive preschool classrooms. Two hours of audiotaped verbalizations for each teacher were analyzed for one-on-one interactions between teachers and children and also for interactions between teachers and small groups of children. Results showed that teachers did not modify their question-asking behavior depending on the ability level of the children or the composition of small groups of children. Teachers asked primarily low-level questions to all children. In their statements, teachers used more logical directives and directives, and fewer supportive responses to children with disabilities than they did to typically developing children. The focus of teachers' verbalizations differed depending on whether children had disabilities or were typically developing. These results suggest that teachers need to be provided with information that will help them challenge children by varying the demand level of questions and matching their verbalizations to the child's ability level. Future research should address the bi-directionality of interactions and the implications for teacher preparation programs.

Keywords: Education | Early Childhood | Preschool | Teachers | Verbalizations | Teacher-Child Interactions

Article:

The reauthorization of the Individuals with Disabilities Education Act in 1997 (Public Law 105-17) and the widespread acknowledgment of the importance of children with disabilities being placed in natural environments, has resulted in more young children with disabilities being served in inclusive classrooms (Guralnick, 2001). Therefore, young children with disabilities are being afforded the opportunity to interact with age level peers and to observe age-appropriate behaviors. With teacher support and facilitation, appropriate and beneficial interactions between children with and without disabilities can occur in inclusive settings (Burstein, 1986; Odom, Peck, Hanson, Beckman, Kaiser, Lieber, Brown, Horn, & Schwartz, 1996; Sontag, 1997). For teachers in inclusive classrooms, however, there is a greater responsibility to be responsive to the needs of all children in order to facilitate appropriate interactions. The types of interactions and

conversations that are conducted with children with and without disabilities may influence their interactions with peers and, consequently, their developmental growth.

Teachers of young children exhibit a wide range of behaviors in classroom settings. Kontos and Wilcox-Herzog (1997) described different dimensions of teacher behavior in terms of *roles*, *sensitivity*, *involvement* and *talk*. According to these authors, teacher *role* includes the general types of involvement that teachers have with children such as, socializing, encouraging, and monitoring. While teachers typically have a preference for one of these roles, they have the ability to shift roles throughout the day based on the children's behaviors (Enz & Christie, 1993). Kontos (1999) found that teachers spent most of their time in two roles. Teachers were either helping children get involved in play or facilitating the children's play, but they modified their role depending on the activity (Kontos, 1999).

Teacher *sensitivity* describes the caring and kindness that is demonstrated toward the children in the context of the different roles the teacher assumes. In general, teachers are sensitive in their interactions with young children (Whitebrook, Howes, & Philips, 1989). However, in classrooms that include children with disabilities, teachers' interaction patterns appear to be somewhat different. One study found that teachers displayed affectionate behaviors (i.e., smiling, complimenting, praising, holding, or patting a child warmly) in only 30% of the observed intervals (McEvoy, Niemeyer, & Wehby, 1989). Mill and Romano-White (1999) report that positive caregiver-child interactions (being kind, responsive and respectful) results in more prosocial behavior in children.

Teacher *involvement* is described as the intensity, engagement and responsiveness that teachers display toward the children (Howes & Stewart, 1987; Kontos & Wilcox-Herzog, 1997). According to the review by Kontos and Wilcox-Herzog (1997), teachers spend approximately 71% of their time involved with children. They indicated that teachers spend most of their time assisting children who needed supervision and/or support when engaging in particular activities, who needed help in managing their behavior, who engaged in teacherseeking behaviors, and who they enjoyed spending time with. However, several studies suggest that teachers spend significantly less time interacting individually with children. For example, Wilcox-Herzog and Kontos (1998) found that teachers only interacted with an individual child 18% of the time, even when they were within three feet of the child. Likewise, in an observational study by Layzer, Goodson, and Moss (1993), 31% of the children did not receive individual attention from the teacher. Other research indicated that children in child care classrooms were ignored by their teachers as much as 79% of the time (Whitebook, Howes, & Phillips 1989) and experienced responsive involvement by teachers only 31% of the time (Helburn, 1995). Hestenes, Kontos, and Bryan (1993) found that the intensity of the negative affect (frowning or crying) observed in the children was related to low level of engagement by teachers (i.e. ignoring, routine interactions, or simple responses by teachers with no reply from the child encouraged). In addition, the duration of negative affect was positively associated with low-level engagement from teachers, while the intensity of positive affect was positively associated with high-level engagement by teachers. Research also indicates that teacher presence is predictive of more interactions between preschool children with and without disabilities in inclusive classrooms (Hestenes & Carroll, 2000).

