Describing Oral Language Opportunities and Environments in Head Start and Other Preschool Classrooms

Miriam W. Smith
David K. Dickinson
Clark University

This article describes the nature of children's oral language experiences in Head Start and in other preschools serving low-income children, and relates those experiences to broader features of the classrooms' programs. The data are drawn from multiple sources, including general demographic information, teacher interviews, and audiotapes of teachers' and children's spontaneous interaction that occurred throughout one morning in 61 individual classrooms. Drawing on a sociocognitive model of literacy development, we hypothesize that particular classroom circumstances (e.g. small-group size), pedagogical orientations (e.g. desire to foster early literacy development), and activity settings (e.g. small-group activities) will maximally facilitate the types of talk known to be predictive of later language and literacy development (e.g. pretending, cognitively challenging interactions). As hypothesized, correlational analyses revealed relationships between classroom circumstances and interactions, between pedagogical orientations and interactions, and between activity settings and interactions; the more educated teachers, the teachers whose pedagogical orientations strongly supported literacy or social development, and the teachers who reported spending more time in small group activities engaged in more cognitively challenging conversations with children. Implications of these findings are discussed and related to both practice and policy.

It was originally hoped that Project Head Start would serve as a "laboratory" for investigating the long-term impact of providing children and families with comprehensive services during the preschool years. Considerable

research has examined the effects of Head Start and university-affiliated programs and a generally encouraging pattern of results has emerged. When compared to children receiving no preschool education, children who attend university-affiliated programs have higher school achievement and IQ scores during the early elementary school years (Becker & Gersten, 1982; Lazar & Darlington, 1982; Lee, Brooks-Gunn & Schnur, 1988; Schweinhart, Weikart & Larner, 1986), enhanced discourse skills (Roberts et al., 1989), stronger school functioning, and better general social adjustment (Lazar & Darlington, 1982; Royce, Darlington, and Murray, 1983; Schweinhart, Weikart & Larner, 1986; Sprigle & Schaefer, 1985; Weikart, 1987). Recent studies also have found associations between participation in community-based preschool and higher levels of verbal achievement, school achievement, and IQ in the primary grades (Lee, Brooks-Gunn, & Schnur, 1988; Lee, Brooks-Gunn, Schnur & Liaw, 1990; Burchinal, Lee & Ramey, 1989; Reynolds, Hagemann, Berzruczko & Mavrogenes, 1991).

Despite this robust tradition of research, we know little about the details of teacher–child interaction in Head Start and in other early childhood classrooms. Most studies of the effects of early childhood programs have simply classified preschools using global variables (e.g., Head Start or non-Head Start), rather than in terms of the variability of children's experiences within these classrooms. In effect, the programs have been "black boxes"; they are assumed to be sufficiently comparable that evaluation of program effects could occur without examining the classroom's program in detail. Because we do not know what actually transpires in Head Start classrooms, we do not know what experiences are associated with observed effects. The primary purpose of this article is to describe, through the lens provided by our sociocognitive model of literacy development, literacy-related features of Head Start and other early childhood classrooms that serve children from low-income families (Dickinson, 1994; Dickinson & Smith, 1994). This model assumes that the skills required for communication and comprehension are acquired and developed through social interaction and through the use of extended discourse (talk that moves away from the current context of interaction).

LANGUAGE AND LITERACY IN THE PRESCHOOL YEARS

It has become increasingly apparent that literacy is a complex social practice, deeply rooted in ways of interacting and using language, which takes multiple forms and varies depending on the traditions and needs of particular speech communities (Gee, 1992; Heath, 1983; Street, 1984). Further, we know that patterns of oral language use are developed extensively during the preschool years, and lay the foundation for later literacy (Heath, 1983; Snow, 1983). Finally, our model proposes that there are particular types of

interaction learned during the preschool years that maximize a child's chances for later school-based literacy success.

In typical school contexts there is a premium on literacy practices that entail communication of considerable amounts of novel information to audiences whom the speaker (or writer) does not know and whose understanding of the topic may be quite different from that of the speaker (or writer). Examples of such literacy practice range from "sharing time" in primary classrooms (Gallas, 1992; Paley, 1990) to the book report format popular in the middle grades to formalized debating in the later grades. At any level, skill to engage in such interchanges draws strongly upon children's oral language skills.

In our research we have hypothesized (Dickinson, 1987; Dickinson & Smith, 1994; Snow & Dickinson, 1991) that the oral language skills of primary importance to these later school literacy tasks are decontextualized language skills, that is, language that conveys information distinct from context, and that children need in order to understand and discuss concepts that are abstract. In preschool classrooms, decontextualized language is exemplified in talk such as explanations, personal narratives, and pretend play where children must verbally move beyond the immediate conversational context to create and re-create events, analyze experiences, and share opinions and ideas. Such discourse involves a relatively extended development of topics, and relies heavily on explicit linguistic devices (e.g., syntax, lexicon, carefully constructed chains of reference). Decontextualized language skills have been found to be related to measures of emergent literacy at the end of kindergarten (Dickinson & Snow, 1987; Dickinson & Tabors, 1991; Dickinson & Tabors, 1992), and to the development of literacy in the early elementary school years (Snow, 1983, 1987; Snow, Cancino, Gonzalez & Shriberg, 1989; Weber, 1990).

Interactional Precursors

By examining teacher–child interchanges at the level of the single utterance, we hope to identify types of interaction that encourage or support the development of decontextualized language skills. At the preschool level, we anticipate that such skills will be most evident in discussions of past, future, or imaginary actions (such as in personal narratives or pretend play), or through explanations of behavior or events. We will call such oral language opportunities *interactional precursors.* [1]

---

[1] The current analyses will not examine whether the types of interactions of interest are, indeed, precursors to subsequent literacy or language growth. However, early results from the current study provide support for this position. Sources of data used previously are analyses of the book reading experiences in preschool classrooms of four-year-olds from the first of our two cohorts of children (Dickinson & Smith, 1994), analyses of vocabulary use throughout the day (Dickinson, Cote, & Smith, 1993), and analyses of home dinner table and book reading experiences (Beals, DeTemple, & Dickinson, 1994; Dickinson & Tabors, 1991).

