

## Socioeconomic Influences on Children's Language Acquisition

### Incidences socioéconomiques sur l'acquisition du langage chez les enfants

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#### Abstract

Decreased language ability has been implicated as a factor in the lower academic achievement of children from lower socioeconomic status (SES) families as compared to children from middle or more advantaged socioeconomic families. Although for most children this decreased language ability does not result in a clinical diagnosis of language impairment, a need for specialized language intervention is apparent. This intervention is aimed at facilitating language growth so as to lessen the risk these children have for academic underachievement. Speech-language pathologists generally have not been part of these intervention efforts with lower SES children. In this paper, research on SES and language acquisition is reviewed and the role of SLPs in optimizing language outcomes for all children is discussed.

#### Abrégé

La diminution des aptitudes linguistiques est montrée du doigt comme un facteur expliquant la baisse du niveau scolaire chez les enfants provenant de familles de niveau socioéconomique inférieur comparativement aux enfants issus de familles de classe moyenne ou mieux nanties. Même si cette situation ne se traduit pas pour la plupart des enfants par un diagnostic clinique de trouble du langage, le besoin d'intervention spécialisée n'en est pas moins évident. Ce genre d'intervention vise à faciliter l'évolution du langage et à réduire le risque d'insuffisance scolaire. Les orthophonistes n'ont traditionnellement pas été inclus dans ces efforts auprès des enfants issus des classes inférieures. La présente étude passe en revue les recherches portant sur le statut socioéconomique et l'acquisition du langage en plus de discuter du rôle des orthophonistes pour favoriser le meilleur développement linguistique des enfants.

**Key words:** language acquisition, socioeconomic status, intervention

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**M**ost children learn to talk in a relatively short amount of time – usually from first words at about one year of age to complete sentences by three years of age. Although most children go to kindergarten able to express themselves adequately in grammatical sentences, there is nevertheless a good bit of individual variability in children's language skill. In addition, language development continues throughout at least the years of formal schooling (Nippold, 1998). School provides children opportunities, for example, to learn new vocabulary, to develop knowledge of nonliteral language, and to learn to express one's self in a variety of syntactically complex forms. Learning to read broadens children's exposure to all aspects of language. In the task of learning language, each child's level of achievement is influenced by his or her capacity to learn, largely thought to be influenced by heredity

(e.g., Huttenlocher, Haight, Bryk, Seltzer, & Lyons, 1991), as well as the language learning experiences provided by the environment (e.g., Snow, 1995). The challenge for researchers has been to explain not *whether* but *how* language development varies with experience, and how the environment influences language outcomes in young children.

The acquisition of language encompasses a broad range of skills that children come to possess, skills that cross several distinct but interrelated domains of language – formulating grammatical utterances, understanding and using lexical forms, effectively engaging in conversations with a variety of conversational partners (e.g., parents, peers, teachers), using language for many purposes, and so on. The influence of the environment on language development may be quite different across the various domains of language (Huttenlocher et al., 1991). Further, how we define and measure environmental variables as well as how we measure language outcomes will influence the conclusions drawn on the role of experience in language acquisition. Nativists (e.g., Pinker, 1994), primarily focused on syntactic development, have argued that varying experiences yield minimal individual differences in language development. In contrast, empiricists (e.g., Snow, 1995) who focus more broadly on semantic and pragmatic language issues, have argued that children's varying language learning experiences account for a great deal of individual difference or variability in children's language acquisition. Hoff-Ginsburg (1998) regarded the nativist position as accurate if our question about language development is binary – do children acquire language or not (i.e., do they acquire the syntax of their language)? In contrast, she argued that if our analysis of language outcome is finer grained, then the "effects of experience are pervasive in language development" (p. 623). The differences revealed by these analyses are of substantial import when we consider the ways in which a child's language skills influence his or her subsequent academic, social, and cognitive functioning (e.g., Hart & Risley, 1995; Hoff-Ginsberg & Tardiff, 1995; Snow, 1983).

An interest in understanding more clearly the influence of environment on language development includes a greater understanding of how language learners take advantage of experience, of how language development proceeds in a variety of circumstances, and for those professionals involved in early childhood education or speech/language intervention, how to optimize the language learning experiences of children in our care. Optimizing language-learning conditions may lead to improved performance in children's language skills. In turn, because academic, social, and other cognitive functioning is influenced by language abilities, improvement

in a child's language skills can result in greater academic and social success and increased access to vocational opportunities. Thus, bolstering children's language skills may lead to an increased likelihood of success in school and beyond (e.g., Hoff-Ginsburg & Tardiff, 1995). Importantly, teachers surveyed regarding school readiness identified adequate communication skills as far more important to readiness than knowledge of traditional early academic skills (e.g., naming alphabet letters; Lewitt & Baker, 1995).