Studies of inclusive classrooms indicated that teachers may be more involved with children with disabilities than with other children (Brophy & Hancock, 1985; Chow & Kasari, 1999; Hundert, Mahoney, & Hopkins, 1993). For example, Chow and Kasari (1999) found that at the beginning of the school year in inclusive classrooms, teachers initiated more negative and task-related interactions to children with disabilities than their typical peers. However, at the end of the school year, teacher interactions to the children with disabilities were similar to typically developing children.

Finally, teacher *talk* refers to the type and frequency of the teacher's verbal interactions with the child. Interestingly, teachers spend much time talking to children, however, this talk is often directed to the class as a whole rather than individual children (Smith & Dickinson, 1994; Wilcox-Herzog & Kontos, 1998). In a study of Head Start teachers, Kontos (1999) found that nearly 75% of verbalizations fell into one of four categories (i.e. support play with objects via statements, support play with objects via questions, practical/personal assistance, and positive social contacts).

Cassidy and Buell (1995) report that although the majority of teacher verbalizations with preschool children were responsive (57%), 43% of teacher verbalizations were restrictive (directives, limit setting, threats, warnings, lecturing, etc.). This is of particular concern when responsive interactions have been found to be associated with higher self-esteem (Kostelnik, Stein, & Whiren, 1988), yet children are experiencing such interactions only about one-half of the time in their classrooms.

Several studies revealed that teachers use more directives with children with disabilities than with typically developing children (Chow & Kasari, 1999; File, 1994; Quay, 1991; Stipek & Sanborn, 1985). File's (1994) research indicates that teachers in inclusive preschool classrooms are more directive ("Fill up the cup"; asking closed questions) of the cognitive experiences of children with disabilities than of the typically developing children's cognitive experiences. Also, teachers were more likely to support cognitive play than social play behaviors. Indeed, support of social play (play with peers) was relatively infrequent (only 2%). Furthermore, Quay (1991) reported that teachers were more negative toward children with disabilities than toward typically developing children. A recent study by McWilliam and Scarborough (2003) found that elaborations and information giving were associated with children's engagement and that interactions targeted at individual children produced more engagement on the part of the children than did group-targeted interactions. However, still missing from the literature is a comprehensive analysis of teachers' verbalizations to children individually and in groups. There is a need to better understand both the statements and questions that teachers use during interactions with young children both with and without disabilities.

Question-asking is an important aspect of teacher verbalizations that has been explored in early childhood classrooms. Question-asking can assist children in problem solving, help them clarify an idea, encourage exploration of a concept and expand their cognitive skill level because questions are "cognitively challenging talk" (Smith & Dickinson, 1994). They are particularly effective at encouraging the child to move beyond the current conversational context or "distance" (Sigel, 1984) themselves from the here and now. Sigel has focused his research

primarily on the distancing strategies that parents employ and the cognitive demands that such strategies have, ranging from low to high. Questions are a particularly effective distancing strategy, often requiring the child to reconstruct the past, place themselves in the future, or hypothesize in the present (Cassidy, 1989). Sigel has demonstrated the effectiveness of high-level distancing strategies (including questions) on children's representational abilities, such as matching models of objects with real objects (Copple, Sigel, & Saunders, 1984).

Use of higher level questions by adults (parents and teachers) has long been associated with positive cognitive and academic outcomes for children (Turner & Durrett, 1975; Ratner, 1984; Laumann & Elliot, 1992). There is also some evidence to indicate that it is important to match question levels to the ability levels of the children, at least with children in elementary grades (Gall & Rhody, 1987). Indeed, strategies that are not matched to the ability level of the children have almost no effect on academic skills such as reading comprehension (Rosenshine, 1976).

It is not surprising, therefore, that teachers ask more questions of children with disabilities than of typically developing children (Brophy & Hancock, 1985) and teachers in inclusive classrooms use more directives, including closed questions, with children with disabilities than indirect support of their play, including open-ended questions (File, 1994) as they attempt to create the "match". However, little research has been conducted looking specifically at the types of questions asked of children in relation to their ability level. The current study will seek to provide more information on this topic.

