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A descriptive study of at risk mothers' interactions with their children

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A DESCRIPTIVE STUDY OF AT RISK MOTHERS'
INTERACTIONS WITH THEIR CHILDREN

A Thesis
Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Master of Arts

in

The Department of Communication Sciences and Disorders

By
Vicky Lynn Poston
B.A., Louisiana State University, 2000
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VLP

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Abstract

The purpose of this study was to describe the home environment and nature of mother-child interactions of low-income African-American mothers. The subjects included eight mother-child dyads. All of the mothers were single, African-American and working toward a G.E.D. Their age ranged from 17-30 years of age. Their children ranged in age from 24-67 months. A home visit and a mother-child play session that was collected at the children's child care center were utilized to collect the data.

The findings from the current study were consistent with the literature reviewed in that most of the mothers produced a decreased speech rate, decreased number of word types, decreased percentage of affirmatives, and an increased percentage of controlling behaviors compared to data from middle socioeconomic status mothers. It is important to note, however, that the mothers did vary in their language behaviors. Although previous studies have found significant differences between the language behaviors of lower socioeconomic status mothers when compared to upper-middle class and professional mothers, the results of this study indicate that a range of variability does exist among the former group of mothers.

Introduction

For decades, researchers have been examining child language development in hopes of identifying the essential amount of support required for adequate speech and language development. Many theorists have pondered over this question and have come to differing conclusions. Piaget would propose that language is structured from general cognitive structures, and is one of many symbolic representations of thought. In this view, social aspects of language development are less important than cognitive processes. (Seltman & Seltman , 1985) Others like Vygotsky would argue that adequate language development is a critical tool for thought, and is both constructed by and used to engage in social mediation (Valsiner & Van der Veer, 2000). In more recent attempts to unlock the mystery behind early language development, researchers have examined a host of variables that affect mother-child interactions and in turn affect early language acquisition.

One important variable that has been examined in child development is the amount of support and stimulation available in the home environment. This support has been correlated with later child language development (Elardo, Bradley, & Caldwell, 1977; Brooks-Dunn, Klebanov, & Duncan, 1996; Wallace, Roberts, & Lodder, 1998; Roberts, Burchinal, & Durham, 1998). Other variables that have been examined relate to the nature of a mother's interactions with her child. Like the home environment, mother-child interactions have been identified as playing a large role in later language development (Schachter, 1979; Hart & Risely, 1995). The socioeconomic status and race of the mother are two variables that have been shown to lead to differences in mother-child interactions. Studies that have examined a mother's socioeconomic status have

often relied on maternal education and/or maternal occupation to index poverty (Hoff-Ginsberg, 1991; Hammer & Weiss, 1999). Studies that have examined the variable of race have typically examined differences between White (W) and African-American (AA) mothers (Bee et al., 1969; Anderson-Yockle, 1994; Haynes & Saunders, 1994). In general these studies have found that AA mothers who are poor and undereducated are at risk for providing inadequate support and stimulation in the home and producing a lower percentage of speech acts that have been shown to facilitate language development.

The general goal of this study is to learn more about the home environments and conversational interactions of low-income AA mothers and their children. The literature review is divided into three sections. Section one reviews current research that examines the home environment as it relates to later child language development. Section two focuses on the effect of maternal characteristics on mother-child interactions. This section examines the effects of poverty and race on mother-child interactions. The final section presents findings from studies that examine the effect of the child's language abilities on mother-child interactions.

The Effect of the Home Environment on Early Child Language Development

An important variable in child language development is the amount of support and stimulation available in the home environment. In particular, researchers have looked at the relationship between the home environment and later child development as measured in a variety of manners. One scale frequently used to measure the home environment is the Home Observation for Measurement of the Environment (HOME; Caldwell & Bradley, 1984). The purpose of the HOME is to measure the quality of stimulation and support available to a child in the home environment. The HOME

includes three versions: Infant/Toddler (birth – 3), Early Childhood (3-6) and Middle Childhood (6-10).

For the purpose of this thesis, only studies that utilized the Infant/Toddler and/or Early Childhood versions of the HOME scale are reviewed. The Infant/Toddler version is a 45-item semi-structured observation/interview composed of six subscales: emotional/verbal responsiveness of the parent, acceptance of the child's behavior, organization of the environment, provision of appropriate play materials, maternal involvement with the child, and variety in daily experiences. The Early Childhood version is a 55-item semi-structured observation/interview composed of eight subscales: learning materials, language stimulation, physical environment, responsivity, academic stimulation, modeling, variety, and acceptance. Across both versions, the observations and interview are obtained by a trained examiner in the family's home.

At least four studies have used the HOME scale to examine the relationship between the quality of stimulation available to children in their home environment and aspects of their later language development. For example, Elardo, Bradley, and Caldwell (1977) administered the HOME to 74 normal children at six and 24 months of age. When the children were between the age of 36-38 months, the Illinois Test of Psycholinguistic Abilities (ITPA; Kirk, McCarthy, & Kirk, 1968) was administered. The ITPA involves ten primary subtests of language-related abilities. Of the 74 children who participated, 48 were AA, 26 were W, and 38 were males.

Results of this study indicated significant correlations between all six dimensions of the HOME and the children's language development as measured by the ITPA. Additionally, the total HOME scores were significantly correlated with eight out the ten

subtests of the ITPA. The two subtests that were not significantly correlated with the total HOME scores were visual memory and auditory memory.

Brooks-Dunn, Klebanov, and Duncan (1996) analyzed data from the Infant Health and Development Program (IHDP). This program involved 483 AA and W children who were followed from birth through the first five years of their life. The HOME scale was conducted when the children were one and three years old. The children also were given the Stanford Binet Intelligence Scale (Terman and Merrill, 1973) at age three and the Wechsler Preschool and Primary Scale of Intelligence (WPPSI; Wechsler, 1989) at age five.

The results of this study indicated that the AA children's IQ scores were one standard deviation below the W children. Regression analyses were then conducted to determine the leading predictors of the race effect. The first regression included the children's gender, birth weight, and length of neonatal stay. This regression model indicated no significant associations between these variables. In a second regression, IQ was adjusted for family and neighborhood poverty. This regression model reduced the earlier observed differences for race by 52%. Finally, IQ was adjusted for the children's total HOME score and the observed race differences were reduced by an additional 28%. The authors concluded that their findings underscore the importance of examining the home environment when attempting to predict later child development.

Wallace, Roberts, and Lodder (1998) also examined the relationship between the home environment and the interactions of 92 1-year-old AA infants and their mothers. Sixty-four of the dyads were from low-income households as determined by the federally defined poverty level, and 28 was described as above poverty. Each child's home

environment were assessed using the HOME scale during a home visit by one of three trained examiners. Other assessments included in the study were the Communication and Symbolic Behavior Scale (CSBS; Wetherby & Prizant, 1993), the Sequenced Inventory of Communication Development-Revised (SICD-R; Hedrick, Prather, & Tobin, 1984), the Nursing Child Assessment Teaching Scale (NCATS; Barnard, 1978) and the Bayley Scales of Infant Development (Bayley, 1969). A ten minute play session also was collected for each mother-child dyad.

Multiple regressions were performed to examine the joint and independent association between the HOME score, the mother measures, and the child language outcomes. The total HOME scores were found to be independently associated with the children's receptive language scores. Additionally, the HOME total scores were found to independently account for 22% of the variance in the children's receptive language scores. Both the HOME scores and mothers' amounts of stimulation were found to be independently associated with the children's CSBS scores.

Finally, Roberts, Burchinal, and Durham (1999) used the HOME scale to examine the effect of the home environment on 87 AA children's language development. In this study, each mother completed a shortened version of the MacArthur Communicative Development Inventory (CDI; Fenson et al., 1993) when their children were 18, 24, and 30 months old. The shortened version included a 50-item expressive word checklist, an irregular noun and verb checklist (five irregular nouns and 20 irregular verb), and a measure of maximum sentence length (calculated from the three longest utterances parents could remember their children speaking). Each child also was also administered

the Peabody Picture Vocabulary Test-Revised (PPVT-R; Dunn and Dunn, 1981), CSBS, and the SICD.

