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# Class and Categories: What Role Does Socioeconomic Status Play in Children's Lexical and Conceptual Development?

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# Class and Categories: What Role Does Socioeconomic Status Play in Children's Lexical and Conceptual Development?

## **Abstract**

At one time, academic inquiries into the relationship between socioeconomic class and language acquisition were commonplace, but the past 20 years have seen a decrease in work that focuses on the intersection between class and early language learning. Recently, however, against the backdrop of the No Child Left Behind legislation in the United States (which has been criticized as a culturally biased education policy that, through highstakes testing and broad-based, uniform curricula, discounts the value of non-standard home language varieties largely spoken by working-class children), there has been renewed interest in the relationship between class, language use, and the assessment of academic achievement in the field of education. Despite the inroads that have been made over the past 40 years by linguists in establishing the contrary, recent educational and language policies have served to reignite the difference vs. deficit debate largely attributed to the early work of both Basil Bernstein and William Labov. Unfortunately, much of the language acquisition work upon which policymakers are relying is founded on outdated information and misrepresentations of the varieties under consideration (African American English in particular); and still the scholastic performance of these children is measured according to class-based rubrics. In order to address the lacuna in the field, in this study, working- and middle-class adults and children aged two through six were shown a series of pictures including 'normal' referents (e.g., a cat), and unfamiliar combinations (e.g., a clock with wheels), which they were asked to identify. There were both age and class dependent differences in terms of naming behaviors (e.g., the number of words and morphemes and linguistic construction types). The older and middle-class participants used more sophisticated linguistic strategies (such as descriptive phrases) than the younger participants, and the working-class children showed a greater reluctance to engage in naming strategies beyond one- word overextensions. These disparities suggested that the participants not only employed different strategies by age, but that there was also a classlinked difference in their understanding of the task. When these results are interpreted in light of the deficit/difference debate, it is clear that linguists and educators continue to face the same issue: non-standard varieties are linguistically adequate, but there remains a societal insistence on furthering the primacy of middle-class linguistic structures and language behaviors which serves to maintain a cycle of educational failure for working-class children.

## **Keywords**

acquisition, semantic categories, naming, socioeconomic status, achievement gap, No Child Left Behind

## **Disciplines**

Bilingual, Multilingual, and Multicultural Education | Curriculum and Social Inquiry | Educational Sociology | Education Economics | Home Economics | Inequality and Stratification | Reading and Language | Social and Philosophical Foundations of Education | Sociology

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JENNIFER BLOOMQUIST

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## **Introduction**

The results of the National Assessment of Educational Progress (NAEP), the largest nationally representative assessment of American scholastic achievement, are released as 'the Nation's Report Card' every year and are relied upon by policy-makers and educators to inform the debate over education reform in the U.S. Statistics provided by the NAEP over the past 40 years demonstrate that, despite the fact that Americans are reaching higher levels of education on average, there has been a persistent and widening gap between the math and reading scores of African American and European American and middle-class and working-class children (National Center for Education Statistics, <http://nces.ed.gov/nationsreportcard>). In response to these alarming statistics, in 2002, the United States Congress passed the No Child Left Behind Act (NCLB), legislation which was intended to improve the performance of children and adolescents in U.S. primary and secondary schools. Specifically, there was an increase in the standards of accountability for states, school districts, and individual schools and the act also called for a renewed focus on reading in the curricula. NCLB is the latest federal legislation that relies upon the philosophy of standards-based education reform, which is grounded on the premise that setting high standards and establishing measurable goals can improve individual outcomes in education. While the legislation seeks to reduce gaps in school performance linked to ethnicity and socioeconomic class by creating a set of common expectations (specifically because it requires school districts to focus their attention on the academic achievement of traditionally under-served groups, such as low-income students, students with disabilities, and students of major racial and ethnic subgroups), it has been largely ineffective due to a number of issues including lack of funding, teacher resistance, and poor implementation.

Although policy conversations regarding the achievement gap often focus chiefly on the role of the school, a number of studies (for example, see Hart & Risley 1995; Lareau 2000; Britto & Brooks-Gunn 2001; Rothstein 2004) have found that the gap actually appears before children begin school. There is clear evidence that there are class-linked differences in parenting practices that impact children's readiness for the school environment and for academic success. In particular, social class impacts pre-reading activities that take place in the home. While parents of all classes have been shown to read to their children, the way in which they read a story can vary. Working-class parents are more likely to ask factual questions while reading a story, such as, 'where is the fire truck?' or, 'what color is the ball?' while middle-class parents tend to ask questions that require children to use critical thinking skills, like 'what do you think will happen next?' Because middle-class parents' reading and questioning practices are aligned with those that are used in the classroom, their children are prepared for the reading expectations that are assumed by teachers upon entering school. On average, upper- and middle-class children who have become accustomed to interacting with text at this level are often determined by teachers to be more advanced learners than their working-class peers and generally show greater progress on standardized tests as well.

Although researchers have long investigated the question of semantic acquisition, in most of the studies done on English, the majority of the subjects have been middle-class children; very little work has been done on the naming of unfamiliar referents by working-class children. Various studies in the field of education have shown that poor children are often out-performed scholastically by their middle-to-upper-class peers (Anastasiow Hanes & Hanes 1982; Neisser 1986; DeStefano 1978, 1991; Dickenson & Tabors 1991; Walker *et al.* 1994; Guskey 1997; Willie 2001). It has also been established that there is a correlation between parenting behaviors that differ across class lines and children's abilities in school (Bradley, Caldwell & Rock 1988; Ninio 1990; Hart & Risley 1995; Britto & Brooks-Gunn 2001; Storch 2001) since not only have many working-class children been found to struggle academically, but several studies have also shown that they tend to perform unsatisfactorily on achievement and aptitude tests even before they enter school (Snow 1983; Gottfried 1984; Bradley *et al.* 1988). This leads investigators to suggest that class-based differences in parenting practices are a causal factor in these discrepancies (Hoff-Ginsberg 1991).

Specifically, variations in the language-learning environments of children from different socioeconomic backgrounds have been found. For example, research has shown that middle-to-upper class parents include more object names and practice more naming behavior (in the form of

de-contextualized reference), and that they pursue conversation topics longer, and elicit more conversational responses from their children than do working-class parents (Heath 1983; Hoff-Ginsberg 1991, 1992, 1994; Lawrence & Shipley 1996; Hart & Risley 1995). Thus, middle-class children have been found to participate in more verbal communication, provide more labels for objects, and have been shown to have larger productive vocabularies than their working-class counterparts (Heath 1983; Ninio 1990; Quay & Blaney 1992; Lawrence 1997).

