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ABSTRACT

The position advanced in this paper is that the nature of the confrontation between the institution of school and the children who attend it is different and is experienced differently by the four sex-color groups: white girls, white boys, black girls, and black boys. Data for this study were collected from approximately 475 children at the beginning and end of kindergarten and at the end of third grade. Measures included achievement tests for several subects, a paper-pencil intelligence test, and paper-pencil self-report instruments on aspects of social-emotional state such as self-acceptance, social maturity, and school affiliation. Findings showed that home background, intellect, social-emotional factors and achievement were related to each other in different ways depending upon sex-race group, in addition to differences existing for either sex or race alone. The identification of apparently influential roles played by certain factors other than intellect for the achievement levels attained by the separate sex-race groups was interpreted as indicating that it is simplistic to ascribe critical importance to racial differences in intellectual ability as the Jensen approach does. (JMB)

Level 1

Contrasts in relationships between school achievement and background, ability and personality factors for groups differing in sex and race at the primary school level.

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Title: Contrasts in relationships between school achievement and background, ability and personality factors for the different sex and racial groups at the primary school level.

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Abstract

Clear differences exist among the four sex-color groups, white girls, white boys, black girls, black boys, in the presence and absence of significant relationships among particular variables and achievement. For example, home environment advantage is correlated highly significantly with achievement for one of these groups (white boys) but not for others. Data for this study came from approximately 450 children including both sexes and racial groups who attended school in a network of demonstration centers in the state of North Carolina in the early seventies. Data exist for this cohort for the beginning and end of kindergarten (1970-71) and the end of Third grade (1973). The position advanced in the paper is that the confrontation between the institution of school and children who attend and is experienced differently by is different for these sex-color groups, whose achievement has been found to differ not only in this study but in previous research at the primary level as well as at the high school level in several of the "educational attainment" studies. The approach associated with Jensen and others of "innate intellectual differences" is simplistic and inadequate as an explanation of achievement, given the apparent influences of sex- and racial-group membership upon what is in fact associated with achievement. Recognizing the many ways in which our society allocates opportunities and status according to sex and race, it is not surprising that (as with this sample) sex-race differences extend even to differences in the kinds of factors associated with higher achievement in reading, spelling and mathematics.

The study with which this article deals is presented in the context of previous research which has taken account of the differences for children in our society of school experience and school achievement which accompany differences of sex, race and socio-economic status. Some of these investigations are: Birch and Gussow, 1970; Kohn, 1977; Baughman and Dahlstrom, 1968; Lee and Voivodas, 1977; Gordon, 1976; Kerckhoff and Campbell, 1977; and DeBord, Griffin and Clark, 1977. An examination of the differences in school performance of white boys, white girls, black boys and black girls, and the poor children of each of these groups, has led this investigator to the view that there are great differences among these groups in the nature of the confrontation between the challenges and demands of school, on the one hand, and the children who enter school, on the other.

It is hardly surprising that in this setting the factors of sex, race and socio-economic status influence the child's experience of the school situation, in view of the generally recognized salience of these characteristics for the status granted in institutions of our society. A previous article based upon these same data demonstrated the consistency with which the level of scores for ability, academic achievement and social-emotional characteristics at kindergarten and again at third grade follows the order for length of life expectancy of the sex-color groups (Landsberger, 1978-a). Others who have compiled and reported scores according to these groupings, notably a 1968 book of Baughman and Dahlstrom, also reporting a North Carolina study, Margaret Gordon (1976) and DeBord, Griffin and Clark (1977) have also found that ability and achievement Mean scores decrease as one moves from white girls to white boys to black girls to black boys.

The approach of this article is in contrast with the well-known writings of Jensen (1969) who posited genetically-based intellectual differences of a qualitative kind to explain the different scores of different racial groups. Gordon's study placed intellectual differences between racial (and sex and class) groups into the context of differences in intellect and achievement (noting whether children are under- or over-achievers). She found differences by race, sex,

class and class-mobility status in relation to being under- and over-achievers (but differing in some of the groups by IQ levels) (Gordon, p.6-10). The findings in the present study place the matter of achievement differences into an even broader context, since the different sex-race-class groups were found to differ in social-emotional behavioral variables as well as in intellect and achievement terms. The time context is important, too, since it appears that the differences among the groups may increase rather than decrease during the first four years of school. Baughman and Dahlstrom (1968) found this to be the case on the achievement test scores (the Stanford Achievement Test) between the ages of 7 and 14, the range for that testing in their study (pages 67-75). Finally, data are presented in this article indicating that home background, intellect, social-emotional factors and achievement are related to each other in different ways depending upon sex-race group, in addition to differences existing for either sex or race alone. One or two examples of these findings are these: kindergarten-level Task Orientation scores (apart from ability differences) are related significantly to Third Grade Reading and Math scores only for black girls; with the other three sex-color groups the relationships are positive but not large enough to be significant. Home environment advantage in and of itself is related very significantly (.01 level) to Third Grade achievement test scores in Reading and in Math only for white boys; less-significantly and to Math only (.05 level) for black boys, not at all significantly for the achievement of white girls nor of black girls.

The identification of apparently influential roles played by certain factors other than intellect for the achievement levels attained by the separate sex-racial groups indicates that it is simplistic to ascribe critical importance to "racial differences in intellectual ability," as the Jensen approach does.