Data analysis involved a hierarchical Linear Model Analysis. The results indicated that the HOME scale was the most important predictor of the children's language development as measured by the CDI. Children from more responsive and stimulating family environments were more likely to have higher vocabulary scores overall and display a greater rate of vocabulary change from 18 to 30 months of age than children from less responsive and stimulating homes. Moreover, children with higher HOME scores used more irregular forms overall and showed a greater increase over time in sentence length as compared to children with low scores. Findings from this study, as well as the first three, emphasize the importance of the home environment for child language development.

Characteristics of the Mother That Affect Mother-Child Interactions

In addition to the home environment, researchers also have highlighted the importance of mother-child interactions when investigating later child language development (Schachter, 1979; Hart & Risely, 1995). This section reviews literature that has examined characteristics inherent to the mother that have been found to affect mother-child interactions.

Poverty. At least four studies have shown that a mother's socioeconomic status affects the quality of mother-child interactions. The earliest study to document this was by Schachter (1979). She examined the speech acts of 30 mothers during everyday activities with their two-year-olds over a two-year period. Of the 30 dyads, 10 were in each of three categories: AA disadvantaged, AA advantaged, and W advantaged. The

mean level of education for the disadvantaged group was 11.75 and the mean for the AA and W advantaged groups 17.05 and 17.70, respectively. The data from this study were collected by having examiners visit the home over a two year period and manually record the mother and child utterances.

Schachter coded the maternal utterances as one of ten speech acts (i.e. responds to child expressive communication, responds to child desire communication, responds to child ego-centered communication, responds to child collaborative communication, responds to child report, responds to child learning communication, controls, teaches, reports on the child, reports on self). Total number of speech acts also was calculated for each dyad as a total talk score. For the purpose of this literature review, only the total talk scores, maternal use of confirmations as a response to the child learning to communicate, and maternal control will be discussed.

Results revealed a significant difference between the disadvantaged and advantaged groups but no differences between the two advantaged groups. Differences were noted for both the mothers' and toddlers' total talk scores. For mothers' total talk scores, the advantaged groups talked twice as much as the disadvantaged group (985.3 vs. 448.6). Advantaged toddlers mean number of speech acts was 394.8 compared to 193.6 for the disadvantaged toddlers. Significant differences also were found between the advantaged and disadvantaged groups in the amount of control exhibited by the mothers. The disadvantaged mothers used more prohibitions and refusals as compared to both the AA and W advantaged groups. In fact, Schachter's data indicated that disadvantaged mothers used one control act for every 3.7 speech acts as compared to advantaged mothers who had a ratio of 1 control behavior for every 11.5 other speech

acts. Finally, advantaged mothers were found to produce more confirmations (11.2%) when responding to their children when they were learning to communicate than disadvantaged mothers (7%).

In a more recent study, Hart and Risley (1995) observed 42 families over a three year period to examine differences in the language experiences of children who come from different socioeconomic groups. Thirteen of the dyads were classified as living in professional families, 10 were classified as middle socioeconomic families, 13 were classified as lower socioeconomic families and 6 were classified as welfare families. Socioeconomic status was determined using the socioeconomic index from Stevens and Cho (1985). This scale is based on occupational codes from the 1980 census. The data for this study included audiotaped interactions that were collected during monthly one hour sessions over approximately 2 ½ years. From the audiotapes, the researchers measured a number of language behaviors of the family and the target child.

Like Schatcher (1979), results of Hart and Risely's study showed differences between socioeconomic groups. During the time the children were between the ages of 11-18 months old, the average professional family produced a mean of 642 utterances per hour, and 482 (75%) of these were addressed to the child. The average middle socioeconomic family (including both middle socioeconomic families and lower socioeconomic families) produced 535 utterances per hour, with 321 (60%) of these utterances addressed to the child. The average welfare family produced an average of only 394 utterances per hour, and 197 only (50%) of these utterances were addressed to the child. These results showed a decrease in both the number of utterances produced by

the family and number of utterances addressed to the child for each decrease in socioeconomic level.

Similar results were found for the number of words heard by the average child in each of the different socioeconomic groups. The children from the professional families heard an average of 2,150 words per hour, the children from the working class families heard an average of 1,250 words per hour, and the children from the welfare families heard an average of 620 words per hour. From these data, Hart and Risely estimated that by age three, children from the professional families hear an average of 30 million words, children from the working class families hear an average of 20 million words, and children from the welfare families hear an average of only 10 million words.

Hart and Risley also examined two types of speech acts spoken by the mothers. These speech acts included affirmatives and prohibitions. Affirmatives were explicit statements of parent approval that either immediately followed a child utterance and repeated one or more of the child's content words, expanded the child's utterance into a more adult-like form, or extended the child's utterance by adding words. Prohibitions were explicit statements of parent disapproval and imperatives that included the words, "Don't," "Stop," "Quit," or "Shut up." The results indicated that the average professional family provided 36 affirmatives and five prohibitions per hour (six affirmatives to every one negative). In contrast, the average welfare family provided five affirmatives to every 11 prohibitions per hour (one positive to every two negatives).

A third study that examined mother-child interactions was Hoff-Ginsberg (1991). Her data were 63 mother-child dyads. Thirty of the dyads were from working class families and the remaining were from upper-middle class families. Working class was

defined as completing high school with no further education except technical training and, if working, employed in unskilled, semiskilled, or service positions. Upper-middle class was defined as completing at least two years or more of college and, if working, employed in either professional or managerial positions. The language behaviors of the mothers that were measured included MLU, speech rate, total number of root words, number of topic continuing replies, number of maternal utterances serving as conversation eliciting questions, and number of behavior directives. These language behaviors were derived from videotaped samples of the dyads collected during mealtime, dressing, book reading, and toy play.

Differences between the upper-middle class mothers and the working class mothers were found for five out of the six language behaviors measured. Table 1 shows that scores for the first four measures were higher for upper-middle class mothers. The last measure, number of directives, showed the opposite pattern, with working class mothers producing more of these. The only measure that did not result in a group difference was MLU.

Table 1

Means for Language Behaviors Produced by Upper-Middle Class and Working Class mothers.

Characteristics of Mother-Child conversations	Upper-Middle Class Mothers	Working Class Mothers
Rate of utterance	18.5 (SD = 5.3)	16.1 (SD = 5.5)*
Word roots	190 (SD = 50)	168 (SD = 40)*
Topic-continuing	44.2 (SD = 11.8)	37.2 (SD = 10.9)*
Questions	33.7 (SD = 8.9)	29.6 (SD = 9.3)*
Directives	15.8 (SD = 6.6)	22.3 (SD = 6.8)*
MLU	3.69 (SD = .49)	3.60 (SD = .42)

* Indicates significant group differences, $p < .05$

Finally, Hammer and Weiss (1999) examined the mother-child interactions of 12 AA mother-infant dyads during three play sessions that each lasted 15 minutes. Six of the dyads were considered low SES and six were considered middle SES as measured by maternal educational level and average income. For these samples, Hammer and Weiss measured the following variables: total number of complete and intelligible utterances, the mean length of response, type-token ratio (TTR), and the total number of different communicative acts. Hammer and Weiss also measured the mother-child play behaviors and goals of play. These variables were coded within periods of joint attention after a play episode was identified.

Three group differences were found. The lower socioeconomic mothers attempted to redirect their child's attention (mean = 38%) and initiated play (mean = 57%) more often than the middle socioeconomic mothers (mean = 29% and mean = 43%, respectively). Both of these findings indicate that lower socioeconomic mothers exhibit more controlling behaviors when compared to middle socioeconomic mothers. The third finding related to the quality of play. For this measure, the middle socioeconomic mothers were found to incorporate more language goals into their play (mean = 61%) as compared to the lower socioeconomic mothers (mean = 36%).

Findings from these four studies indicate that the language environment provided to children of low-income families is different from the language environment of children in upper-middle class and professional families. Across studies, mothers of low-income families were reported to talk less, use more prohibitions and directives, and provide fewer affirmations/confirmations when interacting with their children.

Race. Another maternal characteristic that has been identified as affecting mother-child interactions is race. Findings from three studies suggest that there may be some differences in the conversational style of W and AA mothers, especially when the mother-child interactions of low-income mothers are compared. For example, differences between AA mothers and W mothers were examined by Bee, Van Egeren, Streissmuth, Nyman and Leckie (1969). This study involved 76 lower socioeconomic families and 38 middle socioeconomic families. Forty-nine of the mothers were classified as lower-class and AA, 27 were classified as lower-class and W, and 38 were classified as middle-class and W.

