

A STUDY OF NEGRO AND WHITE LOW SOCIO-ECONOMIC CLASS
CHILDREN ON THE VARIABLES OF RACE, SEX AND
KINDERGARTEN ATTENDANCE AND ON GENERAL
SOCIAL ADJUSTMENT

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SUMMARY

A study was conducted to investigate the academic achievement of low socio-economic class Negro and white children on several variables. A control group without kindergarten experiences was established which was matched with the experimental group to ascertain if the kindergarten program was a significant factor in the children's achievement. Analysis of variance was employed to determine the main effects and interactions among race, sex, and kindergarten attendance. Teacher ratings were obtained on each student to evaluate in-school social adjustment and chi square was utilized to locate significant differences among the groups. The results showed the greatest differences in academic achievement could be traced to sex differences, but difference also appeared in specific language areas with race and kindergarten attendance interaction.

INTRODUCTION

For many years a controversy has been simmering regarding the effects of race and of socio-economic class on school progress. Allison Davis, in his classic work Social Class Influences Upon Learning (Davis, 1948), established a strong case supporting his contention that the lower classes are often poor academic achievers and obtain low IQ scores as a function of cultural factors. Henry E. Garrett

(1966), Arthur Jensen (1969), and W. C. George (1962), among others, indicated that constitutional or genetic differences between the Negro and white races accounted for racial differences in intellectual and academic performances. Audrey Shuey (1966) reported on a very great number of research studies, some of which dated as early as 1913. She summarized these studies by indicating that with but two exceptions the Negro averaged below the white groups in mental test performance, and concluded that there must be genetic differences, with the Negro intellectually inferior to the white.

Musgrove (1970), and Musgrove and Lawson (1971) undertook studies to examine the performance of low socio-economic class Negro and white children on three instruments, the Goodenough Draw-A-Man Test (Goodenough, 1926) to measure non-verbal intelligence, the Geometric Design Subtest of the WPPSI, Wechsler Primary and Preschool Scale of Intelligence (Wechsler, 1969) to measure visual-motor and fine motor control, and the WPPSI Information Subtest to measure general background information on the verbal level. These studies disagreed with Audrey Shuey's conclusion in that there were no significant differences found between the sexes or between the Negro and white pupils except for performance on the verbal scale.

PROBLEM

The research presented here is a follow-up of the original study which was done in 1967-68 school year when the experimental sample was enrolled in kindergarten. This study was done in 1969-70 when the original sample had reached second grade.

This study was planned to investigate the progress of the original sample as they moved through school from kindergarten into second grade and to compare this group to a similar group of pupils who had not attended kindergarten. The intent was not to evaluate the efficacy of the general kindergarten program, for it was recognized that the samples used in this research did not represent a cross-section of the general population and only one kindergarten center was used. It was hoped, however, that within the circumscribed limits of the population some effects of kindergarten experiences would be observed. Comparisons were made to determine if any differences existed in grade two between Negroes and whites on academic variables, and if differences existed between academic progress of the non-kindergarten group when compared to the group which had attended kindergarten.

The original group studied in 1968 consisted of 179 subjects, enrolled in a kindergarten center which served seven elementary schools. In 1969, 106 of the original group could be located who met the criterion of continuous progress in school. Twenty-five of the original sample had repeated kindergarten or grade one; 38 had moved from the county; no test data were available for nine pupils; and one was deceased.

The control group consisted of 106 pupils who were matched on a one-to-one basis with the experimental sample on the variables of race, sex, grade in school, and socio-economic level. The current teacher of each child in the experimental sample was contacted and was asked to select another pupil of the same race and sex who lived in the same immediate vicinity as the child in the experimental group. It was assumed that families who resided in close proximity to each other were of comparable socio-economic levels. It was stipulated (and later verified by school records) that no member of the control group had kindergarten or other pre-school educational experiences, nor had they repeated any grade.

In order to meet the prerequisite of a $2 \times 2 \times 2$ analysis of variance treatment of the data, it was necessary to have each of the eight cells equal or proportional (Linguist, 1940). As a result, the total N of 212 (106 experimental and 106 control subjects) could not be employed in the desired statistical design. From each category, subjects were randomly selected to meet the needs of equality or proportionality. The total N was 160, with 92 subjects in the kindergarten sample and 68 in the non-kindergarten sample.