In the few studies that have been done specifically on socioeconomic differences in naming behavior and novel referents, it has been demonstrated that when faced with the task of naming unfamiliar objects, middle-class children out-perform working-class subjects (Whittesley & Shipley 1999; Lawrence 1997; Lawrence & Shipley 1996). Whittesley & Shipley (1999) found that when children of differing socioeconomic classes are taught novel labels for unfamiliar referents, their naming behaviors appeared to be influenced by cultural factors. For example, their results showed that the middle-class subjects produced the new labels more frequently and with greater accuracy than did the working-class children. However, comprehension was fairly equal across the participant groups since in a no-word task where the children were asked not to name, but to physically select the item requested by the interviewer, all of the children performed similarly. Therefore, the researchers interpreted these results not as a difference based on the participants' lack of familiarity with the object names, but rather as the working-class children's reluctance to perform linguistically by using the labels.

In another picture labeling task, Lawrence (1997) found class-linked effects when approaching the naming of familiar versus unfamiliar objects. Specifically, she found that the working-class participants verbalized less, used shorter utterances, offered fewer labels overall, and provided less information than the middle-class participants. However, Lawrence discovered that the working-class children provided more labels per utterance than did the middle-class children, which meant that the working-class participants focused on labeling and did not elaborate on their answers as frequently as the other participants did. Although this study also focused on exploring distinctions in naming behaviors among children from differing ethnic backgrounds, the most concrete findings were those related to the impact of class-linked linguistic performance.

While these findings point to socioeconomic differences in labeling strategies which are attributed to differences in parenting behaviors, it is not the case that they support the verbal deficit hypothesis (Bereiter & Englemann 1966), which claims that working-class children (especially those who spoke non-standard varieties of English) are frequently out-

performed by middle-class children due to verbal and cognitive deficiencies. Instead, the 1996 Lawrence study shows that, as others have argued (Williams 1970; Labov 1972; DeStefano 1973), the differences in the linguistic behavior of the working-class children is a result of a difference in language socialization, not one of linguistic or cognitive inferiority. While Lawrence's work in no way suggests that these differences are the result of linguistic or cultural deprivation, it does provide convincing evidence that particular class-linked differences in language socialization are predictive of differences in school readiness from the perspective of teachers and administrators. In earlier work, Snow (1983) argued that a major prediction of school literacy is skill with decontextualized oral language use, and in their 1986 study on the connection between reading readiness and oral language skills, Dickinson and Snow found differences between working- and middle-class children's language performance not according to ability but in terms of preparedness or pre-training for the task. Significantly, they discovered that working-class children performed far below middle-class children on tasks involving discourse models that are rewarded in school, such as providing definitions and story comprehension.

In the current undertaking, I intended to test the effects of socioeconomic class on children's performance in a picture-labeling task. To that end, middle- and working-class participants were shown pictures of animals and manufactured items, which they were asked to identify. There were both 'normal referents' (cat, frog, rabbit, car, clock, telephone) and combination pictures, such as a frog head with a rabbit body and a rabbit tail, or a telephone with wheels. The participants were asked to name these novel referents as well as the normal ones, despite the fact that specific labels for them do not exist in English. The task was designed to evaluate the ways in which children from differing socioeconomic backgrounds approach and/or articulate novel categorizations and, more broadly, to determine whether these naming strategies are early class-linked linguistic indicators of future scholastic success.

## **Method**

### *Participants*

Sixty children and twenty adults living in rural southwestern New York and northwestern Pennsylvania participated in the study, all of whom were monolingual speakers of American English. The children ranged in age from 2 years 2 months to 6 years 11 months, with a mean age of 4 years 5 months. It was determined that two, four, and six would be the best intervals to test since, in previous work where two and six were the

endpoints of the child age range, the most dramatic differences among the children occurred at four (Bloomquist 2007). Adults ranged from age 23 to 62 with a mean age of 36. The participants were divided into groups according to socioeconomic class and were roughly balanced for gender with ten participants in each category.<sup>1</sup> The children were selected at random from area nursery schools and daycare centers.

In order to determine the participants' socioeconomic class (SEC) designations, a biographical information questionnaire adapted from Hollingshead (1958) was used where adult participants (or the parents/guardians of the child participants) were asked for information regarding income, education, and occupation, as illustrated in Figure 1.

Which best describes your annual household income: (please check one)

- |   |   |
|---|---|
| <input type="checkbox"/> Under \$ 10,000  | <input type="checkbox"/> \$ 35,000–49,999 |
| <input type="checkbox"/> \$ 10,000–19,999 | <input type="checkbox"/> \$ 50,000–64,999 |
| <input type="checkbox"/> \$ 20,000–34,999 | <input type="checkbox"/> Over \$ 65,000   |

Highest level of education achieved by mother\*: (please check one)

- |   |   |
|---|---|
| <input type="checkbox"/> High school or GED | <input type="checkbox"/> Bachelor's degree                    |
| <input type="checkbox"/> Trade school       | <input type="checkbox"/> Graduate school                      |
| <input type="checkbox"/> Some college       | <input type="checkbox"/> Post graduate or professional school |

Highest level of education achieved by father\*: (please check one)

- |   |   |
|---|---|
| <input type="checkbox"/> High school or GED | <input type="checkbox"/> Bachelor's degree                    |
| <input type="checkbox"/> Trade school       | <input type="checkbox"/> Graduate school                      |
| <input type="checkbox"/> Some college       | <input type="checkbox"/> Post graduate or professional school |

(Mother's\*) Occupation: \_\_\_\_\_

(Father's\*) Occupation: \_\_\_\_\_

\* Used in forms for child participants only. Adult forms included one entry for participant's education and one for occupation.