Each mother-child dyad was observed during a ten minute “waiting room” setting and while engaged in a problem solving task. During the “waiting room” situation the mother-child interactions were recorded. These samples were then transcribed and coded. Codes were divided into three categories: mother’s verbalizations (i.e., control, question, and approval), child’s verbalizations (i.e., acceptance of control, rejection, and general seeking), and mother’s level of attention. During the problem solving task, the mother-child dyads were presented with a building block model by the experimenter. The dyad was then given an identical set of blocks and instructed to build a house that looked like the model. For this task, the mother’s verbalizations were scored in one of 11 categories of verbal and nonverbal behaviors, but only five of the categories occurred frequently enough to analyze. Therefore, the researchers only presented results for these five categories. Four of these categories (i.e., non-question suggestion, question suggestion, positive feedback, and negative feedback) involved the mothers’ verbal behaviors and one (i.e., nonverbal intrusion) involved the mothers’ nonverbal behaviors.

Significant group differences were observed for three maternal measures during the problem solving task and one child measure during the waiting room task. Group means for these measures are presented in Table 2. For each measure, scores of the AA participants were found to be lower than both the scores of the lower-class W and middle-class W participants. Differences between the lower-class W group and the middle-class W group were not significant. For example, the W children produced a significantly greater number of information statements in the waiting room setting than their AA peers. During the problem solving task, W mothers produced higher rates of positive feedback, question suggestions, and total interactive utterances than did the AA mothers.

Table 2

Group Differences Between the AA Lower-Class group, the W Lower-Class, and the W Middle-Class Group.

Variable	Lower-class AA (N = 49)	Lower-class White (N = 27)	Middle-class White (N = 38)
Problem Solving Task			
Mother's rate of positive feedback	1.758	2.629	3.073*
Mother's rate of question suggestions	1.792	3.092	3.120*
Mother's total interaction	85.306	120.370	128.900*
Waiting Room Task			
Child's rate of information statements	2.270	3.300	3.450*

* Indicates a significant group difference, $p < .05$.

In a study by Anderson-Yockel and Haynes (1994), 10 working class W mothers and 10 working class AA mothers completed a questionnaire concerning their book reading habits and attitudes. Mother-child dyads also were videotaped during story book reading. The mother's children were approximately two years of age and working class was defined as an annual income of \$23,000-\$24,000.

The questionnaire included five questions pertaining to amount of time spent per week reading to the child and 10 questions pertaining to the mother's personal attitudes and beliefs concerning reading. The questionnaire made use of a 5 point Likert scale. A score of 5 on the scale reflected strongly agree and 1 reflected strongly disagree. The maternal behaviors examined during story-book reading were number of WH questions, Yes/No questions, directives/requests, labeling, descriptions, feedback, attentional vocatives, attentional gestures, and pauses.

Results indicated that W mothers had significantly higher ratings on the parent questionnaire (4.57) compared to AA mothers (4.1). White mothers reported reading significantly more times per week to their children with a mean of 4.0 as compared to AA mothers with a mean of 2.8. The W mothers also reported enjoying books with their parents more when they were children than did the AA mothers with means of 4.5 and 3.5, respectively. Of the nine maternal behaviors examined during the book reading task, race differences were found for two variables. White mothers asked more WH questions with a mean of 18.88 and more Yes/No questions with a mean of 13.61. For these variables, mean scores of the AA mothers were 4.69 and 6.16, respectively.

Finally, Haynes and Saunders (1998) examined 10 AA and 10 W mother-child dyads during a book reading activity. The age of the mothers was approximately 25 years and the age of the children was approximately 25 months. The mean annual income for both groups was approximately \$50,000 with most of the mothers employed in professional positions such as a counselor or a nurse. Like Anderson and Haynes (1994), Haynes and Saunders were interested in the differences between the two groups on measures of WH questions, Yes/No questions, directives/requests, labeling,

descriptions, feedback, attentional vocatives, attentional gestures, and pauses during a book reading task.

Of the nine measures examined, only one measure was found to show a significant group effect. Specifically, the W mothers used significantly more labeling with a mean of 20.89 when compared to AA mothers who produced a mean of 6.78 labels. Haynes and Saunders did not find any significant differences between the mothers in regards to WH questions, Yes/No questions, directives/requests, descriptions, feedback, attentional vocatives, attentional gestures, and pauses.

Taken together, findings from these studies show race effects when the research participants are from lower socioeconomic status families. When research participants are from middle socioeconomic status families, effects of race seem to be minimal. To further summarize the findings concerning the effect of maternal characteristics on mother-child interactions, Tables 3 and 4 provide the significant findings and supporting data for each study reviewed in this section.

Characteristics of the Child That Affect Mother-Child Interactions

Before closing, it is important to note that other variables have been found to affect mother-child interactions. Three studies that document this finding are reviewed in this section. In a study done by Hoff-Ginsberg (1987), three white, middle class, first born girls and their mothers were videotaped for 45 minutes on two separate occasions during play. The three children were 1;7 (Dyad A), 2;2 (Dyad B), and 2;8 (Dyad C) at the time of the first session. Two of the questions Hoff-Ginsberg asked during this study were who controlled the topics of conversation and what contributed to the allocation of conversational control. Results indicated that as the age of the children increased, the

Table 3

Summary of Findings Related to the Participants' Socioeconomic Status.

Study	Socioeconomic Status	Measures	Data
Schachter (1979)	10 Advantaged W (U)	Maternal total talk	985.3 U > 448.6 L
	10 Advantaged AA (U)	Child total talk scores	394.8 U > 193.6 L
	10 Disadvantaged AA (L)	Control behaviors Confirmations	1:11.5 U < 1:3.7 L 11.2 % U > 7% L
Hart & Risley (1995)	13 Upper SES (U)	Utterances per hour directed to child	482 U > 321 M > 197 L
	10 Mid SES (M)	Words per hour heard by child	2,150 U > 1,250 M > 620 L
	13 Low SES (L) 6 Welfare (L)	Ratio of affirmatives to prohibitions	6:1 U > 1:2 L
Hoff- Ginsberg (1991)	33 Upper-middle Class (U)	Speech rate	18.5 U > 16.1 M
	30 Working Class (M)	Total number of root words	190 U > 168 M
		Topic continuing replies	44.2 U > 37.2 M
		Conversation eliciting questions	33.7 U > 29.6 M
		Directives MLU	15.8 U < 22.3 M 3.68 U = 3.60 M
Hammer & Weiss (1999)	6 Mid SES (M)	Redirect child's attention (control behavior)	29% M < 38% L
	6 Low SES (L)	Initiated play (control behavior)	43% M < 57% L
		Incorporated language goals	61% M > 35 % L

Table 4

Summary of Findings Related to the Participants' Race.

Study	Race	Measure	Data
Bee et al. (1969)	38 White middle SES (MW)	<u>Problem solving task</u>	3.073 MW > 2.629 LW > 1.758 LAA
	27 White low SES (LW)	Mother's rate of positive feedback	3.120 MW > 3.092 LW > 1.792 LAA
	49 African-American low SES (LAA)	Mother's rate of question suggestion Mother's total interaction	128.9 MW > 120.4 LW > 85.3 LAA
Anderson- Yockle (1994)	10 (W) 10 (AA)	<u>Waiting room task</u>	3.45 Mid W > 3.3 Low W > 2.27 LAA
		Child's rate of information statements	W mother's reported reading more times per week to their children and enjoyed books with their parents when they were children.
		Questionnaire	
Haynes & Saunders (1994)	10 (W) 10 (AA)	Wh-questions	18.88 W > 4.69 AA
		Y/N questions	13.61 W > 6.16 AA
		Labeling	20.89 W > 6.78 AA (labeling)

level of control became more balanced between the mothers and their children. For dyad A at time one, the mother controlled 83% of the conversation and at time two, the child was controlling 32% of the conversation. At time one, the older children (Dyad B and C) were controlling 30% and 46% of the conversation, respectively.

