

Early Language Development

Preschoolers' language skills are poor

The language proficiency of preschoolers born in Newark¹ is far below national norms. At three years of age they scored 10 points lower than children in other large cities on a standardized test of English vocabulary (Peabody Picture Vocabulary Test-Revised, PPVT-R²). After controlling for demographics known to be related to language development (mothers' education, poverty and ethnicity³, and child's gender), their scores were still well below those of other cities. Strikingly, 88 percent of these children scored below average and 62 percent received scores below the 15th percentile.

Peabody Picture Vocabulary Test – Revised			
Population	Mean score	Median score	below 15 th percentile
Newark sample	78	79	62%
National sample	88	87	44%
National norms	100	100	15%

Many studies have demonstrated that children's language development is related to mothers' education level, income, ethnicity, and child gender. This was true in the cities surveyed in the Fragile Families and Child Wellbeing Study as well. Better educated mothers and those with higher incomes had children with larger vocabularies, whereas boys and Black and Hispanic children had more limited vocabularies (other things being equal). In addition, scores were 10 points lower for children whose mothers were interviewed in Spanish.

Might different factors matter in different ethnic groups? In Black families we found the same associations: mothers' education and income and child gender contributed to language scores. Among Hispanics, the same predictors held, except for gender: mothers' limited education and income and being interviewed in Spanish were all associated with poorer vocabulary, but Hispanic boys' scores were not lower than those of Hispanic girls.

Newark differs from other cities in important respects. Almost all births (90%) in Newark hospitals are to either Black or Hispanic mothers and three-quarters are to unmarried parents. Compared to the national sample, parents have less education and are more likely to live in poverty, and Hispanic parents more often come from the Caribbean, Central or South America than from Mexico. Therefore we wondered whether parent characteristics would have the same impact on children's vocabulary.

Surprisingly, although the direction of effects was generally similar, the only factors that made a significant difference in the Newark sample were having a mother who was interviewed in Spanish or who was Black: children of mothers interviewed in Spanish received scores on average 18 points lower than other children, and scores for Black children were 21 points lower than those of White children and 5 points lower than those of Hispanic children. Neither mothers' education nor income predicted the vocabulary performance of Newark children. Although boys typically do more poorly on language tests than girls, the scores of boys born in Newark were, if anything, higher.

What parent behaviors contribute to preschool language skills?

We are particularly interested in knowing what some parents *do*—specific behaviors—to help children develop better language. This might lead to recommendations parents and teachers could implement to give children a better start. Knowing a parent’s education, income, or ethnicity, as important as they may be, does not tell us much about *how* these characteristics get translated into children’s language skills.

Both research and common sense suggest that children in a language-rich environment have better language skills. Children with more advanced vocabulary are likely to have parents and teachers who talk more, use a larger vocabulary and more complex language, and read to them more.⁴ Exposure to other media (books, television) may also provide language stimulation.⁵ The nature of television programming matters; educational programs in particular may have a positive impact.⁶ On the other hand, time spent watching television may reduce verbal interaction and interfere with language development. The effect of out-of-home child care is controversial; it may help if it exposes children to more language than the home does, for example, if mothers have limited education or are not proficient in English; or it may hurt, if it provides a more impoverished language environment.⁷ Most research on this subject has involved high quality child care; when quality is assessed, good outcomes are virtually always associated with better quality programs.

To examine these possibilities, mothers were asked how many days each week they read to their child, how often they sang songs or nursery rhymes, and how often they told their child stories. We observed how often mothers spoke with children during a home visit, and we asked how many children’s books were in the home, how much television children watched, and about the care children received out of the home.

What made a difference in the national sample?⁸ As expected, children whose mothers talked more with them had better vocabularies. Reading, telling stories, and singing songs and nursery rhymes each contributed, but reading to the child

	Newark sample	National sample
Reads to child < 4 days/week	37 %	25 %
Child watches television average hours/weekday	3.7	2.8
Children’s books in home		
0 – 4 books	15 %	8 %
5 or more books	85 %	92 %
Child in non-parental care	59 %	60 %
With relative	30 %	23 %
Family day care	6 %	10 %
Child care center	25 %	24 %

appeared most consistently associated with vocabulary development. Children whose mothers read to them every day when they were one year old had vocabulary scores on average 3 points higher than those who were read to only once a week. Direct observation also indicated that children whose mothers spoke more with them during the home visit had larger vocabularies.

Children in homes with more children’s books had better developed language skills. The less the television was turned on in the home, the higher children’s vocabulary scores were, and children who spent fewer hours watching television scored better.

Finally, children in non-parental child care at three years of age had larger vocabularies, by 2 points on average. Children who spent time in child care centers (rather than in family day care or with relatives) were especially likely to show an advantage. When we looked at children’s earlier history of non-parental care, we found that only those who had been in center care as infants later displayed a vocabulary advantage over those cared for at home.

Which factors are most important? Verbal stimulation by mothers, television viewing, children's books in the home, and non-parental child care each appeared independently to make a difference.

The impact of specific factors may vary across ethnic communities, so we also looked separately at Black children and at Hispanic children. In Black families, the results were virtually identical to those for the entire sample: reading, singing, telling stories, talking with the child, providing children's books, limiting television time, and non-parental care were all associated with better vocabularies. In Hispanic families, the links were weaker. Talking with children and owning children's books were associated with higher vocabulary scores, but reading, singing, and telling stories were less consistently related, perhaps because of variability among these families (e.g., different countries of origin and whether mothers speak Spanish).