The study reported by Jordon (1976) and the present study may be regarded as refinements of the earlier approaches to achievement differences at the early elementary school level somewhat comparable to the evolution which has occurred in the "educational attainment" studies of groups of adolescents. (Alexander and Eckland, 1974; DeBord, Griffin and Clark, 1977; Haller and Portes, 1973; Hout and Morgan, 1975; Kerckhoff and Campbell, 1977; Portes and Wilson, 1976.)

Some of the more recent studies in the educational attainment series have recognized differences within the total youth population and have looked more searchingly at the "Wisconsin model," built up originally with data from Wisconsin farmers - an all-white-male population, certainly -- especially at how the model functions when sex and race of the youth under study are different.

DeBord, Griffin and Clark (1977) who have recently reported a study of race and sex influences in the schooling of rural and small-town youth in the South, summarized the attainment-studies literature, and concluded that, "While there is a growing body of literature on sex effects in the adolescent achievement process, this research generally is limited to whites"(p. 86). They also noted that "Little effort has been devoted to a comprehensive analysis of race and sex effects on the processes governing educational performance and ambition among rural and small town youth."(p. 86) They report that they found, as others had, "the persistent influences of sex throughout the early achievement processes among white students." (p. 99) "Consistent sex differences existed for white students in the way social origins, aptitude and academic performance helped or hindered later outcomes of schooling." (p. 99) They found a "pronounced importance of race in the adolescent achievement process," and note that "sex effects,either main or interaction, are generally of less importance among black students."

> The processes determining most of the achievement-related outcomes studied here are similar for black males and females. The consistent and pronounced sex differences among whites in the efficacy of status origins, academic aptitude, and academic performance, so thoroughly documented by several researchers, do not exist for blacks. .... Perhaps (they add) the experience of being a black high school student in Mississippi transcends categorization by self and others as being either male or female." (p. 99)

Just as points of difference for sex and races have been encountered in the relationships among various background and achievement measures in various ones of the studies of adolescents, they have been found to exist for the younger

children, 5 to 9-year-olds, from whom came the data examined in this study.

Correlations . for variables at the Third grade level will be examined first, before looking at correlations between the earlier level (kindergarten) and Third grade. These correlations represent ability and social-emotional variables with each of five achievement tests. We begin by looking at differences for race and sex separately. Pearson product-moment correlations are presented in Table 1, a) for the total group of children; b) for boys and girls separately; and c) for white and non-white separately.

- - - Place Table 1 about here - - -

From the set of results in Table 1, it is apparent that the sex groups, as well as race groups differ from each other with respect to the way ability and social-emotional variables correlate with achievement test results. The correlations between the CAT test, the ability measure, and all achievement tests are at their highest for the group of boys, somewhat higher than for girls, whose correlations are all significant, however. On the other hand, the correlation of social-emotional variables with achievement are all significant for girls, and always higher than for the boys' equivalent correlations. The "School Affiliation" scores of boys are never correlated at a significant level with achievement test scores, and all of the r's have a negative sign. "Self-acceptance" scores of boys are weakly correlated, though some reach a .01 level of significance. Social Maturity scores are all correlated in highly significant fashion with all achievement test scores for boys, though the r's are at somewhat lower levels than for girls.

For the non-white children, correlations of ability with achievement tests (all significant) are in every case lower than for white children. For both races, correlations of Social Maturity with all achievement tests are significant; these r's are higher for non-white than for white. School Affiliation is somewhat more frequently related to achievement for non-whites than for whites.

The same statistic, Pearson correlations, are given for the two sex groups by racial groups separately, in Table 2.

- - - Place Table 2 about here - - -

To summarize the information presented in Table 2: among boys, it is the white boys where ability, not social-emotional variables, correlates highly with achievement. Among black boys, ability correlates significantly, but with smaller r's than among white boys, while the social-emotional variables tend to be related to achievement for black boys more often and more strongly than they are for white boys. Though all are non-significant, note the r's of School Affiliation with achievement: all negative with white boys, all positive with black boys.

The picture is different for girls of the two races. White girls have the larger r's between achievement tests and both ability and the social-emotional variables. Among the latter, only on Social Maturity do black girls have r's of substantial size, and there, too, white girls' r's are larger than the black group.

Even more interesting contrasts present in the separate sex-color groups are brought out in information derived from Multiple regression analysis of these same data for locating relationships of ability and social-emotional variables with achievement test performance. The variables were entered into the equation in the first instance with the (CAT) ability score entered in the first step. Secondly, the Social-emotional variables were entered together, in the first step. The resulting regression coefficients, R's, for these are given in Table 3 and 4, as well as the Multiple R of ability and social-emotional variables together, and partial correlations for each of the three social-emotional scores we have already noted: Self-acceptance, Social maturity and School affiliation. After each correlation figure appears the F associated with it. "N.S." appears in lieu of an F too small to be significant, and the asterisks denote the significance level associated with an F of that size, given the appropriate Degrees of Freedom. In Table 3, information is presented for the total group as well as racial groups and sex groups. Table 4 contains the equivalent information for the four sex-race groups separately.

- - - Place Table 3 and Table 4 about here - - -

It appears that two kinds of information from these analyses -- with respect to the Multiple R and the coefficient for ability score, entered in the first step of the analysis -- suggest differences large and consistent enough to be worthwhile

noting. One of these has to do with difference among the race-sex groups; the other with the different achievement subtests representing different subjects.

