

INTELLECTUAL ASSESSMENT AND PREDICTION:
AN ANALYSIS OF CULTURAL INVOLVEMENT
BASED ON THE CULTURAL-DISTANCE HYPOTHESIS

BY

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(ABSTRACT)

This paper explores socio-cultural factors which lead to group performance differences on IQ tests and learning tasks in an attempt to determine empirically if the Cultural-Distance Approach hypothesis is useful in accounting for these differences. The Cultural-Distance Approach, briefly stated, suggests that a sub-culture's distance from the major culture on which questions of a test are based and validated will determine that sub-culture's sub-score pattern. Results of the present study indicate that although Blacks and Whites perform similarly on learning tasks, they perform differently on standardized IQ tests, possibly because of the loading of cultural influences on the latter measures. When cultural influences are controlled for, differences in IQ performance are minimized (i.e., statistically non-significant). The present investigation was a follow-up of the author's previous work in this area (Master's thesis; Grubb, 1983), and consisted of two studies. One was a reanalysis of the data obtained in the original study with the addition of college entrance exam scores (SAT) and college grade point averages on the 80 original students. The

second study consisted of a replication of the original work with 40-Black and 40-White undergraduates at Virginia Polytechnic Institute & State University. New variables, and their correlation to intelligence, were investigated and included; personality characteristics, racial/ethnic identification, and social adjustment to college. In addition to the previously stated relationships between intelligence, race, and cultural-distance, new information was obtained which indicates: (1) a positive correlation between a conservative, compliant personality and academic ascendancy; (2) a significant correspondence between college involvement (social adaptation or the reduction of cultural-distance) and grade-rated academic performance; and (3) a hypothesized process of supra-cultural (university) adaptation for both Black and White students which has a limiting effect on their sub-culturally based self-esteem. In all, and from all the various sources, this paper tends to support the Cultural-Distance Hypothesis and its influence on group IQ performance.

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I CORINTHIANS 3:18*

Let no man deceive himself. If any man among you seemeth to be wise in this world, let him become a fool, that he may be wise.

*The New Testament, King James Version of the Holy Bible.

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INTRODUCTION

Prediction of student's potential for advanced study in our formal educational system in America is presently a topic of wide debate. Colleges and Universities must have some type of assessment procedure that allows for the placement of a few students, out of many applicants, in a limited number of academic seats. This fact cannot be ignored. The problem in our multi-cultural society is determining which students are admitted according to which standards. Most frequently, intelligence is used as the over-riding standard. As Stoddard (1984) chronicles, however, psychologists and educators cannot even agree on a single definition of the construct of intelligence. She lists the following definitions:

Intelligence is the summation of the learning experience of the individual.

Intelligence is the aggregate or global capacity of the individual to act purposefully, to think rationally, and to deal with his environment.

Intelligence is taken to be in large part at least a habitual approach to problem solving -- a learned mental skill.

Intelligence is what intelligence tests measure.

Intelligence is a systematic collection of abilities or functions for processing different kinds of information (p. 17).

In this vein, Jackson (1975) argues that standardized intellectual and achievement testing is unfair to Blacks and other minorities and, therefore, should be halted. He sees such measures as limiting access

to higher education for such special populations. Levidow (1978) interprets the use of such devices (IQ tests) as a racist maneuver on the part of the ruling class in order to perpetuate a class society.

Factor X or Variable Z

Williams (1972), explained the pseudo-predictive validity of standardized tests with regards to minority populations and academic functioning by invoking the moderator variable, Z (see Table 1).

Williams states:

Based on information provided in (Table 1), it is expected that matching conditions facilitate high correlations, whereas mismatching conditions yield low correlations. Z is defined solely as bias in both the predictor and criterion variable. Thus, in situations where Z is present in one variable and not in the other (e.g., #2 and #3) the prediction of y from x will be affected and in all probability, the correlation will be low. In cases where Z is absent in both x and y (e.g., #1), the correlation is expected to be high and positively influenced. That is, those who get high scores on the predictor will be expected to earn high scores on the criterion. In cases where Z is present in both x and y (e.g., #4) the correlation is also expected to be high, but the scores on both x and y are expected to be negatively influenced (low) due to the effects of Z. The correlation remains high but for different reasons than in #1 (p. 24).

Williams finds evidence for variable Z in the writings of Jensen. More specifically, he reviews the research of Jensen (1968, 1969) where he finds statements to the effect that: (1) low SES children with low IQs appear brighter than middle class children in learning tasks; (2) many "disadvantaged" children with measured IQs in the 60-80 range showed a level of learning on the performance tasks unexpected from

TABLE 1

The hypothesized effects of the presence or absence of the moderator variable on correlation.

Predictor (x)	Criterion (y)	Match	Expected Correlation
1. Z absent	Z absent	Yes	High
2. Z present	Z absent	No	Low
3. Z absent	Z present	No	Low
4. Z present	Z present	Yes	High

their low IQs; and (3) that "on the other hand, upper middle-class children in the same (range of tested IQ) performed on the learning tasks in a way that was consistent with their low IQ's and poor scholastic performances -- they were consistently slow learners in a variety of situations."

To summarize Williams, we could hypothesize that the WAIS and other tests of intelligence are valid predictors of future academic and intellectual (problem solving) functioning for Whites since both the predictor variable (WAIS) and criterion variable (school curriculum) have been designed by Whites for Whites, and therefore, variable Z is absent from both in this case. For a Black sample we could predict that variable-Z would be present in both predictor (WAIS) and criterion (school curriculum), allowing for high correlation within the sample on these measures but for different reasons than in the White sample. The regression equation describing this relationship would be expected to have a slope equivalent to that of the White sample's but with a diminished Y-intercept as a result of inherent bias in both indicators (differential prediction; see Bartlett, Bobko, Mosier, & Hannan, 1978). This is exactly what is found when inter-racial comparisons are made around the issue of item and test validity (ETS, 1980; Reynolds and Nigl, 1980).

More space will be devoted to the mathematical formulation of validity using regression analysis below. Presently, certain studies clearly demonstrating the effect of variable-Z (or what Jensen labels factor-X) will be discussed.

Educators remain perplexed and psychologists are unable to explain

why Black students are overrepresented in classes for the mentally retarded (Olion & Gillis-Olion, 1983) while they are underrepresented in classes for the physically handicapped (Hilliard, 1980). What is the evolutionary significance of these findings? How could these facts be explained parsimoniously with sociobiological insight? Is Jensen's (1969) now famous statement that, "Negroes brought here as slaves were selected for docility and strength rather than mental ability, and that through selective mating the mental qualities never had a chance to flourish," to be accepted? Would this explain the strong physical constitution of the Black race and at the same time address its mental feebleness? Do the dire projections described by Jensen (Thomas and Sillen, 1972) as "dysgenic trends" supposedly working to widen the racial intellectual potential between Black- and White-Americans account for the presently observed educational placement differences?

Ignoring all that has been written so far on the "brightness" apparent in Blacks on learning tasks (also see Sewell, 1979), the questions posed above can be answered simply by the fact that the "selective mating" touted by Jensen somehow produced a "Black" race where between 75% and 95% of its members can claim some European ancestry (Robinson, 1982). It should also be noted that various estimates of the African genetic contribution to the "White-American" race have ranged from 27% to 33% with the peculiar result that most Americans with some African ancestry being defined as "White" (Stuckert, 1964). Based on these facts, are genetic influences alone enough anymore to explain the performance difference between the races

seen on IQ tests, or is it time to put to rest this major methodological flaw of psychological and scientific studies - the tacit acceptance of this phantasmic concept?

One study that adequately examined the effect of race independent of bi-cultural confounding variables was conducted in Germany after the end of World War II. Eyferth (1961) tested 251 children born from illegitimate unions of German mothers and occupying forces personnel. About two-thirds of these children born between 1945 and 1953 were bi-racial, mostly the issue of Black-American fathers and German mothers, but with a sizable percentage (about 20%) fathered by French North African forces. The remaining 81 illegitimate children in the study were the offspring of White occupation troops and the indigenous population, matched to the part-Black children in regards to age, mother's circumstances, location of residence, school attended and other educational factors. The 170 minority children were originally selected from approximately 4000 illegitimate Black-White babies born during the eight years described above, for their representativeness of this population.

The results of testing these children with a German translated version of the Wechsler Intelligence Scale for Children (HAWIK) showed the racial/sexual rankings listed below:

Caucasian boys	$\bar{X}=101,$
Mixed-Race boys	$\bar{x}= 97,$
Mixed-Race girls	$\bar{x}= 96,$
Caucasian girls	$\bar{x}= 93.$

No statistical differences were found between the two groups of occupation troop fathered children, or between the sample of

illegitimate children and a representative sample of 1099 German children of the same age range. Examination of sub-test scatter between the two investigated groups and the total investigated sample and the general German population also did not uncover any differences. In other words, all three populations (all-German; illegitimate half-German/half-foreign White; illegitimate half-German/half-foreign Black) were equivalent in all respects, even the observed sexual differences. Boys scored significantly better on the HAWIK than same race females as was true for full-blood Germans.

A genetic explanation of these results would have to argue for differential mating habits involving the Black-White and White-White liaisons. Since no actual intellectual performance scores were gathered on the parents of the probands, this possibility can only be judged indirectly. The German mothers were selected to be reasonably comparable on socio-economic terms. Assuming that this matching equalized for innate intelligence in the mothers, since SES accounts for most of the measured IQ variance intra-racially, the U.S. Black fathers would have to have been positively selected for IQ. Although some such selection was accomplished by the pre-induction mental testing during World War II (the Black rejection rate was 30% compared to a White rejection rate of 3%), this relative within-racial selection factor did not reduce the usually observed significant difference between the races (on the Army General Classification Test there was a 1-standard deviation White over Black difference) as measured within the recruited population (Loehlin, Lindzey, and Spuhler, 1975).

Commenting on the above, Loehlin et al. (1975) come to the conclusion that,

the apparent absence of an average IQ difference among (the White and Black soldiers') offspring would seem to imply either a remarkably strong degree of selection on IQ in one or both races in determining which soldiers fathered illegitimate offspring in Germany, or that the average difference in test performance in the populations from which the fathers were drawn was predominantly environmental in origin (p.127-128).

Although the alternative hypotheses that (1) intellectually superior Blacks were somehow selected for procreation by the German females, that (2) such Blacks were more inclined to seek the sexual company of German women, or that (3) superior Blacks had higher fertility levels than their duller co-racials in occupied Europe, can never be completely ruled out, it is much more plausible that the "average difference in test performance in the populations from which the fathers were drawn was predominantly environmental in origin." Once the genetic descendants of these different groups were allowed to develop in a mono-cultural environment, no cultural (environmental) differences were detected, leaving one to conclude the absence of any genetic difference in this sphere. The overall equivalence and the sub-score group-to-group replications tends to reinforce this interpretation.

When the differences and sub-scale patterns are approached from a cultural perspective, the latest knowledge of sociobiology is in agreement. Characters, such as intelligence and height, which are measurable on a continuous scale and are determined by the joint interaction of many genes are called quantitative. These characters

are known to be much more susceptible to environmental influences than polymorphisms such as blood groups (Bhatia, 1976), which are relatively unaffected by the environment. The socio-biological contention (Hamilton, 1964) that those traits most associated with fitness (quantitative variables) 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 (i.e., fitness)) now stands at between 68% to 70% (Das, 1977), and possibly 80 percent (The Great IQ debate, 1983). Socio-biology would argue that any trait of survival 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 Sapien, social-cultural influences.

A study which looked at the occurrence of what educators term the "uneducably retarded" may shed some light on these issues. This short reanalysis of demographic data for three Western states (Grubb, 1986) examined the validity of the genetic-heritability explanation put forth by Jensen (1969) through the focusing in on those members of our American society labelled Mentally Retarded, specifically those requiring constant supervision and care. This group includes those labelled profoundly ($IQ \leq 25$) and severely ($25 < IQ \leq 40$) retarded plus the lower range of the moderately retarded group ($40 < IQ \leq 48$).

It has now been demonstrated repeatedly that groups of Whites and Blacks matched for age and formal schooling score approximately 1-standard deviation apart on standardized IQ tests, Whites superior to

Blacks (Ellis, Bennett, Daniel, and Rickert, 1979; Sternberg and Salter, 1982; Turner and Jones, 1982). It is also assumed, based on intra-racial analysis of data (mostly on White groups) that the distribution of intelligence, as measured by IQ tests, is distributed through the populations according to that described by the normal probability curve.

Figure 1 shows the typical racial group response pattern on standardized tests of intelligence such as the Wechsler scales (Wechsler, 1981). The mean of the White group is at 100, while the mean Black score is 1-standard deviation below the majority group -- at 85. According to probability statistics, half of each group (selected randomly) should score below their respective means, 15.9% should score below -1 standard deviations from their respective mean, and only 2.3% of each population should be recorded as greater than -2 standard deviations below the norm. As Figure 1 demonstrates, only 15.9% and 2.3% of the White population would score at or below an IQ equal to 85 (-1 White standard deviation) and 70 (-2 White standard deviations) respectively. Since the Black group's mean is already equal to an IQ of 85, the 15-point standard deviation adjusts so that 15.9% of Blacks receive an IQ score equal to or less than 70 (-1 Black standard deviation) and 2.3% would receive a score of or below 55 IQ points.

Since approximately two thirds of any random sample falls within +1 standard deviation of the mean of its population, and slightly over 95% of the same sample will be found between +2 standard deviations, it is easy to see why most studies involving differential statistics would be conducted on groups falling within these ranges,

especially the initially described limits (+1 standard deviation). Such studies have proven the efficacy of utilizing the bell-shaped curve in describing IQ performance.

The problem with studies examining racial group differences (or even individual differences) in this "middle ground" is that much of the inter- and intra-race differences on IQ tests can be accounted for, either empirically or hypothetically, by evoking an environmental explanation. Up to a half standard deviation can be accounted for by demographic variables. Factors such as sex, socioeconomic status, father's occupation, and region of residence have already been shown to decrease the difference between Black and White IQ scores on standard IQ tests by about one-half standard deviation (Jensen, 1971; Reynolds and Nigl, 1981). Matching groups on these and other commonly found social, economic, and cultural differences can reduce the gap to six or seven IQ points on the Wechsler scales.

Even though stratification matching often can reduce the gap between racial groups, the difference remains statistically significant. This ability to reduce the gap has caused some environmentalists to suggest that there are more subtle "environmental" differences between the two groups which are not presently quantifiable but nonetheless in existence and at work, keeping the Black child from performing at a level equivalent with her White counterpart. Flynn (1980) has labelled this unknown source of variance a blindfold and states:

...the environmentalists...posit what I have called a blindfold and what Jensen calls a factor X: a factor "which is present in one population and not in the other

and which affects all individuals in one population and none in the others;" and which must have "an equal or constant effect on all members of the population in which it is present." And once we have falsified every specific candidate for the role of factor X, a genetic hypothesis is highly probable...(p.53).

Mackenzie (1984), summarizing the genetic argument illustrated in the above quoted statement, writes:

In short, if there is relatively little environmental variance (i.e., high heritability) in IQ within racial groups, then the environmental factors needed to account for substantial IQ differences between racial groups must be ones that, although having a strong effect on IQ, are relatively uniform within each group. It is difficult even to imagine any credible environmental factors that meet these requirements, and no satisfactory ones have ever been proposed. Therefore, it can reasonably be concluded that the sources of race differences in IQ are most likely to be genetic. The genetic hypothesis can win the day by default, on the basis of the weakness of its opponent, without having to survive any independent tests of its own (p. 1221).