Traditionally, speech-language pathologists have focused on providing intervention to children identified with language impairments. That is, children whose language learning capacity or trajectory is considered to be significantly different from their same age peers (Fazio, Naremore, & Connell, 1996) – so different that special assistance, in the form of language therapy, is believed necessary for the child to achieve optimal language functioning. Research from the last several decades has furthered our understanding of the process of language development and the role of language ability in social, academic, and vocational successes. Although the influence of this research is evident in improved interventions for children with language impairments, the research also provides the opportunity for SLPs to move beyond the traditional boundaries of clinical practice. A better understanding of the many sources of influence on a child's language outcome suggests a need for SLPs to consider their role in maximizing the language skills of *all* children. Children who experience social disadvantage are increasingly of concern because poor language outcomes are often a factor in low average academic achievement.

The purpose of this paper is to review the literature that has explored the relation of language acquisition and environment in young children. Specifically, the research that has explored the relation of socioeconomic status (SES) variables (e.g., maternal education, parental occupation, income) to children's developmental outcome is reviewed. The emphasis is on understanding the SES-related language differences that have been identified in children and factors in the language-learning environment that may account for these differences. From an educational perspective SES-related language differences become of interest because children in lower socioeconomic groups are more likely to experience academic underachievement or poor school performance. For many of these children, poorer language skills do not lead to a clinical diagnosis of language disability. Rather children of lower SES families are over-represented at the low end of normal (i.e., standard scores between 70 and 85) on norm-referenced language measures. To help these children succeed in

school, it is necessary to consider *why* children of lower SES are over-represented at the lower end of the distribution. It is necessary to consider the educational and functional relevance of these statistical distributions.

As we review the current literature, it is important to keep several points in mind. First, poor developmental outcome is best viewed within the context of multiple risk factor models (e.g., Garcia Coll et al., 1996; Liaw & Brooks-Gunn, 1994; Rutter, 1994; Smeeding, 1995). It is impossible to ascertain the influence of individual risk factors nor can any individual study consider all possible risk factors. Lower income and reduced maternal educational achievement are believed to place children at risk for poor developmental outcome as a result of reduced access to resources and greater stress in providing essential needs. However, children from lower SES groups have greater experience with many conditions beyond low family income (e.g., poor prenatal care, increased exposure to violence, inadequate nutrition, greater likelihood of premature birth, reduced access to medical treatment) that also are associated with poor developmental outcome. Second, social disadvantage is a risk factor and as such, it is crucial to recognize that not all socially disadvantaged children have poor developmental or language outcomes. Rather, social disadvantage leads only to a greater *likelihood* that a child will experience poorer language outcome than a child who is from a more socially advantaged family. Third, what is identified as "poor outcome" frequently is not indicative of language performance in the clinical range but rather in the low end of average (e.g., Walker, Greenwood, Hart, & Carta, 1994). Fourth, across studies social disadvantage or SES has been quantified by varying measures – maternal education, family income, parental occupation – that are correlated, but not equivalent. Fifth, minority status (i.e., race, ethnicity) is not an indicator of socioeconomic status (e.g., Patterson, Kupersmidt, & Vaden, 1990); however, it is important to note that African American/Canadian, Native/Aboriginal, and Hispanic families are disproportionately represented among low income homes as compared to white families. Thus, the study of socioeconomic influences on language must ultimately also address cultural differences in language uses across groups of children. We need to understand the unique and combined influence of culture as well as SES. Unfortunately, the state of the art makes it quite difficult to quantitatively apportion group differences to the varying (and overlapping) influences of family income, education, race/ethnicity, and so on. Moreover, how one defines culture will influence which conclusions are drawn. Although cultural differences are not discussed in detail in this paper, clinicians must

consider cultural as well as SES influences when working with individual families (e.g., van Kleeck, 1994).

### Large Scale Outcome Studies of Children in Poverty

Initial evidence regarding the relation of language development and environment derives from large-scale outcome studies. Primarily, these studies have sought to examine the effects of poverty on young children's developmental outcomes with an emphasis on intelligence outcome measures, although language and academic achievement also have been measured. Outcome measures have been compared across groups of children defined by family income and maternal educational level. The two studies reviewed below were conducted in the United States and the official government measure of poverty, a measure based on pre-tax family cash income was used. This frequently employed measure, defined initially in the 1960s, is not without controversy (see Betson & Michael, 1997 for a discussion of alternative measures of poverty and SES). Dependent on family size and composition, income thresholds are set to define poverty (with annual adjustments for inflation). Families with income below the threshold are considered "poor" whereas those with income above the threshold are considered "not poor." One time determinations of poverty status for an individual child or family can be misleading, however, as family income varies from year to year. Hence, researchers distinguished between conditions of persistent poverty, the poverty income at each child assessment point over the duration of the period of study, and conditions of transient poverty, the poverty income at one or more but not all assessment points.