Do the same behaviors contribute to language development in Newark?

Even after demographic differences were accounted for, mothers' reading, singing, telling stories, and talking with children also made a difference for Newark children, and being in non-parental care (especially in a child care center) was helpful as well. Children's television watching had a negative impact within Black families. The number of hours Hispanic children watched television was not related to their vocabulary scores, and Hispanic mothers who had the television turned on for more hours had children with *better* vocabularies. Number of children's books in the home was associated with the vocabulary of Hispanic children. However, the most robust effect within Hispanic families in Newark was this: the children of mothers who were interviewed in Spanish had poorer English vocabularies.

How to encourage language development:

These results, and a good deal of other research, suggest the following:

- Encourage parents to read, sing, tell stories, and talk with their children, starting *in the first year of life*. More language exposure leads to better vocabularies.
- Provide more children's books in the home. Children surrounded by attractive books are more likely to develop language skills.
- Limit television viewing and encourage educational programming when children do watch. However, television may be beneficial in families with limited English skills.
- Provide high quality child care. This may be particularly helpful for children whose parents are less proficient with English.
- Help Spanish-speaking mothers learn English so they can access services and support children's language skills.

As part of a national study of births in 20 large U.S. cities, the Fragile Families and Child Wellbeing Study identified consecutive births in Newark hospitals in the summer of 1999. These mothers and fathers were surveyed at the time of the birth and followed through their child's fifth birthday. This brief was prepared by Michelle DeKlyen, Ph.D., with support from the Fund for New Jersey, the Healthcare Foundation of New Jersey, and the Schumann Fund for New Jersey. To learn more about the national study, see www.fragilefamilies.princeton.edu/index.asp. For information on Fragile Families in Urban Essex, see www.fragilefamilies.princeton.edu/newark.asp.

Fragile Families in Urban Essex
Bendheim Thoman Center for Research on Child Wellbeing
Wallace Hall
Princeton University
Princeton, NJ 08544

Sara McLanahan (Princeton University) and Irwin Garfinkel (Columbia University) are Principal Investigators of the Fragile Families and Child Wellbeing Study. The national study was funded by the National Institute of Child Health and Human Development (NICHD) and a consortium of other governmental and private sources.

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¹ The Newark sample is representative of children born in Newark hospitals in the summer of 1999. About 76% of these births were to unwed mothers; this was approximately the rate of non-marital hospital births in Newark in a preliminary survey conducted in 1998. The national sample was selected to include 75% unmarried parents and 25% married parents; within each of these groups it is representative of births in large U.S. cities. However, the national rate of non-marital births is about 30%, and the national Fragile Families sample includes more minority parents and is disadvantaged relative to the U.S. population with respect to education and income. PPVT-R scores and other data have therefore been weighted to be representative of the actual populations of these cities.

² The Peabody Picture Vocabulary Test – Revised (PPVT-R, Dunn & Dunn, 1981) is a well-standardized, widely used assessment of receptive vocabulary in English which correlates moderately well with other measures of English language ability. The small number of children who were tested in Spanish instead of English are not included in these figures, because the Spanish test (TVIP) is not as well standardized and its scores are not comparable to PPVT scores. A number of children who chose to be tested in English had mothers who were interviewed in Spanish; these children are included in these analyses, but we test to see if they differ from other children.

³ Mothers self-identified as “White,” “Black or African-American,” “of Hispanic or Latino descent,” or other. For the sake of brevity, we refer to them as White, Black, or Hispanic. Those referred to as White or Black are not of Hispanic or Latino descent.

⁴ E. Clark (1993), *The Lexicon in Acquisition*, Cambridge, UK: Cambridge University Press; J. Huttenlocher, W. Haight, A. Bryk, M. Seltzer, & T. Lyons (1991), Early vocabulary growth: Relation to language input and gender, *Developmental Psychology*, 27, 236-248.

⁵ R.H. Bradley, R.F. Corwyn, M. Burchinal, H.P. McAdoo, & C. Garcia-Coll (2001), The home environment of children in the United States, Part II: Relations with behavioral development through age thirteen, *Child Development*, 72, 1868-1886; A.C. Payne, G.J. Whitehurst, & A.L. Angell (1994), The role of home literacy environment in the development of language ability in preschool children from low-income families, *Early Childhood Research Quarterly*, 9, 427-440.

⁶ D.R. Anderson, A.C. Huston, K.L. Schmitt, & J.C. Wright (2001), Early childhood television viewing and adolescent behavior: The recontact study. *Monographs of the Society for Research in Child Development*, 66.; S.M. Fisch & R.T. Truglio (2001), “G” is for Growing: *Thirty Years of Research on Children and Sesame Street*. Mahway, NJ: Lawrence Erlbaum.

⁷ For a review see K.A. Magnuson & J. Waldfogel (2005), Early childhood care and education: Effects on ethnic and racial gaps in school readiness, in *School Readiness: Closing Racial and Ethnic Gaps. The Future of Children*, 15, 169-196

⁸ All of the subsequent analyses were done controlling for the effects of mother’s education, income, ethnicity, language of interview, and child’s gender, to help rule out the possibility that the relation with children’s vocabulary is caused by one of these underlying characteristics. For example, mothers with more income may purchase more books for their children but also use higher quality child care, take children on more educational outings, provide better health care, and so on. The associations between each of the specific behaviors we describe and vocabulary scores are much stronger if tested in isolation.