Figure 1. *Sample SEC questionnaire*

The SEC data were quantified according to the following scales:

*Income*

- (1) Over \$65,000
- (2) \$ 50,000–64,999
- (3) \$ 35,000–49,999
- (4) \$ 20,000–34,999
- (5) \$ 10,000–19,999
- (6) Under \$ 10,000

*Education*

- (1) Post-graduate professional degree
- (2) Graduate degree

- (3) College or university degree
- (4) Partial college training
- (5) Vocational school
- (6) High school or GED

#### *Occupation*

- (1) Executives, owners of large businesses and major professionals
- (2) Managers and owners of medium-sized businesses, lesser professionals
- (3) Owners of small businesses, semiprofessionals
- (4) Clerical and sales workers, technicians
- (5) Skilled workers
- (6) Semi-skilled workers
- (7) Unskilled workers

Once each factor was assigned a numerical value, the following formula (Figure 2) developed by Hollingshead (1958), which allocates the weight of importance for each element, was applied:

Factor	(Scale Value) X	(Factor Weight)	=	Partial Score
Income	1	6	=	6
Occupation	1	9	=	9
Education	1	5	=	5
				20
Index of Social Position Score				20

Figure 2. *Hollingshead (1958): formula used to calculate participants' Index of Social Position Score (ISPS)*

The possible range of the SEC indices was from 20 to 129 with a median of 74.5. The lowest scores translated into the highest SEC indices and the highest scores represented the lowest SEC indices. In the case of the adult participants, each respondent's occupation and education was calculated singly; however, with the children, the numbers for the parent(s) data were combined and averaged. If the child came from a single-parent family, with little or no contact with or support from the other parent, the score of the custodial parent was the only one considered. Every parent or adult participant in the study had at least a GED or high school diploma, and there were no unemployed parents or adult participants in the study.

In order to apply the SEC designations 'Middle-class' and 'Working-class', the ISPSs were calculated for each participant; those that fell below the range median (74.5) were considered middle-class while those that were calculated to be above the median were considered working-class. Since the values for the participants registered at opposite ends of the range, there were no borderline cases.

*Stimuli*

Children's earliest lexicons are made up of object names such as those for people, animals, vehicles, and body parts (Gentner 1978, 1982; Goldin-Meadow, Seligman & Gelman 1976; Clark 1993: 28). Therefore, the selection of individual referents for this study focused on the types of items even the youngest children would recognize. The experimental stimuli consisted of thirty-six  $8\frac{1}{2} \times 11$  inch hand drawn black-and-white pictures divided equally into two categories: animals and manufactured items. Each set included three 'normal' referents and ten novel items. In the animal category, the normal stimuli were a cat, a rabbit and a frog, and in the manufactured set they were a car, a telephone, and a clock. The selection of referents was based on objects and animals that are (for the most part) familiar across American culture. The novel referents in either group were combinations of the normal stimuli parts. For example, one of the unusual animal targets was a creature with a rabbit's head and the body of a frog (Figure 3); one of the combination pictures in the manufactured set was a telephone with a car's wheels and headlights (Figure 4):

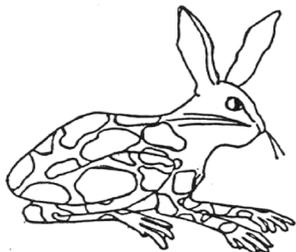


Figure 3

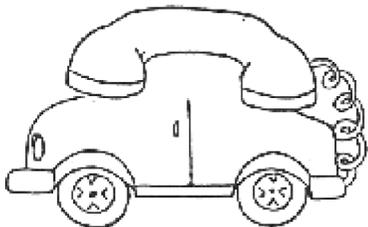


Figure 4

The divisions of the animals were made according to relatively natural lines (head, body, tail). The dissection of the manufactured items was

based on removable parts, such as wheels, telephone handset, or clock bells. As far as possible, the inanimate objects were divided along latitudes similar to those drawn in the animals (top, middle, and bottom).

### *Procedure*

All of the children participated either at school or at home. Each adult was interviewed at home. The same African-American female interviewer tested all the participants.<sup>2</sup> Those who took part at school were interviewed one-on-one either in a quiet corner of the classroom or in an adjacent empty office. The children who participated at home were also questioned individually but in the presence of their primary caregivers, who were requested not to take part. The potential differences by virtue of the difference location and the presence or absence of primary caregivers was taken into account by including the same numbers of children from each group in each environment. That is, an equal number of working-class and middle-class children were interviewed in each environment. In a few instances where the primary caregivers interfered in the interviewing process (e.g., in prompting the children), the data were not discarded. Participants were shown the pictures one at a time and were instructed: 'I'll show you some pictures, and you tell me what each one is'. The order of the pictures was randomized for each participant with the animate and inanimate tokens intermixed.

### **Results**

Not all of the participants completed the task. Several of the children in the youngest age groups either refused to perform any part of the task at all (including the naming of the 'normal' animals and inanimate objects), or refused to name any of the composite animals or inanimate objects. In the cases where the child declined to perform the task at all, he or she was excluded from the study; however, if the participant named the 'normal' referents but refused to label the composites, his/her data were included in the results. This was done only if it was clear (through interviews with teachers or caregivers) that the child recognized the 'normal' animals/inanimate objects but was reluctant to perform verbally when faced with the combination tokens in the experiment set. That is, it was not the case that the performance of these children was restricted by their inability to recognize the items; rather, this was interpreted as a difference in labeling behavior, a phenomenon that was reported in other studies of this type (Whittesley & Shipley 1999).

As there were ten participants in each age category and the experiment included thirty-six tokens, there were 360 responses for each age group

and a total of 2,160 in the study overall. The findings will be presented first in terms of the number of words and morphemes used by participants to name the referents. Then the linguistic construction types and the lexical choices used in naming are reported. This is followed by the results in regard to location bias (i.e., whether participants attended more directly to a referent according to its particular position in a composite). Finally, the findings are presented on the number of parts a referent contributed to a composite and participants' labeling behavior of those novel referents. That is, whether participants were more likely to identify the animal or object that contributed the greatest number of parts to a composite (e.g., the body and the feet but not the head).

The data were measured in terms of the *number* of words and morphemes used to name each referent, the *type* of linguistic constructions used (e.g. single words, compounds, phrases, etc.), and *which* words in particular (cat, dog, clock, etc.) were used to name each picture.

In terms of *number of words*, every word which added content to the response, i.e., content words (mainly nouns) and prepositions such as *with* which provided important information about the relationships among the parts in the composite referents, was counted for each answer of every participant. The *number of morphemes* included every morpheme produced in each response.