As to the group differences: From Table 3 data we see that there are generally high Multiple R's for whites and for each of the sexes taken separately. Many MR's are in the sixties and seventies. Only for non-whites are these consistently lower. The information from Table 4, for the separate sex-color groups, indicates that though these MR's for black boys and black girls are quite similar, the boys' are usually a shade lower than the girls'. Turning to the coefficient for the CAT in order to see how much of this MR can be contributed by the ability score, we find that there are distinctly lower F's associated with these correlations for black boys than for others, though F's for black girls do not reach the high F's of white girls, and none of the other groups have F's of the magnitude of white boys. There is confirmation here of the finding already noted regarding the association between ability and achievement, that it is with white boys that this is high, usually much higher than for white girls, and always very much higher than for black children of both sexes, together and separately.

The second finding to note as we look at the Multiple R's and the R's for ability, has to do with the different results for the different subject areas. Both Multiple R's and R's for CAT alone reach their highest degrees of association with Vocabulary, Reading and Math Concepts, and this is true for all race-sex groups. There is a big drop to the level found with Math Problems, and far below all others are the figures for Spelling. (For black girls, the MR and the R for CAT with Spelling are too small to be significant, and for black boys these are significant only at the .05 level.) These results indicate that it is necessary to specify "achievement in what subject" when we look for various influences upon achievement, because, at least, as tested, there appear to be distinct differences among school subjects as to, for instance, the relationship between ability and achievement.

Turning to the association between social-emotional variables and achievement, these data present a picture different from that existing between ability and achievement. Here, two kinds of information for the four sex-race groups from

Table 4 are important: the size of the F's for the ' ' MR's for social-emotional variables entered together in the first step of the equation, and the F's for the partial correlations of each social-emotional variable with the achievement sub-tests. The specific information for the first of these for the four groups as well as for all is as follows:

Achievement Sub Test	R for social-emotional variables entered together in the first step of the multiple regression									
	All N = 476		White boys N = 147		White girls N = 143		Black girls N = 100		Black boys N = 73	
	R	F	R	F	R	F	R	F	R	F
Vocabulary	.45	24.	.42	6.1	.46	7.3	.45	5.0	.33	1.7
Reading	.45	24.	.38	4.9	.46	7.4	.50	6.7	.35	2.1
Spelling	.28	8.	.27	2.3	.29	2.6	.13	<1.0	.40	2.8
Math Conc.	.46	25.	.42	6.3	.42	5.9	.46	5.4	.43	3.6
Math Probl.	.37	15.	.34	3.9	.30	2.8	.36	2.5	.40	2.8
Sign. Level of F										
.05 level	2.21		2.29				2.35			
.01 level	3.02		3.17				3.29			
.001 level	4.10		4.42				4.5			

The association here among the groups is much more even than was the case with ability and achievement. The high F's for whites present in the case of ability have fallen, though they are still significant ones. Black girls have the highest R of all between the social-emotional variables and Reading and Math Concepts; black boys, the highest R in the cases of Spelling and Math Problems.

The more striking reversal from the association between ability and achievement as far as differences among the sex-race groups is to be seen in the partial correlations between the achievemaat sub-tests and three S.O.S. scales separately: Self-Acceptance, Social Maturity and School Affiliation. To simplify presentation of these data, the F's will not be given: "N.S." will appear instead of any non-significant partial, and asterisks will be placed after the partial r's to denote level of significance: * = .05 level; ** = .01 level; *** = .001 level.

The N's in each case are approximately the same as were given above.

Partial correlation for each of three Social-Emotional variables

Achievem't Sub Tests	All			White boys			White girls			Black girls			Black boys		
	SACP	SMAT	SCAF	SACP	SMAT	SCAF	SCAF	SMAT	SCAF	SCAP	SMAT	SCAF	SACP	SMAT	SCAF
Vocabulary	15***	11*	N.S.	N.S.	N.S.	N.S.	N.S.	18*	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	22*
Reading	13**	13**	N.S.	N.S.	N.S.	N.S.	N.S.	21*	18**	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
Spelling	10*	09*	11*	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	24*	27*	29**
Math Conc.	10*	11*	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	22*	30**
Math Probl.	N.S.	12*	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	32**	22*

One item from these results which gives some pause is the discrepancy between results for the total group and those for the separate groups. In not a single one of the sex-race groups is found the association of "Self acceptance" to achievement which appears for the total group. Yet we often derive our conclusions about relationships between variables from data for a total group of subjects. The subgroups are often different from each other as well as different from the "total group" picture. The only group where two of the S.O.S. Scales -- Social maturity and School affiliation -- are related significantly to achievement subtests is that of black boys. Only the white girls' group approach the black boys in this respect. (Here, it is with Reading and Vocabulary that Social maturity is very significantly related for the white girls, while for black boys it is not those two subtests, but Spelling and Math.) School affiliation "matters" in almost all areas of achievement for black boys; at a significant level only with Reading, for white girls. For black girls and white boys alike, the partial correlations are always non-significant.

Relationships of Kindergarten and Third Grade Variables.

Pearson product moment correlations are also available to indicate the way beginning kindergarten variables were related to children's performance at the end of third grade.

