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ABSTRACT

The purpose of this study is to examine the role of the cultural distance hypothesis in determining group differences on intelligence and performance scales in Black and White subjects. This view, the Cultural-Distance Approach, briefly stated is that a sub-culture's distance from the major culture, on which test questions of a test are based and validated, will determine that sub-culture's group sub-score pattern in relation to the sub-score pattern of the norming population. Eighty post-secondary school adults (48 White males and females, 32 Black males and females) were recruited and administered a series of tests. Analysis of variance (ANOVA's) were calculated for each of the IQ measures. The results suggest that although Blacks and Whites perform equally on learning tasks at either the Level I or Level II dichotomy of intellectual abilities, performance on standardized tests of IQ do not adequately reflect this equality of performance, possibly because of the loading of cultural bias in the latter measures. A 93-item bibliography, supplementary forms, and statistical tables are appended. (Author/EGS)

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THE CULTURAL-DISTANCE PERSPECTIVE: AN EXPLORATORY ANALYSIS OF ITS EFFECT ON LEARNING AND INTELLIGENCE

(ABSTRACT)

The stance of the present investigation is an amalgamation of the environmental, historical, and social-psychological points of view with the addition of current knowledge in the fields of socio-biology, clinical and developmental psychology. This view, the Cultural-Distance Approach, briefly stated is that a sub-culture's distance from the major culture, on which test questions of a test are based and validated, will determine that sub-culture's group sub-score pattern in relation to the sub-score pattern of the norming population. Therefore minority member performance on tests based and validated on the major culture (or even validated on members of the society according to percentage representation of all sub-cultures in the supra-culture) will show characteristic patterns of group responding which are different from those of the norming sample. These response patterns are indications of what is salient to each minority sub-culture on the tests and within the major culture, and what is not. This paper is an examination of some of the socio-cultural factors which may lead to group performance differences on IQ tests and an attempt to determine empirically if the Cultural-Distance approach is valid in its analysis of test bias. The results suggest that although Blacks and Whites perform equally on learning tasks at either the Level I or Level II dichotomy of intellectual abilities, performance on standardized tests of IQ do not adequately reflect this equality of performance, possibly because of the loading of cultural-bias in the latter measures.

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THE CULTURAL-DISTANCE PERSPECTIVE: AN EXPLORATORY ANALYSIS OF ITS EFFECT ON LEARNING AND INTELLIGENCE

INTRODUCTION

The purpose of this study is to examine the sociological, cultural, and environmental determinants of group differences on measures of IQ. Specifically, the difference in performance of Black and White post-secondary school adults, especially college students, is to be examined using a correlational approach while holding most significant environmental differneces between the group constant. The basic tenet of this paper is that the oft-recorded difference between groups of Black and White students is not the result of racial genetics but describes the cultural distance between the two groups.

The recorded difference in Black and White scores on standardized IQ tests is one of the most discussed, and yet unresolved, issues extant in psychology today. Many explanations for this phenomenon have been posited.

Biological Accounts

For example, Jensen (1969) has suggested that genetics play a central role in producing these differences. He argues that a "developmental lag," genetically determined, causes Black children to perform about two years below White children of equal chronological age. Jensen explored the Black-White difference in some detail. In one study (Jensen, 1977), he divided a White sample into two sub-groups in order to control for cultural differences: one consisting of subjects who equalled the total White sample regarding the mean and standard deviation, and one comprised of lower scoring Whites from the total sample that equalled the mean and standard deviation of the total Black sample. He viewed this second group a "pseudo race."

Jensen found that the difference between the "pseudo race" sub-group and the sub-group equalling the whole White population was the same as that observed between the total Black sample and the total White sample. From these results he argued that the difference between the two racial groups could not be explained by cultural differences between the races. The significant RxI (Race by Item) interaction he obtained in his total comparisons could not be interpreted as bias in the test because a similar interaction was discovered between the two White sub-groups. However, Jensen is aware of a possible flaw in his conclusion, and thus he states that:

> "the only counter hypothesis to explain these results is that the lower scoring Whites in the pseudo race comparison differ from the higher scoring Whites in the same way that Blacks differ from Whites, because the lower-scoring Whites, and the majority of Blacks presumable are both culturally disadvantaged and therefore share the same item biases," (p. 62-63).

This, of course, is a very real possiblity. By the very act of matching a sub-group of White subjects to Black subjects on test performance, Jensen may have been de facto matching the two populations on the environmental and sociological factors which would distinguish these two groups from the higher scoring White sub-group. Unfortunately, Jensen did not pursue this line of reasoning. One thing is for certain however, racial genetics could not have caused the equivalency of the Black group and lower scoring White sub-group on the dependent measure. Jensen does not propose an answer to this dilemma either. Jensen, in refuting "cultural difference," raised more questions than he answered.

Jensen's argument represents a common error type. He, and many test constructors and users assume that tests, especially those validated on representative samples of the national population, are equally valid for all individuals regardless of cultural background. Whereas a test may adequately tap the present intellectual functioning of a individual member of the dominant culture group it may either

(1) accurately measure the intellectual ability of a minority group member or (2) be a representation of his distance from the values, mores, perceptions, and response patterns of the dominant culture. The fact that the White pseudo-race scored comparable to the Black group could either signify the Whites "disadvantaged" status as suggested and ignored by Jensen or truly represent a reduction in mental facility when compared to co-racials. This however does not necessarily reflect on the potential of the Black group.

Conwill (1980), suggests that Jensen believed that a boost of 20 to 30 IQ points was possible for children moved from extremely deprived environments to good or average environments; Jensen however, stated that he could find not a single case report of a child being given a permanently superior IQ by such means (evidence demonstrating such increases will be given later in the text). Jensen therefore concluded that environmental manipulation could only lead to large differences in IQ scores when the original environment is extremely inadequate and that the child typically described as "culturally disadvantaged" does not live in such an extremely retarding environment. In effect Jensen said the difference between the environments of the middle-class and lower-class child was not important.

Herzog, Newcomb, and Cisin (1972), in a research paper titled "But Some are More Poor than Others: SES Differences in a Preschool Program," did however show that factors other than the nutritional and environmental deficits posed by Jensen, produce deleterious effects on IQ scores. Their study dealt with a preschool enrichment program and its effect on children of families labeled as living in poverty. The group of primary interest to this paper is the experimental group (EG). The mean income of families in this group was $3,360, with a range of about $1,000 to $5,770. Their findings indicated that "a broad control for income does not control effectively for socio-economic status" within low-income populations. The analysis of their findings for the two-year nursery school program showed

significant variations in test scores and in patterns of IQ change related to SES levels within this very low-income group.

Herzog et al. (1972) also divided each group, the experimental (EG) and control (CG), into high and low socioeconomic status (SES) subgroups based on a combination of mother's education and people to room ratio. Further each group was divided into high and low initial IQ (IIQ) sub-groups based on Stanford-Binet scores given prior to the interventions. Thus, four new subgroups from the original groups were created: (1) Hi-SES-Lo-IIQ, (2) Hi-SES-Hi-IIQ, (3) Lo-SES-Lo-IIQ, (4) Lo-SES-Hi-IIQ. When the original experimental group was reanalysed, results indicated that the Hi-SES-Lo-IIQ subgroup showed significant gain from the preschool enrichment program, and sustained this gain.

These results demonstrate that categorizing children in gross classes based on family earned income alone is not sufficient for a full understanding of differences in IQ scores between groups. Also, factors other than nutritional and environmental deficiencies must have been at work in these children's environments, for it was the Hi-SES-Lo-IIQ students in both groups who scored the lowest on the initial IQ testing (IQ = 75), who gained the most (IQ = 107), and regressed the least on the follow-up (final IQ = 98).

The physical environment is not the only, or even most important environment impacting on the child's intellectual development. Watson (1970) explains that "there is a kind of environmental influence - the psychological environment, if you like, apart from poor health, or sheer deprivation - which has been shown in limited experiments, to produce small but nevertheless significant influences on intellectual functioning."

The behavioral patterns and coping strategies of the poor parents of the most improved children in the Herzog et al. (1972) study were very different from the poor parents of the other children in the study. For one thing, the most improved

children had parents who were more self-reliant than the others; they did not borrow from relatives and friends on a regular basis in order to survive. Those parents also tended to keep their living quarters in better care. They were thus, perhaps as not discouraged by and resigned to their condition: perhaps they were not as distant from the main-stream values and perceptions as were the other parents, and therefore their children were more programmed in a fashion enabling them to adapt to and learn from the super-culture-directed learning environment (the school). Perhaps these children were somewhat able to escape "the way in which even the flavor of race relations can sap the intellectual strength of minority groups" (Watson, 1970) because of the efforts of their parents.

The genetic (heritability) theory of IQ has also been attacked on methodological grounds. Hardy, Welcher, Mellits, and Kagan, (1976) found that four categories of error, in addition to lack of knowledge, may contribute to the aforementioned differences: (1) failure to comprehend the entire question; (2) failure to understand because of speech perception-enunciation differences between the examiner and child; (3) an incorrect frame of reference, a difference between the child's experience and that upon which the question was based; and (4) inability to verbalize (possibly due to limitations in the vocabulary of the child). The child might seem to know an answer but be unable to communicate it with the appropriate words.

Hardy et al. hypothesized that probing would eliminate all errors other than those due to lack of knowledge, thereby giving a truer picture of intelligence. They administered the WISC to a group of 200 inner-city children (88% Black), and then after a period of rest:

> (a) Selected questions from each (of five scales) were readministered and scored, in the standard manner. (b) A structured set of probing questions, designed to ascertain the reason underlying the child's response, was then administered. If the readministration response was incorrect, an attempt was made to classify the child's error. (c) The final response, at the completion of the probing questions, was scored for correctness for that particular child.

Results of this study are presented in Table 1 (all Tables are collected in Appendix G).

The authors state that their study was not designed to provide an estimate of global IQ scores that might have resulted from readministration of all the WISC questions. Instead it was designed to show that "some children are penalized for providing reasonable replies to questions, but answers that, according to the Manual of the test, are unacceptable and receive no credit." Table 1 strongly suggests that much of the lower group scores of Blacks might be accounted for by these categories.

Examples of some readministered questions and answers are enlightening. In the Information Subtest questions 1, 4, 5, and 6, were readministered.

> Question 5. "What must you do to make water boil? At the time of readminstration 47 of the 200 children made errors. By rephrasing the question, "How do you boil water?" only 17 continued to obtain no credit (p. 47).

In the Comprehension Subtest five questions were readministered.

> To question 1, "What is the thing to do if you cut your finger?", most of the children (148 of 200) initially gave the correct response: "Put a bandaide on it." Thirty-seven were partially correct, and 15 were incorrect. Of the partially correct answers, 28 (76%) were considered to be frame of reference errors. A frequent response was "Go to the hospital," which yielded a partial score of 1 point. When the additional information was provided that it was a "little cut," the correct answer was given by all but two children. In most instances, where the child responded "Go to the hospital," he had been treated at the hospital for a prior injury. Of the 15 incorrect responses (0 score), 14 were attributed to failure to comprehend the question: "It bleeds" and "with a knife" were common responses. Upon further questioning, it was apparent that all but two children knew the correct answer (p. 47-48).

Living in a poor neighborhood where many cuts are the result of violent acts committed with knives and that require emergency medical aid, the original answer given by these children can be seen as "intelligent". It should also be remembered that being poor also correlates with lack of private medical services; poor people receiving their primary health care not from family doctors but from hospital emergency rooms. Thus the answers are "intelligent" when viewed from their

particular social circumstances. It is also reasonable to expect fewer households to have the discretionary cash to purchase bandaids in a slum area than in more affluent areas.

In the Vocabulary sub-test, eight questions were readministered. Two examples should be sufficient.

> Question 9, "What is fur?" yielded 18 correct 2-point, 96 1-point, and 86 no credit answers among 200 children. The most frequent answers "fur coat" and "fur hat" are both no credit responses. The follow-up question "where does it come from?" produced the correct response from some children. While the majority of no credit responses appeared due to lack of knowledge, 26 (30%) had problems verbalizing the answer. At the completion of the follow-up questions, the frequency of no credit responses decreased from 46.3% to 27.5%.
>
> Question 11, "What does join mean?" elicited only nine correct 2-point scores on readministration. About two-thirds of the children lacked knowledge necessary for a correct answer, and the remaining children made auditory perceptual errors. They heard "join" as "Jo Anne," "John", or "Joy." They responded to the word they heard, but when the psychologist repeated the question, many did not know its meaning. Of the 135 originally obtaining a partial score, 127 did not improve. They tended to use "join" in a phrase or sentence, such as "join a club," indicating a partial familiarity with the word but inability to use its more abstract meaning, a verbalization problem (p. 49).

These two questions, and the children's responses to them, demonstrate another problem in comparing different sub-cultures on standardized IQ tests. That problem is the different way words, phrases, and sentences are pronounced and used by different sub-cultures. Black urban children who for the most part are only second and third generations removed from rural southern background pronounce words differently, and therefore attribute different meanings to such words, than educated northern and eastern psychologists. Additionally, the usual mode of expression and forms of communication of these youngsters may be significantly different than those forms of communicating deem "proper" by test constructors and the supra-culture in general.

Sociological Accounts

Should cultural variance be the true cause of the reported differences, it would follow that variations in IQ test scores should be greater between those groups further removed from the general culture and the White standard, than those that are more integrated with that standard. This is indeed the case. McShane and Plas (1982) conducted a study of 142 American Indian children which was divided into two sub-groups, traditional and acculturated. Their study hypothesized the existence of a unique pattern of Weschsler Scale Indian performance that differs from that found in learning disabled groups or within the norming (White) group. The results were as expected. It was found that the typical Indian child possesses relatively superior visual-perception abilities and depressed language skill as assessed by the Wechsler scales.

But more important than the identifiable Indian profile was the fact that the traditional children evidenced the Indian pattern of recategorized Weschsler subtest performance, while the more acculturated groups did not. On the basis of the verbal-performance IQ ratio, 159 Indian children, drawn from three sources (a group referred for psychological services because of educational difficulties (N = 105), a group referred because of hearing problems (otitis media) (N = 20), and a group referred for giftedness screening (N = 17) were assigned "traditional" or "acculturated" status. A difference of 9 points was considered significant for Indian populations, based on previous research (McShane, 1980). Those children with more than a nine point difference in performance and verbal IQ were classified as traditional; those children with a nine point or less difference were considered acculturated.

In order to ascertain the validity of the relationship between the nine-point Wechsler verbal-performance IQ difference and level of acculturation for this particular study, McShane and Plas (1982) inspected the households or measured the

acculturation of the mothers of 37 children. Of the gifted group, six has a Wechsler verbal-performance difference of nine points or less. These "acculturated" Indian children each had one White parent, or had parent(s) raised in the city, or were raised in a foster home. The 11 students of this group achieving a verbal-performance difference in excess of nine points had both Indian fathers and mothers and both child and parents had significant reservation contact.

Fifteen of the mothers with children in the hearing problem group were given a test of acculturation developed by McShane, the Traditional Experience Scale (TES). Children of those mothers who scored as highly traditional on the TES had a mean verbal-performance score difference of 25 points. The mean difference for the children of moderately traditional mothers was 16 points. And the difference for children of low traditional mothers was 0 points.

McShane and Plas conclude that acculturated Indian children exhibit smaller Wechsler verbal-performance differences and a less identifiable Indian sub-scale pattern than do the traditional-rated children. From a cultural distance perspective the Wechsler scales performance of Indian children can be seen as good a measure of Anglo-acculturation as more traditional methods, and not simply as a measure of intelligence. McShane and Plas come to a like conclusion when they ask that an explanation be found which integrates the Indian's child traditional heritage into an understanding of his "intellectual style."

Not only is the fact of multiple sub-cultures a problem for test construction and interpretation in the United States, it presents a problem for other multicultural western societies as well. Lieblich and Kugelmass (1981) have illustrated that Israel has the same problem with her Arab minority. These authors found that the Arab child in Israel shows a pronounced verbal over performance scale score difference on an Arabic translated version of the Wechsler. The characteristic difference is consistent up to the age of 12 in these children.