Linguistic construction types were counted as follows:

One word	= <i>cat</i>
Two words	= <i>cat ...frog</i> or <i>cat ...um, frog</i> (these answers have a measurable pause between the two names)
Compounds	= <i>cat-frog</i> (there is no pause between the two names)
Three + words	= <i>cat ...frog body</i> or <i>cat head ...frog body</i>
Phrase	= <i>a cat and a frog mixed</i> or <i>a cat with a frog's body</i>
Blend	= <i>frat</i> (frog + cat)

The actual words used fell into a limited number of categories, with most being one of *cat, rabbit, frog, clock, (tele)phone, or car/truck*. There was some creativity, especially in the animate naming task (*leopard, snake, squirrel, dog, lion*) and a limited amount with the manufactured items (*refrigerator, time-car, car alarm*). In most cases, these were the exception and were classified as 'other'.

#### *Number of words and morphemes*

There was a correlation between age and the average number of words and morphemes used by each group to name the referents in the stimuli set. In the case of the participants who refused to provide labels for the

composite pictures, means were calculated according to the number of labels that were given, i.e., if a child gave one-word answers for six pictures but declined to label the remaining thirty tokens, the zero-word answers were not counted and his/her mean was recorded as 1.0. This was done in order to make a distinction between the child's linguistic ability and his/her experiment situation behavior. Table 1 shows the mean number of words and morphemes used by the participants according to age and class:

Table 1. Mean numbers of words and morphemes used by age group and class.

	Two		Four		Six		Adult	
	W	M	W	M	W	M	W	M
Mean number of morphemes	2.28	2.61	2.66	2.84	3.06	4.22	5.28	5.45
Standard deviation	.41	.60	.56	.63	.74	1.15	1.97	1.99
Mean number of words	1.07	1.36	1.42	1.47	1.7	2.51	3.33	3.33
Standard deviation	.37	.61	.57	.64	.75	1.2	2.1	2.1

When an independent *t* test was calculated comparing the mean number of words used overall by the working-class children ( $m = 1.40$ ,  $sd = .46$ ) to that of the middle-class children ( $m = 1.78$ ,  $sd = .79$ ), there was a statistically significant difference between the means of the two groups showing that, in general, the middle-class children produced more words per picture than did the working-class children ( $t(58) = 1.95$ ,  $p < .05$ ). The same held true for the average numbers of morphemes used by each group ( $t(59) = 8.93$ ,  $p = .000$ ); the middle-class children ( $m = 3.22$ ,  $sd = 1.01$ ) used significantly more morphemes than the working-class children ( $m = 2.66$ ,  $sd = .669$ ) did overall. The means for the two adult groups were identical, so that this class difference did not appear in the adult data.

Although there was a difference between the groups of working-class and middle-class children in the mean number of words and morphemes to label each picture, further analysis reveals that this difference did not occur at every age. When independent sample *t* tests were calculated comparing the mean numbers of words children from each class used at each age level, the following was discovered: a) There was no significant difference between the mean number of words used by the two-year-old working- and middle-class children ( $t(18) = 1.617$ ,  $p > .05$ ); b) There was no significant difference between the mean number of words used by the four-year-old working- and middle-class children ( $t(18) = .267$ ,  $p > .05$ ); c) There was a significant difference between the mean numbers of words used by the working- and middle-class six-year-olds ( $t(18) = 2.149$ ,  $p < .05$ ). This is attributed not only to an increase in the use of

content words that rises steadily according to age in all of the child groups, but also to a jump in the use of function morphology that is unique to the middle-class six-year-olds; the increase in the use of function words among the working class children remains steady across the age groups.

### *Linguistic construction type*

The responses provided by the participants were divided into six categories in terms of Linguistic Construction Type: no answer, one word (*cat*), two words (*cat ... um ... rabbit*), compounds (*cat-rabbit*), three or more words that do not constitute a phrase (*cat ... rabbit ... cat head*), and phrases (*a cat with a rabbit head*). Table 2 shows the percentages of times each construction type was used by each age group by age and class across the study:

Table 2. *Percentages of times linguistic constructions were used by age and class.*

Construction	Two		Four		Six		Adult	
	W	M	W	M	W	M	W	M
None	26.7	15.1	8.5	0	0	0	0	0
1 Word	65.6	69.6	66.3	75.7	67.5	47.1	21.3	22.1
2 Words	7.5	8.7	11.6	1.9	2.7	1.6	2.4	0.9
Compound	0	0.9	6.1	10.9	11.1	3.4	15.2	10.3
3 + Words	0	3.5	2.2	0.3	6.2	2.2	4.1	2.2
Phrase	0.3	2.3	5.6	11.3	12.9	45.6	57.2	64.6

To determine first if there were differences in the percentages of linguistic constructions used by the adult participants according to class, the mean percentages of each type used by each adult group were compared using a one-way ANOVA. No significant difference was found in any of the comparisons. However, the working-class children refused to provide labels two times more frequently than the middle-class children did and used phrases only about a third as often. This suggests that there was a difference in naming behavior according to class at the youngest age group (where there were the greatest numbers of non-answers by the working-class participants) and at the oldest age group (where the six-year-olds produced a higher number of phrases). An independent *t*-test was conducted comparing the mean percentage of times the working-class children used each linguistic construction type to the mean percentage of times each was used by the middle-class children. This revealed that the only statistical difference in naming strategy according to class occurred with the percentage of times phrases were used ( $t(58) = 2.27$ ,

$p < .05$ ), where the middle class children used phrases ( $m = 19.7$ ,  $sd = 29.68$ ) significantly more often than the working-class children did ( $m = 6.22$ ,  $sd = 13.21$ ).

The six-year-olds and adults in the experiment seemed to differ greatly in their use of one-word labels and phrases to name the referents in the stimuli set. Since other studies have shown that middle-class six-year-olds and adults perform similarly in this type of task (Bloomquist in press), it is possible that the unexpected differences between the oldest children and the adults in this experiment were the result of a comparison between the working-class six-year-olds and the adults. To determine if class was the source of this disparity, paired samples  $t$ -tests were calculated comparing each group's use of the phrase strategy. These results are reported in Table 3:

Table 3. Results of a paired samples  $t$  test comparing the use of 'phrase' by six-year-olds and adults by class.

	Paired Differences Mean	$t$	df	Sig. (2-tailed)
Six Working – Adult Working	–44.30	–5.43	9	.000
Six Working – Adult Middle	–51.80	–6.17	9	.000
Six Middle – Adult Working	–11.60	–.96	9	.359
Six Middle – Adult Middle	–19.10	–1.58	9	.147

The working-class six-year-olds used significantly fewer phrases than both groups of adults did, but there were no significant differences among the phrase usages of the middle-class six-year-olds and the adults. Thus, the middle-class six-year-olds appeared to use naming strategies that were similar to those used by the adults, while the working-class six-year-olds did not.