The findings from Smith, Brooks-Gunn, and Klebanov (1997) and Duncan, Brooks-Gunn, and Klebanov (1994) are summarized briefly; the effects of mother's educational level as well as family income were evaluated. Of particular interest were the possible effects of the timing of poverty (early versus later preschool years) and length of family poverty (transient versus persistent). Outcome data from the Children of the National Longitudinal Survey of Youth (NLSY; Baker, Keck, Mott, & Quinlan, 1989) and the Infant Health and Development Project (IHDP; Infant Health and Development Program) were analyzed.

The Children of the NLSY included 966 children evaluated at age three through eight years of age with the Peabody Picture Vocabulary Test-Revised (PPVT-R; Dunn & Dunn, 1981). Children were drawn from families of varying incomes with about 45% of the children's families experiencing poverty at some point in the study. Children were from African-American and white fami-

lies; children from Hispanic families were excluded due to second language issues. The IHDP sample included 895 children who participated in an evaluation of "the efficacy of educational and family support services in reducing the incidence of developmental delays in low-birth-weight preterm infants" (Smith et al., 1997; p. 139). One third of the children received intervention services and two thirds of the children were assigned to control follow-up groups. Children were evaluated annually through five years of age; children were African-American, Hispanic, or white. About 44% of the children lived in families that experienced poverty. The children were administered full-scale intelligence tests as well as the PPVT-R.

Family income was shown to be a significant predictor of vocabulary and changes in vocabulary scores over time. Lower income was associated with decreases in vocabulary scores. Income effects were apparent by the time children were two years of age and appeared comparable across the birth weight distribution (the IHDP sample). Although the timing of poverty (i.e., in the IHDP sample whether poverty was experienced only in the first two years of a child's life versus only in the later preschool) was not a significant predictor of outcome, the duration of poverty and level of poverty were significant factors in outcome. For example, children in persistent poverty scored more than seven standard score points lower on the PPVT-R as compared to children who had never lived in poverty; the effects of persistent poverty grew stronger as children increased in age. There was also a large performance difference between poor children and children whose families were above but near the poverty threshold. Children who experienced transient poverty scored four to five standard score points higher than children who experienced persistent poverty. In addition, mother's educational level was a significant predictor beyond the variance accounted for by family income. Lower maternal education was associated with lower vocabulary scores. These independent effects suggest that intervention to alter each of these variables may separately contribute to improved outcomes for children.

In summary, Smith et al. (1997) and Duncan et al. (1994) as well as other studies (e.g., Campbell & Ramey, 1994; Patterson et al., 1990) confirm that socially disadvantaged children are more likely to experience poor developmental outcome as compared to children from middle and higher socioeconomic groups. Poor child developmental outcome can be seen in cognitive performance, including language, social performance, and academic achievement. Family income is a much stronger correlate of developmental outcome than "more conventional SES measures such as maternal education,

ethnicity, and female [household] headship" (Duncan et al., 1994, p. 311-312). Moreover, a greater understanding of the influence of SES is gained by examining family income over time, as persistently low income is most debilitating to children's outcomes.

## Language and SES

We next turn to consider more carefully how children's language performance relates to socioeconomic variables. Some research has examined the relation between children's language performance and SES variables. Other research, in light of previously identified SES-related group differences, has explored the differences in language-learning experiences provided to children. Most often the context of study has been the language input provided in mother-child interactions. Data analysis has involved exploration of differences between groups defined by SES or correlations of measures of language behaviors (child or adult) with socioeconomic measures. The challenge is in appropriately interpreting identified group differences and correlations. Statistically significant group differences are not necessarily clinically or educationally relevant and the clinical or educational relevance of statistically significant group differences may be apparent only through intervention studies. Further, in many studies although group means differ, the range of performance within groups overlaps across groups. Thus, group means do not reflect the individual variation within a group (see also Adams & Ramey, 1980). Correlation does not equate with causation. We must remember that whereas social disadvantage places children at greater risk, social disadvantage does not assure that children will perform poorly. Measures of SES, such as family income or maternal education, can suggest different factors responsible for a relation between variables (Hoff-Ginsburg & Tardiff, 1995).