Lieblich and Kugelmass struggle to explain these circumstances and dismiss the genetic for the environmental interpretation. They ask two related questions in the search of an explanation: "what are the factors involved in producing the Verbal-superiority profile in the first place, and what are the factors which may account for its disappearance toward adolescence?" They note that genetic theories have been suggested to account for a "possibly related phenomenon of perceptual deficit" among American Blacks and the maturational differences have been offered to explain "similar findings" when comparing the intellectual achievements of boys and girls. They however argue that a genetic explanation could not be plausibly maintained considering the disappearance of the specific sub-scale pattern in Arab children at the age 12. A 1975 study (Lieblich, Kugelmass, and Ehrlich, 1975) in which Jewish and Arab children, aged 4 to 7, living in the same city and having similar SES background evidenced very similar patterns and levels of achievements, would negate the maturational hypothesis.

Lieblich and Kugelmass therefore suggest that the Arab culture and the environment of the Arab child be examined in order to provide answers to their previously stated questions.

Historical Accounts

It should be clear from the foregoing that environmental explanations of group differences are the rule, not the exception. Why not so in America? Could the emphasis on heredity in America be a result of the capitalist formulation of labor as is advocated in Marxist doctrine? Levidow (1978) spells out what he terms, "A Marxist critique of the IQ debate." In it, he describes the quantification of intelligence as being the result of capitalist historical development. He argues that the use of IQ test is in realty a ploy of "racist" to scientifically institutionalize capitalist aims through the use of science. IQ testing is seen as a way of controlling labor. Levidow argues that through the reification of the

trait of intelligence capitalism creates for itself certain social classes which can be easily channelled into preordained labor positions. Levidow proposes that by mystifying abilities, capital is able to force deficits in performance or learning into the being of inferior persons. Society is not to be held responsible for the low social standing and exploitation of these people because it is the poor genetic make-up of these types which keep them in their positions of servitude, not the inaction or reaction of the ruling classes.

There are those in the field of social psychology other than marxists, who believe that the science of human behavior is an historical endeavor. In his article, "Social Psychology as History, " Gergen (1972), argues that social psychology is primarily an historical inquiry. He states that unlike the natural sciences, social psychology deals with "facts" that are largely nonrepeatable and that change as a result of the progression of time. He asserts that principles based on human interaction cannot easily be developed that will prove useful over time because the underlying facts on which the principles are based will change as the times change. In the final analysis, states Gergen, social psychological knowledge cannot accumulate in the usual scientific sense because knowledge of human interaction is a prisoner of its time and setting.

So here we have delineated two ways in which social science in general, and psychology in particular, are intertwined with history. One is the effect the times we live in have on scientific propositions and inquiries, which has been labelled "zeitgeist," and the other is the evolution of human behavior over time. The first is the historical effect the Marxists propose. The second effect of history is changes in the subjects under study. This too is an historical reality. Jones (1971) has captured the essence of both historical effects in his review concerning the use of IQ tests from 1870 to 1930 to prove Blacks inferior.

Jones demonstrates the effect of the zeitgeist on scientific inquiry during this period. He theorized that somewhere between Reconstruction and 1930 the climate of thought moved from one of innate equality of the races to one of Black-inferiority. Some of the reasons behind this change listed by him are: (1) Southern bitterness over Reconstruction, (2) Northern Capitalist interest in the South, (3) the desire of Whites to put differences aside and reunite the country, (4) Social Darwinism, (5) the rise of imperialism, (6) the "yellow peril" - a militant Japan, and (7) the "red scare."

Jones goes on to show how the different kinds of "tests" these scientists used (the sociological, the psychological, and the physiological) were in many cases loaded with methodological flaws, produced contradictory results, and how these results were explained away oftentimes or suppressed when they did not agree with the prevailing zeitgeist. Jones concludes that a vicious cycle was joined, the White scientists being adjoined with the public in this regard: "Whites believed Blacks to be inferior. Therefore white scientists believed them inferior and their experiments 'proved' them to be. The proof offered by these scientists reinforced the beliefs of the general white population, and so on it went." A by-product of this process was the fact that a number of Blacks came to believe in their inferiority too.

The work of Jones briefly touched on the U.S. Army testing in the period he studied. A more recent examination of World War One Army testing methods and results (Bronfenbrenner, 1980) demonstrates how the zeitgeist of the period worked to perpetuate itself. These tests were used at the time to "prove" the inferiority of the immigrant population from Eastern and Southern Europe and their offspring. This was a result of the general feeling of the U.S. public that the flow of immigrants from the "underbelly" of Europe should be halted, or at least drastically reduced. By proving these populations deficient in certain areas such as morals (the Black-Hand Society or Mafia was getting a great deal of press coverage) and

intelligence, Congress was able to eventually reduce the flow of such "undesirable elements". Today however, the descendants of these "genetically inferior types" are considered equal in intelligence with other Whites. Here clearly is an example of both forms of historical-psychological interactions in the process of change: (1) the zeitgeist, and (2) the improvement of the test scores of Whites from Eastern and Southern Europe living in America.

Apparently both the zeitgeist and the social reality as quantified by test scores can change. One area in which test scores for Blacks have improved to a level equivalent with Whites is that of self-evaluation. Adam (1978) argues that what is conceptualized as self-esteem has changed as rapidly and drastically as the "real" rise in Black esteem (an example of the zeitgeist and the quantifyable changing in tandem). Taylor and Walsh (1979), along with other writers (Fu, Korslund, and Hinkle, 1980; Pettigrew, 1978; Simmons, 1978), believe that there has been real gain in the self-esteem of Blacks.

So the question remains, "why have not the IQ test scores of Blacks risen to the national norms?" As cited earlier (Berry, 1982), Black norms on certain intelligence and aptitude test are rising slowly.

THE CULTURAL-DISTANCE APPROACH

This returns us to a previously discussed topic and the main premise of this paper, that is: a sub-culture's distance from the major culture, on which the test questions are based and validated, will determine that sub-culture's group mean in relation to the norm mean of the test as a whole and that sub-culture's sub-score pattern in relation to the sub-score pattern of the norming population. So the problem comes down to defining "cultural distance."

This stance eliminates the need to consider bias in order to improve the test. Bias will henceforth be an accepted fact in testing. "Tests are not unfair. Life is unfair and tests measure the results" (Sowell, 1977). This author accepts the above assessment and presents below his working definition for Cultural-Distance and base of departure for the remainder of this treatise. Any sub-culture operating according to principles not equally operative in the major culture, not existing in the major culture, or operating without the benefit of a principle operative in the major culture will be assumed to be attending to, processing, storing, retrieving, and/or practicing functional information not exactly like that of the major culture. Therefore tests based and validated on the major culture (or even validated on members of the society according to percentage representation of all sub-cultures in the super-culture) will show characteristic patterns of group responding different from those of the norming sample. These response patterns are indications of what is salient to each minority sub-culture on the tests and within the major culture, and what is not. The tests are not responsive to what is salient to the sub-culture but absent in the major culture, however.

The above underlined statement is both a definition of "cultural distance" and an explanation of normative differences between social-culturally distinct groups.

As a definition it provides a base from which to investigate the reported differences between groups in the literature, and as an explanation, it provides the theoretical footing from which predictions and interpretations may be made.

The sub-test scores that comprise the characteristic response pattern can either be elevated or depressed as measured by the norming sample. The elevation of the Arab sub-culture group norm as compared to the major-culture norm in Israel (Lieblich and Kugelmass, 1981) in regards to Verbal ability on the Weschler scales demonstrates an Arab distance from the major-culture norm (Jewish) in Israel that shows the relative importance of Verbal patterns of behavior in the Arab culture. Lieblich and Kugelmass report:

> Many cultural analyses have stressed the central role of the Arabic language in both oral and written form on its users . . . Some even imply that there may be disproportionate attention paid to the language at the expense of other aspects of communication (p. 317).

In regards to the depressed Arab performance score, the same authors accurately state that Arab attitudes toward time and speed may be causal factors involved here. "Speed is from the devil," is a popular Arab saying. Lieblich and Kugelmass note that Arabs are accustomed to working in a relaxed and unhurried fashion (as they assume most "relatively less modernized societies" are), while the majority of the Performance sub-tests require fast reactions and these sub-tests penalize slow responses, even when correct.

Lieblich and Kugelmass are able to see differences qualitatively and not strictly quantitatively. The cultural-distance approach would even predict the disappearance of the relative verbal superiority of the Arab child over his Israeli Jewish counterpart at about the age of 12. This is around the age of manhood in both the Jewish and Moslem religious systems. At this age many Arab children assume an adult position in life. They acquire jobs and begin to acquire the performance habits which will enable them to support standards for employment are Jewish and not Arabic, therefore at this age (12-13 years), the child begins to

become more adept at quick responding relative to verbal responding. The cultural distance between the two groups is narrowed by environmental and social forces.

It is proposed that similar analysis of all cross-cultural comparsion data could be accomplished from a cultural distance perspective. Predictions could be made concerning ways of improving the areas of "deficit" in minority-cultures and about the factors contributing to observed differences.

It is time that the American zeitgeist changed, just as the American social reality is changing. Instead of considering racial groups as distinct and separate populations, Americans must come to grips with the continuing revelations on this score by social-biologists. Beliaev (1982) states:

> The human beings populating our planet belong to the single polytypical species Homo sapiens. The racial differentiation of humanity and, even more so, national boundaries have not created mechanisms of reproductive isolation, with the consequence that the exchange of genes extends throughout the entire human race, resulting in a single genetic pool for the species, constituting its basic wealth and the foundation in nature for further progress and flourishing (p. 86).

Cultural distance and biology

Robinson (1982) estimates that in the United States, 95 percent of all Black people have some admixture of European genetic stock while at least 27 percent of all White people carry some African genes. Based on these facts, is genetics enough anymore to explain Black-White differences on IQ tests? Robinson, considering these facts, asks the telling question, "which genes misbehaved?"

When performance differences and sub-scale patterns are approached from a cultural distance perspective, the latest discoveries in social-biology are not antagonistic to the understanding of these differences and patterns (as is social-biology and the racial genetic theory), but agonistic. For example, the social-biology contention (Hamilton, 1964) that those traits most associated with fitness have low heritability seems strongly at odds with the racial genetic viewpoint that the proportion of genetic contribution to intelligence (surely a trait associated

with survival in mankind-fitness) now stands at 68 to 70 percent (Das, 1977). Social-Biology would argue that any trait of survival value (fitness) such as intelligence would quickly spread throughout the species via the process of natural selection. Thereafter, any differences in phenotype observed between sub-groups belonging to that species would be the result of environmental, and in the case of Homo sapiens, social influences. The cultural distance approach not only agrees with this prediction, it is axiomatic, as can be seen in our definitional/explanatory statement, reprinted below:

> Any sub-culture operating according to principles not equally operative in the major-culture, not existing in the major culture, or operating without the benefit of a principle operative in the major-culture will be assumed to be attending to, processing, storing, and/or practicing functional information not exactly like that of the major culture.

Differences between sub-cultures are assumed to be the result of different cultural values and also as the result of each culture's symbolic interpretation of its environment. Cultural distance as a perspective incorporates the latest social-biological knowledge better than does the racial-genetic perspective.

American psychologists have been trying to fit a square peg into a round hole. They have been quantifying when they should have been qualifying. They have been trying to reduce to a single scale, abilities and social-cultural propensities that are different in their very natures. Levidow (1978) takes a quote from Marx that illustrates this prime error.

> What does a solely quantitative difference between things presuppose? The identity of their qualities
> . . .Hence, the quantitative measure of labors presupposes the equivalence, the identity of their quality.
>
> Karl Marx (Grundrisse, p. 173)

If we replace the phrase "measure of labors" in the above with the phrase "measure of IQ scores" the statement summarizes the position under which present advocates of universal testing operate. But what is the IQ score measuring: what is intelligence? Jensen (1960) made no claims to know what he was measuring. He

reasons that we need not know: we need only know that it correlates highly with income, schhool performance, etc. Well, so does being a member of the dominant group correlate highly with income, school performance, and IQ score. Yet "no one would argue that white skin per se is an ability factor," also carrying information on social status, school performance, or even "G" for IQ (McClelland, 1973).

What is expressed in the conclusions of the hereditarian view is a very basic philosophical mistake: an error of deductive reasoning. While the major premise of their argument is correct, the minor premise and the conclusion are false. Their logic is as follows:

Major Premis:	Quantitive differences presuppose qualitative sameness.
Minor Premis:	IQ scores measure and quantify differences in intelligence between culturally different groups.
Conclusion:	Therefore, culturally different groups possess different amounts of the same quality.

But if you do now know what intelligence is, or you presume to know what intelligence is (i.e., the ability to learn) but do not measure the same quality equally for both groups, your minor premis, and therefore your conclusion are invalid.

Cultural distance and test bias

Ignoring the ignorance or lack of concern about the essence of intelligence for awhile, let us, for a moment, concern ourselves with the equivalent measure of this concept in culturally different groups. Hunter and Schmidt (1976) in a review devoted to the "Critical Analysis of the Statistical and Ethnical Implications of Various Definitions of Test Bias," concluded with the statement: "we feel that we have shown that any purely statistical approach to the problem of test bias is doomed to rather immediate failure." They went on to state that they felt that there is no way that the hereditary-environmental dispute could be objectively resolved through statistical means.

Cole (1973) argues persuasively for a definition of a culturally fair test proposed by Darlington (1971), Darlington's Definition #3. Hunter and Schmidt (1976), no matter their own conclusions on the problem of test bias as delineated above, describe Darlington's third definition best. They present it as follows:

> If X is the test and Y is the criterion and if C, the variable of culture, is scored 0 for Blacks, 1 for Whites, then Darlington's 3 can be written as follows: The test is fair if
>
> $$r_{xc_o.y} = r_{xc_1.y} = 0$$
>
> His argument for this definition went on as follows: the ability to perform well on the criterion is a composite of many abilities, as is the ability to do well on the test. If the partial correlation between test and race with the criterion partialed out is not zero, then it means that there is a larger difference between the races on the test than would be predicted by their difference on the criterion. Hence the test must be tapping abilities that are not relevant to the criterion but on which there are racial differences. Thus, the test is discriminatory (p. 1060).

What Darlington's Definition #3 is saying, when carried to its ultimate conclusion, is that a test can only be fair when all predictors in a multiple regression equation of the criterion are known and considered. As Hunter and Schmidt explained: "That is, Darlington's definition can be statistically but not substantively evaluated in real situations."

So now we arrive at yet another impass. If intelligence cannot be defined, how are we to construct the perfect multiple regression equation? And if intelligence is defined as some global concept such as "adaptive behavior" or "the ability to learn," and if we could come up with some operational difinition that would take note of all such behaviors, how would we decide which measures to include in a test of this concept? Would we include all the measures? If we did that, the test would then be the criterion!

This paper accepts the definition proposed by Humphreys (1971) for intelligence: "the entire repertoire of acquired skills, knowledge, learning sets, and generalization tendencies considered intellectual in nature that are available at any one

This author believes that there is a legitimate basis for test construction, with certain reservations. Since what is important to functioning intelligently in the society-as-a-whole will determine how one operates in that society, an assessment of ones strengths and weakness as measured by the norms of that society can be very useful, both determining in which areas one is likely to be successful and determining in which areas one should practice the skills needed to improve performance if one chooses to adapt those skills competively to an area of personal interest. Tests should however, not be used to denigrate, or even evaluate, a separate population solely on the bases of differences in score patterns, or elevations and depressions, in comparison with the whole population (or other separate populations). Tests, should therefore, be used to evaluate and aid the individual. Tests used to determine group differences based on any premise other than "cultural distance" will lead only to invalid assumptions based on "valid" data. Harvard biologist Stephen Jay Gould agrees that this fact is too often overlooked by the "hereditarians." He is quoted by Moho (1982) as saying:

> The hereditarians' . . .error. . .is to confuse within-group and between-group behavior. The classic studies of heritable IQ. . ." are all within a single population. But variations among individuals within a group, and differences in mean values between groups are entirely separate phenomena. One item provides no license for speculation about the other. IQ could be highly heritable within groups, and the average difference between whites and blacks in America might still only record the environmental disadvantage of blacks". (p. 22).

Arguments that use data to demonstrate "that the items (of a test) that best measure individual differences within each racial group are the same items that discriminate the most between the racial groups," (Jensen, 1976), and then conclude this proves a lack of cultural bias in the instrument are blinded by their hypotheses. One could ultimately explain these circumatances by evoking "biculturism." The minority person is surely aware of and proficient in a number of those attributes considered intellectual by the major culture. She would have to be in order to even function marginally in the larger society. And because she

is only allowed marginal participation in the main-stream fabric of the nation, her knowledge of its intellectual sphere is "incomplete."