Table 5 presents the Pearson correlations for these beginning-kindergarten measures: a measure of home environment advantage (HIS scale), two ability measures (Preschool Inventory -- PSI -- and the Peabody Picture Vocabulary Test) as well as social-emotional variables as measured by teacher ratings of classroom behavior on the Schaefer-Aaronson Classroom Behavior Inventory (CBI), the factors being Extraversion-Introversion, Social Behavior and Task Orientation; the third-grade measures with which these kindergarten variables are correlated are the Iowa Tests of Basic Skills' Vocabulary, Reading, Spelling and Math Concepts; the Cognitive Abilities Test (CAT); and the Self Observation Scale labeled "Social Maturity" as a third-grade social-emotional variable.

- - - place Table 5 about here - - -

The correlations reported in Table 5 are for the total group of subjects. In Table 6, the same correlations are given separately for the four sex-race groups.

- - - place Table 6 about here - - -

Again, there are differences among these figures for the four sex-race groups which suggest differences important for educators and educational policies. For white boys, the correlations of home environment advantage are strong ones (highly significant) for all of the third-grade achievement areas, the ability test, and the social-emotional variable, Social Maturity. They are the only group for whom home environment score consistently correlated with the third-grade variables at this highly significant level. White boys were also the only sex-race group for whom correlations of the Peabody Picture Vocabulary ability test were high across the board at the third-grade level. For white boys there were also several significant correlations for two of the behavior factors at kindergarten with the various third-grade measures: the Extraversion-Introversion factor and, with even larger r's,

* - The correlation of the Home Information Scale for the total sample with third-grade ability score (.46) was higher than for any of the indices of socio-economic level available from data collected at the third-grade level: the corresponding r for Family Income was .36; for Father's Education was .21; for Mother's Education was .27.

the Task Orientation factor (the first of these being .42, the second, .41).

With the white girls, home environment advantage was not correlated with achievement tests nor with the social-emotional variable; there was a significant correlation (.27) with performance on the ability test. Also for white girls, only with the ability test did the Extraversion-Introversion correlate significantly (.34). Their Task Orientation scores correlated at the same level with the ability test (.34). There were several strong positive correlations for white girls between the Peabody Vocabulary test and achievement and the ability tests.

For black girls, the strong correlations from kindergarten to third-grade measures were with Task Orientation, with two r's as high as .48. This was not the case for black boys; for them, very significant correlations are found between the Extraversion-Introversion factor, and two important measures: Ability and Reading.

- - - place table 7 about here - - -

To turn now to the results of the Multiple regression analyses performed with the data for the total group (reported in Table 7) and for each sex-race group separately (reported in Table 8): As outcome variables, from the third-grade battery, two achievement tests were used; the C.A.T. ability test; and the Social Maturity S.O.S. measure. From the kindergarten battery, the Peabody Picture Vocabulary Test (PPVT) was used as an ability measure, together with the social-emotional measures produced by teacher ratings on the Classroom Behavior Inventory, CBI (Schaefer and Aaronson, 1968). In the first analysis, the ability measure was entered in the first step; in the second, the social-emotional factors were entered in the first step. The resulting Regression coefficients appear for the total group in Table 7, as well as the Multiple R for the kindergarten ability and social-emotional variables, and the partial correlations for each of the three behavior factors, Extraversion-Introversion, Social Behavior and Task Orientation. F-values are presented in all cases.

These data enable us to see relationships over a period of four years between children's beginning-kindergarten ability level and affective, behavioral factors at that point, and third-grade performances of various kinds.

These relationships all reach respectable levels of significance when data for the total group are analyzed. This is true for early ability to later achievement, ability and social maturity; true also for early Classroom Behavior factors to all of these later on separately (by Factor) and when the social-emotional factors are entered together.

--- place Table 8 about here ---

However, in the case of any one of the separate sex-race groups, as we see in Table 8, only some of these early-to-later-on relationships are significant, and these are by no means the same for one group as they are for another. Both boys and girls of both races, however, are alike in that it is the ability test at third-grade level with which the kindergarten ability as well as the kindergarten social-emotional measures are highly correlated. The Multiple Regression coefficients for the Peabody Vocabulary and the Classroom Behavior Inventory factors with the third-grade Cognitive Abilities Test were as follows:

Total group	.66
White boys	.57
White girls	.53
Black boys	.55
Black girls	.62

The ability measure was the only third-grade variable of those involved in the analysis with which there was similarity among the sex-race groups in relationships between kindergarten and third-grade measures. From this point on, each group was on its own. For white girls, Reading achievement is correlated with significant F values with both the kindergarten ability and the kindergarten social-emotional factors. For white boys' Reading achievement, this is not the case, though there is a similar picture for their Math Concepts achievement. Neither for black girls nor for black boys were there significant relationships of these kindergarten variables with either of these achievement measures. On the other hand,

for each of the sex groups among the black children, a very interesting significant partial correlation appeared between one kindergarten-level behavior factor and third-grade achievement. These are consistent (as they should be) with the Pearson correlation findings. For black girls it is Task Orientation which is significantly related both to Reading and to Math Concepts. For black boys, it is Extraversion-Introversion which was found to be significantly related to Reading. Finally, Task Orientation at kindergarten entrance was related to third-grade Social Maturity scores for black girls and for white boys -- for no other group.

as measured at that time by a paper-pencil "intelligence test"; and at aspects of their social-emotional state as indicated then, again, by a paper-pencil self-reporting instrument, these aspects bearing the labels of "Self acceptance," "Social maturity" and "School affiliation." By looking at what-relates-to-what by the time they have reached third-grade's end we can derive an idea of what relationships among these various kinds of performance the confrontation has produced, so to speak. Along with the third-grade composite picture, we have also looked at the way the groups compare in terms of relationships between beginning-kindergarten variables and these "end results."