Hoff-Ginsberg (1998) also examined the effect of a child's birth order on mother-child interactions. In this study, 63 mother-child dyads participated. Thirty-three of the children were first born and 30 were later born children. The children ranged in age from 18 months to 29 months. Hoff-Ginsberg examined six maternal speech behaviors: MLU, speech rate, topic continuing replies from mother, total number of root words, and maternal utterances serving as conversation eliciting questions or behavior directives.

The results of this study indicated that mothers used longer utterances and fewer questions when talking to first born children as compared to later born children. The data also showed that first born children were more advanced in vocabulary when measured by number of root words produced and number of different object labels produced. They also were found to be more advanced in grammar as measured by MLU. From these findings, Hoff-Ginsberg concluded that differences in the children were affecting the mothers' communication behaviors in the interactions.

Finally, Hoff-Ginsberg (1994) examined the effect of the child and mother's talkativeness on the nature of mother-child interactions. To do this, Hoff-Ginsberg interviewed 63 mothers concerning their child rearing goals through a series of open-ended questions. During these interviews, total number of words spoken by the mothers was calculated. Then, mother-child interactions during meal time were videotaped and the language behaviors of both the mother and child were coded. The maternal behaviors

measured during these samples were total number of utterances, total number of conversation eliciting questions, and total number of topic continuations produced during mealtime. The child behaviors were total number of utterances and proportion of topic continuing utterances.

The results indicated that there was a low correlation between mother's total number of words produced during the interview and her total number of utterances produced during mealtime ($r = .26$). Next, Hoff-Ginsberg asked if a mother's talkativeness was related to features of the mother-child dyad. For this question, she completed step-wise multiple regressions. The predicted variable was the number of maternal utterances produced during the mother-child interactions. Three measures (i.e. maternal utterances continuing own topic, number of child utterances, and child's topic continuing replies) together accounted for 72% of the variance that was observed in the number of utterances produced by the mothers. Of these, number of child utterances produced the highest standardized coefficient (.79). Findings from this study, as well as the first two, indicate that mother-child interactions also are affected by the language abilities of the child.

Summary

In summary, a number of variables have been shown to be related to child language development. These variables included the amount of support and stimulation provided by the home environment as well as the quality of a mother's interactions with her child. From the aforementioned review, one can draw the conclusion that low-income, AA mothers are at risk for providing inadequate support and stimulation in the home environment and for producing a lower percentage of utterances shown to facilitate

early language development. More specifically, one would expect these mothers to have low HOME scores, produce fewer number of words, fewer number of different words, shorter MLUs, increased percentage of directives, increased percentage of prohibitions, and reduced percentage of affirmatives than mothers with more education and more financial resources.

Purpose of the Current Study

The purpose of this study was to examine the home environment and nature of mother-child interactions of low-income AA mothers. In addition to being poor, all mothers had not completed high school. A home visit and a mother-child play session collected at the children's child care center were utilized to collect the data. The questions driving the research were:

- 1: What was the quality of the home environment of low-income AA mothers as indexed by the HOME scale?
- 2: What was the quality of the mother-child interactions of low-income AA mothers as indexed by the following maternal measures: speech rate, total number of utterances produced, total number of complete and intelligible utterances produced, total number word tokens, total number of word types, mean length of utterance, percentage of directives, percentage of prohibitions, and percentage of affirmatives?
- 3: What effect does the child's age and/or language development have on the nature of mother-child interactions?

Predictions

It was predicted that the home environments of the participants would be rated low in providing an adequate amount of support and stimulation necessary for enriched language development as indexed by the HOME scale. It also was predicted that the low-income AA mothers would demonstrate a reduced percentage of utterances that are known to facilitate language. More specifically, it was predicted that these low-income AA mothers would produce a decreased speech rate, fewer number of word tokens, fewer number of word types, shorter MLUs, increased percentages of directives and prohibitions, and a reduced percentage of affirmatives than what has been reported in the literature for middle class or upper class mothers. This prediction was based on Schatcher (1979), Hoff-Ginsberg (1991), and Hart and Risley (1995). Finally, it was predicted that the child's age and language development would affect mother-child interactions as seen by Hoff-Ginsberg (1987) and Hoff-Ginsberg (1998).

Methods

Participants

The research participants included eight mother-child dyads. All of the mothers were single, African American and working toward a G.E.D. at the Even Start Program in Baton Rouge, LA. Their mean age in years was 20.88 (SD = 4.19). The age of seven of the mothers ranged from 17 years to 23 years of age. The eighth mother was 30 years old. The mean educational level in years of the mothers was 9.13 (SD = .99). All mothers reported receiving some type of federal financial aide. Examples of aide included food stamps, WIC and Medicaid. See Table 5 for a detailed profile of each mother.

Table 5

Profiles of Mothers.

Number	Age ¹	Education ²	Financial Aide ³	No. of Children
1	18	9	WIC	1
2	18	9	Food Stamps	1
3	21	10	WIC	2
4	17	9	Medicaid, WIC	2
5	30	9	Food Stamps, Medicaid	2
6	19	8	WIC, Medicaid	1
7	23	8	Food Stamps, WIC	2
8	21	11	Food Stamps, WIC	2
Average	20.88	9.13	N/A	1.63

¹ Age in years; ² educational level calculated in years; ³ self-reported examples of financial aide provided by mother.

The children ranged in age from 24 months to 67 months of age. Their average age in months was 40.125 (SD = 13.83). Three of the children were males and five were females. Of the eight children, four were first born, three did not have any siblings and one was second born. All were developing normally per parent report.

To further document the developmental status of each child, an Ages and Stages Questionnaire (A&S; Squires, Potter, & Bricker, 1999) was completed by each mother. This questionnaire contains 30 questions divided into five subtests (communication, gross motor, fine motor, problem solving, and personal-social aspects of language). The parent indicates “yes,” “sometimes,” or “not yet” for each question. As indicated in the A&S manual, a “yes” response is scored as ten points, a “sometimes” response is scored as five points, and a “not yet” response is scored as zero. A total for each subtest is calculated by adding the scores for each question; the maximum score for each subtest is 60 points. The composite score in the A&S reflects the child’s average score across the five subtests.

The A&S manual provides different cutoff points for normal developmental status for each age range examined. For most age ranges, however, a score that falls at or above 40 is considered normal. As can be seen in Table 6, seven of the children earned average composites that indicated normal development. The composite score of child #7 was 39. The two subtests that this child scored below normal were fine motor and problem solving.

Table 6

Profiles of Children.

Number	Age ¹	Gender	Birth Order ²	A&S 1	A&S 2	A&S 3	A&S 4	A&S 5	Composite A&S
1	24	female	1	35	55	50	25	45	42
2	25	male	1	60	45	30	60	40	47
3	36	female	1	60	50	40	55	60	53
4	38	female	1	40	60	50	40	35	45
5	37	female	2	50	40	30	35	55	42
6	46	male	1	45	50	35	55	55	48
7	48	female	1	40	50	20	35	50	39
8	67	male	1	55	55	45	60	60	55
Average	40.12			48.13	50.63	37.50	45.63	50.00	46.38

¹Age in months, ² 1= first born and 2= second born, A&S 1 = communication score, A&S 2= gross motor score, A&S 3 = fine motor score, A&S 4 = problem solving score, A&S 5 = personal-social score, Composite A&S score was calculated by adding the total for each category and dividing by five.

Recruitment and Consent

Participants were solicited through a flyer sent to the child care center (Appendix A). Sixteen prospective mothers returned the flyer indicating interest in the project. Five mothers were not invited to participate because the age of their children did not fall within the accepted range of 24 to 67 months of age. For the remaining 11 mothers, short interviews at the child care center were completed to collect basic demographic information (Appendix B) and inform each mother about the details of the study. The requirements for the study were: participation in one 30 minute videotaping at the child care center, completion of the A&S, and participation in a home visit by one of the experimenters.

After all of the interviews were conducted, three mothers were determined to be unable to complete the requirements of the study. This left eight mothers to participate. These mothers signed consent forms (Appendix C) and arranged a time for the initial

taping and home visit. The time between determination of eligibility and the onset of the study was no more than one month.