## Children's Language Performance

Vocabulary acquisition may be especially sensitive to environmental factors, as compared to syntax (Huttenlocher et al., 1991). The developmental outcome for syntax is the adult grammatical system and most children attain this level of performance by early school age. That is, the majority of utterances they produce are consistent with the adult grammar. In contrast, performance in vocabulary is quite varied across children and vocabulary development more clearly continues across the life span. Huttenlocher et al. (1991) investigated the role of input frequency in vocabulary acquisition. Their hypothesis that input frequency (amount of parent speech) would influence acquisition challenged the widely

held belief that "the source of individual differences in vocabulary is the variation in the capacity to learn from input and that heredity, in large part, determines capacity" (p. 237). In a study of 22 children, vocabulary acquisition was documented from 14 through 26 months in naturalistic mother-child interactions. Maternal input was examined when the children were 16 months old. The effects of maternal speech on vocabulary was significant, accounting for about 20% of the variance. Interestingly, the effects of maternal input were stronger for vocabulary acquisition between 20 to 24 months of age as compared to 16 to 20 months of age. Gender accounted for about 20% additional variance. Girls' vocabulary acquisition was accelerated in comparison to boys; however, the influence of gender was seen earlier in acquisition and appeared not to be a factor by the time the children were 24 months of age. There were no differences in maternal input that related to gender. Huttenlocher et al. did not consider the role of SES in quantity of maternal speech, and in fact, did not report on the SES level of the mothers studied. Nevertheless, their findings provide support for exploring SES related differences in maternal input and children's vocabulary. Huttenlocher et al. noted that previous studies indicated that mothers with lower educational levels and lower incomes talk less frequently to their young children as compared to more educated parents and parents with higher incomes (Cohen & Beckwith, 1976; Heath, 1983; Schachter, 1979).

The strongest, most striking evidence of vocabulary differences related to SES is apparent in Hart and Risley's work. Hart and Risley (1980) found among preschoolers vocabulary differences that were associated with SES; intensive intervention efforts did not ameliorate these differences. This early work motivated Hart and Risley (1992, 1995), an extensive study exploring children's vocabulary acquisition from the earliest stages and the ways in which parental interaction influences children's language and cognitive development. Forty-two participating families represented a cross-section of SES, identified on the basis of parental occupation: welfare families, working class families, and professional families. All families resided in a Midwestern city in the United States. Families were categorized at the onset of the study. Children were observed in their homes, interacting with family members, on a monthly basis between the ages of 9 and 36 months. Transcripts of the home observations allowed for analysis of the parents' interactions with their children as well as analysis of the children's early language acquisition. Importantly, all the children acquired language in the expected time frame (i.e., none of the children evidenced language impairments); follow-up at age 9 to 10 years suggested that this contin-

ued to be true for all the children (Walker et al., 1994). Thus, "(a)ll the parents had apparently provided whatever amount of experience was necessary for the children to become effective users of language" (Hart & Risley, 1995, p. 71).

Despite the fact that all children acquired language within the expected time frame, Hart and Risley (1995) reported a good bit of variation in children's language outcomes, specifically rate of vocabulary acquisition and three-year-old vocabulary use. Vocabulary measures were more strongly correlated with SES than IQ was correlated with SES; approximately 40% of the variance as compared to 29% of the variance was accounted for by SES. When families were divided along SES lines, children from less advantaged homes had smaller vocabularies and added words to their vocabulary at a slower rate as compared to children from more advantaged homes. Thus, over time there was increased disparity between the SES groups in children's vocabulary. The greatest differences were apparent between the professional families and the welfare families, but group means across the three groups were quite discrepant. Although a relatively small number of families participated in Hart and Risley (1992, 1995), the extensive data upon which conclusions were drawn are quite impressive.

Walker et al. (1994) provided further evidence of disparity in children's language performance across SES groups. They reported a follow-up study of 29 of the children who participated in Hart and Risley (1992, 1995). Children were evaluated in kindergarten through third grade (5 through 10 years of age) with academic and language measures. The language measures included the PPVT-R and the Test of Language Development - Primary (TOLD-P; Newcomer & Hammill, 1991) and - Intermediate (TOLD-I; Hammill & Newcomer, 1988). Overall, the follow up measures of children's academic and language abilities indicated that children's relative language performance remained remarkably stable through the early elementary years. The lower language standing of children from lower SES families predicted lower academic performance through the third grade. Specifically, first, verbal ability and academic achievement were related to prior SES, language, and IQ assessments between 7 months and 36 months of age. For example, prior number of different words and MLU accounted for 23 to 55% of the variance in PPVT-R and TOLD scores whereas 10 to 34% of the variance was accounted for by prior SES indices. The unique variance accounted for by variables was not reported. Second, children's vocabulary in the first three years of life accounted for unique variance in language and academic achievement tests beyond the variance accounted for by

a composite SES variable. Third, measures of schooling indicated that academic programming for lower SES students did little to improve their absolute or relative status on language and academic competencies. Children from lower SES families started out in school with lower language scores than children of higher SES families and they continued to perform below the higher SES children throughout the early elementary years.