This assessment has been correct since candidates for factor X have even included "the flavor of race relations" which is hypothesized as "sap(ping) the intellectual strength of minority groups" (Watson, 1970).

The object of the reanalysis to be presented (Grubb, 1986) was not to deal with the merits of such environmental arguments directly but to more closely examine the hereditarian position by empirical examination of data and comparing such data with what would be predicted based on genetic theory. The subjects were 6,742 developmentally disabled clients enrolled in federal assistance programs in three western states (California, Colorado, and Nevada) whom were originally compiled by the Individualized Data Base Project¹. Pertinent information

from that study is summarized in Table 2. In Table 3 are the number of various racial group members for the same three states².

The percentage of total retarded citizens of California, Colorado, and Nevada was determined by dividing the total counted in the Individualized Base Project (IBDP) by the total number of residents in those respective states. The percentage of White retardates to the total White population and the percentage of Black retardates to the total Black population were calculated in like fashion.

The percentage of Whites and Blacks in the general population and the retarded population of the three state region was also calculated. Finally the ratio of Blacks to Whites in the developmentally disabled population and general citizenry were derived. All this information is presented in Tables 4, 5, and 6.

Based on the percentages of the total and White retarded populations in these three states, a cut-off score was determined for IQ inclusion in the developmentally disabled group. Finally the percentage of Blacks predicted by racial genetics to be under their respective curve was contrasted to the actual number and percentage found in this study.

The percentage of the total population in California, Colorado, and Nevada that was included in the Individualized Data Base Project (IDBP) as developmentally disabled came out to 0.03%; this same figure was obtained for the White and Black racial groups. Based on the Normal Probability Curve, .03% of the general and White population would receive an $IQ < 48$ and therefore, we may assume that those people included in IDBP were below this ceiling. It is interesting

TABLE 2

Number of Developmentally Disabled Clients in California,
Colorado, and Nevada by Race

<u>Race of Client</u>	<u>Total Clients</u>
All Races	6,742
White (including Spanish-American)	5,956
Black	437
Other & Unknown	349

TABLE 3

Racial Composition of California, Colorado, and Nevada

States	All Races	White	Black	Other & Unknown
California	19,953,134	17,761,032	1,400,143	791,959
Colorado	2,207,259	2,112,352	66,411	28,496
Nevada	488,738	448,177	27,762	12,859
TOTAL	22,649,131	20,321,501	1,494,316	833,314

TABLE 4

Breakdown of Blacks and Whites in California, Colorado
and Nevada by Percentage of Developmentally Disabled to General Citizenry

<u>Race</u>	<u>Total Population</u>	<u>Retarded Population</u>	<u>% Retarded Population</u>
TOTAL	22,649,131	6,742	.030
White	20,321,501	5,956	.029
Black	1,494,316	437	.029

TABLE 5

Breakdown of Races in California, Colorado,
and Nevada by Percentages in Two Populations

Population	Total	White	%White	Black	%Black
GENERAL	22,649,131	20,321,501	89.723	1,494,316	6.598
Retarded	6,742	5,956	88.342	437	6.482

TABLE 6

Ratio of Black to White in the Different Populations

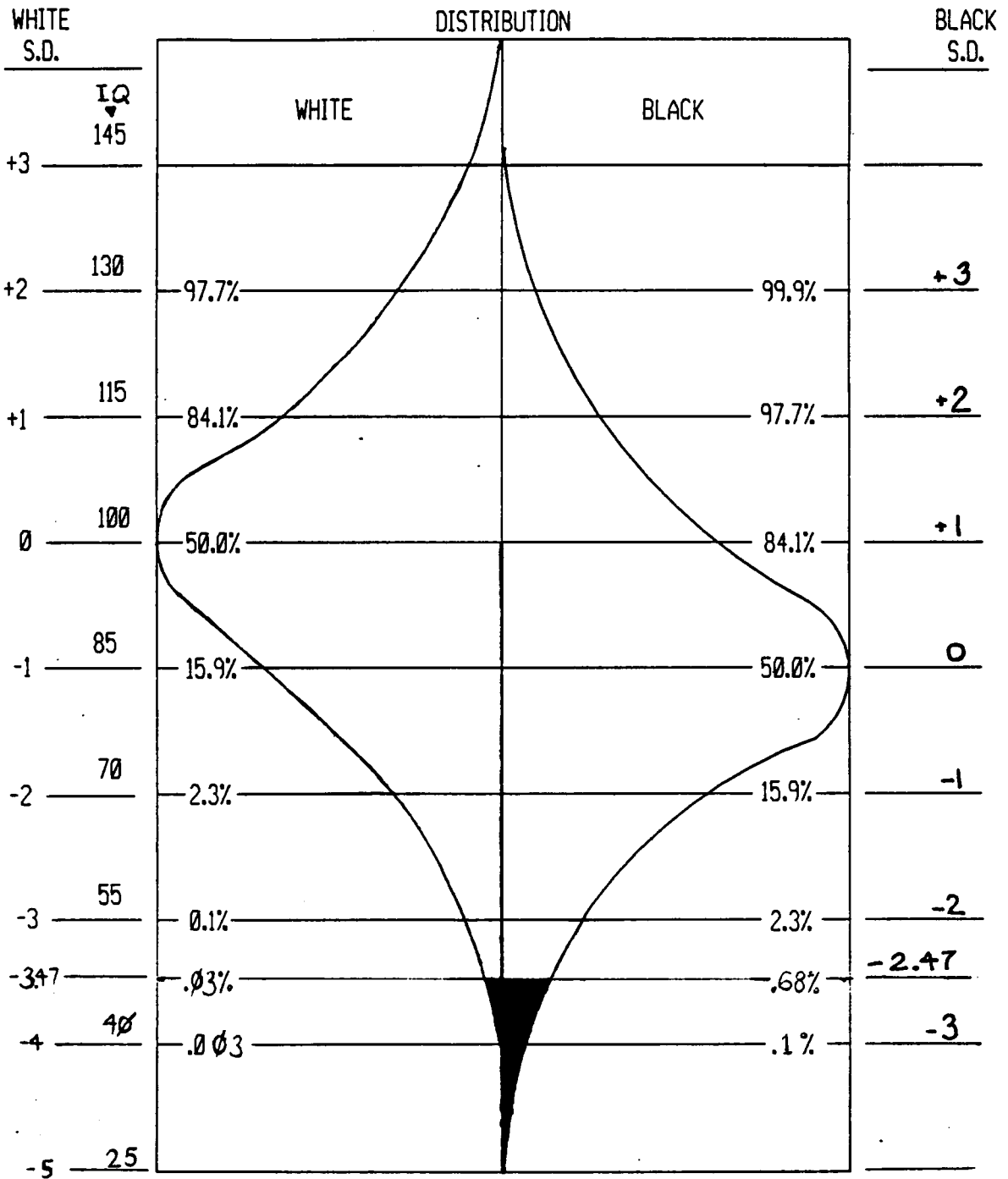
Population	Total	White(W)	Black(B)	Ratio $\frac{B}{W}$
GENERAL	22,649,131	20,321,501	1,494,316	.074
Retarded	6,742	5,956	437	.073

that at this extreme end of the intellectual spectrum, there are no White-Black difference, whereas according to the normal curve of Black intellectual abilities (Figure 1), one would expect to find .68% of the general Black population scoring at 48 or below on standardized IQ tests.

Since the percentage of Blacks in the retarded population of the three western states is slightly lower (non-significantly) than the percentage of Blacks in the general population of the same region (and the obverse applies to the White race), while the ratio of Blacks to Whites remains same for both populations, it cannot be stated that the observed results are an artifact of the data being obtained from two different data pools. According to all the reasoning of racial-genetics, approximately .68% of the total Black citizenry in California, Colorado, and Nevada, or 154,014 Black persons should have been identified by the IDBP (Figure 1). This "called-for" result would have been equal to 1-standard deviation and represented a t-score difference equal to the significant difference of .01 found between the groups in the central region of the intellectual curve.

This short report attempted to explore the racial-genetic theory concerning Black-White IQ-differences by analyzing available data on the occurrence of the profoundly and severely retarded in each racial group. If IQ is inherited in the same fashion as height or other know inherited traits, its distribution through each group should be in accordance with probability statistics, and the difference in group performance at any cut-off score should be predictable. The data in this report confirmed these assumptions when the total populations of

FIGURE 1
 NORMAL PROBABILITY CURVE DISTRIBUTION
 OF IQ SCORES BY RACE



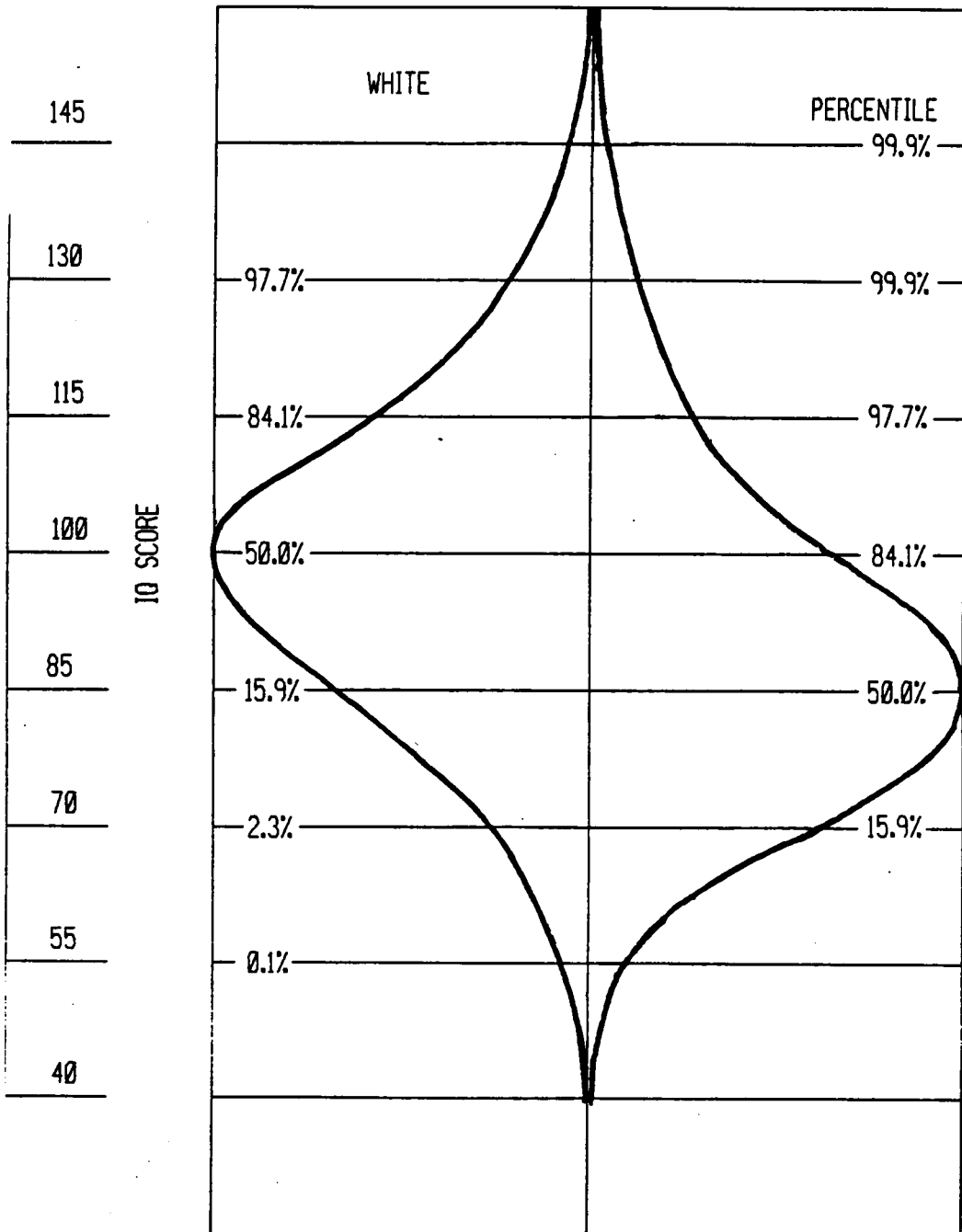
the three target states was analyzed as well as the White population (see Figure 2). The assumptions of the hereditary viewpoint, as regards the Black race (based on IQ information focused around the group's measure of central tendency), was however, not upheld in this study but would lead one to reject this line of reasoning.

It would appear that for those least affected by education, culture, and the environment, the profoundly/severely retarded, there are no racial differences. The Black race at the low end of measured intellect seems to conform to the normal probability curve of the general (and White) population (Figure 2). These results cannot be explained as they were not predicted, by the hereditarian viewpoint.

These results can be explained from an environmental standing if we consider the non-educable mentally retarded as uninfluenced by Jensen's factor-X whereas those able to learn are influenced by it. It is still true that as yet this factor has been undefined and its nature or name is not the reason of this early discourse; proponents of such a factor could theoretically explain the skewness of the Black probability curve (would even predict such skewedness of the Black probability curve) through evoking such a factor's unilateral effect in the minority group's performance.

Finally, although these findings did not address the high end of the curve, preliminary data from high IQ societies, presently being analyzed by the author, suggests that the Black group's representation past the general (and White) population $+2\frac{1}{2}$ standard deviation mark (IQ=137) is equivalent to that of the majority group (see Figure 2).

FIGURE 2
 RECONSTRUCTED PROBABILITY CURVE DISTRIBUTION
 OF IQ SCORES FOR BLACKS COMPARED TO
 THE NORMAL PROBABILITY CURVE DISTRIBUTION FOR WHITES
 DISTRIBUTION



This type of result would certainly not be expected from a hereditarian perspective (see also Loehlin, Lindzey, and Spuhler, 1975; Chapter 5).

It would seem that for middle-class Whites, the normal bell shaped curve adequately describes the distribution of test tapped intellectual ability and, therefore, is suggestive of intelligence being an inherited commodity. The Black population's extreme scores, which are proportionally equivalent to the White population, would also confirm this hypothesis. The racial-genetic hypothesis, as previously noted, has also been argued for by the presentation of Black IQ distribution in the mid-range of assessed intelligence ($\bar{X}+2$ standard deviations). The problem of normality (as described by the normal probability curve), and therefore, traditionally understood inheritability, only arises when the entire range of Black IQ test performance is examined. This overview requires the addition of some major factor to explain the contradictions between normal and abnormal (both superior and inferior) Black individuals and their respective relationships with their White counterparts.

This major factor is what the present investigator terms Cultural-Distance (CD); to be defined and described more fully later in this paper. At this point it need only be stated that those in the mid-range (average) of what this society terms intelligence are most affected by this variable. Our perspective, therefore, does not deny the heritability of intelligence, it just disagrees with the belief that present assessment techniques adequately tap this construct for those individuals raised in cultures very different from the culture on which the assessment devices are based and normed. Investigators such

as Eysenck (1983), Ertl (IQ: Find no racial differences, 1972), Deary and Brand (Begley, Dallas, and Carey, 1982), and Hendrickson and Hendrickson (Eysenck, 1982) have looked at brain waves and evoked potentials as measures of innate intelligence. Decades of work in this area has determined that more intelligent subjects have "sharper and more complex" (Begley, Dallas, and Carey, 1982) EEG recordings and process information to problem resolution at a higher rate of speed and with fewer errors (Storfer, 1985). These neurological measures also correlate highly with traditional IQ measures and learning tasks. As Eysenck (1983) states in a brief summary of his work:

Correlation between IQ and evoked potential, using the new measures, was found to be .83, and in a replication study using the Raven's Matrices on a different population a similarly high relationship was found. These correlations are higher than those typically obtained between the Wechsler and other IQ tests, such as the Binet, suggesting that we may here be dealing with a true measure of intelligence uninfluenced by social educational and cultural factors (p. 3).