It seems appropriate to begin with the group found to be at the top, here and in previous studies (Landsberger, 1978-a; Baughman and Dahlstrom, 1968: Kohn, 1977; Gordon, 1976.) These "achievers," the white girls, emerge at the end of third grade as the group which apparently "has it all together" at school to the highest degree. Not only does achievement in all subject areas correlate with ability, but also, though less highly, with scores for social maturity and for school affiliation. When their third-grade performance is looked at for relationships with their picture at the beginning of kindergarten (Tables 6 and 8) it appears that their performance as third graders is not related to advantages in home environment, nor are there strong relationships between kindergarten ability and social-emotional factors and either achievement or social maturity at third grade. An exception here is reading, to which the kindergarten variables are related. School affiliation appears more closely related to achievement for them than for any other group. It would appear that this is a confrontation of individuals who affiliate and learn to perform the tasks set at school -- they rise to the challenge, not tied down to the level of the "endowment" with which they arrived at kindergarten, whether this endowment is looked at as level of home advantage or as their measured intellectual ability at that time. For white girls, school itself is "their cup of tea," to a greater extent than it is for others.

This interpretation of the confrontation for white girls is heavily influenced by the comparisons between the white girls and the white boys. We have seen that in this and in several other studies, white boys' Mean scores for "entry-level achievement" are indeed lower, in spite of the fact that at beginning kindergarten their scores are equal to or higher than girls' (Lansberger, 1978-a). Furthermore, on the School Affiliation scale, the white boys' Mean score was significantly lower than the scores for white girls, and both sexes of the black children, and their Mean for the Social maturity scale was low. This, in spite of the fact that their Mean score on the third-grade ability measure was a little higher than white girls', and their Math achievement scores were approximately the same as the girls'. For white boys, school appears not to be the "cup of tea" that it is for white girls. Though they began kindergarten on an even basis with white girls, they have fallen behind them by the end of third grade in achievement and in behavior. Of the four sex-color groups, white boys are the only group where there were significant correlations between third-grade performances of the various types examined -- achievement in three different areas, cognitive ability, and social maturity -- and home environment advantages. The outcome of White boys' confrontation with school is related to whether or not they come from a home with advantages. Since they do not apparently become affiliated with school to the extent that their sisters do, it is hardly surprising that it is the influence related to home which affects their performance levels.

The confrontation for black girls as analyzed here bears more resemblance to that of white boys than to white girls or to black boys. In the Regression analysis for third-grade variables, black girls, like white boys, had no significant partial correlations for the separate social-emotional variables. Ability was apparently more closely related to both Reading and Math achievement than was the

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* - According to the t-test of the differences between white girls' and boys' Mean scores at the third grade in Reading and Spelling achievement, and in School Affiliation were significant at the .02 level, and for Social maturity, at the .01 level.

For the reader who then asks, "So what difference does it make?" there are more questions raised than answers given in these data. The data do clearly say to us that these girls and boys of different racial groups are not to be equated nor treated alike as students in classrooms. It is as though as horticulturalists, we found that we had not only apples and oranges, but apples, oranges, grapes and strawberries.

In these days of some hysteria over declining school achievement scores and dispair over widespread failure to learn to read, it is important to take note of fresh evidence of the complexity of the problem of school achievement. The findings of this investigation bristle with questions to be put into empirical research studies. We are clearly still at the stage insisted upon by Gertrude Stein when she was asked for answers about the meaning of life. "But, what are the questions?" she countered.

These results do throw into question some specific conclusions of previous studies which have gained rather general acceptance. One instance fairly commonly encountered is the educator (whether in reference to his accountability at the state or local level, or declining SAT scores at the regional or national level) who "explains" disappointing pupil performance by referring to the determining influence of the socio-economic level of the home: "Yes" for white boys, but "No" for others, this research suggests. Another instance is the recurrent interest in the approach associated with Arthur Jensen, of the determinative influence of "genetically based" intellectual ability differences upon achievement differences of different racial groups. According to our findings, there appear to be equally many sex differences <u>within</u> racial groups, and for some, ability scores are related to achievement, for others, they are not.

In conclusion, we think there is evidence to indicate that the confrontation between school attendance and children in our society is experienced differently depanding upon those differences frequently used in the society to define opportunity and status: namely, race and sex. These differences extend even to the kinds of factors of background and behavior which are associated with and are commonly thought to bring about higher and lower levels of achievement.

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Table 1. Pearson product-moment correlations at third-grade level for ability and social-emotional measures with five achievement test performances for total group, by sex groups and by race groups separately.

Correlations are significant >.01 level excepting those marked "*", significant >.05 level or "NS", not significant.

