

Mother-Child Interaction and Socio-Economic Status in Nigerians

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Abstract

Research documents relationships between socio-economic status and child outcomes. It indicates linguistic and academic disadvantages for children from lower socio-economic (LS) backgrounds when compared with MS middle class children. Child performance appears to be modified by mother's education and environmental factors. This article examines social class differences in the interaction of LS and MS mother-child dyads and their linguistic performances. Its purpose is to determine whether class differences are evident in language used by Nigerians. Participants were thirty-six Nigerian mother-child pairs, matched for age and sex of child and language spoken at home. There were 10 girls and 8 boys. Their mean age was 43 months. Each dyad's interaction over a standard set of toys was video recorded. Data analysis was qualitative and non-parametric. The results adduced a significantly higher MLU from MS than LS children. MS mothers' afforded their children more autonomy than did LS mothers'. MS mothers used interrogatives to encourage elaborated responses from children. Modeling was employed as a teaching strategy by MS mothers. LS mothers limited themselves to labeling objects. Interrogatives were utilized rhetorically. Children's responses were reinforced significantly less by LS than MS mothers. These results are limited by sample size. Significant however, are differences described in the interaction patterns of Nigerian MS and LS mothers.' Discussed were the effects of illiteracy in mothers on children. It was suggested that this may be bridged by pre-kindergarten education for LS children. Further research is indicated on academic achievement in Nigerian children from MS and LS backgrounds.

Keywords: socio-economic status, linguistic codes, mother-child interaction, Nigeria.

INTRODUCTION

A proliferation of studies have examined the effects of social class differences on children's outcomes. Group variations have been reported in the areas of their academic achievements, health, career pursuits, IQ and language use (Turkheimer et al, 2003; Ferguson, et al, 2007; Faitar, 2011; Ladd, 2012; Altschul, 2012 & Murunga, 2013). Several studies have documented the educational advantages and final outcomes of children from middle (MS) over those from lower (LS) socio-economic backgrounds (Rokasa & Potter, 2011; Juma et al, 2012 & Ladd 2012). MS children have been reported to perform significantly better than their LS peers on IQ tests. Turkheimer et al (2003) however found that in LS children, 60% of the variance on IQ scores was attributable to environmental factors and very little to genetics. The reverse was adduced for MS children in whom approximately 60% of the variance was related to genetic factors. Health problems and even depression are more frequently reported in LS than in MS children (Bradle & Corwyn, 2002; Ferguson, et al, 2007 & Bartley 2010). Superior performance on tests of language skills is averred for MS over LS children (Walker et al, 1994; Dearing & Taylor 2001; Johnson 2001; Horton-Ikard & Weismer, 2007 & Pungello et al, 2009). Lawrence (1997) found that 36 month olds from MS backgrounds had longer MLUs

on tasks requiring labeling and providing additional information on several pictures than did peers from working class families. Pungello et al (2009) reported that LS children had a significantly shorter MLU than did those from a higher socio-economic bracket. Altschul (2012) averred that more LS children suffer language delays than do MS children. The author warned that speech delays affect the development of literacy skills, having a domino effect on academic achievement.

Somewhat unpopularly, Bernstein (1973; 1996) reposted that language used by MS speakers varies both syntactically and semantically from that used by LS speakers. He avers that MS speech is more analytical and de-contextualized than LS speech, transcending the restrictions of locale and affiliation. He dubbed this the *elaborated code*. LS speech, which he claimed was context dependent and personalized, he called the *restricted code*. Inghilleri (2002) noted that because Bernstein insinuated that the elaborate code employed by MS speakers is superior to the *restricted code* used by LS speakers, relevant differences which perhaps influence children's outcomes have been downplayed and not addressed. Much has been made of the influence of parent interaction patterns on subsequent child development (Martin, 2006; Martin et al, 2010;

Nwanze, 2012 & Ukoha, 2012). Ginsborg (2006) found that it was mother’s educational level and not father’s that was highly correlated with academic achievement in their children.

The present study examines the patterns of language use by a small group of Nigerian MS and LS mothers. The syntactic and semantic language performance of their children is also explored. The purpose of this study is to determine whether the differing linguistic codes documented for MS and LS speakers are reflected by Nigerians.

METHOD

Participants

There were 36 participants in the study. Nine MS mother-child pairs were matched with 9 LS mother-child pairs for age, sex and language spoken at home. The children’s mean age was 43.6 months for MS children 42.7 months for LS children. The age ranged was 16 to 75 months, with a standard deviation of 6.4 months. Each group comprised of 5 girls and 4 boys. The mothers were volunteers. The MS group was enlisted from members of staff of the University of Lagos and their friends. All the MS mothers had professional qualifications, having completed junior college or 4 year University programmes. They resided in Lagos in self-contained apartments in upper middle class suburbs. All the mothers in the LS group had less than six years of formal education. They were in unskilled occupations such as cleaning and petty trading. They lived in high-density LS rooming houses in a slum area of the inner-city. Several families shared communal bathroom and kitchen facilities there. The lower income mothers were given a transport assistance equivalent to \$15 per visit. None of the children in the study had any known physical, sensory or neurological impairments.