Current Study

For all children, and particularly for children with disabilities, teacher verbalization and support are very important elements in facilitating social competence (File & Kontos, 1993; McConnell, Sisson, Cort, & Strain, 1991). The present study is an in-depth examination of the specific nature of teacher verbalizations, including the cognitive demand level of the questions that teachers ask of preschool children with and without disabilities in classroom settings, the sensitivity of teacher's statements, as well as the overall focus of the verbal interactions. The study examines not only one-to-one interactions between teachers and children but also teachers addressing small groups of children with and without disabilities. While many types of verbalizations are important in facilitating development in young children with disabilities, few studies have examined the specific types of questions asked and the level of teacher sensitivity in the statements that they make in inclusive classrooms. Furthermore, in the present study all verbalizations by teachers during the observations were coded using a detailed coding scheme in order to provide a finer grained analysis of teacher verbalizations.

The specific research questions to be examined in the present study include: a) Do teachers modify their question-asking behavior based upon the ability level of the children? b) Do teachers differ in the sensitivity in the statements they make to children with varying levels of ability? c) Does the focus of teachers' verbalizations differ when they speak to children of varying levels of ability? Each of these questions will be examined for one-on one interactions between a teacher and one child as well for interactions between a teacher and a small group of children.

Method

Participants

Classrooms identified as inclusive, that is, enrollment of children with and without disabilities within the same classroom, were the focus for the study. Participants for the study were recruited from two different public school systems in North Carolina. All of the teachers in the inclusive pre-K classrooms in these two counties were invited to be involved in the study ($n = 19$). Of these classrooms, 14 agreed to participate for a total of 16 teachers (15 female; 10 European-American and 6 African-American) and 186 children (Mean age = 58 months; 73 female; 88 African-American, 66 European-American, 15 Hispanic, 11 Asian, 3 Middle Eastern, and 3 biracial). Classrooms had an average of 13 children (range 6 to 19). Each of the classrooms received public funds from Title 1, Exceptional Children, and/or English as a Second/Other Language. Across the 14 classrooms that agreed to be in the study, 73 children had identified disabilities (Mean age = 55.7 months; 19 female) and 113 were typically developing (Mean age = 60 months; 54 female). The children with disabilities were diagnosed as autistic ($n = 2$), speech impaired ($n = 35$), preschool delay/atypical (PDA) ($n = 33$), orthopedically impaired ($n = 1$), hearing impaired ($n = 1$), or visually impaired ($n = 1$). The typically developing children did not have diagnosed disabilities but scored at or below the 50th percentile on a developmental screening test. All teachers were certified teachers with licensure in Birth-Kindergarten or Kindergarten-Grade 6.

Procedures

The teachers wore wireless microphones and were audiotaped for approximately two hours while interacting with preschool children with and without disabilities in their classrooms. The audiotaping occurred while children were engaged in approximately equivalent amounts of time in free play, small group, and large group activities. In addition, while they were being audiotaped, an observer recorded contextual information onto a second track of the audiotape. Contextual information included with whom the teacher was speaking, the location of the interaction, and the type of activity in which the teacher and child(ren) were engaged.

Data Coding

The audiotapes were transcribed and then coded for the types of questions asked of children, the level of sensitivity teachers exhibited toward the children in their statements, and a general categorization of the focus of the teachers' verbal behaviors. Description of the coding follows.

Questions. The questions teachers asked were coded according to the demand level of the questions as delineated by Sigel (1984). High-level distancing questions (15 codes) included questions that required the child to perform high level cognitive processing such as evaluating consequences, generalizing, or planning. Medium-level distancing questions (11 codes) included those that required the child to describe similarities in objects, estimate, or enumerate. Low-level questions (6 codes) include those that required the child to label, demonstrate, or produce information. (See Table 1 for examples of the question types.) Each question was categorized into only one code.

Table 1. Sample Questions and Corresponding Code

Level	Code	Sample Question
Low	Information	Did you want the music on?
Low	Demonstrate	S., Can you show D. where the play-dough bag is?
Low	Label	What are we cooking?
Medium	Synthesize	How are we making ice cream?
Medium	Sequence	Before we put the milk in, what did we do?
Medium	Describe Similarities	Oh, does that match?
High	Transfer	What should we do with the tadpoles when they get too big for these jars?
High	Infer Cause-Effect	What made the bridge break?
High	Plan	So, what are going to do with those pieces of play-dough?