The original sample consisted of the total population of a federally supported kindergarten established to serve children of families which were identified as culturally limited. Two criteria had to be met: 1) cultural disadvantage, and 2) economic deprivation. The criterion of economic deprivation was determined by applying a sliding scale ratio of income to family members. The population represented in this study had an income range (as reported by the families) of \$2,500 to \$6,300 per annum with a family size of from one to ten children. Economic deprivation was determined by individual interviews between parents and principals at the time of registration for the program. Families whose incomes fell below the cut-off point were considered economically deprived.

The criterion of cultural disadvantage was based primarily upon the judgments of the public school principals of the seven schools whose areas were represented at the kindergarten center. Factors such as the educational and occupational levels of the parents, the living conditions in the home, and the educational facilities available in the home and neighborhood were taken into consideration.

Tests were administered and scored in November 1969, by the pupils' classroom teachers. The instrument used to measure academic attainment was the Primary I Battery of the Stanford Achievement Test.

This test yielded scores in six areas: 1) Word Reading, 2) Paragraph Meaning, 3) Vocabulary, 4) Spelling, 5) Word Skills, and 6) Arithmetic. For the statistical comparisons accomplished in this study the raw score performance on each scale was utilized. In addition to the reporting of raw scores for each child, the teacher was requested to evaluate the general social adjustment in school of each child by employing a five point rating scale on the question "What is your opinion of the general level of social adjustment this child exhibits in school?"

RESULTS

Analysis yielded some interesting demographic data when compared to the county-wide Annual Attendance Report. The percentage of academic retentions for grade one in the experimental population was 13.9 while the county-wide rate was 14.7%. There was no significant difference between these figures. There was no significant difference between the number of Negro and white children of the experimental population who were retained. This supports the conclusion reached in the original study of no difference found in intellectual ability between the culturally deprived sample and the general population.

The rate of out-of-county transfers was significantly greater among this low socio-economic sample when compared to the general county-wide population. In the experimental sample, the transfer percentage was 21.2%, while the county-wide figure for out-of-county transfers was 12.9%. See Table 1.

TABLE 1
Summary of Academic Retention Rate and Out-of-county Transfer
Rate of County-wide Population and the Experimental
Sample of Culturally Deprived Pupils

	County- Wide Rate	Experimental Sample of Culturally Deprived Rate	t-Ratio
Retentions	14.7%	13.9%	.08
Out-of-county transfers	12.9%	21.2%	3.01**

**p=.01

Analyses were made on each of the six subtests of the Primary I Battery of the Stanford Achievement Test on the basis of race, sex, and whether the subjects had attended kindergarten or not. Cross-comparisons were made utilizing race by sex, race by kindergarten/no kindergarten, and sex by kindergarten/no kindergarten in order to investigate possible interactions between categories. The null hypothesis was posited for each comparison and the .05 level of significance had to be reached in order to reject the null hypothesis.

Differences beyond the .01 level occurred in five of the six subtests (Word Reading, Paragraph Meaning, Vocabulary, Spelling, and Word Skills but not Arithmetic) when the variable of sex was examined. In each case the girls were superior to boys especially on Word Meaning, Paragraph Meaning, and Vocabulary. On three above subtests, when the variables of sex and kindergarten/non-kindergarten were compared, a significant interaction was observed. The boys who had attended kindergarten scored higher than the boys who had not attended kindergarten; and the girls who did not attend kindergarten performed better than the girls who had kindergarten experience.

There were no significant differences discovered on any of the six subtests when comparisons were made on the basis of race or on kindergarten vs. non-kindergarten attendance. No significant differences occurred either on any of the subtests for interaction of race and sex, or interaction of race and kindergarten/non-kindergarten.