### *Lexical choice*

Preliminary analyses showed no evidence of referent bias in the animate tokens (that is, no particular stimulus item elicited markedly more naming attempts than any other), but there was a class-linked referent bias among the children in the labeling of the inanimate composites. While 'clock' and 'car' were mentioned equally by all of the children, 'clock' was mentioned significantly less often ( $t(58) = 2.96$ ,  $p = .004$ ) by the working class children ( $m = 41.2$ ,  $sd = 18.49$ ) than it was by the middle-class children ( $m = 53.5$ ,  $sd = 17.31$ ).

*Location bias*

Previous work has established that when naming animate tokens in a task of this nature, children rely heavily on the head of the animal as a determining factor for categorization (Bloomquist 2007). This ‘head bias’ was found to clearly have influenced the labeling choices of younger children, who mentioned the animals contributing the heads in the composite tokens most often. However, head features appeared to be a less important factor in the naming done by older children and adults. Furthermore, fewer child labels and no adult answers showed the effects of a ‘top bias’ when naming inanimate objects, so it was concluded that different criteria (such as function) may have been considered by participants in the categorization of inanimate objects.

Since there were an equal number of three-part composites in the experimental data set (i.e., combinations where each part was taken from a different animal or inanimate object), and because each animal was equally represented in those composites, the percentages of times each animal or inanimate object part was mentioned by each participant in those combinations was counted. These results are summarized in Table 4:

Table 4. *Percentage of times participants mentioned a part when it was the only part contributed by an animal or object in the three-part composites.*

	Two		Four		Six		Adult	
	W	M	W	M	W	M	W	M
HEAD	50	50	66.75	79.95	66.65	80	93.3	96.7
BODY	10	13.15	16.6	16.95	20	3.3	63.35	90
TAIL	3.35	13.35	10	20	16.65	30	100	96.65
TOP	41.1	54.45	59.45	70.55	69.45	72.2	84.5	92.2
MIDDLE	50.55	73.2	72.8	84.8	86.7	88.9	96.7	98.35
BOTTOM	35.5	41.1	45	49.45	54.45	53.3	67.8	66.15

From these comparisons, we can see that in labeling the three-part composite tokens, the children always included the names of the head animal significantly more often than they included the names of the animals that contributed the bodies and the tails. Thus, the mean percentages of times the children named the heads were greater than the mean percentages of times they included the names of the bodies and the tails. This suggests that, for these groups, the features of the animal heads were more important criteria for categorization than were the features included in the other animal parts. Like the children, the adults named the heads significantly more often than they named the bodies; however,

they included the names of the tail animals with the same relative frequency as they mentioned the head animals, which could indicate that the adults took more of the animal features into consideration when categorizing the unfamiliar referents than the children did.

In the categorization of the composite inanimate objects, when only one part was contributed by each of the original referents, it was the inanimate object that contributed the middle part that was included most frequently in the labels of both the adults and the children overall. The middles were identified significantly more often than the inanimate object tops by the two- and six-year-olds, and were included significantly more often than the bottoms by all of the participants; the tops were identified more frequently than the bottoms by all of the participants with the exception of the two-year-olds.

In a comparison of the children's composite naming according to class, independent sample *t* tests revealed that, with the animate tokens, the only significant difference among the groups according to socioeconomic class was with the mention of animal heads ( $t(58) = 5.3, p = .003$ ) between the middle-class and working-class children. The middle-class children included the heads ( $m = 82.8, sd = 19.0$ ) significantly more often than did the working-class children ( $m = 67.2, sd = 23.8$ ). There were no significant class-linked differences among the children in the mentions of bodies ( $t(58) = 1.2, p = .246$ ) or tails ( $t(58) = .12, p = .909$ ). There were also no significant differences among the middle- and working-class adults in terms of body part mentions: heads ( $t(18) = 1.7, p = .090$ ), bodies ( $t(18) = 1.2, p = .221$ ), tails ( $t(18) = 1.2, p = .226$ ). In the case of the inanimate three-part composites, a significant difference was found between the children's mention of object middles ( $t(58) = 3.4, p = .000$ ) such that the middle-class children ( $m = 82.22, sd = 23.09$ ) mentioned the middles more often than did the working-class children ( $m = 70.00, sd = 29.25$ ). There were no significant differences in the mention of inanimate object tops ( $t(58) = 1.8, p = .068$ ) or bottoms ( $t(58) = .54, p = .588$ ) among the children in terms of class. Again, there were no significant differences in part mentions among the working- and middle-class adults: tops ( $t(18) = 1.7, p = .096$ ), middles ( $t(18) = 1.1, p = .292$ ), bottoms ( $t(18) = .17, p = .866$ ).

## Discussion

When evaluating the performance of children in the type of labeling task used in this study, one of the most important factors to consider outside of linguistic ability is the differences among the participants' language learning environments. Although all of the children in this experiment participated while in attendance of, or were otherwise enrolled in, some

kind of structured learning program (e.g., daycare, preschool, elementary school), it is still likely that the most significant factor in their linguistic development was their home environments. Therefore, the primary influence on the categorization behavior of the children who were involved in this study was the language interactions they had with their family members, specifically with the adults. Despite the fact that the parents or guardians of the child participants were not interviewed, nor were there any examinations of specific parent–child interactions done in this particular study, previous research provides insight into the different culturally engendered expectations that parents have for the linguistic behavior of their children, and the ways in which they go about precipitating their children’s language abilities. For instance, Heath (1983) has shown that working-class parents often do not give their children direct instruction in labeling and that their parent–child language situations tend to be more contextually bound. Conversely, she found that middle-class parents provide their children with more de-contextualized talk. In observations of labeling instruction occurring in economically and racially distinct parent–child dyads, Lawrence & Shipley (1996) found that working-class parents tended to provide fewer labels for both whole objects and parts of objects than middle-class parents did overall. However, proportionately, the authors discovered that working-class parents included more labels per utterance when talking to their children, a result which was interpreted as a difference in the communicative intent of the parents. That is, the middle-class parents focused on including more descriptive information about objects when discussing them with children, while the working-class parents were more concerned with naming the objects. This suggests that in shaping their children’s language development, the working-class parents put more emphasis on providing the right answer rather than on the development of expression, but that the middle-class parents encouraged their children to experiment linguistically through description and elaboration. The impact that this has on acquisition, Lawrence & Shipley concluded, is that middle-class children are getting more information about objects and therefore are able to convey that kind of information in their own attempts at naming. However, due to the nature of the input, working-class children are more likely to only learn labels and thus, focus on providing labels when approaching categorization themselves.