Statements. From the audiotapes, each statement was coded for the level of sensitivity demonstrated by the teacher toward the child or children with whom she/he was interacting (using a modified version of the Sensitivity to Children Scale, D'Augelli, & Weener, 1975). Level of sensitivity was coded for all statements made by the teacher during the 2-hour recording. The codes included logical directives (e.g. choices, explanations), information giving, directives, supportive responses (e.g. reassurance, praise, behavior reflections), or power responses (e.g. commanding or punishments). Each statement made by a teacher was categorized into only one sensitivity code.

All Verbalizations. The focus of each verbalization by teachers (questions and statements) was also coded as either social/emotional (manners, turn-taking, sharing, working together, soothing, calming, establishing rapport, etc.) health and safety, motor skills (promoting skill development, such as movement to music or dance, or fine or gross motor), cognitive skills (describing relationships, problem solving, relating words to objects, etc.) or behavior management. The motor skills, health and safety, and behavior management categories were dropped from analyses due to infrequent occurrence.

Inter-rater reliability was established at 85% on all codes before coding began. Reliability checks were made on 15% of the data with an average of 84.8% agreement (range 81% to 90%).

In order to compare children with and without disabilities for the present study, one-on one interactions between the teacher and one child were analyzed first, and then teacher interactions with small groups (2 to 6 children) were analyzed. Teacher verbalizations to single children or small groups of children occurred throughout the 2-hour audiotape. Thus, even during a large group time there were instances where a teacher spoke directly to one child or to a small group of children. Each of these questions or statements was included in the coding as well as instances occurring during free play where a teacher spoke one-to-one with a child or to a small group of children at play. Teachers produced a total of 18,206 statements or questions to individual

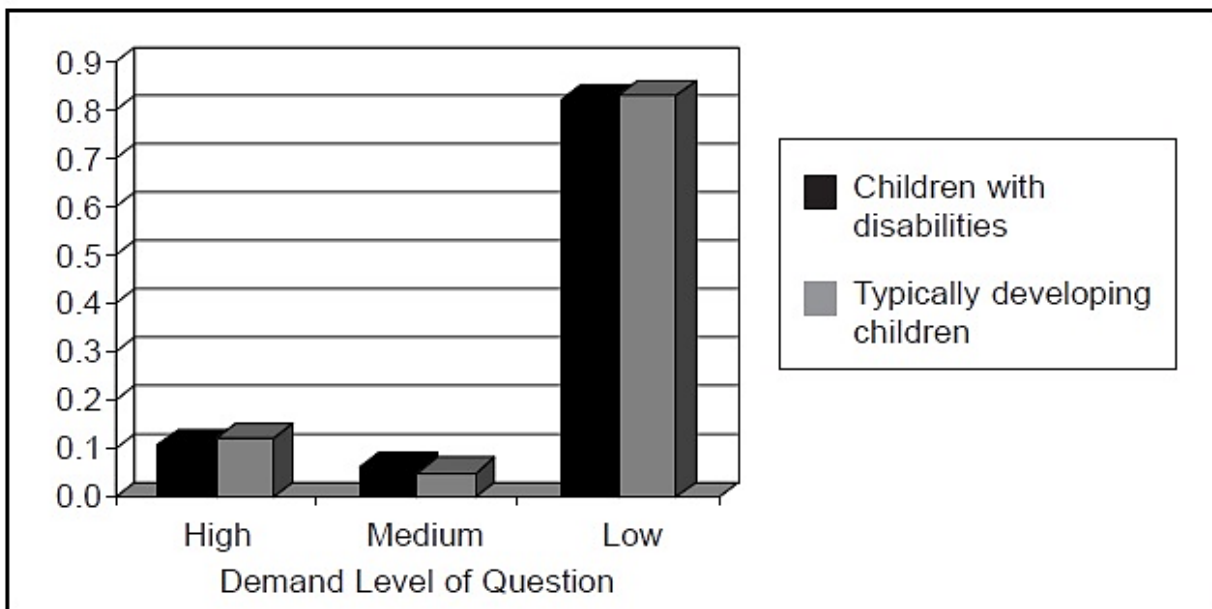
children, 7,005 were directed to children with disabilities and 11,105 to typically developing children. Teachers produced 1224 statements or questions to small groups of children; 657 to groups with all typically developing children, 213 to groups with only children with disabilities, and 354 to inclusive groups which contained at least one typically developing child and one child with a disability. Thirty-eight percent of teacher verbalizations were to children with disabilities, who comprised 40.5% of the total number of children in the classrooms.