This is the source of the "developmental lag" described by Jensen. But instead of accessibility of less general major-culture knowledge being interpreted as genetic default, it is in reality a sign of a smoothly functioning intellectual mode. For a bi-cultural organism to acquire an excess of unuseable behaviors (even cognitive) is unreasonable to expect. No, one would expect the individual to only acquire those behaviors that are allowed expression by the environment (even social).

Humankind lives in a fabricated symbolic environment. One would expect the hereditarians to consider this ecosystem. Apparently they have "overlooked" this area of human existence and source of evaluation. To know the truth however, requires that we leave no turf undisturbed. We must examine that which flatters us as well as that which puts us in a bad light.

THE PRESENT STUDY

The purpose of the present study is to examine the role of the cultural distance hypothesis in determining group differences on intelligence and performance scales in Black and White subjects. It is hypothesized that the differences in Black and White scores on IQ measures can be reduced from .5 to .1 standard deviation or eliminated completely by controlling for cultural distance through the manipulation of environmental factors.

Factors such as sex, socioeconomic status as determined by the occupation of the head of household, region of residence in the U.S., and urban vs. rural residence have already decreased the difference between Black and White IQ scores on standard IQ tests from 1 standard deviation (seen in random samples on an uncontrolled basis; Jensen (1971) to between .5 and .7 standard deviations (Reynolds and Nigl, 1981). Kaufman and Kaufman (1973), matched Black and White children, between the ages 2½ and 8½, on these background variables: age, sex, father's occupation, geographic area, urban vs rural residence, and school grade. Their results indicated no significant difference between Black and White preschool age children (the 2½- to 3½- and 4 to 5½-year old groups) on any of the cognitive scales of the McCarthy Scales of Children's Abilities (MSCA). They did however, find a significant racial difference for the 6½- to 8½-year old group.

These results would be expected when considered from a cultural-distance perspective, for two reasons: (1) the child learns more from and about her culture as she grows and, since the average White child is learning more from and about the major-culture as she grows than the average Black (who is learning from the major-culture but also her subculture), the cultural-distance between the White and Black child increases with age; and (2) intelligence is cumlative. If one does not learn to crawl, one will not learn to walk, and if one is not allowed to walk often one will not learn to run well. The absence of initial difference between the two groups is evidence of: (1) initial equality of the races; (2) highly

similar inter-cultural early childhood learning and role expectancy and; (3) a lack of psycho-social discrimination for such young ages.

Scarr (1976) investigated the IQ scores of Black children of differing ages adopted by White families and found that the mean IQ for this group was 16 points higher than that achieved by "disadvantaged" Black children raised in their families of origin in the same geographic areas. Scarr made sure that the comparison group did not differ in any appreciable biological fashion, thus undercutting a possible hereditary explanation. It is also interesting to note that the difference between the two Black groups is equal to what is usually observed between random White and Black groups. This difference between racially identical Black groups also parallels Jensen's Black-White pseudo race dichotomy discussed above. Cultural-distance analysis of all three comparisons would predict such contrasts.

The other variables known to affect IQ and/or school achievement differences are: father presence (Greenberg and Davidson, 1972; Carter and Walsh, 1980; Deutsch, 1960; Lynn, 1974; Jantz and Sciara, 1975); religion (Saigh, 1981; Bopegamage, 1979); contact of father with Whites (Orive and Gerard, 1975); educational level of parents (Greenberg and Davidson, 1972); care of home (Greenberg and Davidson, 1972); self-concept (Guardo, 1969); number in family (Olneck and Bills, 1979); room/person ratio (Greenberg and Davidson, 1972); and educational level of teachers (Lindsay, 1980).

Deutsch (1960) found that black children from lower-class backgrounds scored significantly more often below grade level on achievement tests when the father was absent than when not. Lynn (1974), in his book, The Father: His Role in Child Development, reviewed the studies dealing with the effects of father absence. He noted that lowered quantitative and analytic skills were more readily observed in father-absent boys than father-absent girls. He also determined, from his review of the literature, that father-absence was more detrimental to the

achievement potential of White children than of Black children.

Looking at their conclusions in the light of cultural-distance, we might reason that because children of the Black race are more often faced with the absence of a father than are White children, as a group their scores are affected by this variable more at baseline than is the group performance of the Whites. Therefore, the absence of the father in any one individual White subject will cause a greater difference in his score from his within group norm than that evidenced by the difference between any individual Black child without a father in the home, and her within group norm.

Father absence may even have the potential to boost the IQ test performance of male Black children. Carter and Walsh (1980), while investigating the effects of father absence on early (grades 3-4-5) and middle (grades 6-7-8) childhood Black youngsters found a somewhat higher performance level in social studies of father-absent (FA) males over father present (FP) males in early childhood. They explain these curious results by saying that the FA males' higher scores may be reflecting the influence of female language skills, which may be transferred to boys more easily in early childhood. The difference is not lasting however, with middle-childhood FA and FP males scoring similarly in social studies exams.

The Carter and Walsh study cited above, interpreted from a cultural-distance perspective, would suggest that Black-American boys raised in the poor Black culture are being taught a more distant intelligence (as measured from the supra-cultures's norm) than are Black-American girls. That is to say, the sub-culture of the Black-American male is more distant from that of the American super-culture (or White sub-culture) than is the sub-culture of the Black-American female. Arinoldo (1981) supports this hypothesis. In studying age, race, and sex differences in the General Cognitive Index of the McCarthy Scales and full scale IQs of the WPPSI and WISC-R, Arinoldo found that although the White group out-performed the Black group at both age levels (preschool, 4-5½; school age 7-8½) and on both tests, Black

females in the preschool group outperformed White males in the same group on both tests (McCarthy GCI, 94.0 to 91.2; WPPSI-FSIQ, 94.8 to 93.6), while Black males already the lowest scoring sub-group in the study (McCarthy GCI = 87.0; WPPSI - FSIQ = 87.6). Black males at an early age are learning something different from that which the dominant culture deems important. Thus it seems that both race and sex influence the learning to which one is exposed and the behaviors which are learned. Sex plays a role in determining cultural-distance. How can these and similar results (Reynolds, 1980a; Reynolds 1980b; Wrobel and Howells, 1982) be explained from either a genetic or historical point-of-view?

The poor, and especially the male poor, have grave obstacles to overcome because of limitations set on them by those with wealth and power. Because females are often viewed as the "weaker sex" they are often allowed access to the domiciles of the ruling classes as domestics and are thus privy to modeled behaviors often unaccessible to the male of the same class. Is it any wonder that Black females outperform Black males. Looking at the cultural implications would allow for the disappearance of this effect as social class became elevated because the modeled behaviors would then be equally accessible to both sexes.

Since the national social requirement of females, regardless of race, is to be more expressive (verbal and emotionally) but not necessarily to be competent in the physical (manual dexterity) or philosophical planes (politics, science, higher mathematics), the reason for female and male dominance in these socially sanctioned areas can be attributed to cultural expectations. It would of course follow that Black females allowed to converse with the White culture would be defined by both race and sex, thus acquiring higher supra-culture proficiency in sexually-relevant areas than in those areas deem sexually irrelevant. This increased behavioral proficiency would be transmitted to the Black females' off-spring unless countered by other forces at work in the home (the Black father-son relationship) or until

forces outside the home begin to operate (society's definition of male Blackness for the Black child in the school system).

Religion of tester, testee, and attitudes of each toward and affected by the perception of religious affiliation of each can also affect test scores (Saigh, 1981) and cultural distance (Bopegomage, 1979).

Beyond the presence or absence of father, the Black child is significantly affected by the behavioral patterns of a present father. Orive and Gerard (1975) found that test performance of Blatk boys was significantly increased when the father had frequent contact with Whites and the youngster was able to observe these Black-White interactions. Black girls had a similar reaction to decreased father interaction with relatives. Mothers had little direct influence on the test performance of either sex children.

Orive and Gerard search for an answer to the puzzle: why does the behavior of the father affect performance of the children of both sexes but that of the mother not affect either? Since the mothers in poor Black intact households spend more time with the children, they reason that they should affect them more. They come to the the conclusion that the behavior of the father subtly affects the behavior of the mother, which in turn subtly affects the behavior of the children; thus the mother is included in the equation.

The above results can be more satisfactorily explained by the use of the Cultural-Distance perspective. Since in most families with a father present, the male is the main support of the unit traditionally; while the mother is at home with the offspring, the father is the family's interface with the larger society outside the neighborhood (which is usually ethnic). Therefore the father will be the transmitter through which out-culture behaviors, mores, and perceptual styles will be filtered. Since the mother is more involved in "local" affairs and inter-family correspondence she will have little to bring directly to the children from the major-culture; her role being the teacher of proper sub-cultural modes.

The answer is simple from the cultural-distance perspective: Black fathers who deal with White men in the presence of their sons (leisure time) are more integrated into the White-culture than Black fathers who do not socialize with Whites. As for girls; Black men who do not associate as often with the extended family are further removed from the Black sub-culture than fathers involved more with the larger family. These fathers provide their sons with supra-culture role models and a learning atmosphere designed to produce enculturation. These fathers, usually relocated away from the ancestral birthplace because of upward mobility, force their daughters to form other female alliances beside the traditionally strong "Black sisterhood" of female relatives. Thus, the integration of the father into American society leads directly to the integration of his children.

The educational level of the parents is of importance because in America, education correlates with cultural-integration (Greenberg and Davidson, 1972; The racial gap in SAT scores, 1982; Berry, 1982), as does the educational and motivational level of the children's teachers (Lindsay, 1980; McGrath and Banta, 1982; Carey and King, 1982; Williams, Foote, Ellis, King and Burgower, 1982).

Greenberg and Davidson (1972) found the care taken to keep the home clean and neat, and the room/person ration in the home were two important factors that distinguished 80 high from 80 low achieving fifth-grade "Black urban ghetto children." The neater and cleaner home, and the smaller room/person ratios were conducive to high school performance. Olneck and Bills (1979) found that smaller families produce higher IQ-scoring children.

The intent of this study is to hold all the above environmental variables constant across the two major racial groups. Variables that affect test performance differently across the races due to the interaction of the test situation will also be controlled. The influence of the race of the tester (Abramson, 1969;

Katz, Henchy, and Allen, 1968; Pryzwansky, Nicholson, and Uhl, 1974; Sattler, 1966; Terrell, Terrell, and Taylor, 1980; Turner, 1971), and order of race of tester, when more than one test session is required (Watson, 1970), are two factors taken into consideration. Abramson (1969) found that with kindergarten subjects, the race of the tester made no difference. In fact each race did best with the opposite race on the Peabody Picture Vocabulary Test, although non-significantly. With first graders, however, the race of the tester was a significant factor, the White examiner being preferred by both races (56.90 to 56.00 for Black first graders and 58.38 to 57.45 for White first graders). This study was conducted in an integrated New York City school. Other results have been found in other areas. Bias toward one's own race is the rule (Terrell, Terrell, and Taylor, 1980; Turner, 1971; Katz, Henchy, and Allen, 1968).

With the uncertain effect of this variable, it is surely one that should be controlled for when comparing Black-White differences. Sex of tester is another one. Turner (1971) found that "there are strong cross-sexual effects in motivational studies, and that different women have highly differential effects on subjects."

Finally, the type of test itself, given to appraise IQ, will affect the relative position of different sub-cultural groups (Hays and Smith, 1980; Sewell, 1979; Arinoldo, 1981). Certain IQ and aptitude tests are more culturally neutral than others.

METHOD

Subjects

The subjects for this study were 80 post-secondary school adults, primarily college undergraduates attending Virginia Polytechnic Institute and State University. A total of 48 White subjects (24 males, 24 females) and 32 Black subjects (16 males, 16 females) were recruited and tested during the months May through August, 1983.

Instruments

Cultural Variables

The subjects were given a 43-question Personal Data Questionnaire (see Appendix A) prior to being given the series of tests. The questions in this schedule are based in part on the U.S. Census Bureau's classification system of occupations (see Appendix B), and a Parent Interview Schedule developed by Greenberg and Davidson (1972) (see Appendix C). The majority of items are based on research findings discussed in the text and the theory underlying this enterprise - Cultural-Distance. The information obtained from this questionnaire provided the cultural factors which were used to test Hypothesis III (see below).

Measures

The following measures of IQ, learning, and performance were given each subject:

(1) Weschsler Adult Intelligence Scale - Revised (WAIS-R),
(2) Peabody Picture Vocabulary Test (PPVT),
(3) Booklet Category Test (BCT)
(4) Memory Drum Recall Test (MD #1)
(5) Memory Drum Recognition Test IMD #2).

The WAIS-R was chosen for inclusion in this study because of its wide use and acceptance in measuring intelligence. The PPVT was chosen to be a part of this investigation because of its moderate reliability (parallel forms, A and B, r = .77) and correlation with the WISC (r = .60) (Ollendick et al., 1974; 1975) and because it combines verbal comprehension with performance responding.

The Booklet Category Test (BCT) is a newly developed redesign of the Halstead-Reitan Categories Test (part of a total neurological test battery). The BCT consists of 208 black-and-white and colored plates, arranged in seven separate sub-tests. Within each sub-test there is one idea which will allow the subject to choose a number between one and four that correctly represents the visual image.

The BCT is designed to assess brain damage but because it is a problem-solving task, it was chosen for inclusion in this study. Results are reported in number of errors (50 being a cut-off score for serious neurological dysfunction).

The two Memory Drum tasks, Recall and Recognition, consist of tests of the ability of each subject to (1) remember and record three-letter syllables after brief exposure and (2) recognize the same stimuli when presented in a field equalling three-times the number of target stimuli.

Syllables were formed in the classical consonant-vowel-consonant (CVC) style. Vowels for each of the 48 nonsense syllables were chosen by randomly drawing, with replacement, one of five poker chips, on which were printed the vowels (A, E, I, O, U), from a cup. The first and last letter of each CVC-syllable were formed utilizing all the consonants in the alphabet save F (which resembled E), J (which resembled U), M (which resembled N), Q (which resembled O), V and W (which resembled U), and Y (which can be either a vowel or consonant). The 16 included consonants were randomly drawn, with replacement, in the same fashion as used to obtain the vowels to obtain the third letter of each syllable. The first consonant of each syllable was formed by randomly selecting one of 16 poker chips from the same cup, but without replacement. This last procedure allowed for at least 16 different beginning letter syllables.

The BCT and the two Memory Drum (MD #1, and MD #2) tasks are included in order to assess subjects on both Level I (association) and Level II (transformation) intellectual abilities (Jensen, 1973) without the hypothesized interference

of culturally weighted material found in standardized tests of IQ.

Procedure

The 80 subjects were divided into four groups based on race and sex: (1) Black males; (2) White males; (3) Black females; (4) White females. Four examiners, 2-Black males and 2-White males, were either graduate students in Clinical Psychology or Educational Counseling. The tester-testee breakdown is presented in Table 2 (see Appendix G for all Tables).

All subjects were given the five dependent measures of intelligent behavior in two settings according to the following formula. Each examiner gave half the subjects he tested in each cell the WAIS-R on the first sitting, the other subjects within that cell received the WAIS-R administration during the second session (the WAIS-R, because of time constraints, was always administered alone during a session).

The other three measures (PPVT, BTC, and the verbal learning and memory tests) were given within a single session, their order varied by the examiner from subject to subject in the fashion shown in Table 3 (Appendix G).

The actual combinations were left up to the individual testers as long as they kept within the general guidelines (the order of all 4 tests were to vary completely within a cell). However, Memory Drum Recall Test (MD #1) always immediately preceeded Memory Drum Recognition Test (MD #2).

The WAIS-R, Peabody Picture Vocabulary Test, and the Booklet Category Test were administered and scored according to the standard instructions accompanying these instruments. The Memory Drum measures, Recall and Recognition, are tests of the subjects short recall ability and recognition for old three-letter nonsense syllables randomly set in a field of new syllables at the ratio of 1:2 (old:new) (see Appendix E).

The Recall and Recognition tests thus utilized the same paired - associate task consisting of 24 nonsense syllables (CVC type) presented mechanically by a Schumann/Muller drum at the rate of one pair every two seconds. Two runs of the same series were allowed each testee, with four seconds intervening between the runs. After the second viewing of the 12-pair list, the subject was given the two tests included in Appendix E. The number of correct responses was the score awarded the subject on Memory Drum Task #1, while correct syllables circled minus wrong responses divided by three constituted the score received on Memory Drum Task #2.