The non-biased nature of these "tests" has long been known. Ertl (IQ: Find no racial differences, 1972) has run investigations involving hundreds of Black and White subjects in the early 1970s, finding no significant differences between the racial groups. Both races seemed to have proportionally equivalent numbers of individuals in all categories from genius to retarded, and the normal bell shaped distribution was an accurate model of the distribution.

This type of research would argue against a "developmental lag" or the genetic coding of Blacks with less intellectual skill. This research would also argue for the Cultural-Distance perspective and against the racial-genetic proponents' contention that traditional IQ

tests are not biased but represent "true" differences between racial-cultural groups. The Cultural-Distance viewpoint does not deny the heritability of intelligence within -groups, only that between -groups comparisons using pencil-and-paper measures are presently influenced by culture: variable Z, factor X!

Another study demonstrating the possible effect of variable Z, factor X, or what this writer prefers to call cultural-distance was conducted by Abrams and Jernigan (1984) at Eastern Michigan University (EMU). The authors of this study followed 229 "high-risk" students admitted to the university in the fall 1981. These students were admitted on the condition that they participate in a program of support services during their first year of studies in order to rectify their identified deficiencies in academic functioning. This on-going program, PASS (Promote Academic Survival and Success), is part of EMU's efforts to increase the number of non-traditional students (i.e., minority, low-income) matriculating at the university.

Besides providing advising assistance, academic support services, and peer tutoring, all provisional students in the PASS program are required to take certain special classes during their freshman year. Required classes of this one year remedial process include English, a general university-studies course, history or political science, and usually a math or science course. Abrams and Jernigan (1984) summarize the program in the following paragraph:

Part of the university-studies course is mandatory participation in an academic support services program consisting of instruction in study skills, reading, and English. Study skills instruction includes tests taking techniques, textbook attack methodology, notetaking,

memory skills training, and time management. Reading instruction includes comprehension, vocabulary building, spelling, and speed reading. English instruction includes grammar, writing skills, and library skills. Intertwined with this instruction is stress management training and academic counseling. In terms of emphasis, the student spending 20 hours in the program receives approximately 10 hours in study skills, 6 hours in reading, and 4 hours in other areas (p. 263-264).

The authors were interested in determining the efficacy of the PASS program. They had four hypothesis that were tested: "(a) the number of hours spent in reading and study skills program and the number of visits made to tutors (tutor contacts) would significantly correlate with college GPAs and retention of high-risk students in the university; (b) a significant decrease in students' use of the academic support services would occur from fall to winter semester; (c) first semester college grades would significantly correlate with reading test scores; and (d) participation in a structured reading program would result in measurable and significant increase in reading vocabulary, comprehension, and speed, as measured by the Nelson Denny Reading Test (NDR) ." The authors also sought to "correlate academic success variables -- as measured by college grade point averages (GPAs), number of credit hours completed, and persistence in the university -- with traditional predictors of academic achievement, admission test scores and high school grades."

The results of the study following this yearly group of PASS students surprised the authors in one sense. Traditional predictive indicies of college proficiency, such as high school "GPAs, reading scores, and college admission test score" did not significantly cor-

relate with either college GPAs or academic success (i.e., course grades and persistence in college) in the PASS sample.

These non-traditionally prepared students would not have been admitted under the university's general freshman admissions guidelines because of poor prior academic functioning (mean HSGPA = 2.53) and poor test assessment (mean ACT composite = 13.96; mean ACT math = 12.29; mean ACT english = 12.92; mean SAT combined = 72.78; mean SAT math = 38.18; mean SAT verbal = 34.75). Therefore, based on "common knowledge" of college placement boards, these students would all have been predicted to fail in the college environment; based on the assumed predictive validity of general measures of intellectual performance such as ACT and SAT scores, found here to be useless.

Of the 229 entering PASS students, ten withdrew during the fall semester and 29 more withdrew after the fall semester (even though nine of these had passing GPA's of 2.0 or above). The failure rate (percent of students receiving a GPA of 2.0 or less -- C average) of PASS students completing the fall quarter was 35% (77/219), and went up to 41 percent for those completing the winter quarter (78/190). Overall the failure rate for PASS students during their first year was 43% (94/219) as compared to 3% of the university's other students.

What did predict success for the PASS students at Eastern Michigan University was participation in the PASS program. The number of hours spent in the reading and study skills program significantly correlated with fall GPA ($r=.39$), first year GPA ($r=.36$), number of fall semester credit hours passed ($r=.26$), number of yearly credit hours passed ($r=.32$), and differentiated those students passing and failing

the fall quarter ($\underline{t}=3.95$; $\underline{p}<.01$). The significant difference between the groups of passing and failing PASS students at the end of the winter semester on this variable was somewhat less ($\underline{t}=2.02$, $\underline{df}=188$, $\underline{p}<.05$).

Tutor contacts also support Abrams and Jernigan's (1984) first hypothesis. This variable (number of tutor contacts) correlated positively with fall GPAs ($\underline{r}=.25$, $\underline{p}<.01$) and first year GPAs ($\underline{r}=.26$, $\underline{p}<.01$).

The authors discovered that besides fall GPA, the only variable able to predict retention (with winter enrollment as the criterion) was the number of hours spent in the reading/study skills program ($\underline{t}=3.63$, $\underline{p}<.01$). The number of tutor contacts approached but did not reach significance for this variable.

In digesting their study, the authors state:

The above results are a bit disquieting. Not only is the widespread reliance on traditional entrance criteria unjustified for the high-risk population, but the most significant predictors of their initial semester academic success are not known at the time of matriculation (p. 270).

Why the traditional assessment measures prove useless with what Abrams and Jernigan (1984) call "high-risk" students will be discussed in greater detail later. Let it suffice to state at this point that those groups and individuals most distant from the cultural norm used

as a basis for test construction and around which the social infrastructure (i.e., school systems and institutions) is built will most likely be misjudged as regards adaptability to those supra-cultural referenced environments. The reason for this under prediction of achievement is that all achievement and intellectual tests assume equivalence of social milieus between groups, thus reducing performance differences to lack of innate ability to acquire these tapped behaviors (intra-psychic) and completely ignoring the possibility of opportunity disparity (exosystematic) or simple functional differential acquisition of adaptive behaviors (macrosystematic). The fact that culturally-distant students and groups, when required to incorporate new modes of behaving (study habits and reading skills) that are useful in practical situations (school classrooms) and of value in attaining future goals (formal education, job security), are able to learn and demonstrate proficiency in supra-culture valued behaviors is not surprising when looked at from the broader view espoused by Williams (1972) and discussed above.

Even Jensen (1969) admits that he could (and has) caused an increase in test measured intelligence in a matter of an hour, simply by allowing children to relax and play around with the test prior to its administration. Are these IQ tests therefore, measuring (at least partially) familiarity with the materials and procedures of testing? By allowing a non-traditionally raised child to become familiar with the valued (and therefore tested) expectations of a test and its context, one may be allowing a bit of enculturation to transpire.

An example of the effect of culturally different rearing histories can be seen in the dialects spoken by minorities in both the USA (Anderson, 1969) and Canada (Herberg, 1982). Anderson (1969) claims that the "southern dialects spoken by blacks in most cities are so different from general American English that a black and a northern white have real trouble communicating." An investigation conducted to determine the effect of tester-testee dialect differences and dialect of test presentation on different cultural-linguistic groups was undertaken by Baratz (1969) at the Education Study Center in Washington, D.C.

The subjects of this study were Black third and fifth grade students from an inner city, "impact aid (disadvantaged) school" and White "lower-middle class" grade equals from a D.C. suburban school. The learning task under investigation was the ability of these children to understand, remember, and repeat 30 sentences (15 in standard English and 15 in "Negro nonstandard English") presented on audiotape by a "white bi-dialectal male speaker." The children heard each sentence twice and were then asked to repeat each. The data were analyzed, in addition to determining racial differences

to ascertain what happened to the following constructions: (1) Standard structures -- third person singular, presence of copula, treatment of negation, if-did, past markers, possessive markers, and plural markers -- and (2) nonstandard structures -- nonaddition of third person S, zero copula, double negation and ain't, did-he flip, zero past markers, zero possessive marker, and use of "be" (p. 894).

The results of analyses on Repetition of Standard and Nonstandard Constructions showed that the White subjects were significantly better

at understanding and correctly repeating the standard English sentences than the Black children. What new information this research added to the archives was that the Black children outperformed their White age-mates on the understanding, retention, and reproduction of the sentences dictated in nonstandard Black-English. White superiority in the use of standard English was attributed to "the significant difference between Negro and White performance on the following grammatical categories: third person singular, copula, if-did, and negation." The Black dominance on nonstandard trials was explained by Baratz as "the differential performance of Negro and White subjects on the did-he flip and the double negative constructions." The author concludes that nonstandard (Black) English as used by the minority children interferes with their graded performance in the out-culture verbal mode of expression (standard English) and that when majority children are required to perform according to minority verbal standards, a like recorded reduction in measured aptitude is displayed. She sees both communication packages as having set rules and underlying order, rules and order which govern the utilized perception of information and transmittal of same (equivalent results testing short story recall supports this assumption; Hall, Reder, and Cole, 1975). Baratz claims:

The fact that the standard and nonstandard speakers exhibited similar behaviors when confronted with sentences that were outside of their primary code indicates quite clearly that the "language deficiency" that has been attributed to the children of low-income Negroes is not a language deficit so much as a difficulty in code switching when the second code (standard English) is not as well learned as the first (nonstandard English).

...The assumption that Negro lower-class children are learning a well-ordered but different system from their white counterparts, and that if this system, rather than standard English is used as a criterion of "correctness" that the white child will do more poorly than the Negro (i.e., appear deficient), was supported (p. 898-899).

Instead of Black dialect seen as a pale reflection of standard (White) English and, therefore, dysfunctional, Black English should be viewed as providing an ecologically complete method of knowledge transmission (oral communication). The types and modes of verbal order characteristic of nonstandard English can more profitably be seen as enfunctions deserving more than mere deficite appraisal; qualifying for differential understanding.

The Two-Stage Argument

Despite the accumulation of a great wealth of data such as has been presented to this point, other investigators (Jensen, 1971, 1973b, 1976; Jensen and Inouye, 1980) see intellectual test assessment as true measures of individual and group differences based on inherent capacities. Authors adhering to this persuasion account for higher performance on standardized tests by certain racial groups as an indication of superior genotype constitution. Accordingly, patterns of selective mating and evolutionary adaptation of the sub-species of mankind are determined to be the regulators of intellectual endowment within, and between, the races respectively.

However, much of the dogmatic quality of the genetic viewpoint's proponents have been tempered of late; Jensen et al. (1980) recently wrote:

If the Level I-Level II pattern of racial differences were largely of genetic origin, the explanation would reasonably be sought in differential selective pressures for different cognitive abilities in the evolutionary histories of these groups. If the different patterns of abilities are of cultural origin, explanations would be sought in the values, motivation, and styles of child rearing that currently predominate in each of these populations. Both avenues at present are likely sources of explanatory hypotheses and empirical exploration (p. 49).

The soundness of the two arguments still rests in the reputation of the established science of genetics versus the developing "arts" which are the social sciences. Flynn (1980), in his text on race, IQ, and Jensen asserts that the proponent of racial-genetics

has fashioned a powerful argument in two steps: first, most of the IQ variance within white America is due to genetic factors and most of IQ variance within black America may be, although here the evidence is just beginning to come in; second, we can falsify every current hypothesis which attempts to explain the gap between black and white in environmental terms. Therefore, we have good reason to suspect that most of the gap between black and white is genetic (p. 23).

To quote Jensen (1973a) directly:

If it were established the heritability of IQ is as high as 0.75 in both the Negro and White populations, then it can be said that as yet no environmental factor or combination of factors has been identified on which the Negro and White populations differ sufficiently to account for the 15 points mean IQ difference solely in terms of nongenetic factors. This makes it necessary, if one wishes to maintain a purely environmentalist theory, to hypothesize the influence of subtle, unmeasured, and perhaps unmeasurable environmental differences which contribute to differences between races but not to variance within races (p. 356).

This two-stage argument used by the racial-genetic adherents requires all the effort be expended by the environmentalists while requiring very little effort by themselves in proving: (1) heritability estimates of non-White populations, and (2) defining what

ecological processes were and/or are at work to produce the inter-racial difference in tested intelligence. Mackenzie (1984) has analyzed the genetic argument and found what he considers many faults with it, but in summarizing the logic inherent in the argument he states that the line of reasoning makes it "difficult (to) even ... imagine any credible environmental factors that meet (the) requirements (of the argument), and no satisfactory ones have ever been proposed." Following this reasoning to its complete conclusion, Mackenzie states that the hereditarians "can reasonably . . . (conclude) that the sources of race difference in IQ are most likely genetic," and according to Jensen (1969), account for 60% to 90% of groups variance on IQ indices.

Cultural-Distance as Factor X

The author here, and previously (Grubb, 1983), puts forth the idea that culture itself is the "subtle, unmeasured, and perhaps unmeasurable environmental differences which contribute to differences between races but not to variance within races" (Jensen, 1973a) and has proposed measuring the distance between cultures as a method of quantifying what has been believed an "unmeasurable" phenomenon. Thus then, cultural-distance is factor X and can be seen to "account for substantial IQ differences between racial groups" while remaining "relatively uniform within each group." This "variable Z" can be used to explain parsimoniously the individual differences intra- and inter-racially while also describing accurately and interpreting group response patterns on assessment batteries.

More space will be devoted to the writer's hypothesis below. First, some of the more conventional environmental explanations will be explored. Focus will be on specific quantifiable entities that have been demonstrated to differentiate the two major racial groupings in America, and correlate with intellectual performance (as measured by standardized assessment schedules).

Conwill (1980), Herzog, Newcomb, and Cisin (1972), Orive and Gerard (1975), Sowell (1977), and Deutsch (1960), among others, have demonstrated the effect of socio-economic standing, father's occupation, father's presence or absence in the home, geographic area of residence, the urbanicity of living and other environmental differences between groups which partially account for the observed group performance discrepancies. Herzog et al. (1970) conducted a study investigating the parental and familial differences between high-achieving and low-achieving poor students in a head-start type program. The two types of children came from different types of poor families. For one thing, the higher-functioning children had parents who were more self-reliant than the other children; they did not borrow from relatives and friends on a regular basis. The same parents also tended to keep their living quarters in better care. They were thus, perhaps not as discouraged by or 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 adopt to and learn from the supra-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.

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 of 2-1/2 and 8-1/2, 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 2 1/2- to 3 1/2- and 4- to 5 1/2- year-old groups) on any of the cognitive scales of the McCarthy Scales of Children Abilities (MSCA). They did however, find a significant racial difference for the 6 1/2- to 8 1/2-year old group.