Activity Settings

A related concern of this study is to determine whether situational factors that influence the nature of children's language environments can be identified in preschool classrooms. Previous descriptive studies of language use in preschools have provided portraits of teacher–child interactions, and what emerges is a fairly bleak picture of the extent to which adults and children engage in extended discussions leading to the communication of novel or complex information (Tizard & Hughes; 1984; Dickinson, 1991; Dickinson & Smith, 1991). However, this work does suggest that certain activity settings within preschool classroms may function as maximally supportive contexts for literacy-related oral language development. These are: (a) group times when books are read and discussed, and (b) occasions when adults are stationary and children are free to interact with them (e.g., during some portions of free play time, during small-group times, and at meals when teachers are present). We note that any setting could provide opportunities for facilitative language interactions, but structural constraints increase the chances that certain events (e.g., book reading, small-group times) will be those in which such interactions occur. New support for this position has come from the examination of selected data from the first cohort from the current study (Dickinson, 1994; Dickinson & Smith, 1991).

Teacher-Specific Variables

Still another cluster of variables which may influence opportunities for interaction in preschool classrooms is related to characteristics of the teacher. Such variables include the teacher's years of experience, the nature of the teacher's educational experiences, and the teacher's pedagogical beliefs, which are shaped by a host of distal forces. Teachers' general pedagogical goals also are likely to affect the kinds of settings they create and the way they interact with children. For example, teachers who value traditional academic literacy may be more likely to provide opportunities for children to practice reciting the alphabet or sound-symbol correspondences and to talk about such topics with children. On the other hand, teachers who highly value social development might schedule relatively more time for free play and might be more inclined to engage children in extended problem-solving discussions about classroom disputes. Pedagogical beliefs, in turn, are likely to be shaped by teachers' educational experiences and by their own schooling experiences. Research suggests that teachers' general attitudes toward children (how they develop, how they learn, and what is appropriate) and towards teaching (orientation to control, to children's play, and to curriculum planning and development) strongly influence the nature of their interactions with children (Duckworth, 1987; McNamee, 1992; Paley, 1990; 1992; Ruopp, 1979).

Classroom Circumstances

Finally, we assume that the kinds of interactions that occur in various activity settings will be partly determined by features of the classroom that are unique to community characteristics or center policies; typically these factors are not under the control of the teacher. Included under this heading of *classroom circumstances* are factors such as class size, the age range of the group, the number of other adults working in the room, and the languages spoken by the children. These variables might have an impact on the types of settings found in a classrooms and on moment-to-moment interactions between adults and children. For example, teachers who work with larger groups of children might be less able to lead small-group activities and less able to sit with the children during mealtimes. Indirect support for this position comes from the National Day Care Study (Ruopp, 1979) which found that in smaller groups and in classrooms with a smaller teacher:child ratio, teachers engaged in more extended interactions with children, children were more cooperative and reflective, and children demonstrated greater cognitive gains.

Overview of Classroom Dimensions Examined

In this article we strive to identify and describe teacher–child interactions of the type that we hypothesize are likely to support the acquisition of decontextualized language and emergent literacy skills. We then relate these types of speech to broader features of the classrooms, to teacher-specific variables, and to the activity settings provided in the classrooms.

Classroom Circumstances.   Variables related to classroom circumstances that were used in this study included class size, the numbers and ratios of children to teachers and to aides, the English fluency of children, the children's age range, and the length of the classroom day. Although a number of these variables have been used in previous research on preschool classrooms, the research presented here is novel in that it examines links between these variables and variables describing details of teacher–child verbal interaction.

Teacher-Specific Variables.   Variables related specifically to the teachers included level of education, years of experience, two measures of the teachers' *reported* pedagogical orientations, and two measures of the teachers' *observed* pedagogical orientations. Data regarding the teachers' reported pedagogical orientations was drawn from interviews we conducted that included questions regarding their goals for preschool education and their beliefs about how language and literacy can best be nurtured. One measure drawn from these data reflected the teachers' concern for fostering socioemotional development and one measure reflected their orientation

toward supporting literacy development. The two measures reflecting teachers' observed pedagogy came from the language subscale and the socialization subscale of the Early Childhood Rating Scale (see Appendix A; Harms & Clifford, 1980).

Activity Settings. Information regarding activity settings was based on: (a) observations of the curriculum strength in the areas of writing, book use, math, social studies, and science (see Appendix B for detail), (b) teacher reports regarding the amount of time planned for different kinds of activities, (c) audiotapes of children's interactions which were coded for setting (e.g., free play, large group), and (d) audiotapes of teacher's interactions that were coded for setting.

Interactional Precursors. Information regarding interactional precursors to the acquisition of decontextualized language skills came from coding individual child and teacher audiotapes for (a) the identity of the interactant (i.e., child or adult), and (b) for topic content (see Appendix C).

METHOD

Overview
The data are the Home-School Study of Language and Literacy, a project that is following the language and literacy development of low-income children from the age of 3 through the fourth grade. All of our children were eligible for Head Start or for comparable programs; half of the classrooms being Head Start classrooms.

Data Collection Procedures

Children. The data used for this study come from school visits conducted in the spring when the target children were 4 years old. The target children in the study during the 2nd year included 41 boys and 43 girls; 65.5% were White, 27.4% were African American, and 7.1% were of Hispanic heritage. All families reported that English was the primary language in their home. All subjects were originally recruited for study because they were eligible to participate in preschool programs which serve the needs of low-income families. Head Start guidelines were used to determine income level. Education of the mothers varied, with a quarter reporting that they did not complete high school, about half (48.8%) reporting that they graduated from high school, and the remaining 26.2% reporting that they had received some post-high school education, which was usually vocational training.

Classrooms. When our children were 4 years old, we visited 74 of them in 61 classrooms. One half of our subjects participated in Head Start while the other half were in similar subsidized programs for children from low-income families. We found general consistency in the physical environments and schedules of the preschool classrooms. The classroom space was divided into distinct areas (e.g., for blocks, dramatic play, arts, manipulatives, and books) and the classroom day was divided into activity periods (e.g., for free play, large group, and mealtimes). Naturally, there were variations in emphases and ethos, but the general atmosphere and scheduling were common across the classrooms visited. These similarities lead use to conclude that the classrooms analyzed are representative of the classrooms attended by many low-income children in the Northeastern United States.