Times of testing varied (morning/afternoon/evening & day of week) within and between groups randomly. The four male experimenters were also assigned times and subjects on a random basis.

Testers wore similar clothing, one color suits with ties devoid of jewelry or of other ornamentation, when testing the subjects. Testers also acted uniformly in the delivery of social praise during testing. Problems in these areas were discussed at weekly tester meetings described below. Testers voiced no problems with the chosen reinforcements during the entire subject running phase. Because of the age and educational level of the subjects very little prompting was required.

All testers were familiar with the instruments prior to the start of actual subject testing. Practice on every test was begun two weeks prior to subject use with the four experimenters use of each other as testees. Review of acceptable answers and scoring was also emphasized prior to actual subject contact. Possible and actual non-manual responses were discussed in tester group meetings before and after testing began until group consensus was reached on acceptable scoring.

The hypotheses of the study were never openly discussed with the three testers assisting the author, but there was no effort to keep them totally blind. The consent form (Appendix D) signed by each subject and the General Instructions for testing (Appendix F) read to each subject contains some pertinent information.

The subjects were tested in small, sparsely furnished rooms; free of noise and well lighted. The rooms were also windowless. A brief "get acquainted" session was allowed prior to commencement of testing. This period varied from subject to subject and from session to session depending on the requirements of the testee. Subjects were allowed a rest period between the tests; ten minutes when requested.

Hypothesis of the present study

In line with the entire orientation of this paper, based on the "cultural distance" interpretation of racial group comparisons, the following predictions are made:

Hypothesis I:

Analysis of the raw IQ data scores between Black and White groups will show the usual significant differences favoring Whites on the four measures of IQ.

Hypothesis II:

There will be no initial difference between the racial groups on the three memory/problem solving tasks.

Hypothesis III:

When certain cultural factors are covaried out of the test data, Black and White differences will dissipate below the level of significance.

RESULTS

ANOVAs

Analyses of variance (ANOVA's) were calculated for each of the four dependent measures of IQ and the three memory/learning tasks. Initially, three-way ANOVA's (race of subject X sex of subject X race of examiner) were run on each of the seven dependent measures.

Table 4 (refer back to Appendix G for viewing of all Tables cited) shows the various means of the different racial and sexual groups, and the grand means for the PPVT, WAIS-R Verbal, WAIS-R Performance, and WAIS-R Full Scale IQ scores. Also listed are the means of the raw scores of the same categories on the BCT (error scores) and the Memory Drum paired-associate recall task plus the calculated score means of the Memory Drum- Recognition task. The same table has marked those main effects (race and sex) which were determined to have been significant at the .05 or .01 level.

Whites as a group outperformed the Blacks on three of four dependent measures of IQ. The White group out-performed the Black group on the Peabody Picture Vocabulary Test ($p < .01$). The significance of the racial means on the WAIS-R Verbal IQ and Full-Scale IQ ($p < .05$) was not as great as is usually observed between Black and White groups chosen at random. Since most of the participants were college students at the time of testing a selection out of lower performing Whites and Blacks was accomplished. The difference between groups was therefore reduced from the often recorded 1 standard deviation to less than .5 standard deviation on these measures.

As Table 4 shows, there were no main effects caused by gender in any of the analyses. All analyses which resulted in any significant effects are

included in Tables 5 through 9. As can be seen in Table 5 and 6, there were no two-way or three-way interactions that reached significance in the PPVT or WAIS-R V.

Even though the Black-White difference on the WAIS-R Performance IQ was not statistically significant ($p = .055$; Table 7), it was in the direction expected and just outside the lower probability limit of $p = .05$. Table 7 also shows both a race of subject by sex of subject and a race of subject by race of examiner interaction at the $p < .05$ level of significance.

The first two-way interaction mentioned above (race of subject by sex of subject) was determined to have been caused by the lower scoring of Black females on the WAIS-R Performance measure (see Table 4). Black males outperformed White females on this measure, scoring a +1.46 unadjusted raw score deviation above the Grand Mean.

The race of subject by race of examiner interaction ($p = .02$) resulted from male subjects, as a group, scoring higher on this measure when tested by experimenters of their own race, especially White males. Table 10 catalogues the breakdown of race of subject by race of examiner interaction. There was little difference in female reaction to race of examiner, all combinations of race by race means, within each of the two racial-sexual testee groups scoring with 3 IQ points of their respective cell means.

In order to determine if any examiner effects were in operation in the above described race of subject by race of examiner interaction, an additional three-way analysis of variance was performed on the WAIS-R Performance IQ; race of subject by sex of subject by examiner (Table 11). No significant examiner effects or examiner interactions were found. This ANOVA did however cause the appearance of a significant race of subject main effect ($p = .046$).

Table 8, ANOVA for the WAIS-FS with race of subject by sex of subject

by race of examiner, displays two main effects; (1) a race of subject effect ($p < .05$) and (2) a race of examiner effect ($p < .05$). Black examiners elicited lower scores overall on this intelligence measure, as can be seen in Table 12 (Black and White examiners differed over 6 IQ points on this test, each 3.06 points off the Grand Mean). Further analysis (see Tables 13 and 14) brought to light an examiner main effect. While the two Black examiners were about equal in the quality of test performance they elicited, one White tester, DJL, consistently obtained elevated test scores.

Table 9 shows a racial (subject) main effect that is significant, $F = 2.59$ ($p < .05$). Blacks outperformed Whites on the task represented in this table (Memory Drum-Recall) by .84 raw score (correct answers) points. The Grand Mean and racial/sexual means can be seen on Table 4. No two-or three-way interactions were uncovered.

The Booklet Category Test and the Memory Drum-Recognition Task showed no significant main effects for race of subject, sex of subject, or race of examiner. No higher level interactions were evidenced either. Memory Drum-Recognition did show a trend toward significance for race of subject ($p = .068$). This was in line with reliable difference found in the Memory Drum-Recall task, Black superior to White.

Finally, a significant main effect for race of examiner was observed in the analysis of the WAIS-R Verbal IQ (see Table 6). Further post-hoc investigation revealed that the same high testing examiner, DJL, involved in the race of examiner/examiner WAIS-R FS main effects was also responsible for this significant effect. Tables 15 and 16 clearly demonstrate the superior scores he (DJL) was able to obtain from all testees (Black, White, male, female).

Regression and ANCOVAs

Regression equations were run on the seven intelligence and performance

measures, using nine social-cultural variables derived from the Personal Data Questionnaire (PDQ) (see Appendix A, the formula for calculating the nine variables is included at the end of the PDQ). The five socio-cultural variables weighing most heavily on score performance for the total 80 subject pool on each dependent measure, in their order of loading, were: (1) PPVT; father presence, social experience of subject, family income, dwelling condition, and father's occupation; (2) WAIS-V; parents attitude toward school achievement, social experience, father presence, parental supervision/intervention, and father occupation; (3) WAIS-P; social experience, parent's attitude toward school achievement, dwelling condition, parental educational attainment, father's occupation; (4) WAIS-FS; social experience, parental attitude toward school, dwelling condition, parental supervision/intervention, social experience, parental education, dwelling condition; (6) MD #1- Recall; number of siblings, parental supervision/intervention, parental education, father's occupation, parental attitude toward school; (7) MD #2- Recognition; supervision/intervention, social experience, parental attitude toward school, dwelling, number of siblings (see Table 17).

The five variables that appeared most often in the above described regression equations were selected to be used in analyses of covariance of the seven dependent performance measures. They were (with number of appearances in the seven regression equations given in parentheses): varied social experience (6); dwelling condition of parental home (5); father's occupational level (5); parental attitude toward formal education (5); and parental supervision and intervention in the subject's childhood (5). The other four sociocultural variables appeared in three or less of the regression equations.

The choosing of only the top five variables for use in the following ANCOVAs was determined correct in order to allow 15 subjects per factor

(15 X 5 = 75), a conservative procedure which allows for truer interpretation of results.

When the original analyses of variance were run, this time as analysis of covariance, partialling out the effects of the five most heavily weighted socio-cultural factors from the race and sex coefficients, the significant differences between racial groups was found to be non-reliable on the WAIS-R Verbal and WAIS-R Full Scale (Tables 18 and 19, respectively). Without the inclusion of the race of examiner in this equation, a two-way interaction of race by gender of subject was uncovered by the ANCOVA ($p < .05$). Examination of Table 4 will show the origins of this phenomenon. Ranked in order of performance on the WAIS-R FS, we observe White females outperforming all groups, followed by White males, Black males, and Black females. This female split is the cause of the interaction.

The ANCOVA investigation of the WAIS-R P measure reaffirmed the non-significance in the Black-White performance difference ($p > .02$). This was a big change from the marginality of reliability interpretation observed in the ANOVAs conducted on this measure described above.

The PPVT test, after the ANCOVA was performed, showed a reliable difference in racial test taking ($p < .05$). The significance of the difference was however no longer at the 99% level-of- confidence as was observed prior to the removal of the socio-cultural factors. No higher order interactions were apparent.

Table 21 illustrates no change in the significance of the Black over White performance difference on the Memory Drum-Recall task when the socio-cultural variables are considered (ANOVA, $p = .026$; ANCOVA, $p = .025$). No other changes were noted here either.

Post-hoc analyses

Since the five "over-all" most heavily weighted socio-cultural variables; (1) varied social experience, (2) dwelling conditions, (3) father's occupation, (4) parental attitude toward education, and (5) parental supervision/intervention, were able to account for the racial group differences in all three WAIS-R IQ measures but neither the White over Black difference on the PPVT IQ nor the Black over White difference on the Memory Drum-Recall Task, the following two post-hoc analyses were undertaken. One, an analysis of covariance was performend on the PPVT using the five most heavily weighted socio-cultural variables determined by its individual regression equation (see Table 17): (1) father's presence; (2) varied social experience (3) family income; (4) dwelling condition; and (5) father's occupational level. Table 22 demonstrates the effectiveness of these factors in accounting for the difference. The F-value for the main-effect of race, while still significant, $F = 4.039$ ($p = .048$), is reduced from its previous level of significance.

A second ANCOVA run on the Memory Drum-Recall measure using its regression equation's determined five most socio-cultural factors (refer to Table 17) produced a like result. The Black over White performance difference could no longer be interpreted reliabily ($p = .056$), even though the Black superiority trend on this measure remained (see Table 23). The simple substitution of the two socio-cultural variables, number of siblings and parental educational attainment, for dwelling condition and varied social experience, in the ANCOVA, was able to accomplish this result. No higher order interactions were observed in either of the two new ANCOVAs.

To explore the differences further, the inter-test correlation between each dependent measure and every other dependent measure was determined for the total sample of subjects (Table 24), the group of Black subjects (Table

25), the group of White subjects (Table 26). As was expected all the measures of IQ were very significantly correlated for all population samples ($p < .001$) except two correlations in the Black group. The correlation between the PPVT and the WAIS-R FS, for Black subjects, was $r = 0.4761$ ($p = .003$). This slight discrepancy was unimportant and the result of the other discrepancy between the Black IQ correlational matrix and that of the White or Total Sample. For Blacks, the correlational relationship between the PPVT and the WAIS-R P measures was $r = 0.3068$ ($p = .044$). This was a non-significant relationship when the .01 level of confidence is adopted, the required level of significance for determining inter-test reliability.

For the total sample, none of the correlation coefficients between memory/learning tasks were significant to the level required of standardized intelligence tests cited above. There was however, one highly correlated relationship among the three learning tasks for each of the racial groups. The Black group evidenced a highly significant negative relationship between the BCT (level II intelligence) and the MD#2-Recognition task (level I intelligence), $p < .01$. The White scores on the MD#1-Recall task and the MD#2-Recognition task (both level I intelligence) demonstrated a positive correlation, $r = 0.3382$, that was also highly significant ($p < .01$).

Surprisingly all three samples being discussed (Total, Black, White) showed a slight, non-significant negative correlation between the BCT and all four of the intelligence test IQs. The correlations are surprising because of the sign attached, but since no reliable relationships between IQ scores and learning tasks scores were found, positive or negative, it appears all these correlations centered around zero (please refer back to Tables 24, 25, and 26).

The final subtest in the Booklet Category Test is a recognition task,

where the testee is required to remember configurations from previous sub-tests and the correct number associated with them. To determine if this BCT sub-test correlated with either of the Memory Drum tasks (#1-Recall, #2-Recognition), correlational coefficients were calculated for these three relationships. The total sample, as a result of the Black group, scored a highly significant relationship between the final BCT sub-test, BCT-7, and the MD#2-Recognition task, $r = 0.51$ ($p < .001$). White subjects ($p = .33$), unlike their Black counterparts ($p < .001$), evidenced no reliable correlation between the BCT recognition sub-test, #7, and the MD-Recognition task, (Tables 27, 28, and 29).

Table 30 displays the means and standard deviations for the total sample of subjects and the four racial-sexual groups on the nine socio-cultural variables (see Appendix A for fuller understanding of these variables).

DISCUSSION

Hypothesis I

The analyses of variance (ANOVA) of the four IQ measures showed a reliable White over Black performance difference on three of the scales. The Peabody Picture Vocabulary Test (PPVT) had Whites scoring about 6 1/2 IQ points above Blacks ($p < .01$). The difference between the racial groups was less within the Wechsler Adult Intelligence Scales (WAIS-R). On the WAIS-R Verbal and WAIS-R Full Scale IQs, Whites outperformed Blacks at the $p < .05$ level of reliability. The significance of the White-Black difference on the WAIS-R Performance scale was either $p = .055$ or $p = .046$, depending on the ANOVA conducted. Whites outperformed Black on this measure as was hypothesized but the interpretability of the difference is marginal.

Hypothesis I was upheld in all the above test differences. Only on the WAIS-R Performance scale IQ did Blacks come close to equalling the White performance. This is not a very surprising occurrence when it is considered in light of what has been stated above concerning the reduction in other areas of IQ performance (verbal, full-scale). Blacks as a group traditionally score relatively higher on performance measures of IQ compared to verbal measures (Ellis, Bennett, Daniel, Rickert, 1979). It could be expected that the performance area of IQ tests would see the loss of significance across groups first if the groups could be matched on variables determining cultural-distance. As a by-product of the self-selection problem with this study, enough of the cultural-distance between groups was eliminated in order to produce the possible WAIS-R Performance non-significance. As can be seen in the examination of the cultural data many of the variables observed a ceiling effect because of

this confound, substantiating the claim of a reduction in cultural distance.

Hypothesis II

Blacks and Whites scored equally well on the Booklet Category Test (BCT) and the Memory Drum #2-Recognition task (MD-Recognition), according to separate three-way (race of subject by sex of subject by race of examiner) ANOVAs calculated for each dependent measure. Further, no higher order interactions were discovered. In fact the effect of the race of examiner was lessened in these tasks as compared to the IQ measures, being non-existent on the BCT (Level II intelligence). This is an important finding because examiner effect, especially racial/cultural examiner/examinee interactions (cited in the body of this paper) can greatly affect the test performance of subjects on standardized IQ scales (also Level II intelligence measures).

It may be that tasks which actively involve the Black subject in learning non-cultural material may do a great deal for reducing IQ differences between the races which are examiner-caused. The fact that Blacks and Whites are able to perform equally well with other-race male testers on these forms of assessment should not be overlooked by those test manufacturers who truly wish to develop "culture free" tests, and still have them given on an individual basis.

Blacks did not outperform Whites on the Memory Drum #1-Recall task (MD-Recall) at the .05 level of significance. Black superiority in the area of memory recall is not uncommon (Jones, 1971; Morse, 1914). Blacks and Whites more often score equally on this particular task, however. Jensen (1980) calls such tasks as the present MD #1 a measure of Level I mental ability (association). He states:

> Briefly, Level I involves rote learning and primary memory ability requiring minimal transformation or mental manipulation of the informational inputs prior to recall of the material; Level II involves transformation, mental manipulation, or reasoning. Level I is epitomized by the forward digit span test, Level II by the q

> factor common to all tests of general intelligence . . . In general, the ethnic groups (White, Black, Maixcan) differ from one another, on the average, much less (or even hardly at all) in Level I ability than in Level II ability, on which these groups differ quite markedly, usually by about one standard deviation or more (p. 42-42).