Scarr (1976) investigated the IQ scores of Black children of differing ages adopted by White families and found that the mean IQ for this groups 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 groups 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 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 (Jensen, 1977). Cultural-Distance analysis of all three comparisons would predict such contrasts.

But, here again this discussion is getting ahead of itself. The type of environmental influences mentioned above are of a higher order than those usually considered by traditional environmentalists. More conventional variables of focus include birth order (Adams, 1972; Cicirelli, 1978; Hauser and Sewell, 1985; Schooler, 1972); family size (Alvin and Thornton, 1984; Olneck and Bills, 1979); quality of school system (Carey and King, 1982; Schofield, 1982; Williams, Foote, Ellis, King, and Burgower, 1982); parental attitudes (Koutrelakos, 1971); family income (Oakland, 1983); population setting of childhood (Koutrelakos, 1971); socioeconomic factors (Alvin and Thornton, 1984; Deutsch, 1960; Herzog, Newcomb, and Cisin, 1972); parenting behavior, especially of the mother (Arend, Gove, and Sroufe, 1979; Munroe and Munroe, 1984; and Ponnuswami, 1972); father's occupation (Belz and Geary, 1984); and early dialect used in the home and community (Baratz, 1968); in addition to those variables cited above throughout the text (for more complete listing of typical environmental variables see Grubb, 1983).

Even the classroom environment is affected by the cultural matrix of its participants, and the response patterns of both majority and minority teachers. Greenbaum (1985) found that White teachers responded differently to Anglo or Indian students, hypothesizing that the instructor's form of information transmission was influenced by the

interpersonal styles and group interaction patterns of the students. White "teachers in the Choctaw (Indian) classrooms had longer turn-switching pauses ($p < .05$), asked more questions ($p < .01$), and used shorter utterances to ask questions of individual students ($p < .01$)" than in predominantly White, middle-class public schools. The author suggested that these teacher differences were caused by the cultural differences in student classroom interaction; Choctaw students "spoke individually less often ($p < .01$), used shorter utterances ($p < .01$), interrupted the teacher more often ($p < .01$), and while the teacher was talking gazed more at peers ($p < .05$) than their Anglo counterparts."

Greenbaum (1985) states that, "although probably rooted in the students' cultural experiences, the functional effects of the observed differences apparently represent difficulties in classroom interaction that would presumably obstruct learning." Thus we see that even the interface of cultures in a common, and supposedly neutral, setting can be influenced by cultural specific behavioral patterns that have evolved in response to different cultural environments of origin (also see Bersoff, 1971; Moore, 1981).

The Four Ecobehavioral Systems

The above-mentioned investigators have approached the problem of group performance differences (and individual differences) from differing points of view (racial-genetics, society, culture, rearing environment). Each school of thought has contributed some insight into the problem, each has developed techniques to test its hypotheses, each has compiled evidence tending to support its conceptualizations, and

no doubt, each has some basis in truth. Science however, is a process of distillation and evolution toward the most parsimonious explanation. What can all of these seemingly diverse theoretical frameworks have in common? How can their basic differences be reconciled?

The understanding of group performance differences is the unmistakable subject of investigation which unites all the previously described conceptualizations. Their focus of investigation is also almost always the same: the individual (and to some extent the immediate environment in which he or she behaves - the test situation, i.e., Watson (1970)). This second point, the level of analysis, may be more important and critical for the understanding of differences in theoretical conclusions drawn than the subject investigated itself (group performance differences).

Bernstein (1982) has posited that in order to be more accurate in our understanding of social problems we must broaden our perspective to include the four ecobehavioral systems in which individual behavior occurs. She states:

there are four levels of analysis: the individual, the microsystem, the exosystem, and the macrosystem. The individual comes to a particular situation with a learning history and biological characteristics which affect his or her behavior. The microsystem refers to the immediate setting in which the individual behaves, while the exosystem is the larger social structure, both formal and informal, and the macrosystem consists of overriding beliefs and values (p.2).

Understanding an individual, and most surely a group of individuals, requires an appreciation of the processes at work on that individual, or group, at all levels or more simply, their ecobe-

havioral system. Sarason (1981) paraphrases the beliefs espoused by John Dewey which make this point most clear:

Dewey says clearly what psychology is still blind to: the substance of psychology cannot be independent of the social order. It is not that it should not be independent but that it cannot be (p. 830).

Some other theorists (Hardy, Welcher, Mellits, and Kagan, 1976; Liebllich & Kugelmas, 1981; McShane, 1980) have begun to include the third level of analysis. Proponents of the Head Start program have an understanding of the influences of the exosystem on childhood learning. They understand that the lack of reading material in the home and the paucity of intellectual stimulation is detrimental to high academic achievement. This level of analysis has been partially influential in the development and ascendancy of what has come to be termed the deficit hypothesis, described below by Cole and Bruner (1971):

It rests on the assumption that a community under conditions of poverty (for it is the poor who are the focus of attention, and a disproportionate number of the poor are members of minority ethnic groups) is a disorganized community, and this disorganization expresses itself in various forms of deficit (p. 867).

Therefore, it is assumed that early interventions which supply the lacked intellectual stimulants will rectify later lowered developmental stage attainment (Miner, 1957; Reynolds, Gutkin, Elliott, and Witt, 1984). In theory it is a "critical time" and lasting intervention theory. It describes a process parallel to imprinting in non-human organisms and is often referred to as "preparedness" (Gardner, 1983). In fact much of its research base is in the area of comparative psychology and derived from animal analogues. This third level of

understanding, however, is not sufficient (see Coleman, 1976, p. 517-519). For example, the slow decline in poor Black children's performance during the early school years, even after the great initial gains of Head Start intervention progress (Herzog, Newcomb, and Cisin, 1972), cannot be explained on this level of analysis. Only with the inclusion of the macrosystem - overriding beliefs and values - can complete understanding and lasting change be accomplished.

One such approach, the Cultural-Distance Approach (Grubb, 1983), has been proposed in an attempt to analyze differences in intellectual and achievement performance observed between Black and White individuals. In this approach, the author borrowed from other socio-cultural theorists in the fields of Psychology, Sociology, and Anthropology and specifically included all four levels of analysis. With the addition to the fourth level - the macrosystem - the discrepancy in Black-White IQ test performance between male and female and the decline in Black mean score performance with age (including male-female and class differences) was explained as follows:

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 inaccessible 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 deemed 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).

Besides being in close proximity with Whites, poorer female Blacks also encounter racism at a later date in their lives than Black males thus putting off the observed decline in Black children IQ scores with age (p. 52-53).

This is but one example of how the use of a multi-level analysis of the problem of intellectual differences is an improvement over a singular lower level analysis. Many other examples are given by Grubb (1983). Of course, the author recognized that his personal assessment of the situation was also the product of his growth and interactions at all four levels. This too is important. To quote Sarason (1981) once more:

...one would hardly know that psychology existed in a particular society having a distinctive social order deriving from a very distinctive past, that psychologists did not (and do not) represent a random assortment of people, and that by virtue of their socialization into their society, and their social-professional niche in it, the substance of their theories had to reflect these factors (p. 827).

This makes clear a second point that helps explain why different investigators are able to come to different conclusions on the issue of group test discrepancies. Might not the culture, class, race, and sex of the individual determine his or her own perspective on this and

other issues? Simply believing that one is an objective and "fair" investigator (or even attempting to practice science in such a manner) does not obviate the influence of culture and society on one's belief system and mode of operation (i.e., investigative techniques and interpretation of results).

A couple of quotes from a recent article on theory construction by Scarr (1985) shows that some psychologists are aware of these issues:

Each scientist approaches scientific problems with a theoretical viewpoint, whether explicit or implicit. Theory guides inquiry through the questions raised, the framework of inquiry, and the interpretation of the results. Each scientist seeks to find "facts" to assimilate into his or her world view. Thus, each of us is biased by the human tendency to seek "facts" that are congruent with our prior beliefs (p. 499).

...The sociocultural and historical context of the investigator is clearly a major determinant of what is likely to be believed by the investigator and by colleagues. The most persuasive views of the era form the working assumptions of most scientists of that time (p. 501).

Higher Order Effects in Research

A few examples of how our cultural history influences how we perceive phenomenon may be illustrative. In an article with the scientifically objective title, "Children's Appreciation of Humor Victimizing Different Racial-Ethnic Groups: Racial-Ethnic Differences," McGhee and Duffey (1983) display the prominent White-American viewpoint as regards differences in measured performance between the races. The study is summarized adequately by the authors in their abstract of the paper:

This study examined the early development of humor depicting victims of other racial-ethnic groups among low-income black, Mexican American, and white children and middle-income white children. Boys and girls between 2 and 6 years of age were presented with pairs of drawings differing only in the identification of the victim of a minor mishap and were asked to choose the funnier of the two. The pairs included the following comparisons: black versus white victim, black versus Mexican American victim, and white versus Mexican American victim. As hypothesized, only white children found it funnier to see a child of another racial-ethnic group victimized in humor than a child of their own group (p. 29).

So far, what has been described is a factual account of what McGhee and Duffey's study found. What goes beyond mere factual reporting is to be found in their "interpretation" of the results. Based on the limited literature dealing with "disparagement" or "put-down" humor, the authors conclude that their results represent:

...(the) identification/disposition theory of humor with a sample of preschool children, and suggest that as soon as children begin to develop a strong positive sense of racial-ethnic identity they are likely to find greater enjoyment in seeing other racial-ethnic groups disparaged in some way than in seeing their own group disparaged. The obtaining of significant preferences for white children, but not black or Mexican American children, was expected in light of previous data suggesting that white children positively identify with their own racial-ethnic group earlier (by the preschool or early elementary school years) than minority children...(p. 37).

This is a particularly enlightening study for review because it shows how the investigators' beliefs and cultural world view help to build theories to accommodate empirical data. In this particular study, two cultural groups (Black and Mexican-American) reported no difference in alternative stories when the victim was Black, Mexican-American, or White. Only the White children found stories with

particular victims (minorities) more amusing than identical stories with different victims (Whites). McGhee and Duffey (1983) are able without the slightest blush to interpret these results to make the abnormal response (that of the White children) the norm by which the majority response is judged and found wanting! Blacks and Mexican-Americans are seen as having "ambivalent attitudes toward their own racial-ethnic group, while white children generally show consistent positive attitudes toward their own group."

Would it not be more parsimonious to say that the White children acquire negative attitudes (prejudice) toward out-group members (minorities) at an earlier age than either Black or Mexican-American children? Why are the minority children seen as deficient? How is it that a negative characteristic (put-down humor) is seen as a positive attribute when acquired early in life? These rhetorical questions need no answer. Any answer could be interpreted as a cultural one!

Not only do a minority of cultures in our society endorse what has been described as disparagement humor; there are also sexual differences. Some studies have obtained supportive data (for the "identification/ disposition humor theory") for females, while others have shown that women actually prefer humor in which their own sex is put down (Cantor, 1976; Losco & Epstein, 1975). Only White males (men and boys) are consistently found to be in agreement with the "identification/disposition theory", yet McGhee and Duffey cling to this largely useless construct in order to assign White boys their culturally expected position of superiority over minority and female children. All performance not equalling the assumed White male norm is

interpreted as being deficient. Why is not the aberrant White male performance seen as an early development of a life-long anti-out-group (prejudice) world view? Why not accept the fact, widely known and accepted in the general population, that Whites (especially men) are more prejudiced and discriminatory than other groups of people?

The authors put forth the call for other scientist to conduct future studies along these lines...(with) older children in order to determine whether black or Mexican American children similarly find greater humor in seeing a member of their own group victimized once they begin to develop a strong identity with their own racial-ethnic group (McGhee and Duffey, 1983; p. 37).

But we already know that Black adults in one study did find anti-White humor funnier than Whites, but that the same Blacks also found anti-Black humor as funny as did the Whites (Middleton, 1959). In other words, the adult Blacks found no difference in humor directed at in-group or out-group members. This sample of Black adults could look past the color of the victim, whereas the White adults could not. According to the identification/disposition theory of humor, the White adults had an high degree of positive identification with their co-racials and thus found little humor in White victimization, while at the same time they held negative attitudes involving Blacks and could, therefore, more freely enjoy Black victimization. Blacks, on the other hand (and still from this perspective), would be seen as having little positive group identification (unable to enjoy White victimization more than Black victimization) and equivalent (positive or negative?) attitudes involving Blacks and Whites. Another interpretation for all the above is simply that Blacks are less prejudiced and judgemental

than Whites (especially males); that Whites develop a superior-than-thou world view early in life; and that this world view colors all interpretation of world events (even the development and understanding of one's behavior).

At this point, it could be claimed that either a White or Black world view could be correct in analyzing the results described above. One area of research that is extensive and well-known to psychologists will help tip the scales of indecision: the self-esteem literature. Studies from the 1960's to date comparing self-esteem have shown that Blacks feel as good about themselves and their race (or in many cases better) when compared to Whites (Fu, Korlund, and Hinkle, 1980; Pettigrew, 1978; Simmons, 1978; Taylor and Walsch, 1979). With this extensive evidence, the identification/disposition theory becomes an impotent set of corollaries and continued adherence to this culturally egocentric "theory" reflects an ethnic psychology.

Another example of the exosystem of a commentator of human behavior being exposed in his theories is C. Wilson's latest book, A Criminal History of Mankind (Wilson, 1984). Wilson's Western European view of man living in the cold brutal gesellschaft of modern urban life, with its emphasis on individuality and self-determination, has argued in this 670 page tome that "criminality is a short cut and this applies to non-violent criminals as much as to violent ones. Crime is essentially the search for 'the easy way'." The author also claims that "the individual (criminal) concentrates on his frustration and resentment and feels robbery or burglary is a legitimate way of expressing his sense of social grievance."

All responsibility (i.e., choice) of criminal behavior resides with the individual when viewed from Wilson's perspective. Society, capitalism, economics, racism, poverty, or other exo- and macro-system factors are not considered. Empirical tests will either affirm or disprove the viability of this individual/micro-system view of mankind. It only need be noted here that different cultural outlooks would frame the problem of criminality differently. A more Afrocentric or Amerindian world view would see the person preying upon the group, the criminal, as a product of the group. The criminal is viewed as a manifestation of the group because the world, and one's society in that world, is seen from a more gemeinschaft focal point. All interaction is reasoned to be interconnected and interdependent. Each personage has a role which upholds the process of the culture, each personage is seen as both a creation of this process and a maintenance factor in its continuance. A Western world view would even see these culturally based subjective differences in experiencing the world as genetically determined and value ordered; a sort of cultural meta-analysis. As Brown (1969) states, "even the claim of moral superiority has genetic implications" (i.e., the Western world view is the superior one and is innate in its beholders).

A third example of culture influencing our research and its interpretation, in addition to the objectively measured outcomes, is described concisely in a paper by Munroe and Munroe (1984). The authors attempted to replicate research originally conducted on Western European and American samples showing a correlation between mother contact in infancy and later childhood intellectual development (as

measured by standard cognitive assessment devices). The Munroes chose an east African tribe, the Logoli of Kenya, on which to do this research.