Data sources.   *Teacher interviews* ($n = 56$) provided information about the teachers' typical allocation of time, their pedagogical techniques, their views regarding the most important functions of preschool, and their classroom's curriculum as it relates to support for children's language and literacy development.

Curriculum Observations ($n = 56$) were carried out by observers who noted features of classrooms indicative of varying curricular areas (e.g., science or writing). We also completed a portion of the Early Childhood Rating Scale (ECRS) (Harms & Clifford, 1980) in each classroom ($n = 50$) in order to provide a standardized assessment of classroom furnishings, language environment, and social climate.

Child Audiotapes ($n = 50$) were made using tape recorders carried in backpacks that were worn by the target child. We recorded spontaneous conversations (about 90 min each) and attempted to record each major activity type (e.g., free play, large group). Context notes were taken and used when tapes were coded exhaustively and reliably (88% interrater agreement), providing a record of activity type, addressee (teacher, child, or alone), and talk content (e.g., nonpresent or control).

Teacher Audiotapes (n = 56) were also made using tape recorders carried in backpacks by the teachers, during the same time each target child was being recorded. The teacher tapes were fully transcribed in the format described by MacWhinney (1991). Each transcript was then coded by activity type for a certain period of time (e.g., 15 min free play, 15 min large group, and 10 min small group), with coding categories reflecting interactant and talk content comparable to those used for the child audiotapes (Appendix C). These tapes were coded with an interrater reliability of 85%. It is important to note that because we are merging information from a wide variety of sources, the number of observations varies depending on which data sets are being used. For example, only 19 of the 56 classrooms conducted a small-group activity while we were visiting; thus, the sample size for small-group results is 19.

Table 1. Indicators of Classroom Circumstances Drawn from Teacher Interviews

Variable	n	Mean	SD	Range
Total No. Children	56	17.09	5.72	4–31
Total No. Staff	56	3.13	1.28	2– 7
Age Range (years)	56	1.46	0.59	0.59– 3.01
% English Fluent	56	83.08	20.27	22.22–100
Teacher Education	56	2.89	1.39	1– 5
Teacher Experience (years)	56	4.39	4.53	0.16–19
Length of day (hours)	56	6.05	2.95	2–10.0

Classroom Demographics

Demographics varied widely across the classrooms. As Table 1 shows, the mean number of children per classroom was 17, with a range from 4 to 31. This variability corresponds to the number of staff available in these classrooms: a mean number of 3, with a range from 2 to 7. The mean ratio of teachers to children across the classrooms was 1:5.5, well within the legal limits for classrooms serving 4-year-olds in our state. The mean age range of the children in these classrooms was 1.5 years. Teachers reported that approximately 83% of their students were fluent in English. The mean length of the classroom day was approximately 6 hours, with a range from 2 to 10 hours. For the Early Childhood Rating Sale, the furnishings subscale had a mean of 25.24 ($SD = 5.47$). Thus, on average, the classrooms received a rating of about 5 on the 7-point scale for each item, indicating that the rooms were generally well furnished.

The teachers' educational backgrounds and years of experience widely varied. The mean for teacher education was approximately an Associate's degree, but we observed and interviewed teachers who had educational backgrounds ranging from no formal training to a Master's degree. The teachers' length of experience ranged from less than 1 to more than 24 years, with a mean of 4.3 years.

Teachers' Expressed Pedagogy and Observed Curriculum

During the teacher interview, we asked questions designed to elicit teachers' pedagogical orientations in two main areas—supporting language and literacy development and supporting socioemotional development. The literacy dimension included teachers' responses to questions about their general views regarding the importance of fostering literacy in preschools, their group-time practices, and their use of specific kinds of books in the classroom. The socioemotional dimension included teachers' statements

Table 2.   Measures of Teachers' Pedagogical Orientations and Curriculum Based on Interviews and Classroom Observations

Variable	n	Mean	SD	Range
Literacy Dimension	56	4.36	1.89	1– 9
Socialization Dimension	56	2.34	0.97	0– 4
ECRS Language Subscale	50	19.24	5.02	8–28
ECRS Socialization Subscale	50	19.00	5.09	7–28
Observed Curriculum	55	7.45	2.03	3–12

that fostering socioemotional development was a priority for them, and indications that they tailored group times to that agenda. Through teachers' responses to these questions, each received a score on the two dimensions. Table 2 summarizes our results. The range of scores on the literacy items was 1 to 9, with a mean score of 4.36 ($SD = 1.88$). This overall score indicates that, in general, our preschool teachers accepted the notion that some support for literacy is appropriate in preschool settings, but that their commitment to or understanding of how literacy might be fostered in preschool settings is limited.

The range of scores on the socioemotional items was 0 to 4, with a mean of 2.34 ($SD = 0.97$). While the average score on this scale suggests that teachers received only slighly over half the available points, it is important to note that the items included came from questions which asked what features of the preschool experience teachers felt are "most important." Thus, when one considers that "literacy", or "language" were almost never mentioned in response to these questions, it is clear that these scores suggest that teachers place a generally high value on facilitation of socioemotional growth.

To provide a more standardized view of the classrooms, we also completed the Early Childhood Rating Scale for the language/reasoning subscale ($M = 19.24$, $SD = 5.02$), and the social development subscale ($M = 19.00$, $SD = 5.09$). Each of these subscales was comprised of four items; thus, the mean score per items was nearly 5 on a 7-point scale suggesting that these classrooms provided generally good settings for development of language and other social competencies.