The estimate of general social adjustment made by each child's classroom teacher was evaluated in terms of comparisons between combinations of the experimental and control subgroups. As a result of the nature of a rating scale, Chi Square was the statistic employed to determine if significant differences occurred between any of the groups compared. There were no significant differences found between any of the groups compared except between non-kindergarten boys and non-kindergarten girls with the teachers rating the non-kindergarten girls better adjusted socially than non-kindergarten boys.

DISCUSSION

The significant differences found between boys and girls in the five verbal or language-oriented subtests were consistently in favor of the girls. This was interpreted to support the findings that the girls tend to be more verbally oriented than the boys. This might be traced to the influence of social role expectations in that girls are not permitted to compete directly with boys on a physical level, and as a result they have more need for expression through the verbal channels.

These results were not inconsistent with the often stated findings that girls tend to do better in school than do boys. What was surprising was the extent of the differences between the sexes so early in their academic careers.

The non-significant difference between girls and boys on the arithmetic subtest was not consistent with the other subtests in which the girls scored significantly higher than the boys. This inconsistency may be explained by the social or sex-role expectation concerning arithmetic in which girls are typically expected to do poorly, and arithmetic is considered to be a "boy's subject." According to Grambs and Waetjen (1966), the boys tend to exhibit better analytical thinking skills than do girls. Perhaps these data suggest a decline in rate of growth in arithmetic skills in girls rather than an increase in rate for the boys. It may be, too, that the increased conformity and general desire of girls to succeed in school could prevent the balance tipping significantly in favor of the boys in this particular subject.

Word Reading and Paragraph Meaning subtests, when examined on the variables of kindergarten/non-kindergarten by sex, revealed significant differences between the kindergarten boys and the non-kindergarten boys in favor of the kindergarten boys. When, however, the kindergarten and non-kindergarten girls were compared, the results on both subtests were highly significant in favor of the non-kindergarten girls. Interpretation of the data indicated that girls were being "held back" by their kindergarten program while boys apparently benefited and progressed. It would further seem that kindergarten was meeting the early educational needs of the boys better than the needs of the girls, at least at the one kindergarten center.

A developmental factor may be in operation to effect these findings, for girls tend to develop physically at a more rapid rate than do boys. Girls, then, may have a higher degree of readiness in kindergarten than boys, yet the girls may not be permitted to advance according to their readiness levels. The boys, on the other hand, may present a lower readiness level which is more congruent to the typical kindergarten program and they are encouraged as they become "ready" to advance. When the girls remain at home they may benefit more from such activities as watching television commercials and day-time shows and thus acquire more listening and reading skills incidentally than do the girls who have limited access to these channels of communication and who are presented with a regular kindergarten program instead.

In the vocabulary subtest, significant differences were found between the kindergarten and non-kindergarten boys in favor of the kindergarten group. Nonsignificant differences existed when the kindergarten and non-kindergarten girls were compared.

The only segments of this sample to show a significant difference in general social adjustment in school were the non-kindergarten boys when compared with the non-kindergarten girls in favor of the latter group. This may stem from a general tendency of girls to be more conforming to social expectations than boys, or from a reaction by the teachers (who were all female) to be more tolerant of the mildly deviant behavior of girls than of similar behavior exhibited by the boys. It may be, also, that these boys who did not attend kindergarten may not have experienced the necessary social interactions to assure adequate social adjustment. The influences of peer-group standards and values or reflections of the home life may produce behavior in non-kindergarten Negro boys which is not congruent with the expectations of the teachers.

CONCLUSIONS

This research suggested that the greatest differences in academic achievement can be traced to sex differences. This was most noticeable in the language or verbal functions. There were also significant differences found in three of the language subtests which showed an interaction between race and kindergarten attendance. Boys who attended kindergarten did better in these tests than boys who did not attend kindergarten, but girls who did not go to kindergarten scored higher than girls who did attend kindergarten.

Judging from teachers' opinions of general social adjustment, the only significant difference reported between any of the 15 groups compared was between the boys and girls who had not attended kindergarten, favoring the girls.

This current kindergarten program seemed to be meeting the needs of the boys in this study more completely than the girls. It might be beneficial to enroll children in kindergarten programs on the basis of readiness factors rather than age alone, or to segregate the girls from the boys for a more verbally oriented program.

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