Additional evidence of vocabulary differences was documented by Dollaghan et al. (1999) who explored the relation between maternal educational level and measures on spontaneous language samples in a group of 240 three-year-old children. Mothers were classified into one of three groups of maternal educational level: less than a high school diploma; a high school diploma but not a college degree; a college degree or greater. Maternal educational level was significantly related to number of different words and total number of words.

Hoff-Ginsburg (1998) in a study of 63 children, between the ages of 20 and 31 months of age. Mother-child dyads were drawn from two groups: college educated parents and high school educated parents. None of the children lived in poverty; rather the comparison in this study was between upper middle SES and middle SES families. As compared to the middle SES group, the children in the upper middle SES group had more object labels in their vocabulary and produced more utterances that were adjacent to their mothers' utterances. Unlike Dollaghan et al. (1999), Hoff-Ginsburg (1998) did not find group differences in number of different words. The difference in findings may be attributable to the more restricted SES range in Hoff-Ginsburg.

Morisset, Barnard, and Booth (1995) evaluated the language skills of children between 13 and 36 months of age from socially disadvantaged homes (though the basis for determining social disadvantage was not defined). They were interested in gender differences in young children's language development among high-social-risk families. Morisset et al. reported that boys performed more poorly than girls across several measures of language (e.g., MLU, TTR, vocabulary checklists); despite that, maternal input was not differentiated by gender. In both groups of children, language difficulties became increasingly apparent over the course of the study but were not evident until 24 months of age. Although many studies have reported significant group differences between boys and girls on language measures (e.g., Fenson et al., 1991; Huttenlocher et al., 1991; for an early but thorough review see Maccoby & Jacklin, 1974), generally the differences between boys and girls have been quite small suggesting little clinical significance. However, Morisset et al. identified much larger

numerical differences; for example, at 20 months the mean vocabulary size for girls was more than twice the mean for boys. The researchers concluded that the adverse impact of environmental stressors on language development may be greater for boys than girls. This relation should be explored further; the greater likelihood of boys at risk to perform more poorly also might need to be taken into account in intervention models or programs.

The extent to which there are SES differences in the structural aspects of language is unclear; fewer studies have been reported. Mean length of utterance of preschoolers three years and under may be differentiated by SES. Dollaghan et al. (1999) reported that college graduate mothers had three-year-old children with MLUs that were longer than three-year-old children of high school educated mothers and children whose mothers had not graduated from high school. Among Hart and Risley's (1995; reported in Walker et al., 1994) sample, MLU correlated with parental education and occupation but not family income. Although Hoff-Ginsburg (1998) did not obtain MLU differences, this finding was not surprising as study participants were chosen to be at a similar stage of language acquisition (i.e., early word combinations at the outset of the study). The extent to which these MLU differences signal differences across children in underlying grammatical capacity is unclear; detailed analyses of children's expressive grammatical capacities would be needed. Further, it is not known whether the MLU differences persist beyond these early stages of language development. In typical children SES variables may be associated with rate of acquisition in structural aspects of language but these differences in rate may not result in differences in ultimate outcome (e.g., grammatical abilities at entry to school). Walker et al.'s (1994) findings suggest that there may be grammatical differences of some sort in at least the early school years. The TOLD measures they employed evaluate grammatical as well as semantic skills. A more detailed analysis of subtest scores could provide a clearer indication of the aspects of language that differentiate performance in the early school years.

In summary, studies of the relation between SES factors and children's language development have identified strong evidence of vocabulary differences. Children from lower socioeconomic groups have smaller, less diverse vocabularies and acquire words at a slower rate than children from more advantaged socioeconomic groups. These differences appear to relate to family income, maternal education, and parental occupational status. Not surprisingly, persistent poverty is most detrimental to children's vocabulary outcomes; children who experience transient poverty fare much

better. The extent to which each of the SES variables uniquely influences vocabulary outcome is unclear. There is initial evidence to suggest that MLU may be differentiated across SES groups. Further research is needed to verify whether this difference persists beyond the preschool years similar to vocabulary differences and whether MLU differences are an indicator of differences in grammatical abilities. To understand the sources of these differences in children's language outcomes, children's language learning experiences (i.e., input) have been examined.