Procedure

Two 5 minute video recordings, set one week apart were taken of interaction between each mother-child dyad. Inter-tape reliability was 0.89. The setting was a low round table with 2 chairs. On it were placed a doll’s house with furniture, 4 dolls, a toy car and a doll’s playground (all familiar fixtures in many Nigerian schools). Each mother was instructed: - “*play with your child*”. *You may use these toys if you wish*. Initially, it was implied that only the child’s responses were of interest. Hence avoiding a guarded response from the mothers. Following the recordings, the mothers were debriefed as to the study’s objectives. Each gave written consent for their recording to be utilized for teaching and research purposes.

Data Extraction

Due to the small sample size the data was analyzed non-parametrically. There was some additional qualitative analysis.

1) Mean Length of Utterance in Morphemes

(MLU-m): Is a standard measure of syntactic complexity in children’s language and of adult speech directed to children. It was computed for each mother and child as described by Brown (1973).

2) Semantic Score (SS): SS was designed to give a rough measure of semantic complexity in the speech of the children. Each semantic relation was given a score according to its suggested order of emergence see appendix. The average number of semantic notions expressed per utterance unit, was calculated.

3) Utterance Unit (UU): A UU was defined as a segment of speech unbroken by a pause of 1 second or longer.

4) Communicative Score (CS): Communicative responses were mothers’ comments which were relevant to what their child had just said. Their responses were rated as communicative or non-communicative by two independent raters. Inter-rater reliability was $r = 0.965$. CS was calculated as follows: - *the number of relevant responses made by each mother divided by the total number of utterances made by the mother*. This was presented as a percentage score.

5) Communicative Function (CF): Two raters coded the elocutionary force of each mothers’ speech into ten categories (See Fig 1). Utterances over which there was rater disparity were eliminated from the study. Inter-rater reliability was $r = 0.93$.

RESULTS

1. Statistical Analysis

Table 1: Linguistic And Communicative Aspects Of Mothers’ Speech

| | LI | MI |
|-----|------|------|
| MLU | 3.58 | 3.81 |
| CS | 57.5 | 78 |
| UU | 174 | 170 |

The Wilconxon T test did not reveal any significant differences between the MLU-ms of the mothers in each group. When the Welsh test was applied however to mothers of the 5 youngest children, it showed a significantly longer MLU-m for MS than for the LS mothers. ($P < .03$).

Mothers MLU was positively correlated with child’s age in both groups. It was however stronger in the MS than LS group ($r_s = 0.9, P < .01$; $r_s = 0.63, P < .05$ respectively). Mothers in the MS group had a significantly higher CS than did the LS mothers (Wilcoxon $T = 2, N = 9; P < .005$). Both sets of mothers employed an equivalent amount of speech with their children.