Finally, our observers noted the particular features of the classroom curriculum (e.g., was there a writing, science, or social studies program evident?), resulting in a measure of overall curriculum which ranged from 3 to 12 with a mean of 7.45 ($SD = 2.02$) (See Appendix B for details). Our curriculum coding system has not been standardized, but a score of 7 does not reflect a particularly vibrant curriculum. Literacy dimensions were scored on a simple 2-point scale (presence or absence), and the science and social

Table 3.   Reported and Observed Time Spent in Activity Settings

Variable	n	Mean	SD	Range
Reported time in Free Play	56	23.01	12.47	0–57.14
Observed time in Free Play	50	39.36	22.55	1.2–98.17
Reported time in Large Group	56	11.54	9.49	2.6–60.0
Observed time in Large Group	50	27.24	13.38	0–61.59
Reported time in Small Group	56	12.53	10.64	0–50.0
Observed time in Small Group	50	10.17	14.61	0–47.47

studies programs were given a global score that was collapsed to a dichotomous score; therefore, failure to receive points on nearly half the dimensions coded suggests that there are some definite points of weakness in a curriculum.

Correlational analyses were done to determine whether scores on the Early Childhood Rating Scale related to our teacher pedagogy variables or our rating of the curriculum. The language and social subscales of the ECRS were very strongly related ($r = .884$, $p < .0001$), and the ECRS social development subscale was correlated with our curriculum rating ($r = .3312$, $p < .02$).

Reported and Observed Time Use

Table 3 summarizes both the teachers' reported time use and the amount of time we actually observed children participating in specific activities and settings during our visits to the classrooms. Teachers reported spending 23.01% of their time in free play or open-choice activities ($SD = 12.47$). During our visits, we observed children spending approximately 39.3% of their time in free play ($SD = 22.54$). Teachers reported spending 12.5% of their time in small-group activities ($SD = 10.64$), and we observed children in small group 10.1% of the time ($SD = 14.60$). In fact, there were a number of classrooms that did not engage in small-group activities during our visits, but whose teachers reported that there are days or times when small-group activities are done. Teachers also reported that they spend 11.5% of their time in large-group activities ($SD = 9.49$), and we observed children in large-group activities 27.24% of the time ($SD = 13.37$).

It is our belief that the discrepancies between the reported and observed uses of time in these classrooms lies in the distinction that teachers often make between what they "ideally" would like to do from day to day and the realities that each classroom day presents. It should also be noted that the observed times reported here reflect a proportion of the total time we recorded in the classroom, which was often, but not exclusively, the entire classroom day.

Table 4. Percentages of Time Teachers and Children Were Observed Engaging in Different Kinds of Interactions

Variable	n	Mean	SD	Range
Cognitive Challenge				
Child Cognitive Challenge	50	2.04	1.57	0 – 5
Free Play Cognitive Challenge	52	21.79	17.15	0.3–61.07
Large Group Cognitive Challenge	56	19.15	18.41	0 –66.71
Small Group Cognitive Challenge	19	28.37	27.33	0 –99.0
Pretending				
Child Pretend Talk	51	0.60	0.49	0 – 5
Free Play Pretend Talk	52	7.97	13.26	0 –51.50
Didactic Talk				
Free Play Didactic Talk	52	4.76	8.65	0 –47.0
Large Group Didactic Talk	56	44.16	28.44	0 –99.0
Small Group Didactic Talk	19	15.96	22.16	0 –61.94
General Activity Talk				
Free Play Activity Talk	52	59.62	11.65	31.1–82.1
Large Group Activity Talk	56	52.23	16.17	23.8–93.9
Small Group Activity Talk	19	56.56	14.20	34.7–86.2

Notes: Any variable preceded by the word "child" represents data from our individual target children's audiotapes. All other variables are from teacher tapes. All variables are expressed as percentages of the total talk that occurred during our visit.

Interactional Precursors

Rather than report the means for each individual talk variable, in this section we report the means for the aggregated variables that were used in the present analyses (Appendix C, Table 4). We have combined several types of talk into one category which we call *cognitively challenging* talk (defined as talk that moves beyond the immediate conversational context; this includes early literacy talk, nonpresent talk, personal narratives, and scientific talk). Each variable represents proportional data from the child and teacher audiotapes. Child data for each talk variable was analyzed for distributional characteristics and was found to be badly skewed; therefore it was standardized, resulting in values that do not reflect absolute amounts of time. Consequently, we report both the percentage of time children were observed engaging in different kinds of talk and the scaled values used in statistical analyses. Variables from the teachers' audiotapes reflect contingent interaction between the teacher and the children in the class (not *only* our target child). We present the results in this way because the individual variables for teachers and children were highly intercorrelated.

Within the category of cognitive challenging talk we have one variable representing our target child's talk across the entire school day (Child Cog.

Chal., $M = 2.04$, $SD = 1.57$, actual time: $M = 8.07\%$ of the day, $SD = 10.08$, range $= 0$-49.16%). The other three variables represent teacher–child interaction during distinct activity periods: the percentage of talk during free play that was cognitively challenging (Free-Play Cog. Chal., $M = 21.79$, $SD = 17.14$), the percentage of talk during large group that was cognitively challenging (Large-Group Cog. Chal., $M = 19.15$, $SD = 18.41$), and the percentage of talk during small group that was cognitively challenging (Small-Group Cog. Chal., $M = 28.37$, $SD = 27.32$).

Our second category of talk is *pretending* (defined as talk that occurs during the negotiation, structuring, and enactment of fantasy-play episodes). Because of the nature of these programs, pretending occurred almost exclusively during free play time, and thus we have one variable representing the percentage of the target child's talk that was pretending (Child Pretend Talk, $M = 0.60$, $SD = 0.49$, actual time: $M = 2.74\%$ of the day, $SD = 4.88$, range $= 0$-23.95%) and one representing the percentage of teacher–child interaction that was focused on children's pretending (Free-Play Pretend Talk, $M = 7.97$, $SD = 13.25$).

Our third category of talk is *didactic* talk (defined as talk that reflects children's participation in language routines such as counting, reciting, and knowing classroom rules), and again we have a variable representing our target child's didactic talk across the entire school day ($M = 0.92$, $SD = 0.65$). The remaining three variables represent teacher–child interaction during distinct activity periods: during free play (Free-Play Didactic, $M = 4.76$, $SD = 8.64$), during large group (Large-Group Didactic, $M = 44.16$, $SD = 28.44$), and during small group (Small-Group Didactic, $M = 15.96$, $SD = 22.16$).