The Home Visit

The third edition of the HOME scale (Caldwell & Bradley, 2001) was used to collect data on the home environment of each mother-child dyad. As mentioned earlier, the purpose of the HOME is to measure the quality of stimulation and support available to a child in the home environment. Information needed to score the HOME was obtained through observation and interview done in the home with the mother and child. For the purposes of this study, the Infant/Toddler version was administered to the five children who were 38 months and younger, and the Early Childhood version was administered to the three children who were older than 38 months. The Infant/Toddler version contains 45 binary choice items categorized into six subscales: responsiveness, acceptance, organization, learning materials, involvement, and variety. The Early Childhood version contains 55 binary choice items categorized into eight subscales: learning materials, language stimulation, physical environment, responsiveness, academic stimulation, modeling, variety, and acceptance. A total HOME score for each version was obtained by adding the total number of “yes” responses.

The procedures for the home visit followed the procedures described in the HOME manual. Observations for the present study were made during a home visit lasting approximately one hour. According to the HOME manual, the mother and child must be present, and the child awake for at least half of the time. The examiner made observations as well as conducted an informal interview to collect information for the HOME that was not directly available through observation.

Prior to administering the HOME, the examiner thoroughly read the manual for each version of the scale to be given. The examiner then viewed two home visit video-recorded interviews provided with the manual and scored the visits independently. This score was compared to the original scoring provided with the manual and any missed items were reviewed for accuracy. The examiner then completed five practice HOME visits to further familiarize herself with the questions and format of the interview.

The Mother-Child Language Samples

Elicitation of Samples. Seven of the mother-child dyads came to the Even Start Center and were video and audio-taped while interacting in a thirty minute play session. The eighth dyad was recorded for only 24.67 minutes due to the microphones coming unplugged from the audio-recorder. To elicit a sample, the mother and child were provided a variety of toys and books during the session. These items included small plastic food items, a plastic picnic basket, a picnic table, two plastic plates, two plastic cups with lids, two sets of plastic silverware (fork, spoon, and knife), Clifford the Big Red Dog (Birdwell, 1963), If You Meet a Dragon (Cowley, 1983), two baby dolls, a baby carrier with blanket, two bottles, a small toy shaker, a baby brush, a Play School Garage and gas station set, two cars, and six small people. At the beginning of the session, the mother and child were told to “play with any of the toys and try to stay in front of the video-recorder”.

A Sony Digital Video Camera (Model DCR-TRV230) was positioned in the corner of the room and focused to record the play area. After the dyad entered the room, two external microphones that were connected to a Sony Stereo Cassette-corder (Model TC-DSPROII) were clipped to the shirt of the mother and child. The examiner then left

the room and started a stopwatch to time the session. After thirty minutes, the examiner returned to the room to inform the dyad that the session had ended.

Transcription of the Language Samples. One of two graduate students transcribed the samples. Each sample was listened to three times and the videotape was reviewed once. Transcription and morphological coding followed the guidelines outlined by Miller and Chapman (1992). Systematic Analysis of Language Transcripts software (SALT; Miller and Chapman, 1992) was utilized to facilitate and check coding.

Twenty percent (n=3) of the original samples were transcribed independently by another examiner. Transcription agreement was determined at the utterance boundary level and the morpheme level for all complete and intelligible utterances in the samples. The total percent of agreement was calculated by dividing the total number of agreements by the total number of opportunities for agreement and multiplying by 100. For utterance boundary decisions, there were 11,889 (96%) agreements out of a total of 11,974 possible utterances; intertranscriber agreement for individual samples ranged from 91% to 99%. For identifying morphemes within utterances, there were 7,627 (96%) agreements out of a total of 7,866 possible opportunities for agreement; intertranscriber agreement for individual samples ranged from 92% to 99%.

Maternal Measures Calculated From Samples. Nine different maternal measures were collected from the transcripts. The first seven were modified from Hoff-Ginsberg (1991). All were calculated using SALT software. These measures were:

1. Speech Rate: Calculated as the total number of complete and intelligible utterances produced by the mother divided by the duration of the interaction.

2. Total number of utterances produced: This is the total number of utterances produced by the mother.
3. Total number of complete and intelligible utterances produced (C&I): This is the total number of complete and intelligible utterances produced by the mother.
4. Total word tokens (Token): This is a count of all words produced by the mother. This was calculated for the entire sample of complete and intelligible utterances and a random sample of 100 utterances.
5. Total word types (Type): This is a raw frequency count of the number of different lexical items ignoring inflectional morphemes. For example, walk, walking, walks were counted as a single word. This was calculated for the entire sample of complete and intelligible utterances and a random sample of 100 utterances.
6. Mean length of utterance number (MLU): Calculated as the total number of morphemes divided by the total number of utterance produced by the mother. MLU was calculated using only complete and intelligible utterances.
7. Percentage of directives [dir]: Utterances which specify the expected verbal or action response. Examples of common directives produced in mother-child interactions are: “Look,” “Put the car right here,” “Get back a little bit so I can see,” “Say baby,” and “Stand up.” For the purpose of this study, questions did not function as imperatives. A list of words searched using the find/replace command in SALT can be found in

Appendix D. Verbs functioning to explain a sequence were not included in this section (i.e. “And you take this.” “And you do it like that.”) The words “look” and “see” were given an additional code [a] to indicate that the word was functioning as an attention device when appropriate.

The last two maternal measures collected from the transcripts were modified from Hart and Risley (1995). SALT software was used to facilitate the coding of these measures.

These two measures were as follows:

8. Percent of prohibitions [pro]: Utterances of explicit parent disapproval and imperatives that included the words, “Don’t,” “Stop,” “No,” or “Can’t.” “No” functioning to negate the prior utterance was not included in this category.
9. Percentage of affirmatives [aff]: Utterances of explicit parent approval (i.e. “very good” “you are a good girl”) and utterances that included the words “yes,” “yeah,” “sure,” and “uhhuh.” Utterances of explicit parent approval were given an additional code [p] to distinguish them from simple affirmations of the child’s prior utterance.

Note that “uhhuh” functioning as “yes” were coded as affirmative,

however, “uhhuh” functioning as a filler word were not coded.

Examples - “Sure is”.

- “Good, that is a dog”.

Given that this study was a part of a larger study that examined mother’s use of language to promote literacy skills, the following literacy promoting speech acts also were coded:

1. Reading comments [rc]: Utterances that included referents to the books, attempts to engage the child in book reading, and comments about the story were coded as reading comments. (Examples: Wanna read?, Let's read a book., Where's the dog hiding?)
2. Verbatim reading [r]: Utterances of the mother reading the story verbatim.
3. Literacy Events [l]: Utterances that included referring to reading episodes outside of the play session, reading words on toys, and spelling. Additionally, spelling instances were coded as [sp]. (Examples: "That says chocolate milk," "What book did she read?")
4. Singing [s]: Utterances that were direct singing of familiar children's songs and utterances of phrases learned and recited as a unit. Examples of phrases learned as a unit included "ready, set, go" and "on your mark, get set, go."

Child Measures Calculated from the Samples. The following child measures were calculated using SALT software:

1. Total number of utterances produced: This is the total number of utterances produced by the child.
2. Total number of complete and intelligible utterances produced (C&I): This is the total number of complete and intelligible utterances produced by the child.
3. Total word tokens (Token): This is a count of all words produced by the child. This was calculated for the entire sample of complete and intelligible utterances and a random sample of 50 utterances.

4. Total word types (Type): This is a raw frequency count of the number of different lexical items ignoring inflectional morphemes. For example, walk, walking, walks were counted as a single word. This was calculated for the entire sample of complete and intelligible utterances and a random sample of 50 utterances.
5. Mean length of utterance (MLU): Calculated as the total number of morphemes divided by the total number of utterance produced by the child. MLU was calculated using only complete and intelligible utterances.

Results

Home Scale

Scores for the Infant/Toddler version and the Early Childhood version of the HOME scale are located in Tables 7 and 8. Recall that the Infant/Toddler version of this scale includes ratings for six different categories of environmental stimulation and support, and the Early Childhood version includes ratings for eight categories. In each table, each category from the HOME is listed with the total possible score for that section in parenthesis. The bottom rows of the tables include each mother’s total HOME score as well as the percentage of items that were scored as present in the home. Finally, the quartile of each total HOME score is provided. For the Infant/Toddler version, a total HOME score of 37-45 represents the upper quartile, a score of 26-36 represents the middle quartile and a score of 0-25 represents the lowest quartile. For the Early Childhood Version, a total Home score of 46-55 represents the upper quartile, a score of 30-45 represents the middle quartile, and a score of 0-29 represents the lowest quartile.