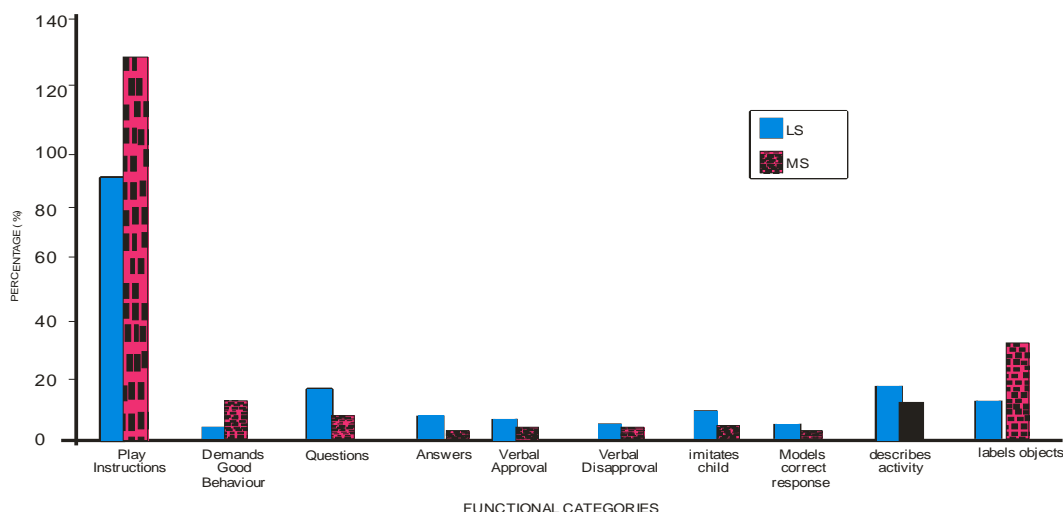


Fig 1 illustrates the elocutionary force of mothers. The largest category used by the MS mothers' was questions (interrogatives), which comprised almost 25% of their speech. For LS mothers, play instructions were utilized most frequently. Modeling was the least commonly used feature in this group. Mothers' in both groups were highly imperative, issuing many commands. This was illustrated by the first two categories on the graph (play instructions and demands for good behaviour). The LS mothers however, made almost twice as many commands as did mothers from the MS group. There were significant differences in the frequency with which the LS and MS mothers employed 3 categories. Object labels were used significantly more by LS than MS mothers (Wilcoxon T = 0, N = 9; P <.005). The MS mothers employed modeling and verbal approval (praise) more frequently than did the LS mothers (Wilcoxon T = 0, N = 9; P <.005; Wilcoxon T = 1.0, N = 9; P <.005) respectively.

Spearman rank correlations indicated that for most categories, mothers' elocutionary force was not correlated with child's age. The exceptions were *labels objects*, which correlated negatively with age in both groups ($r_s = \text{LS } -.60; \text{MS } -.61, P < .05$) and *play instructions* from LS mothers who issued more to their younger than to their older children ($r_s = -.89; P < .01$).

Table 2: Linguistic And Communicative Aspects Of Childrens' Speech

| | LI | MI |
|-----|------|------|
| MLU | 2.69 | 1.96 |
| SS | 5.61 | 5.9 |
| UU | 90 | 127 |

The MS children used a significantly higher MLU-ms than did the LS children (Wilcoxon T= 5, N = 9; P <.025). There was however no significant difference in the semantic scores of the MS and LS children. The MS children were slightly more vocal than were the

LS children. This difference however did not reach significance.

There were some differences in the relationship between age and linguistic performance in the two sets of children. There was a stronger link between linguistic performance (as measured by MLU-ms and SS) and age in the MS than in the LS children (age/MLU-ms, $r_s = \text{MS } .90; P <.01; \text{LS } .68; P <.05$. age/SS $r_s = \text{MS } .72; P <.05; \text{LS } .60; P <.05$). In addition, the younger, lower MLU-ms, LS children, were more vocal than the older more language competent ones (age/UU, $r_s = \text{LS } -.564; P <.05$). This was not so for the MS children (age/UU, $r_s = -.20; \text{NS}$). There was also a negative correlation between UU and MLU-ms in the LS children alone ($r_s = \text{LS } -.73; P <.05; \text{MS } -.27 \text{ NS}$). MLU-ms and SS were significantly correlated in the MS children alone (MLU-ms/SS, $r_s = \text{MS } .65; P <.05; \text{LS } .49 \text{ NS}$).

2. Qualitative Analysis Mother's Teaching Strategies

Teaching strategies varied for LS and MS mothers. The LS mothers instructed with a high proportion of object labels. For example Mrs. A. introduced the word *balcony* by indicating it and labeling it on the doll's house. Her use of interrogatives here is rhetorical, almost like a conjunction. As she pointed out fixtures in the doll's house, her constant refrain was 'have you seen it?' She appeared to employ this as a means of focusing her son's attention, not pausing for a reply. When he did not pick up the new word *balcony*, Mrs. A. then backed up and began labeling more familiar items such as *window* and *door*. Once the child labeled those, she reintroduced the word *balcony*. This mode of instruction was characteristic of the LS mothers.

The MS mothers appeared to instruct by employing questions which lead their child through a deductive process. For instance Mrs. B. rather than labeling a swing for her 3 year old, asked her where she had seen one of these (swing) before. She followed it up

with “do you have one at your school?”: “what do you do with it?” Like most MS mothers she tended to de-contextualize the conversation from the immediate environment of the toys present. The MS mothers tended toward this tactic of guiding their child with interrogative prompts to relate the toys with their experiences with the real life items.

Make believe play with the toys was almost an exclusive preserve of the MS dyads. This was hardly adopted by the LS mothers who limited themselves to labeling the toy items. An example of instructing through play is found in Mrs. C’s dialogue. Her 30 month old had not grasp the concept of assigning names to dolls. “When asked “what are their names?” she replied with “girl” Mrs. C. then employed a tag question “is her name Mary or Jane?” hence modeling with an interrogative. Her daughter then gave all the dolls the same name. Mrs. C. modeled by giving each doll a separate name. Her daughter then caught on, assigning different names to each doll to which Mrs. C. offered verbal approval. Modeling and verbal approval were employed significantly more often by MS than LS mothers.

The MS mothers appeared to afford their children more autonomy with the toys than did the LS mothers. The latter directed their children’s play; e.g. “put the girl and boy on the see-saw, rock it up and down”. Sometimes their child’s own play initiatives were brushed aside by LS mothers who insisted that they follow the mother’s line of regard. The MS mothers tended to stimulate child-centered play by asking leading questions such as “what are the boy and girl going to do next?”