In line with the Black higher ranking on the MD-Recall task, Blacks as a group outperformed Whites on the MD-Recognition task, another Level I intelligence indicator. The difference in the latter measure was, as previously stated, non-significant ($p > .05$), however. The two results tend to justify the validity of one another and the fact, that for this particular sample of adults, the Black group was able to learn and recall or recognize three letter non-sense syllables to a greater degree than the White group.

Just as intellectually superior Blacks would lessen the gap between the races normally seen between purely random samples of the two populations on all IQ measures, but particularly on Black culturally relevant measures such as the WAIS-R Performance scale, so too would it be expected that those tasks on which random samples of Blacks and Whites are equal, would favor the Black growth when superior individuals are analyzed. This is so because of facts given by Watson (1970), and elsewhere in the text, attesting to the fact that Blacks score significantly lower than is their true test potential because (1) most testers are White; (2) knowledge that the task is part of an IQ test lowers the scoring; (3) presence of culturally weighted material in the sub-tests; and (4) culturally shaded means of communication between tester and testee, etc.

In all, Hypothesis II was upheld, Blacks and Whites scored equally on both Level I and Level II intellectual abilities when assessed by learning tasks. The one Level I learning task where Blacks reliably outperformed Whites can be seen as an artifact on the self-selection ceiling affect. This is not to down play the reality of Black over White performance on the MD-

Recall, for it exists and is equally as valid as the White over Black difference on the Peabody (PPVT) test of word knowledge. Both are racial responses to the pressures of their dominant cultures; Whites being print-oriented (writing, reading -- two of the "big" 3-R's) while Blacks being descendants and inheritors of the oral tradition (storytellers, "name-gamers", spontaneous rhymers). It is pleasant to see that mastery of the dominant American culture does not necessarily call for the abandonment of one's particular sub-culture.

Hypothesis III

Analyses of covariance (ANCOVAs) were conducted on all seven dependent measures using the five most frequently included socio-cultural variables in regression equations on all dependent measures. When the ANCOVAs were run on the WAIS-R Verbal, Performance, and Full Scale IQ scores, the significance of the White above Black responding differences were non-significant. This change tends to support the contentions that culture is at the room of the oft-observed Black-White IQ performance difference, at least on the WAIS-R.

Reanalysis of the Peabody Picture Vocabulary Test (PPVT) showed a change in Black-White difference significance from the .01 level ($p = .008$) to the .05 level ($p = .040$). Although, the White superiority on this scale was still reliable (with 95% confidence) it could no longer be accorded the weight of the original ANOVA-found difference (99% confidence).

No change was evidenced in the Memory Drum #1-Recall Task (MD-Recall) when the five most heavily weighted cultural variables were factored out of the analysis. It became apparent that the White-written and Black-oral propensities were extremely strong. Unlike the broad Level II intellectual abilities assessed by the WAIS-R IQ scales, the PPVT and the MD-Recall task were tapping a singular trait that could either be biological in nature or the

result of a particularly restricted set of sub-cultural factors (Jensen and Inouye, 1980).

In order to test the second assumption, reanalyses of these two measures were performed using their individually five most weighted socio-cultural variables, as determined by their individual regression equations. ANCOVAs thus constructed for the PPVT and MD-Recall were run. The White over Black superiority on the PPVT was reduced, from a p-value of .008 (Table 5) to p = .048 (Table 22). Father's presence (in years of childhood; 0-18 years) and family income were added and parental attitudes about formal education and parental supervision/intervention in the subjects' childhood life were dropped from the equation. It would appear that Black children require the presence of a father in the home in order to adequately gain the White sub-culture trait measured by the Peabody. Two reasons come to mind: (1) the increased income a resident father brings to a home; specific PPVT-variable #2, and (2) the interface a father gives both sons and daughters with the dominant society not usually furnished by a one-parent, female- headed household (discussed in the text).

With the substitution of two variables (number of siblings and parental educational attainment) for dwelling condition of parental home and varied social experience, a new analysis of covariance was performed on the Memory Drum #1-Recall Task (MD-Recall). Of all the variables in the new ANCOVA, parental educational attainment and number of siblings were the first and second most important for explained variation between the two racial-cultural groups. The effect of parental educational attainment can be readily understood from the Cultural-Distance perspective. The more the parents have progressed through the supra-culture's formalized educational system, the more they are likely to utilize the supra-culture's written communication system

and the less reliance need be placed in the oral tradition of inter-generational contact. Children seeing this parental utilization of the national normed information exchange (reading, record keeping) and being directly exposed to it at an early age (being read "fairy tales" from books instead of having the "old folks tell impromptu ghost stories") would have this effect.

How increased sibling number influences increased Level I intelligence is difficult to understand without the present hypothesis. From the cultural-distance perspective, the increased family size of the Black family (in relation to that of the White family) has the following effects which raises the rote memory ability of its members; (1) larger families have less material per child to go around, less books, paper, pencils, and all the other material possessions which one needs to learn and practice the written/reading arts; (2) members of larger groups must of necessity put more reliance in the oral tradition for the holding and passing on of vital information; therefore (3) sibling size would correlate directly with proficient memory learning and (4) correlate negatively with mechanical (i.e., reading) learning.

When all of the above is considered, a fairly strong case can be established for the legitimacy of the Cultural-Distance perspective. In this regard, Hypothesis III was upheld in all cases.

Post-hoc correlational analyses

The inter-correlation of the four IQ scales was fairly high, as was expected. The WAIS-R Full Scale IQ correlated highest with the other standardized dependent measures of IQ. This too was expected, since the WAIS-R FS taps into more areas of intellectual functioning than any of the other three measures.

The fact that none of the memory/learning task scores were correlated in the total sample is surprising but is explained by the contradictory correlations among these three tasks in the two sub-groups. Blacks evidenced

a highly significant negative correlation, ($p < .01$), between scores on the Booklet Category Test (BCT) and the Memory Drum #2-Recognition Task (MD-Recognition). The BCT is of course a Level II intelligence task while both Memory Drum tasks measure Level I intelligence.

Whites on the other hand, demonstrated high correlation between the two Level I intelligence tasks, Memory Drum #1-Recall (MD-Recall) and Memory Drum #2-Recognition (MD-Recognition), ($p < .01$). The correlation between these two tasks can be easily explained by the fact that they are both Level I intelligence indicators. The seventh sub-test in the BCT is also a recognition task, yet in the White sample, scores on this sub-test did not correlate with either the MD-Recall or the MD-Recognition task. Here the Black sample's scores between the seventh BCT sub-test did correlate with that sample's scores on the MD-Recognition sub-test.

Why these inconsistencies should appear are rather difficult to understand at first glance. The Black and White groups must be utilizing different learning strategies in performing these various Level I and Level II tasks. The difference between Level I and Level II processing of information would seem to be very different within Blacks.

Whites seem to use two different strategies on the two different recognition tasks (BCT-sub-test 7 and MD-Recognition), whereas the Black performance would point to a related strategy for both. Since the time between learning and recognition was longer (up to 30 minutes) on the BCT-sub-test 7 than on the MD-Recognition index, Whites may have encoded the information on the former in a different fashion than used on the latter. They may utilize their superior reading/writing/code usage ability for such extended recall work. Blacks may be using the oral/rote memory procedure for both. Further investigations into these differences should surely be planned.

CONCLUDING REMARKS

The implications of this study are several. First, and possibly the most important, this study has assembled in one project many of the known environmental variables that affect IQ. Since performance on the seven dependent measures show no statistical difference when the socio-cultural factors are covaried out, a step toward defining the environmental correlates of the usually observed difference between Blacks and Whites has been taken. This study provides form and direction to the plea from many learning-psychologist that the environmental determinants of intelligence be substantiated (Williams and Johnston, 1981).

Crow (1969) argues that studies concerning heritability that are conducted on White populations and middle-class environments, can not be relevant to other cultural (and racial) minorities. He questions whether there is very much external validity in such cases. By using both Black and White subjects and statistically manipulating such an array of environmental variables, this study hopes to have narrowed the cultural distance between our two subject populations (Black and White) while leaving the hereditary component in tact.

This study is also important because it examined Black-White differences on Level I and Level II intellectual abilities and found no significant differences between groups at either level. The Booklet Category Test must certainly represent a Level II task and the result of the unadjusted analysis of Black and White groups produced an insignificant difference for race. This result only lends credence to the claim that general- G, as measured by national-normed IQ tests are indeed biased in favor of the major-culture group.

The fact that Blacks performed at a superior level to Whites on the Memory

Drum #1-Recall test, but that these results were also affected by holding constant the cultural variables, in the same fashion that the addition of the cultural variables into ANCOVA's reduced the White over Black performance on IQ measures is also important. The Cultural-Distance approach assumed and predicted that standardized IQ tests would be culturally-biased and therfore means of group responding could be easily affected through the manipulation of factors representing ethnicity. It was also previously stated that the three learning task measures (MD #1, MD #2, and BCT) were not heavily laden with culturally significant material (by design). Therefore it seems obvious why task specific factoring was required to eliminate the reliable group difference of central tendency in the MD-Recall index. Because of the limited scope of the PPVT, a like specificity in cultural factoring was required in order to diminish the White superiority on this measure.

Taken together the results of the two learning/performance tests clearly show that this sample of Black and White adults have relatively equal ability on both Level I and Level II tasks. Standardized IQ tests, also measures of Level II ability, are however not true reflections of minority group performance because of the cultural overtones of the question involved.

For example, Wrobel and Howells (1982), in a study to determine the accuracy with which clinicians and students are able to detect racial bias in questions on the WAIS-R, found the following five items biased in favor of Whites in the Information sub-test:

I-12: Who wrote Hamlet?
I-13: Who was the president during the Civil War?
I-14: Who was Amelia Earhart?
I-15: Why are dark colored clothes warmer than light colored clothes?
I-21: How does yeast cause dough to rise?

Only one Information sub-test question was biased in favor of Blacks.

I-17: Who was Martin Luther King?.

All six of the above questions would seem to have the same relevance, or irrelevance, for intelligent functioning of adults in day-to-day American life. None seem to be more important to the survival value of the average assembly line worker or university professor, Black or White, than any of the others. Why then should not the knowledge inventoried by national tests reflect an equal balance of White and Black biased knowledge?

There is no doubt that the quest for better tests have begun already. The call put forth by Hardy et al. (1976) "that more precise tests be developed" is beginning to be heard. And times change, and the zeitgeist changes, as well as the social reality of human behavior, and it is evident that scientists studying human behavior conduct their experiments in the context and limits of their time and record the results in like manner.

It is hoped that this study will give increased impetus to the formulation of "culture-free" tests of intelligence. Possibly "cultural leveling" scales may be designed and incorporated into future tests. These scales could be used for factoring out the influence of culture of nationally normed tests, thus making their interpretation fairer and more accurate for all persons.

Intelligence can take many forms and it is time psychologists and educators realized that this complex subject, intelligence, cannot simply be given a number on a unitary scale. It is so much more. It is as much culture as electro-chemical brain synapses, as much ethnicity as categorical knowledge, as much a consequence of role defined behavior as it is a result of opportunity.

Spindle (1975) argues that cultures have to be understood from within, on their own terms and by their own standards. This study hopes to forward that cause and to add it's bit of information to the flow of science. It hopes to provide the discipline, psychology, with a different perspective on an old problem. It also hopes to encourage other Black voices to lend their

distinctive and different perspective to the search for truth. It hopes to encourage Brown and Yellow voices to speak out, describing reality from those perspectives too.

What propels one culture or sub-culture may not be the force propelling another culture or sub-culture. We may share certain intellectual propensities because we are all members of a super-culture but we surely have unique attributes in the cognitive sphere because of our membership in different sub-cultures. It is hoped that this study will cause others to investigate the cultural determinants of group scores on IQ tests. More controlled studies are of course required. Experimental designs conducted in school systems with younger subjects is one clear area for further research.

With the beginning made herein and the sound theoretical base provided by the Cultural-Distance Approach, the goal of producing culture-free tests and truthfully analysing present measures of IQ based on now-present "standardized tests" is within range.

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Appendix A

Personal Data Questionnaire

Name _____ Date of Birth _____ Sex ____

Address _____ Race _____ Nationality ____

_____ Phone # _____

1. What is your present class standing and major?

   _____

2. What are your immediate post-undergraduate career plans?

   _____

3. How many brothers and sisters do (did) you have? (please list each with his/her age)

   _____ ___ _____ ___

   _____ ___ _____ ___

   _____ ___ _____ ___

   _____ ___ _____ ___

   _____ ___ ADD TOTAL SIBLINGS ___

4. Where did you grow up? (city and state, province, or country) (you may list more than one locality if your parents moved prior to your 18th birthday)

   _____ _____

   _____ _____

5. What was the religion in which you were raised? (mark the category and list the denomination, if called for)

___ Catholic

___ Protestant _____

___ Orthodox _____

___ Jewish

___ Buddist

___ Hindu

___ Moslem

___ Other _____

6. What is your present religious affilitation?

___ Catholic

___ Protestant _____

___ Orthodox _____

___ Jewish

___ Budidst

___ Hindu

___ Moslem

___ Other

7. What is (was) your father's main occupation? (mark the category and also list the job title)

6 Professional and technical workers _____

5 Managers, officials, proprietors, farm managers, and farm owners _____

4 Clerical and sales workers _____

3 Craftsmen, foremen, and operatives _____

2 Private household and service workers _____

1 Laborers - farm and non-farm _____

8. What is (was) your mother's main occupation? (mark the category and also list the job title)

___ Professional and technical workers _____

___ Managers, officials, proprietors, farm managers, and farm owners _____

___ Clerical and sales workers _____

___ Private household and service workers _____

___ Laborers - farm and non-farm

9. Level of Educational Attainment

Parent: Father X

Mother O

1 0 years schooling

2 1-6 years

3 7-9 years

4 10-12 years (attended high school)

5 completed high school or equivalent

6 attended college (undergraduate) or technical school

7 graduate from college (undergraduate) or technical school

8 some graduate school or professional school experience

9 holds master, professional, or Ph.D. degree

10. In which category would you place your family's income?

__1__ less than $5,000 per year

__2__ between $5,000 and $10,000 per year

__3__ between $10,000 and $15,000 per year

__4__ between $15,000 and $20,000 per year

__5__ between $20,000 and $25,000 per year

__6__ between $25,000 and $30,000 per year

__7__ between $30,000 and $35,000 per year

__8__ between $35,000 and $40,000 per year

__9__ between $40,000 and $45,000 per year

__10__ between $45,000 and $50,000 per year

__11__ more than $50,000 per year

11. Between your birth and your eighteenth birthday, how many years was your father present (living and residing) in the home in which you lived?