### Language Input

In early work on language and SES, some researchers hypothesized that children from lower SES families receive deficient input which leads to children having deficient language systems (Dillard, 1972; Trudgill, 1983). Subsequent research and a greater understanding of dialectal variations have led to characterizations of language *differences* rather than language *deficits* (Wolfram & Schilling-Estes, 1998).

Given the SES-related group differences summarized thus far in children's language performance, researchers have explored the ways in which children's language experiences may differ across SES groups. Primarily, these studies have examined mother-child interaction. Parental language measures have been those demonstrated in language acquisition research to relate

to children's rate of language acquisition (e.g., questions, imperatives).

In their extensive study of 42 families, Hart and Risley (1992, 1995) were able to explore family differences that related to children's vocabulary outcome. SES was correlated with measures of frequency of input (see Table 1) and SES group differences were explored. All input measures, with the exception of responsiveness to child initiations and MLU distance, were correlated with SES, with correlations ranging from .36 to .63. Only the prohibition measure was negatively correlated with SES. Given these correlations with SES, the researchers sought to define the ways in which the groups of parents, defined by SES, varied.

Importantly, the language facilitative features identified by prior research on language input and language acquisition were evident in the talk of all parents, regardless of SES. Further, the proportional use of these features was similar across SES groups. However, the features were more frequent in higher SES families because talk was more prevalent. Hart and Risley (1995) concluded that quantity of talk was the basis of the group differences and correlations. Parents in the professional families talked to their children far more often than the welfare families and substantially more than the working-class families. The widest within group variation was in the working class group of families, with some families similar to the welfare families and other families similar to the professional families. Because more socially

**Table 1**  
**Measures of Parenting in Hart and Risley (1992, 1995).**

	Variable	Description
1	present	percentage of the child's activity episodes that occurred in the presence of the parent (in the same room)
2	joins in the child's activities	percentage of child activity episodes in which the parent took a turn
3	responds to child initiations	percentage of the child's initiations the parent responded to
4	prohibitions	percentage of parent utterances that were imperatives directing the child to "stop," "quit," or "don't" (do that)
5	mean length of utterance (MLU) distance	average number of morphemes between the parent's utterance length and the child's
6	different words	average number of a parent's difference words per observation
7	repeats	percentage of parent utterances that were repetitions, expansions, or extensions of an immediately preceding child utterance
8	questions	percentage of parent utterances that were questions
9	words	average number of words the parent addressed to the child per hour
10	turns	average number of parent behavioral turns in parent-child activity

advantaged parents talked more, their children received more language-learning experiences and more exposure to the types of verbal interactions that are facilitative of language acquisition. Because less advantaged parents talked less, their children had less exposure to language and less exposure to language with features benefitting language acquisition. This "less" resulted in poorer language outcomes with respect to vocabulary outcome measures. This finding has strong implications for intervention and prevention – the need to focus on quantitative rather than qualitative differences. Hart and Risley (1995) emphasized that these quantitative differences were not consistent with prior suggestions that low income children hear some sort of impoverished language.

Hart and Risley's (1995) illustrations of these SES-related quantitative differences are quite startling. "We saw that these differences between families in amount of talk were so persistently characteristic of ongoing family life that they added up to massive differences in children's cumulative experience with language" (p. 70). In the preschool years children from welfare families heard on average less than half the language heard by working class children. Working class children in turn had substantially less language experience than children of professional families. "A simple extrapolation of these differences in hourly experience across the children's waking hours would indicate differences in cumulative experience of enormous magnitude between the children of welfare and working-class families and between the children of working-class and professional families" (p. 132). Comparing the most talkative families to the least talkative families meant the difference between hearing 4 million utterances in one year as compared to 250,000. Importantly, the quantitative difference was quite stable and prevailed across the two years of the study. Given the extensive data collection and analysis, it seems Hart and Risley (1995) have identified a very clear and real difference.

It is important once again to underscore that each of the children in Hart and Risley's study acquired language normally and none were identified as language impaired, yet the differences in vocabulary were evident and differences in amount of family talk were implicated as the source of these differences. Clearly the children acquired the sentence structures and vocabulary needed to verbally communicate their thoughts and ideas to others adequately in terms of daily living. The differences noted seem most important to academic functioning and future vocational success. If success in our education system is predicated on the language skills of typical children from more educated families, then children without these language skills are clearly at a disadvantage.

However, a disadvantage does not equate with an impairment or a disorder.