Results

One on One Interactions

The first research question focused on whether teachers modified their question-asking behavior based upon the ability level of the children. This question was analyzed using three analysis of variance (ANOVA) techniques with high, medium, and low distancing as the dependent variables. For each ANOVA, ability level (all disabilities and typical) was the independent variable. A Bonferroni correction was utilized to control for the effects of running multiple comparisons. Only analyses significant at the $p < .01$ level are reported. Results showed no significant differences with regard to the level of the cognitive demand that teachers asked to children with or without disabilities on a high ($F(1, 4720) = .23, p = ns$), medium ($F(1, 4720) = 1.9, p = ns$), or low ($F(1, 4720) = .18, p = ns$) level (see Figure 1).

Figure 1. The proportion of each type of question asked to children with disabilities and to typically developing children.



Teachers asked primarily low-level questions to children. The three most frequent types of low-level questions included producing information (e.g. “Do you want to get the crayons?”), labeling (e.g., “What color is this?”), and describing/interpreting (e.g. “What do you mean?”). Although teachers’ asked medium-level questions very rarely, there were some notable trends in

how often teachers used different types of medium-level questions with typically developing children and children with disabilities. Both groups of children were most often asked questions which required them to enumerate (e.g. “How many are there?”). For children with disabilities the second and third most frequent questions required them to classify symmetrically (identifying commonalities of a class of equivalent instances or labeling the class: e.g., “Do you have one of these on your farm at home?”), or reproduce (reconstructing previous experiences: e.g., “Do you remember who I told you had a birthday today?”). However, the next two types of questions asked most often to typically developing children included classifying asymmetrically (organizing instances within the same class in some sequential ordering: e.g., “She has longer legs than you, doesn’t she?”) and sequencing (temporal ordering of events: e.g., “Before we put the milk in what did we do?”). The three most frequent high-level questions for both groups of children included asking them to plan (e.g., “Where are you going to go on that horse?”), evaluate their competence (e.g., “Are you good at riding horses?”), and conclude (e.g., “How does the dump truck help you?”). High-level questions, like medium-level questions, occurred very infrequently in teachers’ interactions with children.

The second research question asked whether teachers differed in the level of sensitivity of statements that they made to children of varying levels of ability. A series of ANOVA’s were analyzed with the following dependent variables: logical directives, information giving, directives, supportive response, and adult power response. Ability level (all disabilities and typical) was the independent variable. With a Bonferroni correction, the results showed a significant difference between the groups in logical directives ($F(1, 13376) = 14.27, p < .0001$), directives ($F(1, 13376) = 48.4, p < .0001$), and supportive responses ($F(1, 13376) = 80.13, p < .0001$). Teachers used significantly more logical directives and directives, and significantly fewer supportive responses to children with disabilities than they did to typically developing children (see Table 2).

Table 2. Differences in the Proportions of Types of Statements Teachers made to Children with Disabilities and to Typically Developing Children

Child	Logical Directives	Information Giving	Directives	Supportive Response	Adult Power Response
Disability	.026	.20	.30	.45	.009
Typical	.016**	.19	.25**	.53**	.007

** $p < .0001$

The third research question examined whether there were differences in the focus of verbal behaviors teachers made to children of varying levels of ability. All verbalizations were coded with regard to activity focus, regardless of whether they were statements or questions. Two ANOVAs were analyzed with social/emotional (e.g. “All right, the kitchen looks good”) and cognitive focus (e.g., “Do you think I can use this to cut it with?”) as the dependent variables, and ability level (typical and disabilities) as the independent variable. The results revealed a significant finding in the cognitive category ($F(1, 18108) = 19.7, p < .0001$). The focus of teachers’ verbal interactions was significantly more likely to be cognitive in nature if they were speaking to typically developing children (27% of verbalizations) than if they were speaking to

children with disabilities (24% of verbalizations). There were no significant differences across the social/emotional category (which occurred 71% of the time).