___ 0-years

___ 1-5 years

___ 6-10 years

___ 11-15 years

___ 16-18 years

12. If your father was not present the entire period of your childhood, at what age were you when he left (or died)?

ACTUAL NUMBER OF YEARS PRESENT _____

13. In what type of household were you raised? (if you lived in more than one type of dwelling during your childhood, ages 0-18, describe the one where you lived the most time or the one most memorable to you)

Type of Dwelling	Dwelling Conditions: Rent	Own
___ Project	R 1	O 0
___ Trailer	R 2	O 3
___ Apartment	R 3	O 4
___ Condo	R 4	O 5
___ Duplex	R 5	O 6
___ House	R 5	O 7

Care of Dwelling

_3_ Clean, neat, and orderly

_0_ Not clean, neat, and orderly

Room/Person Ratio

_2_ 1.5+ rooms per person

_1_ 1.0 - 1.4 rooms per person

_0_ Less than 1 room per person

Comments: _____

_____

_____

_____

_____

14. Was your mother home when you came home from school as a child?

_2_ Always _1_ Sometimes _0_ Never

15. Did the family eat supper together?

_2_ Frequently

_1_ Seldom

_0_ Never

16. Did you have a specific time to be in at night?

_2_ Yes

_1_ Sometimes (explain) _____

_0_ No

17. Did you have to tell your parents where you were going when you went out at night?

_2_ Yes

_1_ Sometimes (explain) _____

_0_ No

18. Did you have any specific chores around the house?

2 Yes

1 At times (explain) _____

0 No

19. Did the family do things together on weekends?

2 Quite often

1 Seldom

0 Never

20. Did you attend Sunday school or other religious services regularly as a child?

1 Yes

0 No

21. Of the following, which statement best describes the attitude of your father held toward your school achievement?

4 It was all important that I do well

3 It was important that I do well

2 He expressed no attitude on the subject

1 It was relatively unimportant

0 Education was worthless in the "real world"

22. Did your father volunteer aid when you did schoolwork?

3 Often (more than 75% of the time)

2 Frequently (between 25% and 75% of the time)

1 Seldom (less than 25% of the time)

0 Never (0)

23. How much time do (did) your father and you spend as leisure activities (hobbies)?

#3 A great deal

2 Some

1 Very little

0 We never do (did)

24. How often does (did) your father read books (to your knowledge - in your presence)?

4 Everyday

3 At least once a week

2 At least once a month

1 A few times a year

0 Never

25. Give me an estimate of the number of books your father reads (read) a year. SPECIAL CODING

26. Does (did) your father read newspapers, or other reading material?

3 Everyday

2 Often

1 Seldom

0 Never

27. Of the following, which statement would best describe the attitude your mother held toward your school achievement?

4 It was all important that I do well

3 It was important that I do well

2 She expressed no attitude on the subject

1 It was really unimportant

0 Education was worthless in the "real world"

28. Did your mother volunteer aid when you did schoolwork?

3 Often (more than 75% or the time)

2 Frequently (between 25% and 75% of the time)

1 Seldom (less than 25% of the time)

0 Never

29. How often does (did) your mother read books (to your knowledge - in your presence)?

4 Everyday

3 At least once a week

2 At least once a month

1 A few times a year

0 Never

30. Give me an estimate of the number of books your mother reads (read) a year. SPECIAL CODING

31. Does (did) your mother ever read newspaper or magazines?

3 Everyday

2 Often

1 Seldom

0 Never

32. Was a room or special place provided for your studies?

1 Yes

0 No

33. Were you provided with your own reading materials (access to a library and/or did you have books purchased for your benefit)?

1 Yes

0 No

34. Did you own many personal possessions (toys, games, clothing) as a child?

1 Yes

0 No

35. Did you have your own bedroom?

2 Yes

00 No 1 Part of my childhood

36. What was your parents reaction when you got a bad mark in school? (explain)

ANY REACTION = 1 / NO REACTION =0

37. What was your parents reaction when you misbehaved? (explain)

ANY REACTION = 1 / NO REACTION = 0

38. Which did you attend in elementary school?

___ A private school

___ A church school

___ A public school

___ Other

39. Which did you attend in high school?

___ A private school

___ A church school

___ A public school

___ Other

40. How many and to which clubs, societies, and organizations do you belong?

ADD TOTAL NO.

41. How many of the 50 states have you been to?

_1_ the one I'm in now

_2_ two to nine

_3_ ten to thirty-five

_4_ thirty-five to forty-nine

_5_ all fifty

42. Have you ever been abroad? ____ Where? ADD NO. OF COUNTRIES

_____

_____

43. Are you?

_1_ right-handed

_2_ ambidextrous (explain key uses of each hand) _____

_____

_____

_3_ left-handed

CODING OF THE NINE SOCIO-CULTURAL VARIABLES

I. NUMBER OF SIBLINGS

transfer total no. of siblings directly from Q.3

II. FATHER'S OCCUPATIONAL LEVEL

question 7

III. PARENTAL EDUCATION

question 9; give credit for each parent's background

IV. FAMILY INCOME

question 10

V. FATHER PRESENCE

transfer total years of Father's presence from Q.12

VI. DWELLING CONDITIONS

total numbers in Q.13

VII. SUPERVISION AND INTERVENTION, PARENTAL

total responses from Q.14-20

VIII. PARENTAL ATTITUDE TOWARD SCHOOL ACHIEVEMENT

total responses from Q.21-37

Questions 25 and 30 are to be valued as follows:

0 books	0 point
1-9 books	1 point
10-19 books	2 points
20-29 books	3 points

etc.

IX. VARIED SOCIAL EXPOSURE

total responses from Q.40-42

Appendix B

U.S. Census Bureau's Classification System for Occupations

- Professional and technical workers
- Managers, officials, proprietors, farm managers/owners
- Clerical and sales workers
- Craftsmen, foremen, and operatives
- Private household and service workers
- Laborers -farm and non-farm

Appendix C*

Parent Interview Schedule

The questions asked in the interview with the parent or parent substitute and the observation checklist used by the social worker are reproduced below. The questions have been grouped for presentation here into the five categories that were considered in the summary ratings of family characteristics. Questions used to obtain specific factual information, and the checklist for noting living conditions are listed separately. Scoring procedures are described herein but results are given in Chapter 5, Tables 18 and 19.

I. Questions used for Summary Ratings

A. Structure and Orderliness of the Home

1. What does X do when he comes home from school?
2. Are you at home when the children come home from school?
3. How much time does he spend watching TV?
4. Does he bring friends home with him?
5. Who eats supper with X?
6. We'd like to get some idea of what you let X do and what you don't let him do. Could you tell me?
7. Does X have a specific time to be in at night?
8. Does X tell you where he's going when he goes out?
9. Does X have any jobs around the house? What?
10. Do you ask X to help with his younger brothers and sisters?
11. Does the family do anything together on weekends?
12. Did you send X to Sunday school?

Note: Observations on the care of the apartment and clothing were also considered in rating this dimension.

B. Awareness of the Child as an Individual

13. Tell me something about X.
14. What would make you proudest of X?
15. What would you like him to be? What do you think he would like to be?
16. Does X spend much time with his friends?
17. Are there any special activities after school (hobbies, clubs, lessons, After School Study Center)
18. Does he have homework?
19. What TV shows does X like best?
20. Do you have to keep after him to get him to do the things he's supposed to do?
21. What does he do when he has difficulty with a task?
22. Who does most of the talking at supper? About what?
23. How are X's brothers and sisters doing in school? Does X look up to them?
24. I wonder if you could tell me more about how you and X get along?

Note: Item 6 was also considered in rating this dimension.

*From: Davidson and Greenberg. School Achievers from a Deprived Background. NY: Associated Ed. Servs. Corp., 1967, ERIC# ED013849. Reprinted by permission.

C. Concern for Education

25. How is X making out in school?
26. How far would you like X to go in school? How far do you think X will go in school?
27. What kind of high school: a vocational or academic H.S?
28. Have you discussed plans for college with X?
29. What do you think of the school X goes to? What do you think of X's teacher?
30. Do you visit the school?
31. How well do you think the school is preparing X for the future?
32. How do you think a good education will help X?
33. What subjects does X like best? Least?
34. What would you do if X got a good mark in school?
35. Did X know any of his numbers or how to write his name before he started school? Who taught him?
36. Did X go to nursery school before kindergarten?
37. Did X ask you to read to him when he was younger? What age?
38. How much time does he usually spend on his homework?
39. Does anyone help him with his homework?
40. Where does he do his homework?
41. Do you have any books that he can look things up in?
42. Does he have a library card?
43. Which of your relatives has gone farthest in school? Does X know him or look up to him?
44. Are there any other adults that X is friendly with that he looks up to?
45. What organizations do you belong to? PTA?
46. Would you like X to have a life different in any way from yours? In what ways?

Note: Item 14 was also considered in rating this dimension.

D. General Social Awareness

47. Do you think conditions are better now than they were 5 years ago?
48. What organizations do you belong to?
49. What newspapers and/or magazines do you read?
50. Do you watch the news on TV?
51. What do you think of the civil rights groups?
52. Which one do you think is doing the best job?

Note: Items 45 and 46 were also considered in rating this dimension.

E. Rationality of Discipline

53. What would you do if X got a bad mark in school?
54. What do you do when X misbehaves?

II. Factual Questions on Home and Family

1. What grade did you complete in school? What grade did X's father complete?
2. Are you (mother) working? Part-time or full-time? What kind of work do you do?
3. What kind of work does X's father do? Is he living at home?
4. How many children do you have? Age? Sex? Occupation?
5. Did X have any problems with health when he was growing up?
6. How old were you when he was born? Any problems connected with his birth?
7. Are your parents living with you? Are any married children or other children living with you?
8. How many rooms do you have? How many bedrooms? Do you have your own bathroom?
   Do you have your own kitchen?

III. Observation Checklist

1. Apartment:
   Old Tenement
   New Project
   Rooming House

2. Condition of Building:
   Adequate
   Deteriorated
   Poorly cared for

3. Care of Apartment:
   Clean and neat
   Poorly cared for

4. Books in Home:
   Yes No

   TV in Home:
   Yes No

5. Heating:
   Adequate
   Inadequate

6. Ventilation:
   Adequate
   Inadequate

7. Clothing:
   Adequate for weather Cared for
   Inadequate Neglected

8. People present at interview:

Scoring Procedure for Analysis of Variance

1. Score values are listed below to the right of each category developed for the family and school background status items. The highest score indicated the presumed most favorable end of the scale. The percentages of children in each of the four subgroups who fall into each category are given in Chapter 5, Table 18.

Item	Score
Adult Male in Home	
Father	2
Relative or other male	1
No male	0
Adult Female in Home	
Mother	2
Relative or other Female	1
No female	0
Number of Children (Actual number of children in family)	
Birth Order	
Oldest or only	2
Middle	1
Youngest	0
Type of Dwelling	
Living in Project	1
Not in project	0
Care of Apartment	
Clean and Neat	1
Not clean; not neat	0
Room/Person Ratio (Number rooms, exclusive of bathroom, divided by number of people in family)	
Occupational Level+	
Skilled: manual & clerical	6,7,8,9*
Semi-skilled: manual & clerical	3,4,5*
Unskilled: service	2
Not working	1

Item	Score
Educational Level+	
High School Graduate	7
Some high school	6
Junior high graduate	5
Some junior high school	4
Elementary school	
5th, 6th grades	3
3rd, 4th grades	2
1st, 2nd grades	1
Work Status of Mother	
Full-time	2
Part-time	1
Not working	0
Attendance at Nursery and/ or Kindergarten	
Yes	1
No	0
Number of Different Schools Attended	
1-2 schools	7,6
3-5 schools	5,4,3
6-7 schools	2,1
Days Absent Annually	
Under 20 days	2
20 - 30 days	1
Over 30 days	0

+Based on the level reached by either mother or father, if living at home, whichever was higher.

*The numerical values correspond to the levels designated by Hamburger (43).

2. The actual ratings assigned for the psychological dimensions of the home were used in the analysis of variance procedure. Each of the following dimensions was rated from 1 to 5, with 5 representing the greatest "amount."

A. Structure and Orderliness of the Home
B. Awareness of the Child as an Individual
C. Concern for Education
D. General Social Awareness
E. Rationality of Discipline
   1. Re Poor School Marks
   2. Re Misbehavior

The percentage of agreement (within one scale point) between two raters for a sample of 24 cases ranged from 83% to 100% for the five scales.

Appendix D

Department of Psychology - HJG-01 Subject #_____

CONSENT FORM

The purpose of this research is to investigate the relationship of IQ scores to performance on learning tasks, and to evaluate both sets of behaviors as a function of early environmental conditions. You will be asked to fill out a personal data questionnaire that will give the investigators a general understanding of your personal learning history. You will also be requested to take two tests which are often used to assess general intelligence and to perform two learning tasks which will involve memory and problem solving.

Your responses on the questionnaire and the four assessment devices will be used to help determine the usefulness or inaccuracy of IQ tests with different populations. All information you provide will be kept strictly confidential and will not be seen by anyone outside of our research staff. Your participation is voluntary and you are free at any time during this session to discontinue your participation without penalty. If you have any questions regarding the research at this point, please feel free to ask the experimenter for clarification. We thank you for your help in this endeavor.

Henry J. Grubb	Thomas H. Ollendick	Richard A. Winett
Research Director	Research Advisor	Human Subjects Coord.
951-8636	961-6451	961-6275

I have read the above statement and am aware of the conditions of my participation in this research. I understand that all information I provide will be kept ocnfidential and I am free to withdraw my participation, or refuse to answer any question or questions, at any time.

_____ _____

Student's name (please print) Student Signature

_____ _____

Please list the course (and instructor) where extra credit will be applied Date

Appendix E

Instructions for Memory Drum Task

You will be seeing a list of twelve pairs of three letter non-sense syllables. You will be allowed to see the list twice. The pairs will be presented at a rate of 1-pair every two seconds. At the end of the first viewing of the twelve pair list you will see two rows of staes and then the same twelve pairs will be presented to you again, in the same order.

At the end of the second viewing you will be given two tasks to perform. One, you will be given a list of the syllables on the left side of the pairs viewed and asked to write in the syllable next to it which you remember being there. Second, you will be given a page containing 36 three letter syllables and asked to circle those you remember viewing in the right hand position.

MEMORY DRUM TASK #1

Write in the missing three letter syllable next to the one given.

1) XUH _____

2) GOP _____

3) KOL _____

4) HUH _____

5) POP _____

6) SAH _____

7) TEG _____

8) LEX _____

9) CIG _____

10) BAC _____

11) ROK _____

12) ZAN _____

MEMORY DRUM TASK #1 — ANSWER SHEET

1) NUL

2) HAN

3) GIB

4) XAH

5) TIL

6) SUT

7) RAG

8) LEL

9) KEX

10) ZEK

11) BUP

12) PAH

MEMORY DRUM TASK #2

Circle the words you remember seeing on the right side of the pairs presented during the test.

GAB	XIR	LAB
DUH	KAS	BIK
PAH	LEL	HUB
CEP	TAC	XAH
TAT	RAG	NAL
BUP	RUT	GIB
PEL	XEX	PER
ZEK	RUC	HAN
SIC	SUT	NOZ
KEX	XUP	LOT
HAX	TIL	GAB
NEZ	TOL	NUL

MEMORY DRUM TASK #2 — ANSWER SHEET

PAH	LEL	XAH
BUP	RAG	GIB
ZEK	SUT	HAN
KEX	TIL	NUL

Appendix F

General Instructions

You are going to be given two intelligence tests and two learning tasks during this and one other period. The total time involved is about three hours. You will also be given a Personal Data Questionnaire to fill out.

The questionnaire is about the environmental and family aspects of your childhood, ages birth to 18. The entire assessment you will undergo is to be used in determining the accuracy or inaccuracy of IQ tests with certain populations based on demographic data and learning histories.

If you have any questions at this time please feel free to ask them. Once the test procedures begin, I will be limited to the responses I can make specified by the instructions and guidelines of the individual tests.

Table 1

Changes in Average Point Scores Obtained on Five Subtests of The Wechsler Intelligence Scale for Children (WISC)

WISC subtest	Maximum score	Mean scores obtained: Original	Readministration	Final	Mean increase
Information	4	3.67	3.69	3.89	.20*
Comprehension	10	5.44	5.53	7.16	1.63*
Vocabulary	16	6.59	6.79	7.96	1.17*
Digits Backward	a	2.28	2.46		.18*
Picture Arrangement	a	5.94	8.31		2.37*

a Not applicable.
* p .001.