DISCUSSION

As reported in the literature, the MLU-ms of the MS children were significantly higher than those of the LS children (Elardo et al, 1977; Lawrence 1997 & Pungello et al, 2009). Both groups did however employ equivalent levels of semantic complexity. It is questionable however as to whether the MS children were actually linguistically superior to the LS children. The MS mothers afforded their children more autonomy and stimulated more expression from them than did LS mothers. The LS mothers encouraged compliance rather than expression from their children. The younger LS children appeared less compliant and spoke significantly more than did the older children. They were more likely to ignore their mothers’ incessant instructions hence the disparity in MLU-m may be a function of the parental interactive style rather than the children’s linguistic skills. The syntactic complexity of mother’s speech to MS and LS children as measured by MLU-m was comparable. The MS mothers appeared however to make more sensitive age adjustments when speaking to their children than did the LS mothers. Mother’s MLU-m was more highly correlated with child’s age

in this group. Both sets of mothers were perhaps more imperative in their communication than are those reported in the West. Bernstein (1973; 1996) reported an interrogative mode of communication for MS mothers and an imperative mode for LS mothers. Similarities existed in the number of interrogatives employed by both sets of mothers. A qualitative analysis of this however indicated that different question types were adopted by each group. Teaching strategies also differed for the two groups. The LS mothers encouraged passive observation while deductive reasoning and elaboration were elicited by LS mothers. These also employed more verbal reinforcement than did the LS mothers who gave little acknowledgement of appropriate responses. The MS mothers were significantly more supportive of their children’s utterances than were the LS mothers. This was reflected by the disparity in the mother’s CS scores. The differences in approach are probably a function of literacy.

The significance of these findings are that children from LS backgrounds may require external support to enhance deductive reasoning and analytic thinking. Literate and semi-literate mothers may be unable to provide this, leading to an academic disadvantage for their children. Turkheimer et al (2003) reported that lower IQ scores from LS children are due to environmental disadvantages. Ginsborg (2006) reported that the academic achievement of children is highly correlated to the education level of the parents. Pre-kindergarten education for LS children may be of the essence. Fatar (2009) indicated that LS children who enjoyed this were academically at par with MS peers in advanced classes. That enhancing effect was not observed for MS children. Children, who benefited from literary activity with their mothers at home, had superior performances at school than those that did not (Martin, 2006). Illiterate mothers cannot offer such activities. It is recommended that this gap be filled by early childhood education for LS children. Inferences drawn from this study are limited by its small sample size and its restriction to one geo-cultural region of Nigeria. Children’s academic achievements were not explored here. Significant to researchers however is that these results lend support to the implication that linguistic code differences between MS and LS groups are universals transcending culture and locale. Furthermore it adduces that literacy in mothers, modifies spoken language complexity in their children.

In conclusion, the study reports significant differences in language use by MS and LS mother-child dyads. LS mothers were more dictatorial than were MS mothers, affording their children less autonomy whilst MS mothers appeared to promote more analytic thinking in their children who employed more complex syntax. It was suggested that this is a function of maternal literacy. The

disparity between LS and MS *child-language* may be overcome by offering early childhood education to LS children. Further research is needed to explore academic achievements in children from middle and lower socio-economic classes in Nigeria. Additionally, avenues for support for LS children where necessary should also be investigated.

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APPENDIX

Scores Semantic Categories:

- | | | | |
|-----|-------------|---|---|
| 1. | Exclamation | - | ah, oh! |
| 2. | Protospeech | - | pre linguistic meaningful sounds such as <i>peep for car horn or woof for dog</i> . |
| 3. | Affirmation | - | agreement, <i>yes eh, mm</i> |
| 4. | Notice | - | acknowledgement of the presence of a person or object e.g. <i>greeting</i> . |
| 5. | Nomination | - | labeling |
| 6. | Negation | - | causing an action to cease e.g. <i>No</i> . |
| 7. | Recurrence | - | requesting or expressing the repetition of an event. |
| 8. | Action | - | words describing actions e.g. <i>push, running</i> . |
| 9. | Object | - | of action, e.g. <i>car go</i> ; in this instance, the car is the object. |
| 10. | Agent | - | causative agent of an action, e.g. <i>'I push car'</i> I is the agent of the action. |
| 11. | Location | - | on the table; at home; over there. |
| 12. | Attribute | - | salient features e.g. <i>size, colours or shape</i> . |
| 13. | Possession | - | ownership e.g. <i>my; mummy's</i> . |
| 14. | Experience | - | subjective or affective reactions e.g. <i>hunger, fear, personal evaluation, nice</i> . |
| 15. | Experiencer | - | the one who has the experience |