Small Group Interactions

The same three research questions were analyzed a second time using the identical dependent variables but different independent variables. When teachers interacted with children who were in small groups (i.e. between 2 and 6 children) coders classified them into one of three types: typical, disability, and inclusive. The 'typical' group consisted of only children who were typically developing. The 'disability' group was comprised of only children with disabilities. The 'inclusive' contained at least one typically developing child and at least one children with a disability. Small group interactions with only typically developing children occurred 657 times, interactions with only children with disabilities occurred 213 times, and inclusive interactions occurred 354 times in the data set.

As with the previous analyses, ANOVAs with a Bonferroni correction were used to examine whether teachers' question-asking, sensitivity of statements, or focus of verbal behaviors differed depending on whether they were addressing all typically developing children, all children with disabilities, or an inclusive group. The first analysis indicated there were no significant differences between group type for high ($F(2, 267) = 2.09, p = ns$), medium ($F(2, 267) = 3.6, p = ns$), or low level questions ($F(2, 267) = .11, p = ns$). As with the one-on-one interactions, teachers used predominately low level questions (80% of the time) and fewer high (13%) and medium (7%) level questions. The three most frequent low level questions for all small groups of children included producing information, labeling, and describing/defining. There were no discernible patterns amongst the medium level questions across the three groups in part, because they occurred so infrequently. For high level questions, if the group included typically developing children, there seemed to be far greater diversity in the kinds of high-level questions (7-9 types) that were asked. If the group included only children with disabilities, they were asked only 3 types of distancing questions. Specifically, self-contained groups of children with disabilities were asked questions pertaining only to planning, concluding (reviewing or summarizing), and evaluating what is necessary (assessing what is sufficient or necessary).

The second analysis showed that teachers did not differ in the types of statements they made to the three types of groups in logical directives ($F(2, 951) = 3.24, p = ns$), information giving ($F(2, 951) = .09, p = ns$), directives ($F(2, 951) = .04, p = ns$), supportive response ($F(2, 951) = .79, p = ns$), or adult power response ($F(2, 951) = 1.28, p = ns$). Teachers most often used statements that were supportive (41%), provided information (28%), or were directive (26%).

In the final analysis on the focus of teachers' verbal behaviors to the three groups was significant for both social/emotional verbalizations ($F(2, 1221) = 7.34, p < .001$) and cognitive verbalizations ($F(2, 1221) = 5.4, p < .01$). Post-hoc tests revealed that the content of teachers' verbal interactions with children was more likely to be social/emotional in nature when they interacted with typically developing children than with only children with disabilities (Mean difference = .12, $p < .01$). In addition, teachers were more likely to have a cognitive focus in their interactions with groups of all children with disabilities than they were with children who were all typically developing (Mean difference = .11, $p < .01$ (see Table 3).

Table 3. Differences in the Proportion of the Content of Verbal Interactions Teachers had with Small Groups of all Typically Developing Children, all Children with Disabilities, and Inclusive Groups of Children

Type of Small Group	Content of Interaction	
	Social/emotional	Cognitive
All Typically Developing Children	.74	.24
All Children with Disabilities	.62* ^a	.35* ^a
Inclusive	.65	.29

* $p < .01$

^a significantly different from all typically developing children

Discussion

The findings of the study indicate that teachers do indeed verbalize extensively with young children in their classrooms. In fact, teachers uttered, on average, 569 statements and questions per hour that they were observed, and children with disabilities received a proportionately equivalent amount of the verbalizations. However, teachers demonstrated little awareness of the importance of challenging children through varying the demand level of the questions, or matching the verbalizations to the child's ability level and/or developmental need(s). Teachers also were more inclined to use directives or logical directives in one-to-one interactions with children with disabilities than with typically developing children. At the very least, one could question the lost opportunities by teachers to enhance children's development through higher level questions and more sensitive interactions including choices and explanations.