TOTAL GROUP N = 470

Achievement Tests (Iowa T.B.S.)	C.A.T. (ability)	S.O.S. (social-emotional) S.Acp.	S.Mat.	Sc.Affil.
Vocabulary	.67	.22	.40	.05 NS
Reading	.65	.21	.40	.05 NS
Spelling	.40	.15	.27	.10*
Math Conc.	.72	.19	.40	.04 NS
Math Probl.	.50	.11*	.34	.05 NS

SEX GROUPS

Achievement Tests	BOYS (N = 220) C.A.T.	S.Acp.	S.Mat.	Sc.Aff.	GIRLS (N = 240) C.A.T.	S.Acp.	S.Mat.	Sc.Aff.
Vocabulary	.68	.18	.30	-.09 NS	.68	.26	.47	.18
Reading	.68	.16	.30	-.10 NS	.65	.25	.45	.16
Spelling	.48	.16	.25	-.01 NS	.36	.13*	.22	.15
Math Conc.	.73	.13*	.39	-.06 NS	.66	.25	.44	.15
Math Probl.	.54	.06 NS	.30	-.06 NS	.50	.16	.36	.16

RACIAL GROUPS

	WHITE (N = 290)				BLACK (N = 180)			
Vocabulary	.63	.28	.32	.10 NS	.57	.15*	.37	.10 NS
Reading	.61	.26	.33	.13*	.54	.15*	.35	.04 NS
Spelling	.43	.16	.22	.11 NS	.22	.14 NS	.23	.15*
Math Conc.	.67	.22	.32	.08 NS	.59	.14 NS	.39	.09 NS
Math Probl.	.50	.13*	.33	.06 NS	.35	.09 NS	.35	.15*

Relevant Significance Levels	N = 400	N = 200	N = 150
	.05 = .098	.05 = .113	.05 = .159
	.01 = .128	.01 = .148	.01 = .208

Table 2. Pearson product-moment correlations at the third-grade level for ability and social-emotional variables with performance on five sub-tests of achievement, for separate sex-race groups

Correlations are significant .01 level except those marked *, significant .05 level or "NS", not significant.

BOYS
N, White = 143
N, Black = 73

Achievement Tests	C.A.T. White	C.A.T. Black	S.Acp. White	S.Acp. Black	S.Met. White	S.Met. Black	So. Affil. White	So. Affil. Black
Vocabulary	.64	.56	.25	.09^{NS}	.20*	.30	-.05^{NS}	.04^{NS}
Reading	.65	.51	.21*	.12^{NS}	.19*	.32	-.06^{NS}	.02^{NS}
Spelling	.49	.25	.16^{NS}	.23*	.10^{NS}	.35	-.05^{NS}	.21^{NS}
Math Conc.	.72	.54	.20*	.05^{NS}	.29	.40	-.02^{NS}	.11^{NS}
Math Probl.	.57	.16^{NS}	.10^{NS}	.07^{NS}	.19*	.36	-.09^{NS}	.17^{NS}

GIRLS
N, White = 147
N, Black = 100

Vocabulary	.64	.57	.29	.20*	.44	.36	.24	.15^{NS}
Reading	.65	.55	.28	.18^{NS}	.44	.30	.27	.05^{NS}
Spelling	.42	.17^{NS}	.14^{NS}	.11^{NS}	.28	.04^{NS}	.21	.09^{NS}
Math Conc.	.61	.62	.25	.22*	.38	.36	.21	.18^{NS}
Math Probl.	.43	.45	.16*	.12^{NS}	.29	.32	.21	.15^{NS}

Table 3. Results of Multiple Regression Analysis for third-grade achievement test performances with scores for ability and social-emotional measurements at third grade level for all subjects, by sex groups and by racial groups.

Note: all F-values for R's and MR's are significant >.001 level unless indicated by * for >.05 level or ** for > .01 level;
Partial correlations only given if significant, and levels indicated by * for > .05; ** for >.01; *** for > .001.

Achievement Sub-Tests	Multiple MR	F	CAT, ent. first step R	F	All Soc-Emo. ent. 1st step R	F	S.Acp. r	F	Partial Correlations Soc. Mat. r	F	Sch.Affil. r	F
For Total Group, N = 470												
Vocabulary	.68	69.	.67	394.			.15	***	.11	*		
Reading	.66	62.	.65	352.			.13	**	.13	**		
Spelling	.42	17.	.40	93.			.10	*	.09	*	.11	*
Math Cncpts	.70	78.	.69	453.			.09	*	.11	*		
Math Prblms	.53	31.	.52	178.					.12	*		
For Males Only, N = 226												
Vocabulary	.70	36.	.68	194.	.45	11.	.14	*				
Reading	.69	34.	.68	192.	.44	11.						
Spelling	.50	12.	.48	67.	.32	5.	.13	*				
Math Cncpts	.73	43.	.73	256.	.48	13.						
Math Prblms	.54	15.	.54	91.	.39	8.						
For Females Only, N = 249												
Vocabulary	.69	35.	.67	202.	.49	15.	.15	*	.17	**	.12	*
Reading	.67	33.	.65	182.	.48	15.	.13	*	.15	*		
Spelling	.38	7.	.36	37.	.23	2.7"						
Math Cncpts	.68	35.	.66	195.	.47	14	.14	*	.12	*		
Math Prblms	.52	15.	.50	84.	.38	8.						