Table 7

Infant/Toddler HOME Scores.

Dyad	1	2	3	4	5
Responsivity (11)	6	4	10	6	8
Acceptance (8)	6	6	3	6	5
Organization (6)	6	5	4	6	5
Learning Materials (9)	8	3	6	9	5
Involvement (6)	5	4	5	4	5
Variety (5)	3	3	3	3	3
HOME total (45)	34	25	30	34	31
HOME total %	76%	56%	67%	76%	69%
Quartile	Mid	Low	Mid	Mid	Mid

Table 8

Early Childhood HOME Scores.

Dyad	6	7	8
Learning Material (11)	4	6	10
Language simulation (7)	6	5	6
Physical environment (7)	4	6	5
Responsivity (7)	6	1	4
Academic Stimulation (5)	3	2	4
Modeling (5)	0	1	1
Variety (9)	5	4	8
Acceptance (4)	1	3	4
HOME total (55)	29	28	42
HOME total %	53%	51%	76%
Quartile	Low	Low	Mid

As one can see, three mothers' total HOME scores were in the lowest quartile. According to the HOME manual, scores that fall in this quartile indicate an increased risk for inadequate child development. Scores for the remaining five mothers fell in the middle quartile with two mothers receiving low scores in this range and three mothers receiving scores that were within three points of the upper fourth quartile. Scores that fall in the middle quartile indicate adequate support and stimulation for child development. However, this support and stimulation is considered the minimum necessary for a healthy home environment. Scores that fall in the upper quartile indicate adequate support and stimulation provided in the home environment. None of the home environments of the mothers who participated in the current study fell in this range.

Language Samples

Behaviors of the Mothers. Table 9 presents data on the mothers. As can be seen, mother #1 and #8 were the most talkative compared to the other mothers as indicated by the number of utterances produced per minute during their samples.

Table 9

Language Characteristics of the Mothers.

Mother	1	2	3	4	5	6	7	8	Mean (SD)
Total Utt. ¹	583	546	532	302	481	578	311	475	476 (111.75)
C&I ²	548	511	483	283	455	527	275	444	440.75 (105.72)
Speech ³ Rate	18.12	16.77	16.04	9.37	15.17	17.02	8.94	18.00	14.92 (3.69)
MLU ⁴	4.13	4.50	4.81	3.57	4.28	4.93	4.61	4.66	4.44 (.437)
TYPE ⁵	300	295	281	151	283	371	261	297	279.88 (61.19)
TOKEN ⁶	2114	2186	2149	973	1770	2442	1196	1916	1843.25 (511.25)
TYPE ⁷ (100)	145	96	113	79	113	137	122	159	120.5 (26.16)
TOKEN ⁸ (100)	421	423	390	305	404	442	392	500	409.63 (55.03)

¹total number of utterances, ²total number of complete and intelligible utterances, ³speech rate per minute calculated by dividing the number of complete and intelligible utterances by the duration of the interaction, ⁴mlu in morphemes, ⁵total word types, ⁶total word tokens, ⁷total word types (100 utterances), ⁸total word tokens (100 utterances)

Mother #4 and #7 were the least talkative in that they produced a reduced number of total utterances and a decreased speech rate. These mothers also produced the least diverse vocabulary when talking with their children as indicated by the total number of word tokens and word types. In contrast, mother #6 produced the highest number of word tokens and word types when interacting with her child as compared to the other mothers.

Table 10 provides frequency counts of each mother's use of directives, prohibitions, and affirmatives during the mother-child play session. Because the samples contained varying numbers of utterances, a percentage of the complete and intelligible utterances that were coded for each speech act also is reported. As can be seen, directives were used most often by mothers as compared to the other speech acts. The percentage of directives from the total number of complete and intelligible utterances ranged from 11%-46%. The percentage of prohibitions and affirmatives made up a smaller percent of the mothers' total complete and intelligible utterances (range = 1-4% and 1-12%, respectively).

Table 11 provides frequency counts of each mother's use of speech acts that involved literacy stimulation. Again, the percentage of complete and intelligible utterances for each speech act also is presented. As one can see, mother #1 produced the highest percentage of literacy promoting speech acts (33%) with mother #4 producing the fewest (<1%). Overall, verbatim reading and reading comments made up the majority of literacy speech acts produced by the mothers (range = 2-15% and 0-18%, respectively). The other literacy speech acts (i.e. literacy comments, singing and spelling) made up less of the mother's complete and intelligible utterances (combined range = 0-6%).

Table 10

Frequency and Percentage of Each Maternal Speech Act.

Mother	Directives	Prohibitions	Affirmatives
1	204 37%	11 2%	4 1%
2	234 46%	9 2%	3 1%
3	116 24%	20 4%	29 6%
4	61 22%	2 1%	34 12%
5	48 11%	11 2%	28 6%
6	151 29%	16 3%)	7 1%
7	86 31%	8 3%	7 3%
8	90 20%	7 2%	11 2%
Mean (SD)	123.75 (67.23)	10.5 (5.29)	15.38 (12.72)

Table 11

Literacy Speech Act Frequency Counts and Percentages of Complete and Intelligible Utterances.

Mother	Verbatim reading	Reading Comments	Literacy Comments	Singing	Spelling	Literacy Speech Act Total
1	53 10%	96 18%	-	31 6%	-	180 33%
2	44 9%	-	-	-	-	44 9%
3	8 2%	32 7%	-	11 2%	-	51 11%
4	-	1 >1%	-	-	-	1 >1%
5	15 3%	9 2%	-	-	-	24 5%
6	8 2%	14 3%	1 >1%	-	-	23 4%
7	40 15%	-	-	-	-	40 15%
8	13 3%	39 9%	21 5%	-	1 >1%	74 17%
Mean (SD)	22.63 (19.9)	23.88 (32.69)	2.75 (7.38)	5.25 (11.09)	.125 (.354)	54.63 (55.1)

Behaviors of the children. Table 12 presents data on the children. Upon visual inspection, some trends with respect to the age of the children can be noted. For example, the older children were more intelligible and produced more total utterances, word tokens, and word types as compared to the younger children. The older children also produced a higher MLU than the younger children. The only exception to this was

child #3. Her MLU was higher than most of the children even though she was younger than five of the other children.

Table 12

Language Characteristics of the Children.

Child	1	2	3	4	5	6	7	8	Mean (SD)
Age ¹	24	25	36	38	37	46	48	67	40.13 (13.83)
Intelligibility ²	69	63	58	85	91	95	96	94	81.38 (15.59)
Total Utt. ³	129	88	196	255	247	396	346	347	250.5 (109.4)
C&I ⁴	83	56	111	210	213	339	289	308	201.13 (107.9)
TYPE ⁵	74	34	154	140	143	226	224	277	159 (81.18)
TOKEN ⁶	138	62	451	534	591	1248	1364	1078	683.25 (493.7)
TYPE (50utt) ⁷	42	31	90	66	56	72	81	91	66.13 (21.92)
TOKEN (50utt) ⁸	72	55	176	122	108	161	186	196	134.5 (53.38)
MLU ⁹	1.77	1.13	4.26	2.65	3.02	3.81	4.95	3.78	3.17 (1.28)

¹age in months, ²percent intelligibility, ³ total number of utterances, ⁴total number of complete and intelligible utterances, ⁵total word types, ⁶total word tokens, ⁷total word types (50 utterances), ⁸total word tokens (50 utterances), ⁹mlu in morphemes.

To further analyze these data, Pearson Correlations were run between the child's age and their language characteristics. As can be seen in Table 13, high positive correlations were found between the children's age and seven of the language

characteristics measured. MLU was found to be moderately correlated with the children's age.

Table 13

Pearson Correlations Between the Children's Age and Their Language Abilities.

	Intell. ¹	Total Utt. ²	C&I ³	TYPE ⁴	TOKEN ⁵	TYPE (50) ⁶	TOKEN (50) ⁷	MLU ⁸
Age	.71*	.84**	.84**	.95**	.82**	.79**	.84**	.68

¹percent intelligibility, ²total number of utterances, ³total number of complete and intelligible utterances, ⁴total word types, ⁵total word tokens, ⁶total word types (50 utterances), ⁷total word tokens (50 utterances), ⁸MLU in morphemes. * indicates correlation significant at .05, ** indicates correlation significant at .01.