Our final category of talk is *general activity* talk, which is a measure of the percentage of talk related to ongoing classroom activity and is a rough index of the contingency of teacher–child interaction. This variable is taken only from the teacher audiotaopes, and is reported by activity periods: general activity talk during free play ($M = 59.62$, $SD = 11.65$), during large group ($M = 52.23$, $SD = 16.17$), and during small group ($M = 56.56$, $SD = 14.20$).

CORRELATIONAL RESULTS

Overview
Because of our interest in circumstances and settings that may engender the types of talk nown to be facilitative of later language and literacy development, in this section we report relationships for our interactional variables with the classroom circumstance, teacher-specific, and activity settings variables.

Classroom Circumstances
In our model we posit that broad social forces and specific center policies (e.g., group size, and children's fluency in English) affect the organization

Table 5.   Correlations Between Classroom Circumstances and Interactional Variables

Variable	with	*n*	*r*	*p<*
Total Children	Free Play Pretend Talk	52	−0.332	0.02
Total Children	Free Play Activity Talk	52	0.312	0.03
Total Staff	Small Group Cog. Chal.	19	0.611	0.02
Total Staff	Large Group Didactic	56	0.287	0.04
Length of Day	Child Pretend Talk	50	−0.283	0.05
Length of Day	Large Group Activity	56	−0.310	0.03
% Eng. Fluent	Large Group Activity	56	−0.512	0.001
Total Staff	ECRS Language Subscale	49	−0.287	0.05
Total Staff	ECRS Social. Subscale	49	−0.281	0.05
Length of Day	ECRS Language Subscale	49	−0.347	0.02
Length of Day	ECRS Social. Subscale	49	−0.390	0.01
% Eng. Fluent	ECRS Social. Subscale	49	−0.335	0.02

of classrooms, and may also influence the types of interactions that occur in classrooms. This section reports correlational results for these classroom circumstance variables and our interactive variables.

Our analyses revealed several relationships between the general demographic variables (number of children and staff, English fluency) and our interactional variables (see Table 5). Specifically, in classrooms where there were more children, there was significantly less pretending and more general activity talk during free play ($r = -0.332$, $p < .02$) and ($r = 0.312$, $p < .03$), respectively. In classrooms where there were more total staff there was more cognitively challenging talk during small-group times ($r = 0.611$, $p < .02$) and more didactic talk during large-goup times ($r = 0.287$, $p < .04$). In classrooms with a longer school day, there was less pretending by children during free play ($r = -0.283$, $p < .05$) and less general activity talk during large-group times ($r = -0.310$, $p < .03$). Finally, in classrooms where teachers reported higher levels of English fluency among their students, there was less general activity talk during large-group time ($r = -0.512$, $p < .001$).

We also found correlations among these demographic variables and the scores on the ECRS language and social development subscales. Classrooms that had more staff and classrooms with a longer school day scored lower on the ECRS subscales than other classrooms (see Table 5).

Teacher-Specific Variables

Our second hypothesis is that there are relations between teachers' educational backgrounds, experience in the teaching field, pedagogical orientations, and the interactions they have with children on a moment-to-moment basis. In this section, we present correlational results for these variables (Table 6).

Teachers' reported levels of education were strongly and positively correlated with the amount of cognitively challenging talk during free playtime

**Table 6.   Correlations Between Teacher-Specific Variables
and Variables Describing Interaction**

Variable	with	n	r	p<
Teacher Ed.	Free Play Cog. Chal.	52	0.384	0.01
Teacher Ed.	ECRS Language Subscale	56	0.392	0.01
Teacher Ed.	ECRS Social. Subscale	56	0.328	0.03
Teacher Ed.	Free Play Activity Talk	52	−0.314	0.03
Literacy Dim.	Small Group Cog. Chal.	19	0.609	0.01
Social. Dim.	Free Play Pretend Talk	52	0.325	0.03
Social. Dim.	Free Play Activity Talk	52	−0.279	0.05

($r = 0.384$, $p < .01$) and with both of the ECRS subscales (language subscale: $r = 0.392$, $p < .01$; socialization subscale: $r = 0.328$, $p < .03$). Education levels were negatively related to the amount of time during free play that was spent in general activity talk ($r = -0.314$, $p < .03$). Interestingly, teachers' experience (as measured by the amount of time teaching at their present location) was not related to any of the interactional variables.

Teachers' expressed pedagogies also showed patterns of relationship with other variables of interest. Table 6 shows that teachers who scored high on the broad literacy dimension of our teacher interview used more cognitively challenging talk during small-group times ($r = 0.609$, $p < .01$). Teachers who had high scores on our dimension reflecting an orientation toward socialization engaged in higher amounts of pretending with children during free playtimes ($r = 0.325$, $p < .03$) and engaged in less general activity talk during free play ($r = -0.279$, $p < .05$).

Activity Settings
Examination of the relationships between reported and observed time in different activity settings and recorded interactions revealed only a few strong correlations (see Table 7). Teachers who *reported* spending more time in free play spent more time engaged in cognitively challenging talk during large-group times ($r = 0.328$, $p < .02$). Teachers who reported spending more time in small-group activities engaged in more pretending talk with children during free play times ($r = 0.279$, $p < .05$). Correlations among the *observed* amounts of time children spent in various activity settings showed a different pattern of results. In classrooms where children were observed to be engaged in more free play time, there was less general activity talk during free play and less didactic talk during small-group activities ($r = -0.291$, $p < .05$, $r = -0.516$, $p < .04$, respectively). Children who were observed spending more time in large groups also engaged in more didactic talk across the school day ($r = 0.404$, $p < .01$). Children who were observed in more small-group time had teachers who were more didactic and less cogni-

Table 7.   Correlations Between Time Use, Curriculum, and Interactional Variables

Variable	with	n	r	$p<$
Reported Time in Free Play	Large Group Cog. Chal.	56	0.328	0.02
Reported Time in Small Group	Free Play Pretend Talk	52	0.279	0.05
Observed Time in Free Play	Free Play Activity Talk	52	−0.291	0.05
Observed Time in Free Play	Small Group Didactic	19	−0.516	0.04
Observed Time in Large Group	Child Didactic Talk	50	0.404	0.04
Observed Time in Small Group	Small Group Didactic	19	0.835	0.001
Observed Time in Small Group	Small Group Cog. Chal.	19	−0.503	0.04
Observed Time in Small Group	Free Play Activity Talk	52	0.294	0.05
ECRS Social Subscale	Large Group Cog. Chal.	50	0.309	0.04
ECRS Social Subscale	Large Group Activity	50	0.380	0.01
ECRS Social Subscale	Large Group Didactic	50	−.473	0.001
ECRS Social Subscale	Child Pretend Talk	50	0.325	0.04

tively challenging during the small groups ($r = 0.835$, $p < .001$, $r = -0.503$, $p < .04$, respectively), and engaged in more general activity talk during free play ($r = 0.294$, $p < .05$).