For White Only, N = 293

Vocabulary	.64	33.	.62	188.	.39	11.	.15	*				
Reading	.62	30.	.61	174.	.38	10.	.12	*	.13	*		
Spelling	.45	12.	.43	68.	.24	5.6	**					
Math Cncpts	.67	40.	.67	236.	.38	10.						
Math Prblms	.52	18.	.50	100.	.29	5.2						

For Black Only, N = 180

Vocabulary	.59	16.	.56	86.	.40	6.9	.14	*	.14	*	.15	*
Reading	.57	14.	.54	76.	.42	7.7						
Spelling	.29	**	.22	9.4	.24	NS			.15	*	.16	*
Math Cncpts	.62	18.	.59	99.	.41	7.2			.16	*	.15	*
Math Prblms	.43	6.6	.35	26.	.36	5.4			.23	**	.18	*

Table 4. Results of Multiple Regression Analysis for third-grade achievement test performances with scores for ability and social-emotional measurements at third-grade level for race-sex groups separately

Notes: All F-values for R's and MR's are significant $>.001$ level unless indicated by * for $>.05$ level or ** for $>.01$ level or NS, Not Significant; Partial correlations are given only if significant, and at following levels: * for $>.05$; ** for $>.01$. Some additional partials with F-values at approximately the .10 level are included for informational reasons, and "NS" appears in the F column.

Achievement Sub-Tests	Multiple MR	F	CAT, ent. first step R	F	All Soc.-Emo. ent. 1st step R	F	S.Acp. r	F	Partial Correlations Soc. Mat. r	F	Soc. Affil. r	F
White Boys, N = 147												
Vocabulary	.68	21.	.63	101.	.42	6.1	.13	NS				
Reading	.69	21.	.65	110.	.38	4.9			-.10	NS	-.12	NS
Spelling	.53	9.	.49	46.	.27	2.3*						
Math Cncpts	.73	28.	.72	161.	.42	6.3						
Math Prblms.	.59	13.	.57	72.	.34	3.9**					-.14	NS
White Girls, N = 193												
Vocabulary	.66	19.	.64	99.	.46	7.3	.12	NS	.18	*	.13	NS
Reading	.64	16.	.61	86.	.46	7.4	.12	NS	.21	*	.18	*
Spelling	.46	6.	.35	31.	.29	2.6*					.14	NS
Math Cncpts	.63	15.	.61	86.	.42	5.9			.11	NS		
Math Prblms	.47	6.	.43	32.	.30	2.8*					.12	NS
Black Boys, N = 73												
Vocabulary	.60	7.	.56	36.	.33	NS	.12	NS			.22	*
Reading	.56	6.	.51	28.	.35	NS	.16	NS	.12	NS	.18	NS
Spelling	.45	3.**	.25	5.*	.40	2.8*	.24	*	.27	*	.29	**
Math Cncpts	.63	8.	.54	32.	.43	3.6**			.22	*	.30	**
Math Prblms	.40	2.3*	.16	NS	.40	2.8*			.32	**	.22	*
Black Girls, N = 100												
Vocabulary	.60	9.	.56	49.	.45	5.0	.16	NS	.13	NS	.12	NS
Reading	.62	10.	.55	44.	.50	6.7	.14	NS				
Spelling	.21	NS	.17	NS	.13	NS						
Math Cncpts	.65	12.	.62	66.	.46	5.0	.18	NS				
Math Prblms	.47	5.	.45	27.	.34	2.5*						

Table 5. Pearson product-moment correlations between beginning kindergarten measures and third-grade measures of achievement, ability and a social-emotional variable, for total group of subjects. N = approximately 400.

Kindergarten Measures	Third Grade Variables: Achievement (Iowa Tests of Basic Skills) Vocab.	Read.	Spell.	MathCncpt.	Ability (Cogn.Abil.Test,	Social-Emotional (S.C.S.Soc.Maturity)
Socio-Economic H I S	.39	.37	.25	.33	.46	.26
Cognitive Ability						
P. S. I.	.55	.56	.39	.51	.69	.45
P.P.V.T.	.44	.40	.24	.38	.62	.33
Social-Emotional C B I						
Extrav-Introv	.28	.28	.18	.25	.39	.25
Soc.Behavior	.13	.15	.15	.16	.21	.21
Task Orientatn	.28	.25	.21	.25	.37	.29

Note: For N = 400, significance levels: ≥ .098 = .05 level; ≥ .128 = .01 level.

Table 6. Pearson product-moment correlations between beginning kindergarten measures and third-grade measures of achievement, ability and a social-emotional variable, for each race-sex group separately.

Note: Significant correlations are indicated as follows: * = significant > .05 level; ** = significant > .01 level.

	Third Grade Variables											
	Vocabulary				Reading				Spelling			
	White		Black		White		Black		White		Black	
Kindergarten Measures	Boys N= 105	Girls 110	Boys 60	Girls 65	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Socio-Econ.: H I S	.37**	.14	.28*	.16	.43**	.17	.19	.07	.35**	.05	.22	.02
Ability P.P.V.T.	.28**	.39**	.26*	.26*	.24*	.34**	.25*	.17	.29**	.20*	.15	.06
Socio-emo: Extrav.	.19*	.15	.19	.21*	.15	.16	.30**	.19	.11	.13	.16	.08
Soc.Behav.	.13	.09	-.11	.20	.15	.11	-.07	.18	.10	.15	.03	.11
Task Orientn	.25**	.20*	-.02	.42**	.27**	.20*	-.10	.38**	.26*	.12	.04	.20

	Third Grade Variables							
	Math Concepts				Ability			
	White		Black					
Kindergarten Measures	Boys	Girls	Boys	Girls				
Socio-Econ. H I S	.31**	.06	.26*	.07	.36**	.27**	.21	.27**
Ability P.P.V.T.	.35**	.20*	.08	.21	.44**	.31**	.47**	.50**
Socio-emo: Extraversion-Introv.	.22*	.15	.14	.05	.22*	.34**	.45**	.21*
Social Behavior	.16	.09	.12	.14	.14	.27**	.16	.17
Task Orientation	.24**	.18	.03	.31**	.41**	.34**	-.02	.48**