Question-Asking

Specifically, the results show that teachers did not alter the demand level of their questions when speaking one-on-one with typically developing children compared to children with disabilities. The results also indicated that teachers do not vary the demand level of their questions based on the composition of small groups of children. For both groups of children, teachers ask primarily low-level questions (80-83%) and relatively few high (11-12%) or medium (6-7%) level questions. These findings initially seem somewhat inconsistent with those of File (1994), although question coding in the present study was more detailed than in the File study. In the File study, questions were coded as either open-ended (one of two forms of an indirect response for cognitive and social play) or closed, in comparison to the 32 question codes in the current study. File (1994) found that the cognitive play support offered to children with disabilities was direct in nature, including lower level questions, while children without disabilities were more likely to receive indirect support, including open-ended questions. However, we cannot determine the amount of each type of question that was asked because they were imbedded in the broader indirect and direct support categories.

The finding that teachers ask primarily low-level questions of preschool children, regardless of ability level, is not new, (Kontos & Dunn, 1993), but it is nonetheless alarming that there has been little change over the years in the demand level of the questions that teachers ask (see Gall,

1970; Hollingsworth, 1982; Lange, 1982; Sinatra & Annacone, 1984). Furthermore, all of the teachers in the current study held at least a BS degree and certification, but nonetheless asked primarily low-level questions. Unfortunately, the small sample did not allow for analysis of differences by license area.

Although in other studies teacher level of education has been associated with more cognitively stimulating talk (Smith & Dickinson, 1994) (Range: no formal education to master's degree), a bachelor's degree does not appear to have resulted in a more stimulating cognitive environment for the children in the current study. If asking high-level questions does indeed provide an important cognitive challenge for children (Sigel, 1984), it is critical that teachers use different levels of question-asking and better match the questions asked with the developmental needs of the children they are interacting with each day. At first it may seem encouraging that teachers are treating all children equally and not differentiating between children with and without disabilities when asking questions. However, it is of some concern that teachers are not acknowledging and responding differentially to the cognitive and social ability levels of the children by varying the complexity of the questions asked of them. This issue may be particularly important given the research that suggests the benefits of matching question-asking strategies to children's ability levels (Gall & Rhody, 1987; Rosenshire, 1976). Due to small sample of teachers, it is unclear from the current study whether or not teachers with a teaching license focused on children with disabilities were any more likely than those without to better match their questions to children's ability levels. This area thus requires further study with young children and, in particular, with children with disabilities.

Teacher Statements

Teachers spent the vast majority of their time providing support to individual children (74% of all the verbalizations were directed to individual children while 5 % of all comments were made to small groups). For example, teachers used behavior reflections such as, "OK, now you're driving the tractor" or praise, "Mmmm, mmmm, sweet thing, you packed me an excellent lunch. Very good." Overall, 49% of the statements made to children during one on-one interactions were such supportive responses. Teachers also provided a great many directives, such as, "Let him cut you some play-dough" or "Let go of that" (27%) and information giving responses, such as, "They're building a city back here" (20%). Overall, 96% of teacher statements in one-on-one interactions were supporting, directing children's behavior, or giving children information. In small group interactions, 95% of teacher statements were in the same three categories but the proportions were somewhat different. Teachers provided fewer supportive responses (41%) and more information (28%) during small group interactions. It is not surprising that teachers would provide more information to groups of children than individuals. Small groups of young children may be more likely to ask teachers to provide information on a subject or they may need more help to focus their attention on a topic of mutual interest to them, such as a group game. Teachers may also provide more information on future events to small groups compared to individual children. However, similar to question-asking, teachers did not differentiate between the type of small group of children (whether or not it included children with disabilities) and the types of statements that they made.

Teachers did differentiate with regard to the level of sensitivity of the statements made to individual children. Teachers used more logical directives and directives, and fewer supportive responses, with children with disabilities compared to typically developing children. Although the nature of a child's disability may limit their comprehension of complex statements, many children with disabilities would benefit from having more explanations and choices in their verbal interactions with adults. Similarly, providing more supportive responses, which reassure and praise the children's actions, may lead to positive outcomes.

Despite the important implications of this study's findings, future research is needed to examine how individual children's responses and characteristics impact the teacher's verbalizations and how the nature of these interactions influence child outcomes. In this data set, children with disabilities received proportionally fewer statements in which the teacher agreed with a child's comment, and fewer statements that praised them for actions or behaviors. Examining the dynamic nature of the interchange between teachers and children in conjunction with the type of disability would provide additional insights into how teachers might capitalize on the opportunities that an interaction can afford.