Hoff-Ginsburg (1991, 1998) provided additional evidence of social class differences in mother-child interaction. She compared two groups representing a more narrow slice of the socioeconomic continuum – upper middle class mothers who were college educated (n=33) and working class mothers who were high school graduates (n=30). Children were between 1½ and 2½ years of age. As a group the mothers in the higher SES group "talked more to their children, used a richer vocabulary, continued the topic of their child's prior utterances more frequently, issued behavior directives less frequently, and asked questions more frequently" (Hoff-Ginsburg, 1998, p. 619). These findings are consistent with prior reports, although the quantitative differences between the groups was less than when a wider disparity in SES exists between families. It is noteworthy that the SES differences were apparent between two social class groups that are not considered "at risk" (e.g., poverty). Thus, Hoff-Ginsburg argued that the source of the differences between SES groups cannot be ascribed solely to the stressful conditions of poverty or lower levels of education. Rather, educational and occupational experiences may account for at least some of the differences in language learning experiences provided by parents. Hoff-Ginsburg found no difference in joint attention, a nonverbal measure of mother-child interaction, suggesting that both groups of mothers were equally effective in engaging their children's attention. Thus, a lack of engagement did not appear to underlie the language differences.

Hoff-Ginsburg (1991) compared mothers' language production across four settings (mealtime, dressing, book reading, toy play) to assess whether situational context might account for SES related differences that have been reported in the literature. Overall, situational context had the same influence on both groups of mothers; SES differences do not appear to be an artifact of situational context of the mother-child interaction. Interestingly, though, the social class differences were minimized in the book reading context and all mothers used more facilitating language in the book reading context.

Maternal input differences between the groups may reflect "general class differences in conversational style" (p. 794) according to Hoff-Ginsburg (1998). Mothers were interviewed on their attitudes about language development and this adult-adult talk was examined. College educated mothers had longer MLUs, were more talkative and used a greater variety of words. Thus the group differences identified in adult-directed speech paralleled differences in child-directed speech. A cur-



sory survey of mothers' attitudes toward their children's language acquisition suggested no group differences. Future research might explore further these adult-directed speech differences and explore in greater detail parental attitudes and knowledge of language development across SES groups (cf. Hammer & Weiss, 2000).

The work of Lawrence and Shipley (1996) is a reminder of the difficulties in disambiguating the facets of what is typically labeled SES and factors such as race or ethnicity that are sometimes associated with SES. Differences in parental talk given racial differences and social class differences were studied by Lawrence and Shipley (1996). Four groups of families participated: working class black, working class white, middle class black, and middle class white. Parent-child interactions were examined in three settings: the parent describing pictures to the child, free play, and meal time. Racial and class differences were not clearly seen as there were many interactions with setting of parent-child interaction. Overall, though, the researchers concluded that black families differed from white families in the same ways that working class families differed from middle class families. For example, middle class and white families tended to use more utterances and fewer directives than working class and black families. There was a positive correlation between parental MLU and child's age in middle class families but no such correlation was found in working class families. Middle class "parents adjusted their speech to their children's age" whereas working class "parents did not" (p. 251). Thus, this study suggests that cultural as well as educational and occupational factors may underlie the differences in parental input that is frequently ascribed to "social disadvantage". Clearly, more research is needed to fully understand the influence of race and culture in contrast to parental education and income on the process of language acquisition. In clinical practice it may be impossible to separate these influences though clearly clinicians must take them into account.

Given the identified differences in parental language input across SES groups, we are left to ponder why these differences exist. Are there child characteristics (e.g., attention, engagement) that influence the mother's behavior (cf. Farran & Haskins, 1980)? Are there differences in maternal verbal fluency (Borduin & Henggler, 1981) that drive how mothers verbally interact with their children? It is quite difficult, if not impossible, to consider the influence of variables in isolation. Large-n studies and more sophisticated data analysis procedures (e.g., structural equation modeling) are needed to better understand the interaction of variables. Clearly, "the idea that the source of influence can be isolated in one point on the topological surface that constitutes SES

becomes less tenable" (Hoff-Ginsburg & Tardiff, 1995, p. 177).

### What's a speech-language pathologist to do?

The traditional domain of practice for SLPs has been the identification and subsequent intervention with children with speech/language impairments. We often think of prevention as an effort to decrease the incidence of a disease or condition, in this case, childhood language impairment. Children with speech and language impairments are found across all socioeconomic groups. Many conditions can increase the likelihood of a child being identified as language impaired. Language deficits are seen as secondary deficits in children with developmental disabilities such as autism, hearing impairment, mental retardation, Down syndrome and fragile X syndrome. For many other children language impairments are the primary developmental disability. Research clearly has established that children with a family history of speech, language, and learning disabilities are at increased risk for primary language impairments (e.g., Tallal, Ross, & Curtiss, 1989; Tomblin, 1989). But are children from lower SES groups at greater risk for language impairments than children from more advantaged SES groups? Children from poverty backgrounds may be at greater risk for some developmental disabilities, for example, increased incidence of high lead exposure can lead to mental retardation. A greater incidence of developmental disabilities in children from lower SES backgrounds leads to an increased incidence of secondary language impairments. However, it is not clear that an inordinate number of children from lower SES background are diagnosed with primary language impairments (e.g., Hart & Risley's [1995] data reported no children in the clinical range). Rather, children from less advantaged family backgrounds are more likely to perform in the low average (albeit normal) range on language measures. (A confound to this issue may be that classification systems, for example, IDEA disability category criteria and the DSM-IV diagnostic criteria, state that conditions of environmental deprivation or abuse would disqualify a child from being diagnosed with a language impairment.) What then does it mean that lower SES children are over-represented in the low average range on measures of language? Do SLPs have a role in addressing the underachievement of these children who are in the low average range although not diagnosed with an impairment?