The socialization and language subscales of the ECRS, measures that were strongly related ($r = 0.889$, $p < .001$), partially measure the extent to which classrooms provide times and places that may facilitate language and social growth. Our measure of the richness of the curriculum in classrooms was also viewed as a reflection of the extent to which classrooms provide settings and activities that facilitate language and literacy development. It is therefore interesting that we found a relationship between these measures. Teachers with higher scores on the curriculum rating scale also had higher scores on the ECRS socialization subscale ($r = 0.331$, $p < .02$).

These measures of activity and interactional settings were also related to observed interactions. Teachers who scored high on the ECRS socialization subscale (and who also scored high on the ECRS language subscale) engaged in more cognitively challenging and general activity talk during large-group times ($r = 0.309$, $p < .04$, $r = 0.380$, $p < .01$), and less didactic talk during large-group times ($r = -0.473$, $p < .001$). In addition, these same teachers had children who spent more time pretending during free play ($r = 0.325$, $p < .04$).

DISCUSSION

Our analyses were guided by a model of language and literacy development that assumes that the nature of verbal interaction that occurs in preschool classrooms has an important impact on children's emerging language and literacy-related abilities, and that multiple factors affect the nature of the interaction that occurs in classrooms. Previously completed analyses (e.g., Dickinson, 1994; Dickinson & Smith, 1994; Dickinson & Tabors, 1991)

have established the importance of certain kinds of talk in preschool classrooms, but much remains to be understood about the factors that affect the nature of classroom interaction.

Classroom Circumstances

The results reported here confirm findings of other research (e.g., Ruopp, 1979; Schweinhart et al., 1986; Tizard & Hughes, 1984) that demonstrate that a larger class size and a longer school day tend to diminish the quality of interaction children experience. In particular, we have found that in classrooms with a large number of children or a longer school day, children engage in less pretending overall and more general activity talk. Perhaps not surprising is the fact that there are more staff in classrooms that have a longer day ($r = 0.528$, $p < .001$), and that those staff tend to have lower levels of education ($r = -0.445$, $p < .0001$). In addition, classrooms with a longer school day also had lower scores on our curriculum measure ($r = -0.352$, $p < .01$).

Teacher-Specific Qualities

Closely related to the general measures of classroom circumstance are our measures of teacher-specific qualities. Our results show that teachers who have higher levels of education tend to score higher on the ECRS subscales and to engage in more cognitively challenging talk with children. Also, teachers who asserted a strong pedagogical orientation toward literacy engaged in more cognitively challenging talk whereas teachers with a strong socialization orientation engaged in more pretending with children.

Taking both the classroom-level and teacher-specific results together, it appears that there may be two distinctly different types of preschool classrooms that serve low-income children. On one side may be classrooms that have a long day, many teachers, and teachers who have lower levels of education related to children's development. These classrooms provide less than ideal interactional environments for children, tending to focus on the immediate interactional context, rather then on pretending or other types of talk that are facilitative of further language development. On the other side may be classrooms—with more highly educated teachers, a shorter school day, and fewer children per classroom—that provide a rich language environment that encourages pretending and cognitively challenging talk across the school day. Our correlational analyses suggest that such a dichotomy may exist, but to confirm it we will need to conduct further analyses based on overall rankings of classrooms instead of using multiple discrete measures.

Activity Settings

Our second set of results shows that patterns of time use in classrooms influence the nature of the interaction that occurs; and, that there are differences between teacher reports of time use and the way time is actually

used during a typical preschool day. Our data point to the issue that when teachers *report* how their time is spent, they may be giving an indication of how they would ideally divide their day, as there were *no* significant relationships between reported and observed time in activities. We believe that the variables for reported time use may actually be a reflection of teachers' attitudes toward what they believe *should* occur in preschool classrooms rather than an accurate account of what they really do. When viewed in this way our findings make sense, namely, that teachers who reported spending more time in free play or small-group activities actually engaged in more cognitively challenging and pretending talk during our visits, indicating that teachers who value giving children opportunities for unrestricted play or small-group activities are the same teachers who actually provide children with rich language experiences.

The observations of how time was actually spent during our visits gives a somewhat different picture. Similar to the results for reported time in free play, in classrooms where children were observed to spend more time in free play, there was less general talk and less didactic talk. In a complementary finding, in classrooms where children spent more time in large groups, the general nature of interaction was didactic across the school day.

Perhaps most interesting were the findings related to observed time in small groups: In the 19 classrooms that conducted small-group activities during our visits, the nature of interaction during those groups was strongly didactic and less cognitively challenging. This negative picture of interaction during small group carried over into talk during free play, which tended to focus on general activity. We believe that these results may be indicative of an observation effect in which the teachers who opted to conduct a small-group activity while we were visiting wanted to be sure that the activity was discrete and controlled, leading to higher amounts of didactic talk and thus less opportunity for cognitively challenging conversation.

Conclusions of the Study

By looking closely at interaction in preschool classrooms that serve low-income children, and by drawing on multiple sources of data, we have been able to substantially improve our understanding of the factors that relate to the language environments created and sustained within these classrooms. What we have found is that three general areas of classroom life all contribute to the more specific interactions observed and recorded. First, general characteristics of classrooms (e.g., length of day, number of children) and specific qualities of teachers (e.g., education) influence interaction in both positive and negative ways. Second, both reported and observed teacher pedagogy, if it is centered either on facilitating children's social and emotional development through interaction (e.g., through encouraging and engaging in pretending with children) or on facilitating literacy development in a broad sense (e.g., through book reading and other

focused activities) contributes positively to the overall classroom language environment; we also note that teachers' pedagogies may be played out in context-specific ways. Finally, consideration of both the reported use of activity settings and the observations of children engaged in particular activities yields positive and negative pictures of interaction within those settings; with teachers' reports of time spent in activities more indicative of facilitative interactions than of actual observations of teachers and children in specific activities.