Another finding by Lawrence & Shipley (1996) further suggests that there were differences between the parenting behaviors of varying groups. They found that among their participants, the working-class parents used more directives, signaling that they were attempting to be more verbally controlling of their children, while the middle-class mothers issued fewer directives when communicating with their children,

which suggests that middle-class parents encourage their children to be more collaborative at earlier stages of language development. In addition, while it has been demonstrated that middle-class parents use a considerable amount of child directed speech (CDS) and seem to be more sensitive to age differences when communicating with their children (Newport, Gleitman & Gleitman 1977; Shipley, Kuhn & Madden 1983; Snow 1983), Heath (1983) has shown that working-class parents use less CDS and appear to be less receptive to the relationship between children's ages and their communicative capabilities. The data presented in Lawrence & Shipley (1996) confirms this, as it was discovered that the working-class parents did not adjust their speech according to the children's ages, but the middle-class parents did.

The results reported in the current study suggest that differences in language learning environments had a significant effect on the naming approach of the children from the two socioeconomic classes. The parents' presumed approaches to labeling were reflected in the language performance of the children in several ways.

First, there were considerably more working-class children who refused to provide any labels at all, or to label the composite pictures, and there were relatively few middle-class children who did not provide labels for the majority of the referents. This suggests that the middle-class children were more comfortable with this kind of task, and perhaps had had more experience (e.g., through spending time with an adult looking at picture books and being prompted to name objects therein, similar to the experimental task) than the working-class children had. In addition, an outcome of the experiment which was impossible to quantify was that, even when they did offer labels, many of the working-class children were more hesitant and showed a greater amount of discomfort in naming the novel composites than the middle-class children did. This apprehension in approaching the categorization of the combination tokens implies that perhaps the working-class children were not encouraged as often at home as the middle-class children were to independently suggest new names for objects in the world. Notably, refusals were most common among the youngest participants who had been in a structured learning program for a relatively short time. All of the older children, who had been in daycare or preschool for a number of years by the time they participated in the experiment, were less likely to refuse to name even the unfamiliar tokens, which could have been the result of a longer in-school experience and greater familiarity with picture-labeling tasks, regardless of class.

A second possible consequence of the differences in home language environments was that, in general, the working-class children had shorter utterances than the middle-class children, which reflected their

preference for one-word labels over descriptive phrases. Conversely, the middle-class children's answers included more description which was evident in their longer answers overall. These labeling behaviors were suggestive of parental language expectations in that the middle-class children may have been encouraged to experiment linguistically at home. They had most likely learned that description is an acceptable naming option and relied on it when they were faced with the task of labeling an unfamiliar referent for which they did not have a name. Moreover, the working-class children who may have been customarily provided with labels by the adults at home tended to rely more heavily on one-word over-extended labels, not because they were unable to recognize the various parts of the composites but, potentially, because their language experiences were framed by a one-to-one correspondence between objects and labels and they had not yet realized that description was a possible naming option.

It is likely that the supposition that there is one and only one name for every object, as in the assumption of mutual exclusivity (Markman 1989), may also have contributed to the refusals of the younger working-class children who might have believed that there was some specific 'right' answer (which they did not know) for each token. Perhaps rather than risking giving the 'wrong' answer, these children preferred not to answer at all. The understanding that objects could be named by using descriptive phrases coupled with their confidence with these types of structures (possibly through previous adult encouragement) may have led to the increased self-assurance in the naming of unfamiliar referents displayed by the middle-class children. Although the discrepancies in length of utterance were noticeable among all of the children of differing classes through age six, there were no such variations along socio-economic divisions among the adults. Therefore, at some point, through experience and greater familiarity with linguistic strategies, the older participants, irrespective of class, used similar naming techniques.

A third effect of differences in the language learning environments of the child participants was revealed in the number of times each group suggested 'other' morphemes rather than those included in the target set. The working-class children offered alternative whole-object labels (e.g., *cheetah* or *lizard*) almost twice as often as the middle-class children did, but used descriptive phrases and part-identifications (e.g., *a rabbit's head on a frog's body*) less than half as often. Again, this labeling behavior is suggestive of a focus on a one-to-one matching of names to objects by the working-class children in comparison to the explanatory method of the middle-class children. It is unlikely that these differences among the groups of children were cognitive rather than linguistic since many of the alternate labels that were offered showed sensitivity to more complex

features than holistic shape. For example, even though the one-word label *leopard* was over-extended to include various combination tokens, all of the referents to which it was applied had some salient cat feature (either the head or tail) and frog spots. Thus, the children seemed to be responding both to shape and 'texture' in their innovations.

Finally, there were class-linked differences among the participants in the understanding of the experimental task in general. Many of the working-class children, and adults as well, began labeling the composites with one-word over-extensions, but switched to compounds or descriptive phrases once they understood the nature of the combinations. Several of these participants asked the interviewer at this point if they were 'allowed' to describe the combinations, or if they were required to reply with one-word labels. Although a number of the middle-class children and adults also changed their labeling strategies once they realized the differences among the normal and composite referents, no middle-class participant, including the children, ever inquired as to what the researcher's expectations for participants' naming were, or whether they should tailor their responses accordingly. This again suggests that there is a class difference in expectations for the language production involved in naming objects, or at least the kinds of naming behaviors tapped by experiments of this sort. The working-class adults initially limited themselves to shorter utterances when supplying labels for the composites, so it is not unreasonable to assume that the parents of the working-class children would expect the same of their children. Conversely, the middle-class adults seemed to have been less concerned about what may have been required of them in terms of performance and did not alter their strategies in response to any expectations they may have perceived the interviewer to have had. In consideration of the behavior of the middle-class adult participants who responded without asking what was expected of them linguistically, it is possible to predict that the parents of the middle-class child participants also imposed fewer restrictions on the verbalizations of their children, their own language production serving as an example.