TABLE 2

BREAKDOWN OF NO. & TYPE OF SUBJECTS TESTED BY TESTER

TESTER'S INITIALS	TESTER'S RACE	BLACK MALES	WHITE MALES	BLACK FEMALES	WHITE FEMALES
HJG	BLACK	5	6	5	6
HET	BLACK	3	6	3	6
KJT	WHITE	3	6	3	6
DJL	WHITE	5	6	5	6

TABLE 3

TYPICAL TESTING SCHEDULES WITHIN RACIAL/SEXUAL CELLS

(1=WAIS-R; 2=PPVT; 3=BCT; 4=MD#1 & #2)
Possilbe test sequence
if 6 subjects were tested;

No.	Session 1	Session 2	or	Session 1	Session 2
1	1	2,3,4		2,3,4	1
2	1	3,4,2		3,4,2	1
3	1	4,2,3		4,2,3	1
4	4,3,2	1		1	4,3,2
5	2,4,3	1		1	2,4,3
6	3,2,4	1		1	3,2,4

Table 4

Means of Total Sample, Groups, and Level of Significance of Main Effect of Race, Sex (Anova)

SUBJECT CLASS	DEPENDENT MEASURES						
	IQ TESTS				LEARNING TASKS		
		WAIS-R			BCT	MEMORY DRUM	
	PPVT	V	P	FS		RECALL	RECOG
TOTAL SAMPLE	121.43	117.91	113.29	118.09	25.30	2.59	6.58
BLACKS	117.67**	114.25*	109.91	114.06*	28.91	3.09*	8.73
MALES	117.94	116.81	114.75	118.38	27.56	2.88	10.81
FEMALES	117.00	111.69	105.06	109.75	30.25	3.31	6.64
WHITES	124.06**	120.35*	115.54	120.77*	22.90	2.25*	5.16
MALES	122.58	121.54	112.96	120.21	23.86	2.33	4.87
FEMALES	125.54	119.17	118.13	121.33	21.92	2.17	5.44
MALES	120.73	119.65	113.68	119.48	25.35	2.55	7.25
BLACKS	117.94	116.81	114.75	118.38	27.56	2.88	10.81
WHITES	122.58	121.54	112.96	120.21	23.86	2.33	4.87
FEMALES	122.13	116.18	112.90	116.70	25.25	2.63	5.92
BLACKS	117.00	111.69	105.06	109.75	30.25	3.31	6.64
WHITES	125.54	119.17	118.13	121.33	21.92	2.17	5.44

* $p < .05$ / ** $p < .01$

Table 5

ANALYSIS OF VARIANCE

PPVT PEABODY
BY RACES RACE OF SUBJECT
SEXS SEX OF SUBJECT
RACEX RACE OF EXAMINER

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
Main Effects	883.768	3	294.589	2.633	0.056
Races	834.768	1	834.768	7.461	0.008**
Sexs	39.200	1	39.200	0.350	0.556
Racex	9.800	1	9.800	0.088	0.768
2-Way Interactions	442.322	3	147.441	1.318	0.275
Races Sexs	72.852	1	72.852	0.651	0.422
Races Racex	41.419	1	41.419	0.370	0.545
Sexs Racex	328.050	1	328.050	2.932	0.091
3-Way Interactions	5.418	1	5.418	0.048	0.826
Races Sexs Racex	5.419	1	5.419	0.048	0.826
Explained	1331.512	7	190.216	1.700	0.123
Residual	8055.941	72	111.888		
Total	9387.453	79	118.829		

Table 6

ANALYSIS OF VARIANCE

WRV WAIS-R VERBAL
BY RACES RACE OF SUBJECT
SEXS SEX OF SUBJECT
RACEX RACE OF EXAMINER

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
Main Effects	1731.933	3	577.311	4.913	0.004
Races	715.408	1	715.408	6.088	0.016*
Sexs	241.512	1	241.512	2.055	0.156
Racex	775.012	1	775.012	6.595	0.012*
2-Way Interactions	212.622	3	70.874	0.603	0.615
Races Sexs	36.300	1	36.300	0.309	0.580
Races Racex	161.009	1	161.009	1.370	0.246
Sexs Racex	15.313	1	15.313	0.130	0.719
3-Way Interactions	20.834	1	20.834	0.177	0.675
Races Sexs Racex	20.834	1	20.834	0.177	0.675
Explained	1965.391	7	280.770	2.389	0.030
Residual	8460.895	72	117.512		
Total	10426.285	79	131.978		

Table 7

Analysis of Variance.

WRP WAIS-R PERFORMANCE
BY RACES RACE OF SUBJECT
SEXS SEX OF SUBJECT
RACEX RACE OF EXAMINER

SOURCE OF VARIATION	SUM SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
Main Effects	1116.777	3	372.259	2.317	0.083
Races	609.751	1	609.751	3.796	0.055
Sexs	12.012	1	12.012	0.075	0.785
Racex	495.012	1	495.012	3.081	0.083
2-Way Interactions	2030.988	3	676.996	4.214	0.008
Races Sexs	1059.104	1	1059.104	6.593	0.012*
Races Racex	915.770	1	915.770	5.701	0.020*
Sexs Racex	56.112	1	56.112	0.349	0.556
3-Way Interactions	458.261	1	458.261	2.853	0.096
Races Sexs Racex	458.261	1	458.261	2.853	0.096
Explained	3606.027	7	515.147	3.207	0.005
Residual	11566.258	72	160.642		
Total	15172.285	79	192.054		

Table 8

Analysis of Variance

WRFS WAIS-R FULL SCALE
BY RACES RACE OF SUBJECT
SEXS SEX OF SUBJECT
RACEX RACE OF EXAMINER

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
Main Effects	1768.358	3	589.452	4.021	0.011
Races	864.033	1	864.033	5.894	0.018*
Sexs	154.012	1	154.012	1.051	0.309
Racex	750.312	1	750.312	5.118	0.027*
2-Way Interactions	894.749	3	298.250	2.035	0.117
Races Sexs	456.301	1	456.301	3.113	0.082
Races Racex	403.334	1	403.334	2.751	0.102
Sexs Racex	35.112	1	35.112	0.240	0.626
3-Way Interactions	182.537	1	182.537	1.245	0.268
Races Sexs Racex	182.537	1	182.537	1.245	0.268
Explained	2845.645	7	406.521	2.773	0.013
Residual	10554.633	72	146.592		
Total	13400.277	79	169.624		

Table 9

Analysis of Variance

Recall	Memory Drum-1 Recall
By Races	Race of Subject
Sexs	Sex of Subject
Racex	Race of Examiner

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
Main Effects	20.394	3	6.798	2.585	0.060
Races	13.669	1	13.669	5.197	0.026*
Sexs	0.112	1	0.112	0.043	0.837
Racex	6.612	1	6.612	2.514	0.117
2-Way Interactions	9.017	3	3.006	1.143	0.338
Races Sexs	1.752	1	1.752	0.666	0.417
Races Racex	7.252	1	7.252	2.757	0.101
Sexs Racex	0.012	1	0.012	0.005	0.945
3-Way Interactions	4.602	1	4.602	1.750	0.190
Races Sexs Racex	4.602	1	4.602	1.750	0.190
Explained	34.013	7	4.859	1.847	0.091
Residual	189.374	72	2.630		
Total	223.387	79	2.828		

Table 10

DESCRIPTION OF SUBPOPULATIONS

CRITERION VARIABLE	WHP	WAIS-R PERFORMANCE
BROKEN DOWN BY	RACES	RACE OF SUBJECT
BY	SEXS	SEX OF SUBJECT
BY	RACEX	RACE OF EXAMINER
BY	EX	EXAMINER

VARIABLE	CODE	VALUE LABEL	SUM	MEAN
FOR ENTIRE POPULATION			9063.0000	113.2875
Races	1.	Black	3517.0000	109.9063
Sexs	1.	Male	1836.0000	114.7500
Racex	1.	Black	948.0000	118.5000
Ex	1.	HJG	596.0000	119.2000
Ex	3.	HET	352.0000	117.3333
Racex	2.	White	888.0000	111.0000
Ex	2.	KJI	323.0000	107.6667
Ex	4.	DJL	565.0000	113.0000
Sexs	2.	Female	1681.0000	105.0625
Racex	1.	Black	837.0000	104.6250
Ex	1.	HJG	507.0000	101.4000
Ex	3.	HET	330.0000	110.0000
Racex	2.	White	844.0000	105.5000
Ex	2.	KJI	316.0000	105.3333
Ex	4.	DJL	528.0000	105.6000
Races	2.	White	5546.0000	115.5417
Sexs	1.	Male	2711.0000	112.9583
Racex	1.	Black	1259.0000	104.9167
Ex	1.	HJG	632.0000	105.3333
Ex	3.	HET	627.0000	104.5000
Racex	2.	White	1452.0000	121.0000
Ex	2.	KJI	709.0000	118.1667
Ex	4.	DJL	743.0000	123.8333
Sexs	2.	Female	2835.0000	118.1250
Racex	1.	Black	1388.0000	115.6667
Ex	1.	HJG	720.0000	120.0000
Ex	3.	HET	668.0000	111.3333
Racex	2	White	1447.0000	120.5833
Ex	2.	KJI	697.0000	116.1667

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Table 11

Analysis of Variance

WR[redacted] WAIS-R PERFORMANCE
BY RACES RACE OF SUBJECT
SEXS SEX OF SUBJECT
EX EXAMINER

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
Main Effects	1390.616	5	278.123	1.647	0.161
Races	699.767	1	699.767	4.143	0.046
Sexs	12.012	1	12.012	0.071	0.791
Ex	768.852	3	256.284	1.517	0.218
2-Way Interactions	2283.683	7	326.240	1.932	0.079
Races Sexs	1050.046	1	1050.046	6.217	0.015
Races Ex	1164.582	3	388.194	2.298	0.086
Sexs Ex	59.995	3	19.998	0.118	0.949
3-Way Interactions	688.224	3	229.408	1.358	0.264
Races Sexs Ex	688.228	3	229.409	1.358	0.264
Explained	4362.523	15	290.835	1.722	0.069
Residual	10809.762	64	168.903		
Total	15172.285	79	192.054		

Table 12

MULTIPLE CLASSIFICATION ANALYSIS

WRSF WAIS-R FULL SCALE
BY RACES RACE OF SUBJECT
SEXS SEX OF SUBJECT
RACEX RACE OF EXAMINER

GRAND MEAN = 118.09

VARIABLE + CATEGORY	N	UNADJUSTED DEV'N	UNADJUSTED ETA	ADJUSTED FOR INDEPENDENTS DEV'N	ADJUSTED FOR INDEPENDENTS BETA	ADJUSTED FOR INDEPENDENTS + COVARIATES DEV'N	ADJUSTED FOR INDEPENDENTS + COVARIATES BETA
Races							
1 Black	32	-4.02		-4.03			
2 White	48	2.68		2.68			
			0.25		0.25		
Sexs							
1 Male	40	1.39		1.39			
1 Female	40	-1.39		-1.39			
			0.11		0.11		
Racex							
1 Black	40	-3.06		-3.06			
2 White	40	3.06		3.06			
			0.24		0.24		
Multiple R Squared					0.132		
Multiple R					0.363		

Table 13

Analysis of Variance

WRFS WAIS-R FULL SCALE
BY RACES RACE OF SUBJECT
SEXS SEX OF SUBJECT
EX EXAMINER

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
Main Effects	2399.642	5	479.928	3.290	0.010
Races	981.207	1	981.207	6.726	0.012*
Sexs	154.012	1	154.012	1.056	0.308
Ex	1381.597	3	460.532	3.157	0.031*
2-Way Interactions	1218.547	7	174.078	1.193	0.319
Races Sexs	458.593	1	458.593	3.144	0.081
Races Ex	699.273	3	233.091	1.598	0.199
Sexs Ex	62.972	3	20.991	0.144	0.933
3-Way Interactions	445.567	3	148.522	1.018	0.391
Races Sexs Ex	445.567	3	148.522	1.018	0.391
Explained	4063.758	15	270.917	1.857	0.045
Residual	9336.520	64	145.883		
Total	13400.277	79	169.624		

Table 14

MULTIPLE CLASSIFICATION ANALYSIS

WRFS BY RACES SEXS EX
WAIS-R FULL SCALE
RACE OF SUBJECT
SEX OF SUBJECT
EXAMINER

GRAND MEAN = 118.09

VARIABLE + CATEGORY	N	UNADJUSTED DEV'N	UNADJUSTED ETA	ADJUSTED FOR INDEPENDENTS DEV'A	ADJUSTED FOR INDEPENDENTS BETA	ADJUSTED FOR INDEPENDENTS + COVARIATES DEV'N	ADJUSTED FOR INDEPENDENTS + COVARIATES BETA
Races							
1 Black	32	-4.02		-4.32			
2 White	48	2.68		2.88			
			0.25		0.27		
Sexs							
1 Male	40	1.39		1.39			
2 Female	40	-1.39		-1.39			
			0.11		0.11		
Ex							
1 HJG	22	-3.50		-3.10			
2 KJI	18	-0.87		-1.35			
3 HET	18	-2.53		-3.01			
4 DJL	22	6.28		6.67			
			0.13		0.32		
Multiple R Squared					0.179		
Multiple R					0.423		

Table 15

ANALYSIS OF VARIANCE

WRV WAIS-R VERBAL
BY RACES RACE OF SUBJECT
SEXS SEX OF SUBJECT
EX EXAMINER

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
Main Effects	2438.772	5	487.754	4.456	0.002
Races	815.938	1	815.938	7.454	0.008*
Sexs	241.512	1	241.512	2.206	0.142
Ex	1481.851	3	493.950	4.512	0.006*
2-Way Interactions	757.219	7	108.174	0.988	0.448
Races Sexs	39.774	1	39.774	0.363	0.549
Races Ex	679.811	3	226.604	2.070	0.113
Sexs Ex	41.08	3	13.703	0.125	0.945
3-Way Interactions	224.629	3	74.876	0.684	0.565
Races Sexs Ex	224.629	3	74.876	0.684	0.565
Explained	3420.621	15	228.041	2.083	0.022
Residual	7005.664	64	109.464		
Total	10426.285	79	131.978		

Table 16

MULTIPLE CLASSIFICATION ANALYSIS

WRV	WAIS-R VERBAL
BY RACES	RACE OF SUBJECT
SEXS	SEX OF SUBJECT
EX	EXAMINER

GRAND MEAN = 117.91

VARIABLE + CATEGORY	N	UNADJUSTED DEV'N	UNADJUSTED ETA	ADJUSTED FOR INDEPENDENTS DEV'N	ADJUSTED FOR INDEPENDENTS BETA	ADJUSTED FOR INDEPENDENTS + COVARIATES DEV'N	ADJUSTED FOR INDEPENDENTS + COVARIATES BETA
Races							
1 Black	32	-3.66		-3.94			
2 White	48	2.44		2.63			
			0.26		0.28		
Sexs							
1 Male	40	1.74		1.74			
1 Female	40	-1.74		-1.74			
			0.15		0.15		
Ex							
1 HJG	22	-3.91		-3.55			
2 KJI	18	-1.08		-1.52			
3 HET	18	-2.13		-2.57			
4 DJL	22	6.54		6.90			
			0.36		0.38		
Multiple R Squared					0.234		
Multiple R					0.484		

Table 17

The Five Socio-Cultural Variable Weighing Most Heavily in the Regression Equations of Each Dependent Measure

PPVT	WAIS-R VERBAL	WAIS-R PERFORMANCE	WAIS-R FULL SCALE	BCT	MD # 1- RECALL	MD # 2- RECALL
Father Presence	Parent's Att. About Education	Social Experience	Social Experience	Father's Occupation	Siblings	Parental Supervision
Social Experience	Social Experience	Parent's Att. About Education	Parent's Att. About Education	Parental Supervis.	Parental Supervis.	Social Experience
Family Income	Father Presence	Dwelling Condition	Dwelling Condition	Social Experience	Parental Ed. level	Parental Att. About Ed.
Dwelling Condition	Parental Supervis.	Parental Ed. level	Parental Supervis.	Parental Ed. level	Father's Occupat.	Dwelling Condition
Father's Occupat.	Father's Occupat.	Father's Occupat.	Father Presence	Dwelling Condition	Parental Att. About Education	Siblings

Table 18

ANALYSIS OF COVARIANCE

WRV	WAIS-R VERBAL
BY RACES	RACE OF SUBJECT
SEXS	SEX OF SUBJECT
WITH SOCEX	VARIED SOCIAL EXPERIENC
DWELL	DWELLING COND
DADSOC	OCCUPATIO LEVEL OF FATHER
PARATTED	PARENT'S ATTITUDE ABOUT EDUCATION
SUPAINT	PARENTAL SUPERVISION-INTERVENTION

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
Covariates	2441.707	5	488.341	4.618	0.001
Socex	634.707	1	634.707	6.003	0.017
Dwell	62.892	1	62.892	0.595	0.443
Dadsoc	41.143	1	41.143	0.389	0.535
Paratted	600.146	1	600.146	5.676	0.020
Supaint	175.590	1	175.590	1.661	0.202
Main Effects	377.494	2	188.747	1.785	0.175
Races	349.055	1	349.055	3.301	0.073
Sexs	27.112	1	27.112	0.256	0.614
2-Way Interactions	99.663	1	99.663	0.943	0.335
Races Sexs	99.663	1	99.663	0.943	0.335
Explained	2918.867	8	364.858	3.451	0.002
Residual	7507.418	71	105.738		
Total	10426.285	79	131.978		

Table 19

ANALYSIS OF COVARIANCE

WRFS	WAIS-R FULL SCALE
BY RACES	RACE OF SUBJECT
SEXS	SEX OF SUBJECT
WITH SOCEX	VARIED SOCIAL EXPERIENC
DWELL	DWELLING COND
DADSOC	OCCUPATIO LEVEL OF FATHER
PARATTED	PARENT'S ATTITUDE ABOUT EDUCATION
SUPAINT	PARENTAL SUPERVISION-INTERVENTION