Effects of the Children on Their Mother's Behaviors. Pearson correlations were completed to examine whether the children's age and/or language ability affected the mothers' behaviors during the play samples. The child variables included age and MLU. The maternal variables included total number of utterances, total number of complete and intelligible utterances, MLU, and total word tokens and word types for both the complete and intelligible utterances and a random sample of 100 utterances.

As indicated in Table 14, moderate positive correlations were found between two maternal measures with respect to the child's age and one maternal measure with respect to the child's MLU. Specifically, as the children's age increased, their mothers' word types and word tokens also increased. Furthermore, as the children's MLU level increased, the mothers' MLU also increased.

Table 14

Pearson Correlations Between the Children's Age/MLU and Their Mothers' Language Behaviors During Play.

	Total utterances ¹	C&I ²	MLU ³	TOKEN ⁴	TYPE ⁵	TOKEN (100utt) ⁶	TYPE (100utt) ⁷
Child's Age	-.23	-.25	.33	.13	-.06	.51	.50
Child's MLU	-.05	-.11	.49	.18	.10	.33	.17

¹total number of utterances, ²total number of complete and intelligible utterances, ³mlu in morphemes. ⁴total word types, ⁵total word tokens, ⁶total word types (100 utterances), ⁷total word tokens (100 utterances).

Pearson Correlations also were completed to determine if the mothers' speech acts differed as a function of their children's age and/or MLU. The maternal variables included the mothers' production of directives, prohibitions, affirmatives, verbatim reading, and other literacy events (reading comments, literacy comments, spelling, and singing). Because each sample included a different number of complete and intelligible utterances, percentages for each speech act from the total number of these utterances were used for the analyses. Table 15 presents these data.

As can be seen, moderate negative correlations were found between the children's age and their mothers' production of directives and prohibitions. What this means is that as the children's age increased, their mothers' use of directives and prohibitions decreased. Similarly, as the children's MLU level increased, their mothers' use of directives decreased. In contrast, increases in the children's MLU was positively related to the mothers' use of prohibitions.

Table 15

Pearson Correlations Between the Children's Age/MLU and Their Mothers' Speech Acts During Play.

	DIR ¹	PRO ²	AFF ³	READ ⁴	OTHER ⁵
1	-.54	-.76	.05	-.21	-.04
2	-.67	.56	.24	-.03	-.17

¹ Directives. ²Prohibitions. ³Affirmatives ⁴Verbatim reading. ⁵Reading comments, Literacy Comments, Singing, and Spelling combined.

Discussion

The purpose of this study was to describe the home environment and mother-child interactions of low-income and undereducated AA mothers. This chapter is divided into three sections. The first section includes a discussion of the results of this study as they relate to the three research questions presented in the introduction. The second section considers clinical implications of the findings. Finally, the third section provides a discussion of the limitations of the study and suggestions for future research.

Discussion of the Results as They Relate to the Research Questions

This study was designed to answer three questions. The first question focused on the home environment of the mothers and their children. The findings indicate that three mothers scored in the lowest quartile and five mothers scored in the middle quartile. Additionally, of the five dyads that scored in the middle quartile, three received scores that were within three points of the upper quartile. These results do not completely support previous studies which would have predicted all of the mothers in the current study to score low on the HOME scale.

The second question examined the quality of the mother-child interactions during a 30 minute play session. Recall that previous research indicated that the mothers studied here would produce a decreased number of language behaviors found to facilitate their children's language development. Specifically, previous studies found that low-income and undereducated mothers are less talkative in that they produce a decreased total number of utterances, decreased number of word types and a decreased speech rate as compared to mothers with more education and more resources. Previous studies also

have found that disadvantaged mothers produce an increased number of controlling behaviors (i.e. directives and prohibitions) and a decreased number of affirmatives.

Table 16 provides a comparison of the current findings to results from previous studies.

Table 16

Comparison of previous studies to current findings.

Maternal Behavior prediction and cutoffs	1	2	3	4	5	6	7	8
Decreased speech rate ¹ - 16.1	-	?	+	+	+	?	+	-
Decreased number of different words (100) ¹ - 168	+	+	+	+	+	+	+	+
Increased number of directives ¹ - 22.3%	+	+	+	?	-	+	+	?
Increased number of controlling behaviors ² - 1:4	+	+	+	+	-	+	+	+
Increased number of prohibitions ³ - 2:1	+	+	?	-	?	+	?	?
Decreased number of affirmatives ² - 7%	+	+	+	-	+	+	+	+

¹Finding from Hoff-Ginsberg (1991). ²Finding from Schachter (1979). ³Finding from Hart & Risely (1995). + indicates mother was consistent with literature, - indicates mother was inconsistent with literature, ? indicates mother exhibited trend identified in literature.

Note, however, that the mothers in the lowest income group of Hoff-Ginsberg (1991) and Schachter (1979) were described as completing high school. For Hart and Risely (1995), the educational level of the mothers in the lowest group was not specified. Therefore, the mothers in the current study may reflect a greater disadvantaged group than the mothers examined in the three other studies. In the first column, six findings identified as characteristic of low-income mothers are presented. The cutoff scores that were used in the current study to determine whether the current set of findings were consistent with the

previous studies also are presented. Findings that were consistent with previous studies are indicated by a plus symbol (+), findings that are inconsistent with previous studies are indicated by a minus symbol (-), and findings that were consistent with, but not as dramatic as, previous studies are identified with a question mark (?).

Six of the mother's produced a decreased speech rate. The range for four of these mothers was 8.94 – 16.04 utterances per minute. These data are consistent with, and even less than, the speech rate (16.1) found in Hoff-Ginsberg (1991) for her working class mothers. The other two mothers who produced a decreased speech rate, exhibited speech rates that were similar to, but not as low as, those found in previous studies. Specifically, these two mothers produced speech rates of 16.77 and 17.02 utterances per minute.

All eight of the mothers produced a decreased total number of word types when examining a random selection of 100 utterances from each sample. The range of word types produced by the mothers in the current study was 79 – 159. Hoff-Ginsberg's (1991) observed a mean of 168 word types per 100 utterances for her working class participants. All eight of the mothers were consistent with Hoff-Ginsberg's findings.

Seven of the mother's produced an increased number of directives. These mothers' use of directives ranged from 20 - 46% of their total number of complete and intelligible utterances. Hoff-Ginsberg's (1991) findings for her working class participants' use of directives was 22.3%. In the current study, one mother's production of directives comprised 11% of her complete and intelligible utterances. This mother was the only mother who appeared inconsistent with Hoff-Ginsberg's findings.

Additionally, seven of the mothers exhibited an increased ratio of controlling behaviors. This was calculated by summing the percentage of directives and prohibitions. The range of controlling behaviors for these seven mothers was 22-48%. These results support Schachter's (1979) finding of one controlling behavior for every 3.7 speech acts produced (approximately 25%). The one mother who was inconsistent with this finding exhibited a ratio of approximately one controlling behavior out of every 10 speech acts (13%).

In regards to the mothers' use of prohibitions and affirmatives, the results indicated that three of the mothers' exhibited a ratio of two or more prohibitions for every affirmative which is identical to Hart and Risley's (1995) ratio of 2:1. Additionally, four of the mothers resembled the general trend of an increased number of prohibitions compared to affirmatives. Specifically, these mothers produced one prohibition to every 1.5-2.5 affirmatives. Although these findings are not identical to Hart and Risely's results, they represent a decreased ratio of affirmatives to prohibitions which has been found in previous studies. In contrast, one mother produced a ratio of 1 prohibition to every 17 affirmatives which is similar to Hart and Risely's data for professional mothers (i.e six affirmatives for every prohibition).

Finally, Schachter (1979) reported a decreased percentage of affirmatives for her disadvantaged group as compared to her advantaged groups (7% vs. 11.5%). Seven of the mothers in the current study demonstrated this profile. Their use of affirmatives ranged from 1-6%. One mother's production of affirmatives, however, comprised 13% of her complete and intelligible utterances. This finding resembled Schachter's findings for her advantaged groups.