While it is certainly not my contention, it may be suggested that these class-linked differences (argued here to be the result of differences in linguistic socialization) are similar to the age-based differences found among the children, which were attributed to cognitive maturation. However, in the case of the variations according to socioeconomic class, it is important to note that the differences are found *within* the age divisions, not across them, and that the middle- and working-class children appeared to perceive the tokens the same; it was just the case that they responded to the task differently. Although it is possible that there may have been cognitive differences among the children from each class, it is

likely that it was the differences in linguistic environments in which each group of children was raised that had the most direct effect on their performance in the naming task. The issue of testing for cognitive differences in terms of the development of labeling behavior among children from varying socioeconomic groups is an important consideration for future research.

### **Implications for education**

While there have been substantial gains in linguists' understanding and evaluation of nonstandard varieties since the deficit/difference debate sparked by the early work of Bernstein, Jensen, and Labov, there have only been superficial changes in the way in which child speakers of nonstandard varieties are educated. Much of the instructional materials used in school districts and the training that teachers receive in regard to working-class populations remains grounded in educational philosophy that measures both academic and social success in school according to class-linked expectations. For example, there is a widely held belief that the most reliable predictor of a child's academic success is family income and the mother's educational level, not ethnic background or language ability. Furthermore, many teachers are trained to believe that working-class parents with limited educational opportunities do not believe that talking to their children is important or necessary.

In an article for the American Speech-Language-Hearing Association, Celeste Roseberry-McKibbin advises language specialists that working-class parents are:

... less likely to respond to their children's utterances; when verbal interaction does occur, it is more likely to take the form of directives than to take a form (such as inquiries) that keeps the interaction going. Children from low-income backgrounds have poorer phonemic awareness than children of middle SES; the children of low SES fall farther and farther behind children of middle SES on phonemic awareness tasks and reading ability as they go through school. Children from low-SES homes whose parents are not highly educated may not experience language or literacy experiences that are commensurate with the expectations of mainstream schools. ([http://www.asha.org/about/publications/leader-online/archives/2001/011106\\_5.htm](http://www.asha.org/about/publications/leader-online/archives/2001/011106_5.htm))

Naturally, the assumption is that these children are rarely spoken to or given language stimulation during the first year of life and so have persistent disadvantages from early on. While linguistic research has clearly shown that stimulation in the first year of life is critical for linguistic

and cognitive development, it is also the case that most working-class children are not, in fact, deprived of verbal stimulation. Studies such as Hart & Risley's (1995) work<sup>3</sup> have been largely interpreted by educators to support the assumption of class-based verbal deprivation and help to further the theory that the language learning environment of low-SES children is so deficient that they present an insurmountable challenge to educational systems. For instance, see Westby (1997), who, in commenting on this research, argues that

even by 3 years of age, the difference in vocabulary knowledge between children from welfare homes is so great that children from welfare homes would require a preschool program for 40 hours per week in which they heard language at a rate heard in the homes of professional families to gain a vocabulary the equivalent of working-class children.

Educators believe that, for many working-class children, school is a culture shock and that these children present special challenges for the school system because, while they technically do not have language-learning disabilities, they come from environments where language stimulation and literacy are neither readily available nor encouraged.

In much of the education literature, working-class parents and caregivers are portrayed at best as hurdles to the education of their children. Not only are they criticized for the perceived lack of verbal stimulation which they provide their children, but there remains the persistent belief by educators that working-class homes are culturally deprived as well and that this lack of environmental stimulation also contributes to the academic failure of working-class students. Later in the same article for ASHA, Roseberry-McKibbin suggests that conventional wisdom dictates that because low-income parents and caregivers are simply 'trying to survive and provide the basics of life such as food and shelter, oral and written language stimulation often does not receive priority' in working-class homes. Living in poverty also means that families are less able to 'take their children to many places and expose them to experiences such as they might have at zoos or museums that many mainstream educators take for granted. Lack of assumed literacy and specific environmental experiences often means that children from low-SES homes perform poorly on standardized tests'. Specifically, she references work done by Justice & Ezell (2001), who found that working-class children had low skill levels on tasks measuring metalinguistic terminology, alphabet knowledge, and print and word concepts, skills which are necessary for kindergarten in many states, and thus, educators are cautioned

that children from low-income backgrounds may be at a disadvantage from the beginning of their formal schooling.

Finally, working-class parenting practices are argued to be at cross-purposes with academic models not only in terms of linguistic input and cultural stimulation, but in regard to language socialization as well, particularly in terms of confidence and motivation. In work done on parenting, social class, and the achievement gap for the Children, Youth, and Family Consortium, Jacobsen & Wilder (2004) highlight class-linked differences in encouragements and reprimands of children and state the following: ‘Toddlers of professionals receive an average of six encouragements per reprimand while toddlers of parents on welfare receive two reprimands per encouragement – a reversal of the ratio. Children receiving more encouragement from an early age will build self-confidence and willingness to try new activities, both of which lead to greater success in the classroom’. Additionally, the authors argue that

disciplinary differences between social classes, often as a result of the types of daily experiences had by parents at work, also impact learning ... Upper and middle class parents are more likely to negotiate disciplinary issues like bedtime or dinner choices and are more likely to explain why particular rules are being implemented. Working class parents, whose work is often more routine and authoritative, tend to instruct children without extended explanations. When upper and middle class children arrive at school, their experiences, on average, make them more comfortable asking the teacher questions and clarifying rules.

These differences in how each set of parents views authority is also predicted to impact parent–teacher relationships. To support this claim, Jacobsen & Wilder cite Lareau’s extensive study of home–school relationships (2000) which found that working class parents assumed that teachers had specialized knowledge and, therefore, did not feel the need to intervene or supplement their children’s schoolwork with enrichment at home. Conversely, upper-class parents interviewed in the same study reported the belief that they were partners with educators and often guided and supervised their child’s educational experiences through work at home or through negotiations for individual accommodations at school.

While much of the educational research reported here is problematic in that it incriminates working-class parents and caregivers as saboteurs of their children’s academic success, the cumulative effect of these various social class differences in parenting style is that upper- and middle-class children arrive at school with experiences and abilities that give

them an educational advantage, largely because models of school success are simply too narrowly defined and adhere far too closely to middle-class norms. Even in our post-modern understanding of social class, educators often appear unable to surrender the assumed connection between class and language socialization practices in the family, a perception which undercuts both the theoretical and practical discourse on approaches to evaluating academic progress.