An earlier study by the same authors (Munroe and Munroe, 1980) demonstrated a significant relationship between positive affective outlook at age five and proportion of time the African children had been held by their mothers during infancy. The researchers were, therefore, in the present study (Munroe and Munroe, 1984), interested in determining what effect maternal-infant behavior would have on later childhood cognitive performance. The outcome was surprising when compared to previous research with Western populations; speed of learning (in a naming task) and participation in "complex activities in daily life" were negatively correlated with mother-holding in infancy. The authors concluded that "the child's cognitive performance was superior when his/her involvement with the mother in infancy had been low (for the sample), and that this runs counter to the direction of the findings for affect" and the "one positive (significant) association with mother-holding . . . , that of a high level of perseverance on the puzzle, may indicate something more about motivation than about cognition, and thus also might be of an affect-related nature." The bottom line is that, for these children, "frequent mother-holding was positively associated with the affective variables and tended to be negatively associated with the cognitive variables."

Another variable investigated also evidenced a similar relationship with childhood cognitive functioning. Latency of mother's response to infant crying was found to be positively associated with

the embedded figures test and with the degree of childhood participation in complex chores. It would appear that "the longer the child had been left to cry as an infant, the better the subsequent performance on these two measures" (Munroe and Munroe, 1984). It should also be noted that the "two infant-care measures, mother-holding and latency of response to crying, were not related to each other, $\rho = -.03, n.s.$ "

In their discussion of their findings, the researchers make several points aimed at reconciling the unpredicted Logoli results with those of previous Western studies. They contend that:

The element of similarity between long response-latency to crying and lower mother-holding was the fact of their "distancing" the infant from the social environment. Both indices might be evidence ... of a rupturing of established ties (p. 298).

The authors then evoke psychodynamic constructs dealing with object separation, self-differentiation, and individuation to developmentally recreate the differing paths followed by the two designated groups of Logoli children (high academic achievers and low academic achievers). They argue that the high achievers were denied constant mother contact as infants, leading to "heightened awareness" of their environment because of the emotionally charged atmosphere an incomplete mother-infant dyad engenders. Those African infants with high mother-baby involvement were less apt in the Western style school environment but evidenced more compliant, emotionally stable behavior and an easy-going (perseverance) social style. To quote the Munroes again:

... the picture emerging for the Logoli is that high mother involvement with the infant apparently produces a positive and persevering (possibly compliant) approach

to the world, but one that is not intellectually optimal (p. 301).

Munroe and Munroe (1984) seem to want desperately to make the data fit previously held concepts of childrearing's influence on cognitive development. The authors state that the over-attachment of the African infants to their mothers and the subsequent "rupturing" of that bond is conducive of later high cognitive development. Then they state that "low indulgence of infants and inconstancy of presence of nurturing agents are associated" through intervening variables to possibly intellectual skills. First, they never explain how the gradual reduction of mother-infant interaction time in the Logoli is related to "inconstancy of presence of nurturing agents;" especially since in the Logoli culture the infant's held-time remains constant through the early years because of a matri-association of fictive mothers whose infant contact time increases as the natural mother's decreases. Secondly, it is apparent from the text that any behavioral pattern divergent from Western standards is described in negative terms.

But the story does not yet end. The investigators attempt to force their findings to fit other facts. They claim that American infant (12- to 15-month old) confinement to high chairs and playpens (with toys and other activities as diversions) "might be equated with the Logoli infant's restrictedness while being held by their mothers. Both forms of confinement may lead to relative contentment with low levels of environmental exploration." Now they seem to say the opposite of their previous statement. How is it possible to see equivalence in mother-infant over-attachment (Logoli) and mother-infant

avoidance (American)? The answer can be found in the final quotation cited above: "In comparison with Western caretakers, Logoli mothers and siblings attempt to 'engage' infants relatively little. This difference in conceptualization may be critical, perhaps partially accounting for the discrepancy between the present findings and those in Western research ..."

Once again the negative (or deficit) interpretation of deviance (or difference) is obvious. African mothers are accused of being both over-involved with their infants and non-involved, depending on the comparison being made at the moment. The Logoli infants are at once seen as being too compliant in their approach to the world and lacking in "object separation" and/or "individuation". To a Western trained scientific mind all of this seems plausible and even scientific; but only because of certain sub-stratum macro-level beliefs underlying every Western scientific endeavor. Sue (1981), describes two of the basic psychological beliefs accepted and ingrained in Western science as (1) "the worth of the individual" and (2) "a high priority placed on ... self-determined goals." In the Munroe and Munroe (1984) paper we can see the two supporting beliefs at work in the hypothesis on individual development through the (1) "differentiation of self from other" and (2) its correlation with personal academic success (on test measures) in the West. Mother-infant interaction seems to foster the development of this individuation in the Western child but has the "opposite" effect in the Southern (African) child.

Without again reviewing the blatant inconsistency in the study under discussion, it should be evident that a simpler explanation of

the divergent West-South groups results could be developed on a macro-level of analysis. Could it not be that increased mother-infant contact fosters enculturation, and therefore, in the West this contact increases the development of those traits valued by the West (individualism and personal academic success) while equivalent bonding in the Logoli fosters the development of Southern-valued behavioral and cognitive styles (a group-centered "positive and persevering (possibly compliant) approach to the world" (Munroe and Munroe, 1984))? Might it not also be reasonable to expect that those Logoli children not totally enculturated (with infant histories of low mother contact) would also be those children more easily initiated into a foreign culture and group (the Western-styled school system and larger academic community)?

Would not it be expected that those individuals loosely bound (relatively) to one world view and set of behaviors could more readily be enculturated with an alien world view and set of out-group behaviors, than those individuals more fully committed to and practiced (relatively) in the group-of-origin culture? This type of mega-analysis could (and does) help to bring all the contradictory cross-cultural results together into one meaningful whole. It helps explain why increased mother-infant contact has different measured changes on childhood indices of (Western) academic functioning cross-culturally. It also helps explain why different attributes are positively correlated with maternal attention, dependent upon the culture; why Western babies gain test-tapped cognitive skills and Southern babies gain measured affective stability with motivational components. An exo- and macro-system approach could finally make sense of why Western

infant confinement (in playpens, etc.) and Logoli infant-mother contact both correlate negatively with school room performance. Western infants who are confined to environmental structures have relatively less contact with enculturates (mothers) than their in-group cohorts, thus reducing their degree of enculturation by early elementary school. African infants who experience greater contact with tribal enculturators (mothers) relative to their cultural counterparts increase the disparity between in-culture and out-culture norms. In both cases the identified action has a disfacilitative effect on future reaction to academic exposure. Western infants who are well enculturated and Southern infants who are less well enculturated are better able to deal with the Western-based formal educational system.

Only a "larger view" of cultural relativity would allow the preceding analysis. Just as conduction and convection transfer heat through different systems producing similar results, and just as an understanding of larger field dynamics allows the comparison of these two dissimilar systems, decreased cultural induction in one society and increased cultural training in a second society can lead to the same conclusion and be understood if interpreted from a larger multicultural perspective. No micro-level of analysis based singularly on either method of heat transmission (directly through solids or indirectly through fluids) would effectively explain all temperature changes and neither would unifocal cultural perception lead to a multi-cultural problem resolution. A macro-level multi-cultural perspective also allows one to be truly objective, able to view a situation free of the stricture formed by in-born cultural outlook. Comments such as those

of Howard (1970) suggest the urgent need of scientists to relearn objectivity before examined minorities become adroit at identifying out-culture biases and ethnocentrism:

The "Minnesota empiricist" approach to the universe is both myopic and, most importantly for our purposes, ahistorical. This is to be expected in a country more concerned with social engineering than with human development.

...the less contact between non-Western people and Europe, the better the impact upon the natives...

We must begin to do experiments to find out the best ways of developing black people on their own terms rather than to continue to use the instruments of the colonizer to describe what colonization has done to us. We must end the tradition of ... the "victim analysis" type of research and begin to do reconnaissance research on every colonizer.

Statement 1 and 2 describe the (1) short-sightedness of commonly accepted Western science and (2) the result of Western -- non-Western (Eastern, Southern) interface. Statement 3 cogently suggest that tribal, pre-literate, third-world, and minority peoples begin to scrutinize the motives, both named and unknown, of Western experimenters. I doubt whether our scientific establishment could withstand a concentrated examination and "objective" analysis, as it is presently evolved. Too often there have been ulterior motives unacknowledged and/or unknown to the Western investigator. Often the goal has been to hasten assimilation of one culture into that of the "larger" colonizing culture. In the interim between initial cross-cultural contact and the ultimate end product of a "melting pot" process, much "contradictory" and seemingly inexplicable empirical/comparative knowledge is generated. Interpretation of this

data base has been previously forced to fit a Western-European/ North American mode in the great preponderance of cases. This should not be surprising since the Western culture is usually the colonizing force and the contact is usually one of Western domination/superiority.

Weiss (1981), in describing the overriding influence one's culture has in every aspect of one's life, especially reasoning form and way of viewing the universe, sums up our need to be constantly aware of its influence in our personal constructs and its holistic influence on out-group behavior. He states:

A culture provides each of its human members with that individual's mental contact or psychic structuring, which becomes a veritable part of that individual, perhaps the most important part in determining individuality itself. To destroy that culture -- which not only creates but sustains the individual psyche -- is to subject the culture's "human components" (if I may be indulged the use of the term) to the most stressful and agonizing of human experiences (p. 899).

What is being stated here is that between the time of original cross-cultural contact and full assimilation, the culture at a disadvantage will undergo extreme psychic stress. The amount of stress experienced is depended on the amount of similarity or difference between the two cultures (cultural-distance). To quote Howard (1970) again: "...the less contact between non-Western people and Europe, the better the impact upon the native, an important exception being where the indigenous culture is similar to the invading colonizer."

Much of the minority's cultural stress is a direct result of major-culture investigators' comparisons of the two cultures and the use of a deficit model of interpretation to explain any noted differences. Those cultures similar (less distant) to the major culture will, of

course, fare better in these comparisons than more distant cultures for two reasons: (1) the major culture is able to more fully understand and appreciate the behavioral patterns associated with the culture and its people; and (2) the minority culture, because of cultural-closeness to the majority culture, will allow its individuals to more quickly assimilate the supra-culture's rewarded behaviors. Too often scientists never bother to investigate these higher level interactions.

To understand a man we must also understand his culture and the larger society in which he lives. Just as important, to understand his conceptualization of reality we must also know the larger frame of reference from which he grows, and most important for us is the fact that we must analyze our attempt at understanding behavior from this meta-level of insight. We must present our understanding fully aware that we "...as individuals and collectivities...are inevitably prisoners of time and place, that self-interest and public interest should not be assumed to be identical, that how self-interest is defined depends on where one is in the social order, and that to transcend time and place, even in small parts, requires that one put into words what the socialization process, because it was so effective, made it unnecessary to verbalize" (Sarason, 1981). Furthermore, "the fact that an individual believes his culture to be 'his' in some powerful personal sense, as though he had thought out for himself how to do the things he actually does by traditional prescription, will not impress the observer who has the cultural view" (Sarason, 1981).

Psychological science has been more concerned with the individual level of behavior and proximal variables in theory construction and

phenomenon interpretation. Not only has the ignorance of upper levels allowed personal/cultural factors to influence our research questions, models and data reduction, it has also influenced the cross-cultural contact and macro-level cultural patterns of those groups under study (often negatively).

Focus on proximal variables has created a socio-cultural myopia on the part of such exclusively lower-level investigators. Often, epiphenomena are concluded to be valid (and complete) descriptors of social, inter-group, and/or intra-group behavior. The lack of knowledge of higher level forces and distal vectors impinging on behavior can lead to quite erroneous conclusions, as the examples presented herein attest. Scarr (1985) states:

Different levels of analysis do not compete. Each lower level is a constituent of the next higher, and in no sense can one account for the other. Yet they are all interrelated with implications for the others. ...they are nested "truths." Each level has its stipulated facts that arise from the theoretical framework in which the facts are invented, and each is useful to address questions formulated within that theoretical frame (p. 502).

The Cultural-Distance Perspective/Hypothesis

Therefore, the author proposes this system (The Cultural-Distance Perspective) fully aware that its organization and content are a product of the culture from which he comes and the direction in which he believes research in this area should proceed. Its acceptance is asked for only until its utility is affirmed or disaffirmed.

Basically, the Cultural-Distance Perspective as outlined previously (Grubb, 1983) can best be described as a multi-level analysis of inter-group behavior. The third and fourth levels of analysis outlined by

Bernstein (1982) are of primary importance in this approach as is clear in the prime tenent of this perspective:

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 (p. 25-26).

The secondary corollary of this approach further explains the position taken herein: "Minority member responses to 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" (Grubb, 1983).

Analysis of group performance is focused at the exosystem and the macrosystem levels because of the nature of the task - comparison of groups. From a Cultural-Distance perspective "it is obvious that no scientific discussion of racial differences can exclude an examination of political, historic, economic, and psychological factors which are inextricably related to racial differences" (Albee et al., for the Society for the Psychological Study of Social Issues, 1969). When reliable differences are found to exist between populations, mere examination of individual differences between members within a population cannot be expected to wholly explain group differences.

This is what many investigators attempt to do, unfortunately. Mohs (1982) states that "the hereditarians...error...is to confuse within-group and between-group behavior." The classic studies concerning heritability of measured intelligence are all within-group investigations (Taylor, 1976). Even if IQ (or any other "trait") could be demonstrated to be highly heritable within a group gives one no license for between-group speculation (see Mackenzie, 1984).

An example may help clarify this point. Suppose we empirically determine that within a fairly distinct and homogeneous population, such as the Dutch, that female breast size of parent and offspring correlate highly. Suppose further that we are able through various methods of observation such as longitudinal studies and pseudo-experimentation to conclude that size of female breasts is an inherited trait within this population. Now suppose that on a later date we are able to study the Massim people of Rossel Island, near Papua, and discover that all the adult females possess extremely large mammary organs. When comparing the Dutch and Massim are we to simply conclude that Massim over Dutch superior breast size is solely due to genetic action? Would we be correct in extrapolating, from our studies with the Dutch, that Massim women have been eugenically coded to be more fully endowed than their European sisters?

Most anthropologists would readily see the flaw in such an argument. How could one interpret such group differences without an investigation of the culture of these two people? The answer of course is that one could not. Whereas the Dutch use supportive garments, suckle their young fewer years, and often bottle feed their offspring,

the opposite is true of the Massim. This may be an outrageous example but it appears psychologists studying intellectual behavior are often found guilty of such false group comparisons.

According to Minturn (1983), "much of the information necessary to refute Jensen is probably buried in the monographs of anthropologists. A classification of emic definitions of intelligence and the basis from them would go far towards correcting our ethnocentric view of intelligence tests." He also believes that "Anthropology has the data, Psychology the methodology, and Sociology the theory necessary for cultural analysis."

THE PRESENT STUDIES

Two studies were conducted and were based on previous research on The Cultural-Distance Perspective. Study II consisted of a more fine-grained analysis of the data obtained from the earlier study. Study III was a cross-validation of the previous findings, using new data collected on a new group of subjects, plus added dimensions of inquiry. But first let us review the original work from which the present undertaking is derived.

The Base (Previous Study - Study I)

Predicted Outcomes

The previous study on which the present paper is an extension is a Master's thesis (Grubb, 1983) which investigated the oft-recorded Black-White differences on standardized IQ tests, specifically the Wechsler Adult Intelligence Scale-Revised (WAIS-R) and the Peabody Picture Vocabulary Test (PPVT). In addition, the performance of Black and White adults on learning tests tapping both Level-I and Level-II intellectual functioning (Jensen and Inouye, 1980) was examined. Eighty adults (16 Black males, 16 Black females, 24 White males, 24 White females), mostly college students attending Virginia Polytechnic Institute & State University, tested by two Black and two White investigators, were also required to fill out a Personal Data Questionnaire (PDQ) which measured certain socio-cultural/environmental

variables thought to affect intellectual behavior (as measured by standardized IQ tests).