Some might argue that children from lower SES groups are indeed impaired though they do not meet the standard criteria of performing significantly below normal (e.g., greater than two standard deviations below the age mean). Others might argue that we can provide

language intervention to these at risk children in the context of optimizing *all* children's language performance. If defining these children as impaired is prerequisite to the SLP playing a role in intervention, then we may need to move beyond our traditional notion of impairment. Fey (1986) argued that a child might be considered language impaired if his language skills place him at risk for social disvalue at present or in the future. Following this line of argumentation, language impairments are defined more broadly and children from low SES families might be identified and thus, be eligible for language therapy services. Social disvalue would encompass the concern that poor language performance is a factor in, for example, academic underachievement. However, it would be important to recognize that social disvalue is defined differently depending on social context; therefore, a child's language skills can place him at risk for social disvalue at school, yet there may be no risk of social disvalue in the home context (cf. Harry, 1992). The verbal-social expectations of the schools can be quite different from the home community.

Whether or not one views these children as language impaired, the lower language performance of children from low SES families suggests a need for some specialized language instruction. This intervention should reduce the risk of social disvalue in school achievement by boosting language performance. The focus of intervention would be on the aspects of language performance that are associated with cognitive, academic and vocational functioning. Optimizing children's language development may contribute to optimizing their overall functioning.

I would argue that optimal language functioning is a desirable goal for all children, in all educational settings. We need not identify children from lower SES backgrounds as different, deficient, or impaired to target this goal. Rather, we need to see SLPs as having a vital and unique role in working with other professionals to facilitate language development in all children. Optimizing language ability suggests that we could focus on moving all children forward from their current level of performance. We would identify criteria or learner outcomes that reflect competent language performance and we would expect all children to work toward these criteria or outcomes (i.e., a criterion-referenced approach). We would expect all children to improve their ability to perform on language and language related tasks. We would equip them with the skills to do more, more in an absolute sense, not more in a relative sense. We would insist on measurement strategies that indicate improved performance on ecologically-valid measures and not simply improved percentiles on norm-referenced measures. If we could assist children in becoming better

language learners and more competent language users, then we might see that these improvements in language lead to improvements in academic, social, and cognitive functioning. This perspective is appealing precisely because it is not deficit-oriented. As such it is more consistent with the philosophies espoused in early childhood education. (In contrast, special education with its focus on remediation is often deficit-oriented.) Moreover, we facilitate the language skills of all children, including but not limited to those children for whom SES may be a causal factor in language impairment, for whom adverse environmental conditions may exacerbate a language impairment, and for whom poor language ability is a factor in outcomes in social, academic, and vocational domains.

How do we go about these preventative efforts? (see Ball & Pence; Cohen; and Warr-Leeper, this issue.) It is clear that we need to start early. Hart and Risley (1995), Walker et al. (1994) and many others have argued that our efforts need to start at the beginning, at birth or soon thereafter. The opportunity to begin at the beginning is to be found not in early intervention programs that target children with disabilities, but in early childhood programs that target ALL children. We will need to have a voice in early childhood curriculum. To do so requires that SLPs become collaborators, where we bring language expertise, early childhood teachers bring curricular expertise, social workers bring family expertise and so on. Then we must carry these efforts through the years of children's formal schooling. Our language expertise must derive from our knowledge of normal language development and the individual variation we know to be true of "normal." We need to become as well versed in normal as we are in abnormal. Lastly, we need to work as a team player, which may be quite challenging because our formal education has typically emphasized discipline-specific knowledge and discipline-specific assessment and intervention procedures.

Clearly, there is opportunity to improve all children's language abilities and language learning abilities in the preschool years as well as the school age years. Improvement in language functioning is likely to be particularly beneficial for children who come from families of lower SES. Speech-language pathologists will need to expand their scope of practice to participate in efforts of this nature.

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