It should be noted that although all but one of the comparisons mentioned thus far included at least one mother who more closely resembled the advantaged groups in previous studies, this was not consistently the same mother. For speech rate, mothers #1 and #8 produced speech rates indicative of Hoff-Ginsberg's (1991) findings for her upper-class participants. For number of directives and ratio of controlling behaviors to speech acts, mother #5 more closely resembled the more advantaged group of previous studies. Finally, it was mother #4's production of affirmatives and ratio of prohibitions to affirmatives that were consistent with previous data from advantaged mothers.

The third question of this thesis addressed the role of a child's age and/or MLU on a mother's language behaviors. Recall that Pearson Correlations were run to examine this question. Moderate correlations were found between the age of the children and the mothers' production of word tokens in a random sample of 100 utterances and the mothers' use of directives and prohibitions. Additionally, moderate correlations were found between the children's MLU levels and their mother's MLU and use of directives and prohibitions. Some of the correlations were positive while others were negative.

These findings are consistent with the findings of Hoff-Ginsberg (1987) and Hoff-Ginsberg (1998), which found that characteristics of the children affect mother-child interactions. Hoff-Ginsberg (1987) found that as the children's age increased, the mothers controlled the conversation less. Hoff-Ginsberg (1998) found a positive correlation between the child's age and mother's MLU and a negative correlation between the child's age and the mothers' productions of questions. In the current study, a positive correlation was found between the children's age/MLU and their mothers' MLU.

Also, a negative correlation was found between the children's age and their mothers' use of directives and prohibitions.

Clinical Implications of the Findings

The findings from the current study are consistent with the literature reviewed in that most of the mothers produced a decreased speech rate, decreased number of word types, decreased percentage of affirmatives and an increased percentage of controlling behaviors (i.e. directives and prohibitions). However, it is important to note the variability that existed among the eight mothers. One mother's use of controlling behaviors better resembled the upper-middle class or professional families of previous literature. Also, a second mother's use of affirmatives and ratio of affirmatives to prohibitions resembled that of the upper-middle class or professional families of previous literature. Therefore, it should be noted that although previous studies have found significant differences between the language behaviors of lower socioeconomic status mothers when compared to upper-middle class and professional mothers, a range of variability does exist among the former group of mothers. It is important for clinicians who want to serve this population of mothers and children to consider and be sensitive of this variability when planning intervention and/or prevention type programs.

Limitations of the Study and Suggestions for Future Research

One limitation of the current study was that the number of participants was small. Also, a narrow range of mothers was examined. Because all the mothers in the current study were of the same race, socioeconomic status, and educational background, comparisons had to be made to previous studies which did not allow for direct comparisons to be drawn. Finally, the ages for the children who were examined varied a

great deal. Future studies should involve more participants, a wider range of mothers, including mothers of different races, socioeconomic status levels, and educational backgrounds, and less variability of the children's ages.

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Appendix A

Recruitment Flyer

Tips About Talk

as part of an

LSU Research Project

by the Department of Communication Sciences and Disorders



is looking for

MOTHERS WITH CHILDREN BETWEEN THE AGES OF 2 AND 5.

Participants who are selected for the project will receive **\$100 at the end of the study.**

Thank you for completing the form below!

IF YOU ARE INTERESTED, PLEASE COMPLETE THIS PORTION AND RETURN IT TO

LEVYETTE MATHEWS BY MONDAY, OCTOBER 1st

Name _____

Phone Number(s) _____

Address _____

Your Age _____

Please list the gender (male/female) and age of each of your children

_____ Check here if you have attended previous Tips About Talk Workshops.

You will receive a follow-up phone call once the forms are collected.

Appendix B

Demographic Questionnaire

Name:
D.O.B.

Name of Child:
Age of child:
Gender of child:
D.O.B. of child:

Address:

Date of play session:

Number of children:

Age and gender of children:

Who lives in your home:

Are you a single/married/divorced?

What types of federal aid are you receiving?

What was the last grade you completed in school?

Have you previously attended a TIPS ABOUT TALK workshop?

Appendix C

Consent Form

Study Title: Evaluating the Effectiveness of Parent Training Programs

Performance Sites: Child Care Centers in Baton Rouge

Contact: Janna B. Oetting, Ph.D.
225-388-3932
cdjanna @ LSU.EDU

Purpose of the Study: This study is intended to help us learn more about the effectiveness of parent training classes on families.

Subjects
(Inclusive Criteria)

Care Giver
Receives services from a child care center in Baton Rouge
Lives in a one-parent household
Is the primary care giver to one or more children

Child
Is 2 to 5 years of age
Is healthy and without developmental delays per primary care giver report

(Exclusive Criteria)

Care Giver
Receives services for substance abuse or addiction
Receives services for other mental health related conditions
Received special education services in school as reported by self-report

Maximum number of subjects: 15 parent-child dyads

Study Procedures: We also will visit your home and conduct an informal interview with you about your home, parenting practices, and daily routines. We will use the Home Observation for Measurement of the Environment to guide the interview. The interview will take approximately one hour.

We will observe your child interacting in his/her classroom to document that he is developing normally. Your child also will be given three speech and language tests that are

routinely given by speech language therapists to screen developmental delays in speech and language. Examples of tests we may use are: The Peabody Picture Vocabulary Test, The Goldman-Fristoe Test of Articulation, and the Comprehension Subtest of the Stanford Binet Intelligence Scale.

You and your child will be asked to play in a quiet area of your child's center two times and attend four 1-hour Parenting Classes that are scheduled at your child's center. The play sessions will be scheduled approximately one month from each other (one before the 4 parenting classes and one after). For the play sessions, we will provide you a box of toys, two child books, and some pictures. The play sessions will last 30 minutes and be videotaped.

Benefits: This research is not intended to benefit you or your child directly. It may benefit future parents and child care professionals and society in general by helping us understand the needs of families.

Risks/Discomforts: There are no significant risks associated with you or your child's participation in this study.

Right to Refuse: Participation in this study is voluntary. You and your child have the right to withdraw from the study at any time without penalty.

Privacy: You and your child's identity will remain confidential. You and your child will be assigned a number, and only this number will appear on your data sheets. A key linking you and your child will be available only to those closely associated with the project. You and your child's identity will never be revealed in published articles or research reports.

The video component of the tapes also will not be shared with the public. If the tapes appear useful for teaching future parents and professionals about parent-child interactions, we will present only the audio component of the tapes, and all first and last names will be edited out of the tapes.

Financial Information: There is no direct cost to you or your child for participating. We will give you \$50.00 for each videotaped session, for a maximum of \$100.00 at the end of the study.

Appendix D

Coding

The following is a list of verbs that were searched using the find/replace command in SALT to facilitate coding of directives. These verbs were coded when the speech act of the utterance was determined to be directive in nature.

BATH	BATHE
BE CAREFUL	BRING
BRUSH	CLOSE
COMB	COME
COUNT	DO
DRINK	DRIVE
DRY	EAT
FEED	FEEL
FILL	FIND
FIX	GET
GIVE	GO
GOTTA	GOT TO
GRAB	HANG
HAVE TO	HAS TO
HELP	HOLD
KEEP	LEAVE
LET	LISTEN
LOOK	MOVE
OPEN	PAT
PICK	PLAY
POINT	POUR
PRETEND	PULL
PUMP	PUSH
PUT	RAISE
READ	ROCK
SAY	SEND
SHOW	SING
SIT	SPELL
STAND	STAY
TAKE	TELL
THROW	TIE
TURN	WAIT
WASH	WATCH

VITA

Vicky Poston was born in Shreveport, Louisiana, on August 22, 1978. She received her Bachelor of Arts degree in Communication Disorders from Louisiana State University – Baton Rouge in May 2000. Upon completion of her undergraduate studies, Ms. Poston entered the communication disorders graduate program in the Department of Communication Sciences and Disorders at Louisiana State University - Baton Rouge. While attending graduate school, Ms. Poston worked as a Graduate Assistant in the Department of French Studies with Dr. Sylvie Dubois. She also served as a Research Assistant in the Department of Communication Sciences and Disorders with Dr. Janna Oetting.

Ms. Poston plans to receive her Master of Arts degree in Communication Disorders in May 2002 and enter into the communication disorders doctoral program in the Department of Speech and Hearing Sciences at the University of North Carolina – Chapel Hill.