Analyses of variance (ANOVA's) were calculated for each of the four dependent measures of IQ (the PPVT, WAIS-R Full Scale, and the Verbal and Performance scales of the WAIS-R) plus two memory drum learning tasks (Level-I intelligence) and one concept formation task -- the Booklet Categories Test (BCT) (Level-II intelligence). Initially, three-way ANOVAs (race of subject by sex of subject by race of examiner) were computed on each of the dependent variables. Whites as a group outperformed Blacks on all four measures of IQ. The differences in White over Black performance on the PPVT was reliably significant at the 99 percent level of confidence ($p < .01$). Further, Blacks scored significantly lower than Whites on the Full Scale and Verbal Scale of the Wechsler (WAIS-R FS and WAIS-R V) IQ test. The difference in group responding ($p < .05$) was not as great as evidenced on the PPVT, however. Finally, although Whites also outperformed Blacks on the Performance Scale of the Wechsler (WAIS-R P), the difference was only marginally significant ($p = .056$).

The results of the IQ tests confirmed Hypothesis I of the earlier study: Analysis of the raw IQ data scores between Black and White groups showed the usual significant differences favoring Whites on all four measures of IQ. Although the WAIS-R P was marginal when originally examined by the a priori ANOVA method (race of subject x sex of subject x race of examiner) as indicated above, a separate three-way analysis (race of subject x sex of subject x examiner) conducted in order to explain a higher order effect found a significant race of

subject main effect ($p=.046$). Because most of the subjects were current college students some self-selection bias in favor of higher scoring members of both races was evident, decreasing the usually recorded 1-standard deviation difference between random samples of the two populations to .5 and less standard deviation differences on the different IQ measures.

The previous study also predicted outcomes for the learning tasks. Hypothesis II stated: "There will be no initial difference between racial groups on three memory/problem solving tasks." Blacks and Whites performed equally well on two of the three learning tasks. Only on one of the Level-I intelligence measures, a memory recall task, was there a significant ($p<.05$) group difference, Blacks superior to Whites. Because of the self-selection bias mentioned above and precedent in the literature for such an effect, this outcome was not unexpected (see Grubb, 1983, p. 60-70).

More importantly, Blacks performed as well or better than Whites on the Level-I indicators and as well as Whites on the Level-II intelligence task. This indicated, to the author, that Blacks and Whites possessed equal amounts of both levels of intelligence but, because standardized IQ tests (also Level-II measures) were White-biased (possibly because of culture), Black intellectual functioning was being under-assessed. The third hypothesis of the study was therefore:

When certain cultural factors are covaried out of the test data, Black and White differences (on the IQ measures) will dissipate below the level of significance (Grubb, 1983, p. 73).

With the nine socio-cultural variables derived from the Personal Data Questionnaire, regression equations were run on the seven intelligence and performance measures. The five socio-cultural variables weighing most heavily on score performance for the total sample, appearing most often in the seven regression equations were: (1) varied social experience; (2) dwelling condition of parental home; (3) father's occupational level; (4) parental attitude toward formal education; and (5) parental supervision and intervention in the subject's childhood.

When the original analyses of variance were rerun, this time partialling out the effects of the five most heavily weighted socio-cultural factors, the difference between racial groups was found to be non-reliable for the three WAIS-R scales. The White over Black difference on the PPVT and Black over White difference on the recall task were still evident, although the former was now reduced to a $p < .05$ level.

Since the five "over-all" most heavily weighted socio-cultural variables could not account for the racial group differences on the PPVT intelligence test or one of the Level-I intelligence learning tasks (recall), two additional analyses were performed. The first was an analysis of covariance (ANCOVA) on the PPVT using its individually determined (by regression equation method cited above) five most heavily weighted socio-cultural variables: (1) fathers presence; (2) varied social experience; (3) family income; (4) dwelling condition of parental home; and (5) father's occupational level. The White over

Black superiority on this measure, while still significant, $F=4.039$ ($p=.048$), was in good measure reduced from its original level of significance, $F=7.461$ ($p=.008$).

The second ANCOVA run on the Level-I learning task (recall) using its five most heavily weighted socio-cultural factors (1- number of siblings, 2- parental supervision and intervention in the subject's childhood, 3- parental education attainment, 4- father's occupation, and 5- parental attitude toward formal education) produced a non-significant difference in group performance ($p=.056$), even though the Black trend toward superiority on this measure remained.

In the final analysis, all three hypotheses were upheld (Grubb, 1983):

Taken together the results...clearly show that this sample of Black and White adults have relatively equal ability on both Level I and Level II (intelligence). Standardized IQ tests...are however, not true reflections of minority group performance because of the cultural overtones of the questions involved (p. 101).

What propels one culture or subculture 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 (p. 107).

Other Outcomes of Interest

The prime tenet of the Cultural-Distance Perspective given earlier in this paper contains a basic assumption that would predict different sub-cultures' use of different strategies for learning. Different and distinct groups might go about learning differently, based on

differences in "attending to, processing, storing, retrieving, and/or practicing functional information" in unlike manners.

Blacks and Whites were noted to have learned the two Level-I intelligence tasks and a similar Level-I task that was part of the BCT (the Level-II learning task) according to different principles. Using a correlational analysis of the four Level-I and -II learning/performance tasks just mentioned it was concluded that "the Black and White groups must be utilizing different learning strategies" (Grubb, 1983), when responding to these stimuli.

Whites tended to use two different strategies on the two learning tasks demanding a recognition of previously presented stimuli whereas the Black group's performance pointed to a related strategy use on both. Grubb (1983) states:

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 (p. 96).

Another outcome not directly taken up in the previous work on cultural-distance is outlined in the secondary corollary (also cited above). One would expect sub-cultures to present differences in sub-score patterns on multi-sectioned assessment devices such as the WAIS-R and the BCT. This fact has been recorded in the archives on many occasions for various cultural groups (Arinoldo, 1981; Hays & Smith, 1980; Jones, 1971; Knapp & Seagram, 1981; Kureshi & Husain, 1981, Lieblich et al., 1975; McShane & Plas, 1982; Morse, 1914) and was

observed in the investigation under discussion in a gross fashion: Black and White performance on the verbal and performance sub-sections were clear indicators of what abilities were more practiced by each group. Blacks apparently acquire major-culture motor performance values and response modes more than seen in their adoption of major-culture verbal behavior. It would be interesting to look at a lower level of sub-score pattern within the verbal and performance sections (the actual 11 sub-scales on the WAIS-R). Also, since the BCT is composed of 7 sub-tests, and we know that Whites and Blacks used different strategies to perform at least one of the sub-tests, relative ranking within-group and between-group of these 7 test sections would also be of interest.

New Construction

It is a well recorded fact that Blacks score more near the national norm on performance measures of IQ than verbal measures (Jones, 1971). What is less well defined is how Blacks, compared to Whites, fair on individual items on standardized IQ tests. Wrobel and Howells (1982) conducted a study to determine the accuracy with which clinicians were able to detect racial (and sexual) bias in WAIS-R questions. Their findings showed that it was very difficult for professionals and students (both Black and White) to predict racially (and sexually) biased items. After the fact, however, WAIS-R items were determined to possess a 5:1 bias in favor of White to Black loaded questions (some school assessment measures also show a sex bias

favoring females over males at a rate of 4:1 (Reynolds, 1980)). That is, five times as many questions favored Whites over Blacks, even though perceptions of clinicians were inconclusive. An interesting aside was that Black raters were more adept at bias prediction than Whites, though not significantly so.

Test Bias

Here it is important to make clear an implicit assumption of the cultural-distance approach. We assume that any item which shows a bias toward one culture (race) is a reflection of that group's placing higher import on the item than the group which is inferior at correct responding on said item. The reason for the relatively poor "correct" response rate of the lower scoring group could be many. Even when holding test situational variables constant by design (thus obviating tester-testee interactions) and therefore eliminating microsystem confounds, we still see item-bias. The present hypothesis considers the residual difference to lay at the upper levels of analyses (the exosystem and the macrosystem).

Now this interpretation is in direct contrast to that held by the hereditarian (racial-genetic) view. That view claims (empirically) "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). As McGurk (1953) has observed, "test superiority of the Negro of high socio-economic status over the Negro of low socio-economic status is associated more with a superior performance on the non-cultural questions than on cultural

questions." Using factor analyses, point biserial and bivariate correlational methods, and analysis of differential prediction through regression line inspection techniques, hereditarians have seemingly "proven" (through such statistical methods and to their theoretical satisfaction) a lack of bias in all major intelligence, aptitude, and personnel selection devices.

Hale (1983) is of the belief that a test will be demonstrated to be biased if it evidences any of three types of group differences: content, predictive, or construct validity. Submitting WISC-R scaled scores to a principal components analysis separately for SES and race, and rotating through a Varimax criterion of simple structure, several investigators (Hale, 1983; Jensen, 1980; Reynolds, 1982) have concluded that the Wechsler scale is not a biased instrument.

In a study entitled, "Test bias and construct validity," Jensen (1976) found no difference between a group of about 600 White and 400 Black children (aged 6 to 12) in California on correlation values between raw scores and age on two measures of IQ (the Peabody Picture Vocabulary Test (PPVT) and Raven's Progressive Matrices (Raven)). From this fact he could proclaim that "if the tests were measuring something quite different in both groups, it seems unlikely that the scores would have nearly the same correlation with age in each group." The internal consistency reliability coefficient in the PPVT was .96 for both Blacks and Whites while the Raven reliabilities were .90 for Whites and .86 for Blacks. More space will be given to the reliability issue later.

Jensen also found that the corrected correlation between rank order of item difficulty for Blacks and Whites on the PPVT was .987;

for the Raven above .99. Finally, the very sensitive correlations of "P decrements" index for the two groups on the PPVT and Raven's were .830 and .980 respectively. This last finding led the investigator to suggest that "if the items of these tests were culturally biased for blacks, it would be remarkable indeed that their rank order of difficulty between adjacent items should be so alike in both the black and white groups," thus reaffirming the author's belief in their non-biased nature.

Jensen (1976), as partially quoted previously, has written:

In both the Peabody and the Raven we compared a) the point-biserial correlations between single items and total score within each racial group and b) the correlation (phi coefficients) between single items and the racial dichotomy.

The first set of correlations, a, tells us how well each item measures whatever the test as a whole is measuring and how well the individual item discriminates among persons within a given racial group. The second set of correlations, b, tells us how much the items discriminate between the two racial groups. It turns out that the items that best measure individual differences within each racial group are the same items that discriminate the most between the racial groups. These items have the highest correlations with the total score for both blacks and whites (p. 342).

Jensen and others holding his beliefs have concluded from the previous statements that the facts provide a lack of cultural bias in the instruments. Here, from our point of view, is where they make their mistake. These investigators are attempting to analyze group behavior on the individual level. Their hypothesis ignores the upper levels of analyses. They also do not seem to consider the fact that the criterion of prediction may be as biased as the predictor instruments themselves.

Would it not follow that those items possessing a wide range of test responses within a group would better predict ability within that group on a highly correlated criterion of behavior? This, of course, is sensible enough. The problem comes when one attempts to interpret group performance differences in the same manner.

The mean of a group is but one representation of a set of scores. When this number is compared to the mean of a second group, how can one adequately suppose that difference in mean scores describe the lack of ability within one group as a whole. The facts disprove this assumption because each group is composed of an overlapping of test performance. Only when one forces the individual level of analysis upon higher level constructs could such an error be made. This is the error described by Mohs (1982) printed herein above: "to confuse within-group and between-group behavior."

Mercer (1979), a sociologist, has developed what she terms a System of Multicultural Pluralistic Assessment (SOMPA). This battery includes an evaluation of the testee's social/environmental systems. Mercer believes that one can make inferences about a student's probable learning potential only with the analysis of these higher-order, distal variables. Standardized tests can be assumed to be valid predictors, in isolation, only when several assumptions are met. Weiner and Stewart (1984) lists the SOMPA assumptions:

- o IF two persons have had equal opportunities to learn the material in a test, and
- o IF they have been equally motivated and reinforced for learning the materials in a test, and
- o IF they are equally familiar with tests and test-taking situations, and

- o IF they are equally free of anxiety, fears, or emotional disturbances that might interfere with learning or with test performance, and
- o IF they are equally free of physical, sensory, or motor disabilities that might interfere with learning or with test performance,
- o THEN significant differences in their test performance may be interpreted as reflecting differences in their learning potential, i.e., their intelligence.
- o IF all things are not equal, NO inference can be made that differences in the phenotypic performance on the test are necessarily related to differences in innate ability, i.e., the genotype.

Spindle (1975) argues that cultures have to be understood from within, on their own terms and by their own standards. How can one even appear to meet this requirement when only out-culture norms are used as an analysis of behavior? Culture has been variously defined, but a simple usable definition for the present purpose is: Culture is everything that is not natural (in nature) human behavior - it is everything a group does that is not innate. From this viewpoint any group differences can be labelled as cultural. Eating is not a cultural property, as all humans eat; but eating with silverware and chopsticks is cultural.

Cultural-Relativity, Identity Development, and Bi-Culturality

Individuals are assumed, by Western thought, to: (1) have some human characteristics in common with all other individual humans, (2) have certain characteristics in common with certain other individuals but not with all individuals, and (3) to have some specific traits unique to themselves. This model of conceptualization can also be applied to different cultures, that is: (1) all cultures possess

certain behaviors common to every culture, (2) some cultures share certain behaviors with certain other like cultures, and (3) certain cultural behaviors are unique to each culture.

Once we accept this perspective of cultural relativity we may proceed in either of two directions. One, we may compare different cultures to some arbitrary standard of behavior, or two, we may examine and try to understand each culture independent of other forms of human social construction. The two paths will lead us to vastly different conclusions and beliefs about any one specific culture.

The first alternative, comparing cultures to a certain cultural norm, has led Western science down a road to ethnocentrism and the development of the "deficit model" of comparison. Under this system, differences in cultural behavior are seen as deficient if not corresponding exactly to some arbitrarily assigned cultural standard (usually ours). This view has led mental health professionals to assign Black cultural behavioral expressions such as concentration on the present (as opposed to a future-orientation) as an inability to defer gratification, a negatively value laden term describing a basic lack of cultural development. Herein lies much of the trouble found in cross-cultural assessment.

The second perspective, a defining and search for understanding of a culture from within its own value system can be described as a "cultural difference mode." In this type of system, each culture is examined based on the adaptiveness of behavior within its ecological frame. The Black present-orientation would become more than a deficit, it would now be viewed as a cultural adaptation to the larger social

fabric. Blacks live in the present based on two ecological factors: (1) hostile historical reality of life in America has assured the perpetuation of this mode of behavior by disallowing the peaceful striving for future security and economic stability within the Black community and (2) the West African heritage of oneness with nature and an acceptance of man's place in the universe without the mind-set of conquering and subduing the cosmos. When Black cultural propensities are analyzed in this fashion, forced assimilation and change is unwarranted for such adaptive and satisfying behavioral expressions of a people.