Implications for Policy and Practice
The implications of our results are multiple. In terms of classroom demographics, the clear implication is that we should promote smaller class size and a reasonable length for the program day. This is obviously not the first research to reach these conclusions, but our research is novel in its ability to directly link general classroom circumstances to specific features of interaction.

In addition, recruiting more highly educated teachers is essential to the quality of interaction experienced by children. We have shown that teacher education is related to both expressed and observed pedagogy; and that pedagogy is in turn related to the quality of interaction. Thus, it is evident that teacher preparation and inservice education programs can play a significant role in helping teachers establish appropriate pedagogical orientations and may also help in articulating the relations between children's social and emotional development and their language development.

Third, it is important to acknowledge the discrepancies between what teachers *want* to do in their classrooms, and what they are *able* to do, given the unique characteristics of setting, time, and students. Programs and policymakers should seek ways to bridge the gap between teachers' ideal visions of classrooms and the realities that teaching presents. Bridging this gap may require changes in staffing, time use policies, or in physical changes in classroom space.

The final point to be made, and one which carries across all of these domains, is that preschool teachers should become aware of the particular types of talk which are known to be facilitative of later language and literacy development. Armed with this specific knowledge, teachers can potentially overcome the constraints of their individual settings, can see the essential links among domains of development, and can create and use opportunities within the classrooms that will promote these facilitative kinds of interaction.

REFERENCES

Beals, D., De Temple, J., & Dickinson, D. (1994). Naturally occurring home and preschool supports for early literacy development of low-income children. In D.K. Dickinson (Ed.), *Bridges to literacy*. Cambridge, MA: Basil Blackwell.

Becker, W.C., & Gersten, R. (1982). A follow-up of follow through: The later effects of the direct instruction model on children in fifth and sixth grades. *American Educational Research Journal, 19,* 75–92.

Burchinal, M., Lee, M., & Ramey, C. (1989). Type of day-care and preschool intellectual development in disadvantaged children. *Child Development, 60,* 128–137.

Dickinson, D.K. (1987). Oral language, literacy skills, and response to literature. In J. Squire (Ed.), *The dynamics of language learning: Research in the language arts* (pp. 255–301). Hillsdale, NJ: Erlbaum.

Dickinson, D.K. (1991). Teacher stance and child talk in preschool settings. In A. McCabe & C. Peterson (Eds.), *New directions in discourse development* (pp. 255–351). Hillsdale, NJ: Erlbaum.

Dickinson, D.K. (1994). Features of early childhood classroom environments that support development of language and literacy. In J.F. Duchan, L.E. Hewitt, & R.M. Sonnenmeier (Eds.), *Pragmatics: From theory to practice* (pp. 185–201). Englewood Cliffs, NJ: Prentice-Hall.

Dickinson, D.K., Cote, L., & Smith, M.W. (1993). Learning vocabulary in preschool: Social and discourse contexts affecting vocabulary growth. In C. Daiute (Ed.), *The development of literacy through social interaction* (pp. 67–78). San Francisco: Jossey Bass.

Dickinson, D.K., & Smith, M.W. (1991). Preschool talk: Patterns of teacher–child interaction in early childhood classrooms. *Journal of Research in Childhood Education, 6,* 20–29.

Dickinson, D.K., & Smith, M.W. (1994). Long-term effects of preschool teachers' book readings on low-income children's vocabulary, story comprehension, and print skills. *Reading Research Quarterly, 29,* 105–122.

Dickinson, D.K., & Snow, C.E. (1987). Interrelationships among prereading and oral language skills in kindergartners from two social classes. *Early Childhood Research Quarterly, 2,* 1–26.

Dickinson, D.K., & Tabors, P. (1991). Early literacy: Linkages between home, school, and literacy achievement at age five. *Journal of Research in Childhood Educatioan, 6,* 30–44.

Dickinson, D.K., & Tabors, P. (1992, April). Continuity and change in oral language and print skills between kindergarten and first grade. In R. Gallimor (Chair), *Pathways to Literacy: Home and School Factors Affecting Kindergarten and First Grade Achievement.* Symposium presented at the Annual Conference of the American Educational Research Association, San Francisco, CA.

Duckworth, E. (1987). *The having of wonderful ideas.* New York: Teachers College Press.

Gallas, K. (1992). When the children take the chair: A study of sharing time in a primary classroom. *Language Arts, 69,* 172–182.

Gee, J.P. (1992). *The social mind: Language, ideology, and social practice.* New York: Bergin & Garvey.

Harms, T., & Clifford, R.M. (1980). *Early Childhood Rating Scale.* New York: Teachers College Press.

Heath, S.B. (1983). *Ways with words.* New York: Cambridge University Press.

Lazar, I., & Darlington, R. (1982). Lasting effects of early education: A report from the Consortium for Longitudinal Studies. *Monographs of the Society for Research in Child Development, 47,* (Serial No. 195).

Lee, V.E., Brooks-Gunn, J., & Schnur, E. (1988). Does Head Start work?: A 1-year follow-up comparison of disadvantaged children attending Head Start, no preschool, and other preschol programs. *Developmental Psychology, 24,* 210–222.

Lee, V.E., Brooks-Gunn, J., Schnur, E., & Liaw, F. (1990). Are Head Start effects sustained? A longitudinal follow-up comparison of disadvantaged children attending Head Start, no preschool, and other preschool programs. *Child Development, 61,* 495–507.

MacWhinney, B. (1991). *The CHILDES Project.* Hillsdale, NJ: Erlbaum.

McNamee, G.D. (1992). Vivian Paley's ideas at work in Head Start. *The Quarterly Newsletter of the Laboratory of Comparative Human Cognition, 14,* 68–70.

Paley, V.G. (1990). *The boy who would be a helicopter: The uses of storytelling in the classroom.* The University of Chicago Press.