## **Conclusion**

Based on the data collected from the working-class and middle-class children who participated in the experiment, I conclude the following:

1. Aside from those which were found to be age-dependent (e.g., labeling of parts), there were no discernable cognitive differences among the classes manifested in this task, in that all of the children at each age level appeared to be attending to the same criteria for category judgments.
2. There were, however, differences in linguistic development according to socioeconomic class. This was evident in the middle-class children's greater willingness to participate in the task in general, which indicated that they had more experience with picture naming, and also in their ready usage of naming strategies which were more linguistically sophisticated than those of the working-class children. These differences were most evident with the youngest and oldest groups of children, which suggests not only that the middle-class children had an early advantage linguistically over their working-class peers, but also that the working-class children showed more of a language performance gap even after at least one year of formal education.
3. A third interpretation of the results was that the class-based variations in naming (since they are argued not to be cognitive per se) were most likely the result of the differences between the children's language learning environments. Specifically, I suggested that it was the different parental expectations for their children's linguistic behavior that determined the children's performance in the task. This speculative difference in focus contributed to the children's confidence in participating in the task as well as to the level of sophistication in their labels. The implications of this result for the study are especially compelling since the elements of the language learning environment play a crucial role in later issues of literacy and scholastic performance for children. If educators appreciate the impact of these cultural expectations on the language development of children as young as

two years old, they can reconsider their evaluations of children whose academic achievement may be hampered by such influences. In addition, early intervention programs could be established to help working-class parents appreciate the benefits of purposeful language instruction for even the youngest children.<sup>4</sup> Even though all of the children who participated in this study were either enrolled at the time, or had previously been enrolled in a structured learning program, there were socioeconomic differences evident among those programs as well. For instance, many of the working-class children were enrolled in a YWCA program which had a larger-child-to-staff ratio and had fewer financial resources than some of the more affluent daycare centers attended by the middle-class children. A consequence of this difference was that the centers with smaller budgets (and lower tuitions) had less money to spend on educated staff (many of the middle-class daycares had caregivers who had college experience, if not degrees, while most of the staff members at the working-class centers had a high school education at best) and on learning materials. This meant that the children enrolled in some of the less expensive programs had less individual attention from caregivers and fewer opportunities to receive language instruction by way of naming activities.

4. Finally, I discovered that there were no significant labeling differences among the adults in term of class. This means that although there were different rates of language development which appeared to be class-related found among the children, at some later stage these variations were equalized. It is likely that the home language environment becomes less influential as children mature so that, as they get older, their linguistic development is shaped more by the language expectations of their teachers and peers than those of their parents.

Although this study contributes greatly to understanding the effects of class-linked factors on the development of naming behavior in child language, the findings merely hint at the broader cognitive and linguistic implications of category judgments and naming strategies. Since we still do not have sufficient data to explain many aspects of naming acquisition, questions are left to continuing research. Most significantly, the strategies used by each participant are derived from the child's existing cognitive representations, which can vary widely. The reasons for this variation can stem from a child's exposure to referents or from other individual experiences. For instance, it has been demonstrated that children who have spent a great deal of time with their parents reading and identifying pictures in books have larger vocabularies. Therefore, these children have more naming options (e.g., a larger repertoire of animal

names) and are less likely to over-extend category names (even in the early stages) than children who do not participate in this type of naming instruction. This group of children, irrespective of class or ethnicity, may also develop noun–noun compounds and descriptive phrases earlier as they have more experience with various linguistic strategies. As this study did not take into account the details of the children's home environments outside of socioeconomic determiners, further research is needed, perhaps in the form of diary study and experiment combined, to explore the specific individual language learning environments of children and their impact on cross-cultural language development.

While linguistic research (such as that reported here) has overwhelmingly demonstrated that working-class children are neither linguistically nor cognitively deficient, but that, by and large, their home language learning environment tends to differ significantly from that of children from middle-class homes, in practice, much of the information is consistently ignored or misinterpreted by educators. Most publications designed to provide guidelines to support the achievement of working-class children explain the mismatch between working-class home and school environments as a reiteration of the outdated (and largely racist) theoretical models of the 1960s and 70s, the cornerstones of which were the deficit hypothesis and the assumption that working-class homes suffered from cultural and linguistic deprivation. The perception of working-class parents and caregivers as either unable or unwilling to invest in the educational success of their children is still deeply ingrained in educational philosophy. While linguists like Bill Labov, Walt Wolfram and Jeffrey Reaser continue to contribute to language and literacy programs in new and creative ways, such as in developing classroom materials which affirm and support non-standard home varieties and educating teachers about linguistic variation, a more effective approach may be one of even closer cooperation between the theorists and the practitioners. One such collaboration is that of Charity & Price (a linguist and an elementary school teacher), sisters who have been writing a practical text for teachers of African-American English speaking children that is informed by theory on language development, literacy, and linguistic variation. While more consistent connections between linguists and teachers will undoubtedly serve to better inform policy, it is the very culture of education that must change worldwide, if we are to hope to effectively educate students of varying socio-cultural backgrounds.

## Notes

1. An equal number of European American and African American children were selected for this study and were matched according to age and SEC. There were no significant differences in the data according to ethnicity within age or SEC groupings. These results are reported elsewhere (Bloomquist forthcoming).
2. The ethnicity of the interviewer is worth mentioning here due to the extensive work done by Labov (1970) and others, who have long established the difficulties involved in data collection from African American children by European American researchers. While the argument can certainly be made that all children may be reluctant to complete language tasks in the presence of new adults, it remains the case that African American children are especially hesitant to perform linguistically in the presence of unfamiliar European American adults. In the case of this study, ethnic differences between the children and interviewer were minimized as much as possible, and the researcher also spent a great deal of casual time in the classroom before engaging the children in the language task in an effort to reduce the children's level of discomfort.
3. Findings show that, in longitudinal studies of the language interactions in the home environments of 1- and 2-year-old children, 'Socioeconomic status made an overwhelming difference in how much talking went on in a family ... the family factor most strongly associated with amount of talking was SES'. They extrapolated that, in a 365-day year, children from professional families would have heard 4 million utterances, and children from welfare families would have heard 250,000 utterances.
4. By 'early intervention', I do not mean to suggest compensatory education. My point here is that schools should collaborate more effectively with working-class parents so that these parents have a clearer understanding of the school's expectations and can better prepare their children far in advance of enrolment.

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