	Third Grade Variables			
	Social Maturity			
Kindergarten Measures				
Socio-Econ. H I S	.19*	-.03	.10	.36**
Ability P.P.V.T.	.28**	.12	.17	.38**
Social-emo: Extraversion-Introv.	.20*	.21*	.12	.24**
Social Behavior	.07	.21*	.17	.34**
Task Orientation	.28**	.14	.12	.38**

Table 7. Results of Multiple Regression Analysis for third-grade measures of achievement, ability and a social-emotional variable with beginning-kindergarten measures of ability and social-emotional variables for the total group of subjects. N = 380

Kindergarten Measures	Third-Grade Variables: Achievement Tests: Reading MR/R	Reading F	Math Concepts MR/R	Math Concepts F	Ability MR/R	Ability F	Social-Emotional (Social Maturity) MR/R	Social-Emotional (Social Maturity) F
ABILITY: Regression Coeff. for PPVT, entered in first step	.28	32.5	.27	30.2	.50	127.	.21	18.
MR, PPVT and CBI Social-emotional factors (see below)	.44	9.1	.43	8.6	.66	30.	.42	8.
SOCIAL-EMOTIONAL: Partial Correlations	r	F	r	F	r	F	r	F
Extra-Introv.	.19	14.	.16	10.3**	.29	35.	.16	10.3**
Social Behavior	.13	6.1*	.14	7.1**	.19	14.	.19	14.6
Task Orientation	.18	33.	.19	14.	.30	37.	.24	23.
Regression Coeff. for Social-Emotional factors entered in first step	R	F	R	F	R	F	R	F
	.36	6.3	.34	5.8	.50	14.7	.37	6.8

Note: All F-values are significant at the .001 level unless marked *, significant >.05 level; **, significant >.01 level.

Table 8. Results of Multiple Regression Analysis for third-grade measures of achievement, ability and a social-emotional variable with beginning-kindergarten measures of ability and social-emotional variables for race-sex groups separately.

Kindergarten Measures	Third-Grade Variables: Achievement Tests: Reading MR/R	Reading F	Math Concepts MR/R	Math Concepts F	Ability MR/R	Ability F	Social Emotional (Social Maturity) MR/R	Social Emotional (Social Maturity) F
White Boys only N = 108								
ABILITY: Regression Coef. for PPVT, ent. in first step	.14	NS	.21	5.1*	.30	11.1***	.17	NS
MR, PPVT and CBI Social-emotional Factors (see below)	.34	NS	.40	2.0*	.57	5.2***	.42	2.3*
SOCIAL-EMOTIONAL Partial Corr'ns	r	F	r	F	r	F	r	F
Extra-Introv.	.05	NS	.14	NS	.14	NS	.16	NS
Social Behav.	.14	NS	.15	NS	.13	NS	.07	NS
Task Orient'n	.16	NS	.16	NS	.34	14.7***	.24	6.6**
Regression Coef. for Soc-Emo. Factors ent. in first step	.32	NS	.34	NS	.50	4.1***	.39	2.2**
White Girls only N = 108								
ABILITY: Regr.Coeff. PPVT ent. first step	.26	7.7**	.11	NS	.39	18.9***	.01	NS
MR, PPVT and Soc-Emo Factors	.37	NS	.27	NS	.58	5.6***	.28	NS
SOCIAL-EMOTIONAL Partial Corr'ns								
Extra-Introv.	.14	NS	.14	NS	.33	13.5***	.21	5.2*
Social Behav.	.10	NS	.09	NS	.26	8.4**	.21	5.1*
Task Orient'n	.16	NS	.17	NS	.28	9.5**	.16	NS
Regr. Coeff. Soc-Emo. 1st step	.27	10.9***	.24	NS	.47	3.6**	.28	NS

	Black Boys only N = 54							
ABILITY								
Regr.Coeff. PPVT ent. 1st step	.14	NS	.03	NS	.33	6.6*	.12	NS
MR, PPVT and Soc Emo. Factors	.37	NS	.24	NS	.55	2.3*	.26	NS
SOCIAL-EMOTIONAL								
Partial Corr'ns								
Extra-Introv.	.28	4.9*	.10	NS	.41	12.1***	.09	NS
Social Behav.	-.04	NS	.16	NS	.20	NS	.20	NS
Task Orientn	-.06	NS	.09	NS	.02	NS	.17	NS
Regr. Coeff. Soc-Emo. 1st step	.35	NS	.23	NS	46	NS	.23	NS
	Black Girls only N = 81							
ABILITY:								
Regr. Coeff. PPVT ent. 1st step	.06	NS	.15	NS	.41	15.1***	.32	9.3**
MR, PPVT and CBI Factors	.35	NS	.37	NS	.62	5.1***	.51	2.8**
SOCIAL-EMOTIONAL								
Partial Corr'ns								
Extra-Introv.	.18	NS	.03	NS	.16	NS	.00	NS
Social Behav.	.17	NS	.13	NS	.14	NS	.19	NS
Task Orientn	.27	6.7*	.30	8.6**	.46	22.5***	.30	8.3**
Regr. Coeff. Soc-Emo. 1st step	.34	NS	.35	NS	.51	3.2**	.42	1.9*

F values: NS - Not significant; * .05 level; ** .01 level; *** .001 level.