Paley, V.G. (1992). Waking up and finding myself in a classroom. *The Quarterly Newsletter of the Laboratory of Comparative Human Cognition, 14,* 65–67.

Reynolds, A.J., Hagemann, M., Bezruczko, N., & Mavrogenes, N.A. (1991, April). *Multiple influences on early school adjustment: Results from the longitudinal study of children at risk.* Paper presented at the annual convention of AERA, Chicago.

Roberts, J.E., Rabinowitch, S., Bryant, D.M., Burchinal, M.R., Koch, M.A., & Ramey, C.T. (1989). Language skills of children with different preschool experiences. *Journal of Speech and Hearing Research, 32,* 773–786.

Royce, J.M., Darlington, R.B., & Murray, H.W. (1983). Pooled analyses: Findings across studies. Consortium of Longitudinal Studies. *As the twig is bent: Lasting effects of preschool programs* (pp. 411–459). Hillsdale, NJ: Erlbaum.

Ruopp, R.R. (1979). *Children at the center: Final report of the National Day Care Study.* Cambridge, MA: Abt Books.

Schweinhart, L.J., Weikart, D.P., & Larner, M.B. (1986). Consequences of three preschool curriculum models through age 15. *Early Childhood Research Quarterly, 1,* 15–45.

Snow, C.E. (1983). Literacy and language: Relationships during the preschool years. *Harvard Educational Review, 53,* 165–189.

Snow, C.E. (1987). Beyond conversation: Second language learners' acquisition of descriptions and explanation. In J. Lantolf & A. Labarca (Eds.), *Research in second language learning: Focus on the classroom.* Norwood, NJ: Ablex.

Snow, C.E., Cancino, H., Gonzalez, P., & Shriberg, E. (1989). Giving formal definitions: An oral language correlate of school literacy. In D. Bloome (Ed.), *Classrooms and literacy.* Norwood, NJ: Ablex.

Snow, C.E., & Dickinson, D.K. (1991). Skills that aren't basic in a new conception of literacy. In A. Purves & E. Jennings (Eds.), *Literate systems and individual lives: Perspectives on literacy and schooling.* Albany, NY: SUNY Press.

Sprigle, J.E., & Schaefer, L. (1985). Longitudinal evaluation of the effects of two compensatory preschool programs on fourth- through sixth-grade students. *Developmental Psychology, 21,* 702–708.

Street, B. (1984). *Literacy in theory and practice.* New York: Cambridge University Press.

Tizard, B., & Hughes, M. (1984). *Young children learning.* Cambridge, MA: Harvard University Press.

Weber, R. (1990). The construction of narratives by good and poor readers. In J. Zutell, S. McCormick, M. Connolly, & P. O'Keefe (Eds.), *Literacy theory and research: Analyses from multiple perspectives* (pp. 295–302). *Thirty-ninth yearbook of the National Reading Conference.* Chicago: National Reading Conference.

Weikart, D. (1987). Curriculum quality in early education. In S.L. Kagan & E.F. Zigler (Eds.), *Early schooling: The national debate* (pp. 27–44). New Haven: Yale University Press.

APPENDIX A

Items Used from Early Childhood Environment Rating Scale

1. **Furnishings:** routine (RF 6), learning (RF 7), relaxation (RF 8), room arrangement (RF 9), child-related displays (RF 10).

2. **Language:** understanding language (L 11), using language (L 12), reasoning (L 13), informal language (L 14).

3. **Social Development:** space to be alone (RS 28), free play (RS 29), group time (RS 30), tone (RS 32).

APPENDIX B

Coding of Curriculum Richness of Classrooms

1. **Book use**
   Presence or absence of a book reading area
   Appeal of book area (padded and cozy; marginally appealing)
   Book display and choice guided by topical themes?
   Number of books on display (0–15, 16 or more)
   Number of places books can be seen around the room (1–2; 3 or more)
2. **Writing Program**
   Presence of absence of a writing area
   Assistance for writing present? (e.g., letter formation, words)
   Alphabet on display in room? (present and available for use vs.
       inaccessible)
   Adequate and varied material for writing? (varied material vs. minimal
       material)
   Children's work or material designed to motivate writing on display
3. **Science Program**
   Presence of evidence of thematically organized material
   Displays reflecting on-going science-related work
   Teacher interview responses refer to science topics
4. **Social Studies Program**
   Presence of evidence of thematically organized material (e.g., health,
       communities)
   Displays reflecting ongoing social studies–related work
   Teacher interview responses refer to social studies

APPENDIX C

Coding of Child and Teacher Audiotapes:
Content of Talk in Preschools

Cognitively Challenging Talk is comprised of:

Books and Works (Early Literacy): Interaction about books and their con-
tent, direct reflection on language as a system (e.g., rhyming, phonemic
segmentation), or discussion of word meanings.

Cognition and Ideas: Interaction about *how* and *why* one knows something,
or discussion of conceptual ideas such as "fairness," "friendship", or
"loyalty".

Nonpresent: Interaction about past or future activities and events that are
not discussed in the context of a personal narrative or scientific and world
knowledge.

Personal Narrative: Interaction, discussion, or story of previously occurring, nonimmediate personal experience. (This does *not* include interactions around very recently occurring classroom events, e.g., "He took my Legos".)

Scientific and World Knowledge: Interaction relating to specific facts and lore about the world. This can be in the immediate or nonimmediate context.

Pretending:

Pretending: Interaction which occurs within the context of ongoing fantasy play. This also includes negotiation, structuring, and termination of fantasy play episodes.

Didactic Talk is comprised of:

Language Routines: Rehearsal or repetition of familiar games, phrases, rhymes, and songs. (This includes "circle-time" activities such as reciting the alphabet, singing, and naming class members.)

Rules and Routines: Interaction relating to classroom or more generally conceived rules and routines. (This does *not* include dicussion of concepts such as fairness, justice, or morality.)

General Activity Talk is comprised of:

Ongoing Activity: Interaction related to the immediate, shared physical context. Can be talk about objects, actions, descriptions of activity.

Emotions and Feelings: Interaction about emotional states, feelings, and motivations. This includes discussion of personal preferences and bodily states.