Content/Focus of Verbalizations

Teachers spent most of their time in conversations focused on children's social and emotional or cognitive growth. About 97% of teacher verbalizations to small groups of children were focused on one of these two domains, with social and emotional comprising the majority of verbalizations (69%). This is consistent with earlier research indicating that preschool teachers focus primarily on children's social and emotional development (Cassidy & Lawrence, 2000). It is interesting to note that groups of typically developing children received significantly more verbalizations that were social/emotional in nature than did children with disabilities. Teachers seemed to view an emphasis on cognitive development as more critical for children with disabilities than for typically developing children. Since each verbalization was coded in only one of the content categories, a choice to focus on cognitive content for children with disabilities meant a decrease in emphasis on another content area, in this case, most likely social and emotional development. In contrast, File (1994) reported that teachers were more likely to support the cognitive aspects of children's play than social aspects with no difference in the amount of social or cognitive support provided based on ability level. It is important to note, however, that the File study focused on one-to-one interactions and not small groups.

The small group data in the current study are somewhat contrary to the one-on-one findings. The results indicate that when teachers are interacting individually with typically developing children, they are more likely to have a cognitive focus than when interacting one-on-one with children with disabilities. One speculation is that teachers do not view free play time as an opportunity for as much individual cognitive learning for children with disabilities as they do for typically developing children. Teachers may believe that for children with disabilities, their cognitive learning occurs primarily in one-on-one interactions with therapists or other specialized professionals during therapy sessions. Alternatively, the classroom environment (e.g. activities, materials, schedule, etc.) may not be set-up to encourage interactions, which stimulate cognitive learning in all children. Preschool teachers may need more information on designing

early childhood environments and using interaction techniques that encourage learning in a developmentally appropriate manner for all children, particularly during free play time.

Finally, it was encouraging to find that teachers did not spend a large portion of their verbalizations on behavior management, and they did not utilize many adult power responses or exhorting responses. This finding is similar to Kontos (1999) who found that teachers' verbalizations were categorized as 'behavior management' only 5% of the time. While the nature of the current study (i.e. having teachers wear microphones) may have stifled some of these types of comments during data collection, this does suggest that this group of children is likely not experiencing a high proportion of negative verbalizations throughout the day.

Conclusions

The present study provided a unique micro-analysis of teachers' verbalizations to preschool children with and without disabilities. This detailed analysis demonstrates that while children may be receiving a large number of verbalizations from their teachers, there is not a lot of variety or differentiation in the types of questions and statements that teachers make. While the sample size for this study is small and this limits the generalizability of the results, it provides a strong indication that even well-educated teachers may need additional support and training on teacher-child interaction strategies.

Teachers may feel constrained in their verbalizations for a number of reasons including issues of accountability within the school system. All of the classrooms included in the study were located in two school systems, both of which are experiencing growing pressure for formal assessment and child outcomes. Often with such pressure teachers feel a need to ask lower level questions that "test" children's knowledge rather than higher-level questions that facilitate children's cognitive processing. Specific attention needs to be given to equipping teachers to use a range of distancing levels in the questions they ask to children. Teachers who can effectively challenge children with or without disabilities through their question asking, and strategically scaffold their learning, will more likely enhance more learning than teachers who use primarily low-level questions with all children. Clearly, more research on the impact of both the type and timing of questions on children's developmental outcomes would be beneficial. Studies that examine both the child and teacher responses would more clearly illustrate the dynamic nature of interaction and provide a better understanding of individual influence on teacher verbalizations. In addition, examining teachers' beliefs and philosophy in conjunction with children's behaviors would provide a more holistic view of the exchanges.

Finally, although a great deal of research has been conducted on the nature of teacher talk, relatively little is known about the optimal level of teacher talk. Indeed, it is likely there is a great deal of variation among children, particularly in relation to their ability level, with regard to the amount of teacher talk that is most beneficial to their overall development. It is also likely that the amount of teacher talk "needed" by a child will vary based on their current developmental level in a particular domain. Studies that match teacher verbalizations to individual children's responses would provide valuable information on teachers' abilities to scaffold learning. Tracking children's learning in relation to teacher's scaffolding techniques and the amount of talking would further highlight the impact that teacher verbalizations have on young children's

development. Future research should also address teacher education programs and the extent to which the specific content of teacher-child interactions, for children with and without disabilities, is emphasized.

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