The second (ecological) perspective is an emic approach whereas the first discussed, comparison method, is clearly etic in orientation. The position of this paper, and the basis for culturally relevant assessment with Blacks is the emic response and would lead to the formulation of a macro-level/cultural pluralistic perspective.

Maslow (1970) has developed a system for describing behavior based on certain needs which motivate responding in humans. These needs are conceptualized as being hierarchical in that "lower" needs must be satisfied before we are motivated to satisfy "higher" needs. If we accept his understanding of behavior, personality, and motivation, we can begin to understand how all cultures are related and what all cultures have in common.

The lower motivators such as (1) physiological needs (need to eat, drink, and reproduce) and (2) safety (need to security, protect the young) can surely be assumed to be shared by all cultures. As the lower needs are taken care of and a culture begins to formulate

behaviors addressing the higher needs in the hierarchy (belonging, esteem), culturally specific adaptations to environmental and social-evolutionary forces can cause divergent forms of responding to appear.

As was stated earlier, some cultures will still be expected to be in agreement with respect to some behaviors even if all cultures are not in agreement. These mid-level motivational forces can, therefore, be viewed as allowing for freer behavioral expression than the lowest motivators, yet still circumscribed to some extent. Time orientation could easily be conceptualized as lying in the mid-range of motivated needs under the esteem category proposed by Maslow. Here we see the Oriental cultures placing much value on the past, gaining esteem for self through reverence of one's ancestors. In the Black and American-Indian cultures, esteem is gained through present-oriented behavior; masculine deeds of strength and action in men and feminine deeds such as motherhood and family in females. In the Euro-American culture, esteem is gained by future-directed behavior such as striving for economic security and the compilation of material goods.

To elaborate on what was already stated, some individuals identified as Black by skin color may or may not be involved in the Black cultural experience (to a greater or lesser degree). Because Blacks must function in the mainstream American supra-culture in order to reap the same rewards of jobs, housing, and schooling as do Whites, Blacks develop in two cultures and are, therefore, bi-cultural. This fact is important in our understanding why major-culture based test items differentiating intra-group "abilities" also differentiates inter-group performance.

Several systems depicting Black, and other minority, identity development have been proposed. Atkinson, Morten and Sue (1979) have tried to incorporate all elements of previous models in their Minority Identity Development (MID) Model. They outline five stages of self-concept formation for minorities in a multi-cultural society such as ours.

Stage 1 - Conformity, is depicted as a self-depreciating, in-group-depreciating, and majority-group-appreciating attitudinal constellation. Attitudes can be operationalized here to include all behaviors, both physical and psychical. Depreciating attitudes can be described behaviorally as those actions (both physical and psychic) which ignore, down-grade, or go against (are not compatible with) behaviors in which they find opposition. Appreciating attitudes are conversely those responses (both physical and psychic) which are in harmony with actions taken by significant others (including oneself-ego) in one's social environment. Therefore, in Stage 1, the Black individual acts against himself and Black cultural expression in overt and covert ways, while behaving in resonance with White cultural performance. This stage corresponds to Cross' (1971) Pre-Encounter State of Awareness, where the Black individual is seen as having anti-or non-Black world view while fully embracing the dominant White American cultural ideal. Jackson (1975) calls his corresponding first stage the Passive Acceptance Stage, in which the Black simply takes the route of least resistance and passively "plays the game."

In Stage 2 - Dissonance (Atkinson et al., 1979), or what Cross (1971) calls the Encounter Stage, Blacks begin to become aware of the

independently rich Black culture. The individual Black begins to start engaging in Black culturally sanctioned behavior; she begins to speak, dress, groom, and move in Black mode (overt behavior) and validate herself according to Black ideals (covert behavior). This stage is fraught with anxiety and tensions build up because the individual still has, and utilizes, the learned White behavioral patterns which are not always synchronous with their Black behavioral counterparts.

Stage 3 - Resistance and Immersion, represents a behavioral repertoire that is totally Black. The Black person in this stage has entirely rejected White response patterns, values, mores, beliefs and all other physical and psychic forms of behavior. He is totally immersed in Blackness and as strongly rejecting of Whiteness. The White tester will have a difficult time in even getting this type of individual to sit through an entire assessment session. Often referral to a Black colleague is the procedure of choice in order not to "lose" this individual, especially in terms of motivational validity.

In Stage 4 - Introspection (Atkins et al., 1979), Internalization (Cross, 1971), or Redirection (Jackson, 1975), the Black client will evidence Black cultural values and actions even more naturally than the previously described Stage 3. The reason for this is that her behavior is now guided solely by the rewards of being Black and no longer directed by the pleasure involved in Blackness bound with a rejection of Whiteness. The person will be driven by action motives alone, free of any reactive influences. The Black client will feel free to enjoy her culture and become able to allow others the freedom to be what they are - be it White or Red or Yellow.

The final stage of awareness for the minority client, Stage 5 - Synergetic Articulation and Awareness (Atkinson et al., 1979) or what Jackson (1975) calls the Internalization Stage, is an identity built on multi-cultural behavior. Here the client behaves basically as a Black but with out-culture behaviors added to form a truly bi-cultural adaptive personality. The person values the Black experience (psychic behavior), engages in overwhelmingly Black expressive patterns (physical behavior) but has incorporated specific dominant cultural behaviors into his performance inventory (both attitudinal and overt-behavioral). This could be thought of as the "ideal" Black (or minority) Identity Development. Behavior will be judged on its individual merit by this person; those suggested for growth, be they White or Black oriented, will be judged by their usefulness to the client.

One final point to keep in mind concerning the above described stages of Black (or minority) identity development: they are not necessarily discrete nor does one necessarily progress from one through two on up to the final stage in order. An individual Black may be raised as a Stage 4 or 5 person, never having learned or even been exposed to the cultural expectancies and mannerisms associated with the lower stages. Any Black may also incorporate aspects of different stages within his or her personality make-up, or a Black person may alternate between Stages temporarily and situationally. These quadruplet and quintuplet formulations are meant only to aid in understanding specific behavioral presentations of the Black (or minority) subject, not for stereotyping the individual.

Only when the scientist is well aware of the minority member's stage of identity development, and the behavior modality necessary for successful operation in the supra-culture dominated workplace and larger society, can he fully understand or be of aid in the assessment and/or adjustment of the "total" individual. Only when the scientist is bi-cultural (and has a mature identity) can he guide the minority person seeking relief toward a final resolution of life's problems presented to a person of color in a larger colorless environment. The bi-cultural therapist is also more adept at resolving troubled personal relationships within the sub-culture of the service receiver.

The model of Minority Identity Development put forth by Atkinson et al. (1979) seems to provide both a system for empowering individual minority members to succeed in the workplace as well as suggest behavioral interventions aimed at reducing frictions within the subjects own sub-cultural milieu. This model also has potential for research projects designed to empirically catalogue differences in those Blacks accepted and ascendant in the White-dominated corporate, academic, and political spheres of American society and those Blacks observed to be not so successful.

It is suggested that a "Stage-5" level of Minority Identity Development is necessary for both economic, professional, and personal success and fulfillment. Black individuals operating at "lower" stages of identity development may find ascendancy and satisfaction in certain life arenas but will ultimately fail to prosper in all of life's cultural milieus until the attainment of a mature identity.

While Stage-1 (Conformity) may allow a Black to enjoy the rewards of material success through corporate advancement, personal worth and intra-racial relationship satisfaction will remain low. While the Stage-3 (Resistance and Immersion) individual may develop strong and satisfying community bonds, his ability to function in the larger society (and thereby reap the rewards of that interaction in the form of employment and advancement) will be greatly reduced. Only the Stage-5 (Synergetic Articulation and Awareness) Black person is able to be Black naturally while at the same time understand the functionality of behaving in agreement with the larger society when it is beneficial to his or her total-life's goals.

Minturn (1983) sums up the problem best in the statement:

I simply do not believe, despite the assembled evidence, that White, American, Middle class males are better at virtually everything than any "Brand X" comparison sample (p. 5).

Minturn's humility should provide an example for other major-culture investigators. Blacks and other minorities are forced to live a life of "bi-culturalism" in our multi-cultural community (Sue, 1981). The fact that some Blacks score high on IQ tests and that these same Blacks score well on criterion measures, be they academic performance or job skills, while other Blacks perform poorly on the same measures may signify either of two things: (1) the high correlation between predictor and criterion could signify innate ability, or (2) it could be a gauge of one's integration into the dominant fabric of society. Probably both explanations hold some truth.

When one considers (or contrasts) groups however, only the second alternative is tenable, from our perspective. This, of course, is our assumption. It is no more or less a valid assumption than that made by others, until the weight of evidence decides.

Test Reliability

But let us return at this point to the questions raised by Jensen (1976) concerning test reliability, specifically the high internal measures he examined. As previously recorded, Jensen found reliability coefficient of .96 for both racial groups on the PPVT and .90 (Whites) and .86 (Blacks) on the Ravens. From this he reasoned:

If one group were more careless than the other in taking the tests, or made more haphazard guesses at the answers, or otherwise contaminated their performance, we should expect quite different internal consistency reliabilities. But we see that the reliabilities are highly comparable for whites and blacks (p. 342).

Micro-level difficulties. Besides being incorrect from a meta-analysis point of view, the above statement is even incorrect on the micro-level. Drasgow (1982) has developed a model for analyzing the effects of biased items on overall test validity correlations for minority groups. He begins with the assumption that every test is composed of a finite number of sub-tests (or factors), all loading on the main construct measured by the test, g. He goes on to show how that even substantial percentages of biased items, and therefore, equivalent percentages of random answers from a majority of minority members, would have negligible effect in producing statistically different validity coefficients unless the populations tested are

extremely large (i.e., in the tens of thousands). The study claims that both parallel reliability and between-group validity could remain high even when a good proportion of test items could be identified as biased. Says Drasgow:

Test items measuring knowledge or skills available only to the majority group would produce random responses by minority group members. ... If random responses to a large proportion of test items produced only a negligible decrease in test validity, more realistic types of bias are likely to produce even smaller decreases in validity. Note that this would mean the empirical finding that differential validity rarely occurs should not be taken as evidence that test bias does not exist (p. 526-527).

The author was responding to the lack of significance between two hypothesized groups of 100 individuals each on a biased test consisting of 4 parallel sections of 25 items each. The minority groups is expected to respond randomly to one of the sections while the majority group has access to all the test tapped knowledge and, therefore, responds at a steady 60% mean rate on all subsections. The mean minority group response is equivalent to the majority group on the three subtests that are considered non-biased. Finally, the "criterion Z is assumed to be unbiased, and the distribution of criterion scores are taken to be identical across majority and minority subpopulations."

Using the formulas, $U_y = kU_x$, for the majority mean performance and, $U_y = (k-1)U_x + m/c$, for the minority mean performance (where k =subtests, U_x =subtest means, m =subtest multiple choice items, and c =number of options per question), and the following hypothetical data, the writer

was able to derive group means:

$$k=4; m=25; n=100; c=5;$$

$$U_x=15; \sigma^2=11.08;$$

$$P_{xx}'=.75; P_{xz}=.36.$$

Group means thus derived were: (1) for the majority group

$$U_y=4(15)=60;$$

and (2) for the minority group

$$U_y=3(15)+\frac{25}{5}=50.$$

It should be noted that since all four subtests are considered to be parallel for the majority population while only three are for the minority population, with one 25-item factor eliciting random responding (25/5) for the minority group, this "type of bias is unrealistic in that it is too strong." As Drasgow posits:

The probability of correct responses to biased items by minority group members may (under normal circumstances) be lower than the probability for majority group members, but responses by minority group members are unlikely to be entirely random (p. 526).

Without going through the complete series of equations, the author found reliability for the majority group and minority group to equal .92 and .86 respectively; test validity equal to .399 and .385; and the two regression equations to be

$$\hat{Z}_i=2.00 + (.033)Y_i \text{ [MAJORITY]} \text{ and}$$

$$\hat{Z}_i=2.06 + (.0413)Y_i \text{ [MINORITY]}.$$

The bottom line to this experiment is that, in the words of the author, "There is no difference between population correlations."

Additionally:

...it appears that subtest reliability is very important in determining the effects of bias. If subtests are, reasonably reliable, then introducing a subtest with random responses will have little effect on the validity coefficient. In contrast, a biased subtest can have a large effect if the test has a total of only two or three subsections and if the parallel subsections have the uncommon combination of low reliability and high validity (p. 529).

It is unlikely, based on the methodology of test design, that such a fortuitous combination will readily be found and thus lend itself to easily identified item bias in an assessment measure. In the overwhelming number of cases, test bias will remain undetected by conventional methods even when purposely written into an index. The problem here is that the micro-level methods used to measure individual differences within groups are just not sensitive enough to detect macro-system influences on these performance measures.

In those cases where significant group differences are detected, the amount of variance accounted for by group-by-item interactions is often considered negligible and discounted. In the report by Jensen (1976) just discussed, a significant race x items interaction was uncovered in the Peabody Picture Vocabulary Test and the Raven's Matrices but could only account for a little less than 1% of the total variance in both batteries. Therefore, Jensen, using the logic of the micro-level racial-hereditarians, could argue that "black/white differences in test performance can be closely simulated, quantitatively and qualitatively, by comparing groups of younger and older white children."

In a recent study investigating item bias on the WISC-R with four sociocultural groups (Anglo, Black, Chicano, and Native-American Papago (NAP)), Ross-Reynolds and Reschly (1983) found several interesting results. One, the rank order correlations of item p values for the six combinations of sociocultural groups (Anglo-Black, Anglo-Chicano, Anglo-NAP, Black-Chicano, Black-NAP, Chicano-NAP) on the six subtests the authors chose to focus on (I, S, A, V, C, and PC) were very high; greater than or equal to .97. This result would tend to indicate that the p values for each subtest were in virtually the same order for each of the groups. Remember: the authors chose to study only 6 of the 11 WISC-R subtests because: "The other subtests...scoring rules...allowed for wide variations in point total for each item (e.g., Block Design and Object Assembly) or because the subtest was largely speed rather than power (Coding)." Ross-Reynolds and Reschly (1983) also recalibrated some subtests: "On the verbal subtests with 0, 1, or 2 point scoring, item scores of 1 or 2 were scored as 1 to facilitate the analyses."

Even so, a second rank order correlation based on differences in the p values of adjacent items gave considerably lower correlations. The investigators place the range of median correlations for Black, Chicano, and White children between .68 and .72. Median correlations for the combinations of NAP and other three groups varied between .45 and .65. Conclude Ross-Reynolds and Reschly (1983):

The correlations based on differences in p values of adjacent items indicate that the progression of item difficulty was not as consistent as the rank order correlations would imply, particularly for NAPs, and that item by group interactions might exist (p. 145).

These results are in conflict with results of adjacent item difficulty correlations in adult populations comparing Blacks and Whites. Since the Ross-Reynolds and Reschly paper was at the time, only the second of two reported empirical analysis of item bias conducted on the WISC-R (see also Sandoval, 1979) with minority children, the premature comparison of childhood and adult difference on the Wechsler scales can only be tentative. It is interesting to note more bias can be measured on the WISC-R than on the WAIS-R. This would be predicted from a Cultural-Distance view, since access to those responses coded "correct" on the Wechsler scales would increase with one's exposure to major culture norms (school system participation) and thus the detection of group biased items would reduce with mean group age.