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
Covariates	3139.579	5	627.916	4.852	0.001
Socex	1113.976	1	1113.976	8.608	0.005
Dwell	145.195	1	145.195	1.122	0.293
Dadsoc	76.877	1	76.877	0.594	0.443
Paratted	496.002	1	496.002	3.833	0.054
Supaint	104.308	1	104.308	0.806	0.372
Main Effects	367.406	2	183.703	1.420	0.249
Races	357.330	1	357.330	2.761	0.101
Sexs	9.284	1	9.284	0.072	0.790
2-Way Interactions	705.344	1	705.344	5.451	0.022
Races Sexs	705.345	1	705.345	5.451	0.022*
Explained	4212.328	8	526.541	4.069	0.000
Residual	9187.949	71	129.408		
Total	13400.277	79	169.624		

Table 20

ANALYSIS OF COVARIANCE

PPVT	PEAPODY
BY RACES	RACE OF SUBJECT
SEXS	SEX OF SUBJECT
WITH SOCEX	VARIED SOCIAL EXPERIENC
DWELL	DWELLING COND
DADSOC	OCCUPATIO LEVEL OF FATHER
PARATTED	PARENT'S ATTITUDE ABOUT EDUCATION
SUPAINT	PARENTAL SUPERVISION-INTERVENTION

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
Covariates	1524.112	5	304.822	3.002	0.016
Socex	794.523	1	794.523	7.824	0.007
Dwell	276.775	1	276.775	2.725	0.103
Dadsoc	0.716	1	0.716	0.007	0.933
Paratted	39.680	1	39.680	0.391	0.534
Supaint	66.916	1	66.916	0.659	0.420
Main Effects	485.729	2	242.865	2.391	0.099
Races	446.353	1	446.353	4.395	0.040*
Sexs	41.179	1	41.179	0.405	0.526
2-Way Interactions	167.279	1	167.279	1.647	0.204
Races Sexs	167.278	1	167.278	1.647	0.204
Explained	2177.121	8	272.140	2.680	0.012
Residual	7210.332	71	101.554		
Total	9387.453	79	118.829		

Table 21

ANALYSIS OF COVARIANCE

RECALL	MEMORY DRUM-1 RECALL
BY RACES	RACE OF SUBJECT
SEXS	SEX OF SUBJECT
WITH SOCEX	VARIED SOCIAL EXPERIENC
DWELL	DWELLING COND
DADSOC	OCCUPATIO LEVEL OF FATHER
PARATTED	PARENT'S ATTITUDE ABOUT EDUCATION
SUPAINT	PARENTAL SUPERVISION-INTERVENTION

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
Covariates	5.908	5	1.182	0.418	0.835
Socex	0.571	1	0.571	0.202	0.654
Dwell	0.148	1	0.148	0.052	0.820
Dadsoc	0.000	1	0.000	0.000	0.999
Paratted	2.685	1	2.685	0.950	0.333
Supaint	3.002	1	3.002	1.062	0.306
Main Effects	15.169	2	7.585	2.682	0.075
Races	14.897	1	14.897	5.269	0.025*
Sexs	0.300	1	0.300	0.106	0.745
2-Way Interactions	1.554	1	1.554	0.550	0.461
Races Sexs	1.554	1	1.554	0.550	0.461
Explained	22.632	8	2.829	1.001	0.443
Residual	200.755	71	2.828		
Total	223.387	79	2.828		

Table 22

ANALYSIS OF COVARIANCE

PPVT	PEAPODY
BY RACES	RACE OF SUBJECT
SEXS	SEX OF SUBJECT
WITH SOCEX	VARIED SOCIAL EXPERIENC
DWELL	DWELLING COND
DADSOC	OCCUPATIO LEVEL OF FATHER
DADPRESS	YEARS OF FATHER'S PRESENCE
INCOME	INCOME

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
Covariates	2151.844	5	430.369	4.611	0.001
Socex	691.554	1	691.544	7.410	0.008
Dwell	96.522	1	96.522	1.034	0.313
Dadsoc	78.500	1	78.500	0.841	0.362
Dadpress	291.402	1	291.402	3.122	0.082
Income	324.317	1	324.317	3.475	0.066
Main Effects	473.468	2	236.734	2.537	0.086
Races	376.921	1	376.921	4.039	0.048*
Sexs	94.795	1	94.795	1.016	0.317
2-Way Interactions	135.733	1	135.733	1.454	0.232
	135.733	1	135.733	1.454	0.232
Explained	2761.047	8	345.131	3.698	0.001
Residual	6626.406	71	93.330		
Total	9387.453	79	118.829		

Table 23

ANALYSIS OF COVARIANCE

RECALL	MEMORY DRUM-1 RECALL
BY RACES	RACE OF SUBJECT
SEXS	SEX OF SUBJECT
WITH DADSOC	OCCUPATIO LEVEL OF FATHER
PARATTED	PARENT'S ATTITUDE ABOUT EDUCATION
SUPAINT	PARENTAL SUPERVISION-INTERVENTION
SIBS	NUMBER OF SUBJECT'S SIBLINGS
PARED	COMBINED LEVEL OF PARENT' EDUCATION

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
Covariates	12.364	5	2.473	0.885	0.496
Dadsoc	2.171	1	2.171	0.777	0.381
Paratted	1.389	1	1.389	0.497	0.483
Supaint	1.612	1	1.612	0.577	0.450
Sibs	2.697	1	2.697	0.965	0.329
Pared	2.951	1	2.951	1.056	0.308
Main Effects	10.673	2	5.337	1.909	0.156
Races	10.510	1	10.510	3.761	0.056
Sexs	0.186	1	0.186	0.067	0.797
2-Way Interactions	1.925	1	1.925	0.689	0.409
	1.925	1	1.925	0.689	0.409
Explained	24.962	8	3.120	1.116	0.363
Residual	198.425	71	2.795		
Total	223.387	79	2.828		

Table 24

PERSON CORRELATION COEFFICIENTS
(All Subjects)

	PPVT	WRV	WRP	WRFS	BCT	RECALL	RECOG
PPVT	1.0000	0.6546	0.4677	0.6145	-0.3376	0.1216	0.0030
	(0)	(80)	(80)	(80)	(80)	(80)	(80)
	P=*****	P=0.000	P=0.000	P=0.000	P=0.001	P=0.141	P=0.490
WRV	0.6546	1.0000	0.6850	0.9226	-0.2937	-0.0484	0.0032
	(80)	(0)	(80)	(80)	(80)	(80)	(80)
	P=0.000	P=*****	P=0.000	P=0.000	P=0.004	P=0.335	P=0.489
WRP	0.4677	0.6850	1.0000	0.9049	-0.3216	-0.0171	0.1035
	(80)	(80)	(0)	(80)	(80)	(80)	(80)
	P=0.000	P=0.000	P=*****	P=0.000	P=0.002	P=0.440	P=0.181
WRFS	0.6145	0.9226	0.9049	1.0000	-0.3380	-0.0550	0.0724
	(80)	(80)	(80)	(0)	(80)	(80)	(80)
	P=0.000	P=0.000	P=0.000	P=*****	P=0.001	P=0.314	P=0.262
BCT	-0.3376	-0.2937	-0.3216	-0.3380	1.0000	-0.1754	-0.2131
	(80)	(80)	(80)	(80)	(0)	(80)	(80)
	P=0.001	P=0.004	P=0.002	P=0.001	P=*****	P=0.060	P=0.029
RECALL	0.1216	-0.0484	-0.0171	-0.0550	-0.1754	1.0000	-0.0253
	(80)	(80)	(80)	(80)	(80)	(0)	(80)
	P=0.141	P=0.335	P=0.440	P=0.314	P=0.060	P=*****	P=0.412
RECOG	0.0030	0.0032	0.1035	0.0724	-0.2131	-0.0253	1.0000
	(80)	(80)	(80)	(80)	(80)	(80)	(0)
	P=0.490	P=0.489	P=0.181	P=0.262	P=0.029	P=0.412	P=*****

(Coefficient/(cases)/significance)

Table 25

PEARSON CORRELATION COEFFICIENTS
(Black Subjects)

	PPVT	WRV	WRP	WRFS	BCT	RECALL	RECOG
PPVT	1.0000	0.6047	0.3068	0.4761	-0.2284	0.3460	0.1119
	(0)	(32)	(32)	(32)	(32)	(32)	(32)
	P=*****	P=0.000	P=0.044	P=0.003	P=0.104	P=0.026	P=0.271
WRV	0.6047	1.0000	0.6738	0.9173	-0.2257	-0.0883	0.1089
	(32)	(0)	(32)	(32)	(32)	(32)	(32)
	P=0.000	P=*****	P=0.000	P=0.000	P=0.107	P=0.315	P=0.276
WRP	0.3068	0.6738	1.0000	0.9058	-0.3558	-0.1774	0.1935
	(32)	(32)	(0)	(32)	(32)	(32)	(32)
	P=0.044	P=0.000	P=*****	P=0.000	P=0.023	P=0.166	P=0.144
WRFS	0.4761	0.9173	0.9058	1.0000	-0.3120	-0.1560	0.1918
	(32)	(32)	(32)	(0)	(32)	(32)	(32)
	P=0.003	P=0.000	P=0.000	P=*****	P=0.041	P=0.197	P=0.146
BCT	-0.2284	-0.2257	-0.3558	-0.3120	1.0000	-0.2137	-0.4251
	(32)	(32)	(32)	(32)	(0)	(32)	(32)
	P=0.104	P=0.107	P=0.023	P=0.041	P=*****	P=0.120	P=0.008
RECALL	0.3460	-0.0883	-0.1774	-0.1560	-0.2137	1.0000	-0.1744
	(32)	(32)	(32)	(32)	(32)	(0)	(32)
	P=0.026	P=0.315	P=0.166	P=0.197	P=0.120	P=*****	P=0.170
RECOG	0.1119	0.1089	0.1935	0.1918	-0.4251	-0.1744	1.0000
	(32)	(32)	(32)	(32)	(32)	(32)	(0)
	P=0.271	P=0.276	P=0.144	P=0.146	P=0.008	P=0.170	P=*****

(Coefficient/(cases)/Significance)

Table 26

PERSON CORRELATION COEFFICIENTS
(White Subjects)

	PPVT	WRV	WRP	WRFS	BCT	RECALL	RECOG
PPVT	1.0000	0.6469	0.5363	0.6686	-0.3483	0.0801	-0.0502
	(0)	(48)	(48)	(48)	(48)	(48)	(48)
	P=*****	P=0.000	P=0.000	P=0.000	P=0.008	P=0.294	P=0.367
WRV	0.6469	1.0000	0.6665	0.9180	-0.2716	0.1010	-0.0296
	(48)	(0)	(48)	(48)	(48)	(48)	(48)
	P=0.000	P=*****	P=0.000	P=0.000	P=0.031	P=0.247	P=0.421
WRP	0.5363	0.6665	1.0000	0.8983	-0.2577	0.2109	0.2204
	(48)	(48)	(0)	(48)	(48)	(48)	(48)
	P=0.000	P=0.000	P=*****	P=0.000	P=0.038	P=0.075	P=0.066
WRFS	0.6686	0.9180	0.8983	1.0000	-0.2988	0.1477	0.0852
	(48)	(48)	(48)	(0)	(48)	(48)	(48)
	P=0.000	P=0.000	P=0.000	P=*****	P=0.020	P=0.158	P=0.282
BCT	-0.3483	-0.2716	-0.2577	-0.2988	1.0000	-0.2606	-0.1357
	(48)	(48)	(48)	(48)	(0)	(48)	(48)
	P=0.008	P=0.031	P=0.038	P=0.020	P=*****	P=0.037	P=0.179
RECALL	0.0801	0.1010	0.2109	0.1477	-0.2606	1.0000	0.3382
	(48)	(48)	(48)	(48)	(48)	(0)	(48)
	P=0.294	P=0.247	P=0.075	P=0.158	P=0.037	P=*****	P=0.009
RECOG	-0.0502	-0.0296	0.2204	0.0852	-0.1357	0.3382	1.0000
	(48)	(48)	(48)	(48)	(48)	(48)	(0)
	P=0.367	P=0.421	P=0.066	P=0.282	P=0.179	P=0.009	P=*****

(Coefficient/(cases)/Significance)

Table 27

PEARSON CORRELATION COEFFICIENTS
(All Subjects)

	B7	RECALL	RECOG
B7	1.0000	-0.1792	0.5105
	(0)	(80)	(80)
	P=*****	P=0.056	P=0.000
RECALL	-0.1792	1.0000	-0.0253
	(80)	(0)	(80)
	P=0.056	P=*****	P=0.412
RECOG	0.5105	-0.0253	1.0000
	(80)	(80)	(0)
	P=0.000	P=0.412	P=*****

(Coefficient/(Cases)/Significance)

Table 28

PEARSON CORRELATION COEFFICIENTS
(Black Subjects)

	B7	RECALL	RECOG
B7	1.0000	-0.3876	0.6236
	(0)	(32)	(32)
	P=*****	P=0.014	P=0.000
RECALL	-0.3876	1.0000	-0.1744
	(32)	(0)	(32)
	P=0.014	P=*****	P=0.170
RECOG	0.6236	-0.1744	1.0000
	(32)	(32)	(0)
	P=0.000	P=0.170	P=*****

(Coefficient/(Cases)/Significance

Table 29

PEARSON CORRELATION COEFFICIENTS
(White Subjects)

	B7	RECALL	RECOG
B7	1.0000	-0.1240	-0.0651
	(0)	(48)	(48)
	P=*****	P=0.201	P=0.330
RECALL	-0.1240	1.0000	0.3382
	(48)	(0)	(48)
	P=0.201	P=*****	P=0.009
RECOG	-0.0651	0.3382	1.0000
	(48)	(48)	(0)
	P=0.330	P=0.009	P=*****

(Coefficient/(Cases)/Significance)

Table 30

Description of Subpopulations on the Socio-cultural Variables

	Siblings	Father's Occupat	Parent's Educat	Income	Father's Presen (yrs)	Dwell Cond	Parental Supervi	Parent's Att. Ed.	Var. Soc Exper
Entire Popula	2.70 (1.96)	4.84 (1.50)	12.11 (3.04)	7.08 (2.85)	16.86 (3.21)	11.09 (1.24)	10.58 (1.99)	31.99 (12.08)	7.28 (3.85)
Males	2.53 (1.57)	4.85 (1.44)	12.05 (3.02)	7.18 (2.93)	17.15 (3.47)	11.03 (1.31)	10.00 (2.01)	34.25 (15.49)	7.50 (3.87)
Females	2.87 (2.30)	4.83 (1.57)	12.17 (3.09)	6.98 (2.80)	16.58 (2.95)	11.15 (1.19)	11.15 (1.82)	29.73 (6.69)	7.05 (3.88)
Blacks	3.41 (2.26)	4.34 (1.62)	10.94 (3.33)	6.00 (2.90)	16.50 (4.00)	10.78 (1.39)	10.16 (2.16)	29.00 (9.51)	6.88 (3.37)
Males	3.13 (2.06)	4.44 (1.41)	10.86 (3.24)	6.25 (3.02)	16.88 (4.50)	10.75 (1.29)	9.56 (2.03)	31.00 (11.37)	6.44 (2.99)
Females	3.69 (2.47)	4.25 (1.84)	11.00 (3.52)	5.75 (2.84)	16.13 (3.54)	10.81 (1.52)	10.75 (2.18)	27.00 (7.02)	7.31 (3.75)
Whites	2.23 (1.60)	5.17 (1.33)	12.90 (2.57)	7.79 (2.60)	17.10 (2.58)	11.29 (1.11)	10.86 (1.84)	33.98 (13.24)	7.54 (4.16)
Males	2.13 (0.99)	5.13 (1.42)	12.83 (2.65)	7.79 (2.75)	17.33 (2.66)	11.21 (1.32)	10.29 (1.99)	36.42 (17.62)	8.21 (4.27)
Females	2.33 (2.06)	5.21 (1.25)	12.96 (2.54)	7.79 (2.50)	16.88 (2.52)	11.38 (0.88)	11.42 (1.53)	31.54 (5.93)	6.88 (4.03)

Mean (Standard Deviation)