The final interesting result of the Ross-Reynolds and Reschly paper was the finding that no items on the six studied subtests were biased against the Black sample and only one item was biased against the Chicano sample (both groups compared to the White sample). This determination was made through the use of an intricate series of decisions and computations. To quote the author again:

...examination of specific items for bias, used transformed item difficulties and outlier analysis. These techniques...are conceptually equivalent to the criterion of items by group interaction but do not require the use of numerous a priori comparisons or post hoc tests. Items on which the percentage correct for the four groups was greater than 95 or less than 5 were excluded from the outlier analyses...Items were determined to be biased if they deviated from the 45° theoretical regression line, by more than $.75 \underline{d}$ where $\underline{d} = (Z1 - Z2) / \sqrt{2}$... (p. 144-145).

Fuller treatment of this type of statistical method may be found in Anastasi (1976). At present, let it be noted that the use of a theoretical regression line lying on the 45th degree can have an unwarranted equaling effect on group performance differences. The exclusion of undoubtedly easy and difficult items would also reduce any possible group responding differences if items at either end of the spectrum were proportionally more biased than mid-range items. In all, this technique reduces the ability of the investigator to identify bias and could explain why results using this method are at odds with earlier reports using different statistical methods in the same study (i.e., rank order correlations).

The interesting point to come out of the outlier analyses is that "nearly one third of the items on the Verbal Scale subtests would be considered to be biased against NAPs." Even with the "ceiling" rules excluding the questions below and above the 5% and 95% points respectively, the NAP participants were definitely at a cultural disadvantage. Even so, once again:

The items that were clearly biased against NAPs were among the best discriminators of high and low performance for the group, an ironic result found not infrequently in studies of item bias (Ross-Reynolds and Reschly, 1983; p. 146).

Macro-level fallacies. This result is not so ironic when one looks at a culture and not just individuals. IQ tests only measure those behaviors (item domain) valued by the major-culture, therefore, those biased items are differentiating between NAP enculturation at the individual level, not intellectual ability (as in major culture individuals). These results, replicated in study after study, should

convince the staunchest backer of intelligence testing that only one ideal of intelligence is being examined on these tests, and that this view is not equally held by all cultures, and that the interpretation must be tempered by distance of each culture from this ideal and the relative standing of individuals within cultures (see also Gordon and Rubain, 1980).

Jensen (1976) posits that there is a genetically coded developmental gap separating the mental maturity of chronologically equal Blacks and Whites. By calling upon substantiated developmental in-group differences, he completely dismisses equally (but different) valid between-group differences. Is this not truly the behavior of a target group engulfing the perceptual field (Jones & Nisbett, 1972) of an out-group investigator?

The Cultural-Distance (CD) hypothesis would interpret like findings to suggest that those behaviors measured by IQ and other assessment devices display inequality of group performance because minority group members are more distant from the "cultural standard" on which the tests are based. The so-called "developmental lag" can more rightly (from our perspective) be viewed as an inaccessibility of norming information to ethnic minorities. Therefore, knowledge valued by the supra-culture (and included on test of intelligence) is attained at a later age for minority individuals than majority individuals solely because of factors of access.

Our assumption is not without precedence. Males and females (within cultures) are presently considered to carry equal genetic endowment of general intelligence. Test constructors apply this "rule"

of equality when compiling test questions (Taylor, 1976). Common acceptance of this social "fact" even affects law. An instructive example may prove enlightening (Girls outsmart boys, 1983):

Until 1982, girls in the Swiss canton of Vaud had to earn higher scores than boys to be admitted to high school. Each year, girls were performing better than boys on the entrance exams, even though they had to learn home arts like sewing, leaving less time for intellectual pursuits. To keep the admittance ration at 50/50, requirements were set higher for girls (p. 12).

The exosystem of cultural beliefs has not accepted racial intellectual equivalence. White (1984) reviews the "now famous Larry P. Case." In 1972, the Bay Area Black Psychology Association went to court to protest the over representation of Blacks in classes for the mentally retarded (based on intelligence test results). They argued that although only 28.5 percent of the San Francisco school districts' population was Black in 1971, 60 percent of the pupils in the educable mentally retarded (EMR) classes were Black. On the California state level, 9.1 percent of students were Black in the same year, while 27.5 percent of the EMR designated school population was Black. The outcome of the suite resulted in a massive 131-page opinion by Chief U.S. District Judge Robert F. Peckham stating that:

because of cultural and racial bias IQ tests cannot be used as valid measure of intellectual retardation for Blacks, and that Black children had been disproportionately assigned to inferior dead-end education as a result of invalid assessment (a permanent ban on such assessment was issued covering the entire state) (p. 112).

Law certainly cannot be accepted as scientific fact even though this case was judged on scientific evidence. "During the trial, testimony was heard from test designers, geneticists, psychologists and

specialists on education for the handicapped" (Mercer, 1982). The judge ruled, after weighing all the evidence, that "while many think of the IQ as an objective measure of innate, fixed intelligence", the truth derived from the presentations was that such a "conception of the IQ is erroneous" and that such tests only measure specific skills. Judge Peckham went on to charge that IQ tests were racially discriminatory, being developed on White-American populations and unadjusted for certain racial-ethnic groups (Blacks and Hispanics) (Judge bans use of IQ tests..., 1979).

A more telling argument against the equivalent use of assessment measures with Black and White groups is given by the results of a six-year study concerning the sources of bias in the prediction of job performance conducted by the Educational Testing Service (ETS) (An Investigation of sources of bias..., 1972). Most often when bias testing is considered it is the position of the regression line Y-axis intercept that differentiates Black and White groups, Whites over Blacks (An Approach for identifying ..., 1980). Both regression lines (for Blacks and Whites) usually have the same slope and dispersion properties, leading many investigators to the conclusion that the tests and criterion are as fair for the Black group as the White group. The only difference they see is the fact that the minority group scores lower consistently on both measures. The fallacy of this argument has been discussed above and shall not concern us here.

ETS (An Approach..., 1980) compared several forms of assessment for their predictive ability on several forms of job evaluations for three racial groups: Blacks, Whites, and Mexican-American. The

findings did demonstrate regression-line y-intercept differences favoring White (if each racial group was confined to its own regression formula). The study, which involved medical technicians, cartographic technicians, and inventory managers, also found slope differences when many of the different forms of aptitude test scores were used to predict certain work performance criterion measure scores (learning ability rating, job knowledge test score, work sample). Often the slopes of Black prediction would intersect the White slope at the high end of the distribution. This would suggest that as Blacks and Whites (as measured by the predictor variable) become more proficient at a task, there (1) exists less inter-group differences, and (2) there exists more intra-group differences (between these extreme performers and their own co-racials). In fact, since the regression line for Blacks in this area is above that of Whites, to use the White standard as an assessment tool would penalize these minority persons. This is at odds with what is often used as an argument against test fairness: that use of the White standard overpredicts Black performance, thus giving minorities an advantage (Clearly, Humphreys, Kledrivick, and Wesman, 1975; Cole, 1981; Hunter and Schmidt, 1976).

Jensen's statement (1976) that "the items that best measure individual differences within each racial group are the same items that discriminate the most between the racial groups" does not hold up when higher scoring Blacks and Whites are considered. The racial-genetic point of view gives no clue as to why this might be the case. Cultural-distance would anticipate such a finding because our underlying

assumption that more knowledge of the information on the norming scale signifies less distance between individuals, Black or White.

One final difference in the regression lines of the various groups noted in the ETS findings was dispersion about the line of regression. The difference led to the conclusion that "with significant differences in the dispersions, it is inconclusive whether the location of the lines would be significantly different, (and)...this does appear to be an instance where...tests may be biased...in predicting the Work Sample criterion."

The ETS study also dealt with another important concern. They determined to see whether co-racials who supervised workers would give job performance ratings equal to out-group supervisors. Their findings showed that the correlation of Learning Ability ratings with all of the objective measures for each rater-ratee combination was best where the rater and ratee were of the same race. They state most forcefully that "the high validity overall for the Black-rating-Black combination is striking" (see Table 7, Table 8, and Figure 3). Are the Black supervisors attuned to some aspect of their Black charges not sensed by the White supervisors of Blacks? ETS let the issue drop at this point with the observation, "I think there is little doubt that ethnic group of rater and ratee does make a difference."

Evidence that this indeed is the case comes from an entirely different source and setting. Recently Brazziel (1983) reported on the differences between Black students receiving their Baccalaureate degree at Black institutions and White institutions. He was interested in whether either group of students would outrank the other as measured by

TABLE 7
 CORRELATION OF LEARNING ABILITY RATINGS
 WITH APTITUDE TESTS, JOB KNOWLEDGE TEST,
 AND WORK SAMPLES BY RACE OF RATER
 AND RACE OF RATEE *

Cartographic Technicians (Tech)/(TOPOCOM Samples)
 Black (Black-American)/White (White-American)
 MexAm (Mexican-American)

RACE OF TECH:	Black	White	MexAm	White	Black	MexAm	White
RACE OF RATER:	Black	Black	MexAm	MexAm	White	White	White
	N=20	N=53	N=97	N=26	N=99	N=99	N=240
Coordination	.47	-.04	.15	.07	.11	.14	.21
Hidden Figures	.33	.32	.37	.36	.22	.35	.21
Vocabulary	.48	.06	.03	.21	.13	.03	.02
Object-Number	.42	.08	.03	.46	.14	.14	.04
Card Rotation	.42	.35	.27	.44	.21	.08	.29
Arithmetic	.59	.20	.31	.36	.37	.26	.22
Map Planning	.51	.33	.35	.53	.28	.29	.37
Surface Develop	.36	.26	.31	.61	.36	.27	.32
Maze Tracing	.51	.32	.33	.57	.16	.22	.29
Following Oral							
Directions	.44	.19	.24	.51	.28	.31	.32
Identical Pict	.34	.26	.26	.40	.31	.19	.17
Extended Range							
Vocabulary	.22	-.09	.05	.09	.12	.13	-.08
Necessary Arith							
Operations	.55	.23	.33	.46	.26	.31	.29
Job Knowledge	.48	.55	.42	.66	.30	.46	.38
Geometric							
Restitution	.11	.12	.19	.48	.11	.22	.20
Logical							
Contouring	.43	-.06	.33	.38	.13	.24	.11
Pull-up	.67	.41	.44	.41	.15	.33	.24

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TABLE 8
 AVERAGE CORRELATION OF LEARNING ABILITY
 RATING WITH OBJECTIVE MEASURES
 BY RACE OF RATER AND RACE OF RATEE *

OCCUPATION	ETHNIC GROUP OF RATEE	ETHNIC GROUP OF RATER		
		BLACK	MEX-AMERICAN	CAUCASIAN
Medical Technician	Black	.27		.25
	Caucasian	.17		.23
Cartograph Technician (TOPOCOM)	Black	.44		.22
	Mex-American	.22	.26	.24
	Caucasian	.22	.42	.22
Cartograph Technician (C & G)	Black	.59		.27
	Caucasian	.47		.27
Inventory Manager	Black	.40		.26
	Mex-American			.28
	Caucasian	.28		.20
Total	Black	.44		.25
	Mex-American		.26	.26
	Caucasian	.28	.42	.25

*Reprinted by permission from Educational Testing Service

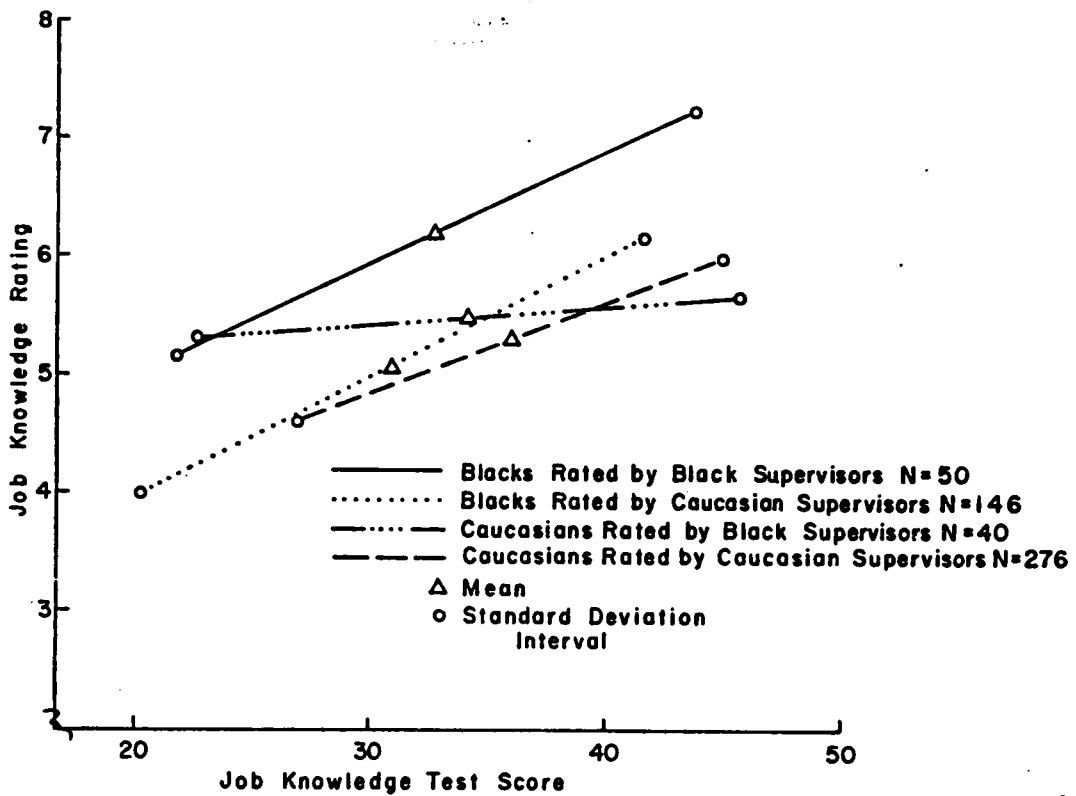


Figure 3: Prediction of Job Knowledge Rating from Job Knowledge Test Score (MEDICAL TECHNICIANS) *

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continuation toward and completion of a Doctoral degree. The outcome of his study of the 8232 doctorates earned by Black candidates from 1975 to 1980 were surprising. Brazziel focused primarily on Black Americans, reducing the total for analysis to 6320. Of this number, 3455 had received their undergraduate degree from a Black college or university while only 2865 had received this degree from White institutions. A Chi-square analysis of the difference is presented in Table 9. Black doctorates were significantly more likely to have matriculated at a formerly all Black institution. Why should this be the case? It is not that these students were "given" their doctorates by these Black colleges. The fact is that most Black colleges do not even offer doctoral degrees, and these students for the most part, earned their terminal degrees at formerly all-White colleges and universities.

Table 10 shows the ranking of the ten top Black doctoral producing undergraduate schools in the nation, for 1978-1980. All are formerly all-Black institutions, some quite small. Table 10 also includes the ratio of doctorates to baccalaureates graduated from these colleges and universities. The figures are impressive as Brazziel makes known in the following passage from the article:

The productivity ratio (for Talladega College) is thus 1:12, a rather remarkable figure. The exercise when applied to data for all American institutions yields a ratio of 1:25 or one graduate in 25 (all races but mostly White) going on to win a doctoral degree of any kind (p. 105).

Brazziel rightly concludes the Black colleges and universities contribute substantially to the nation's Black doctorate pool. Nearly

TABLE 9

Black Doctorate Recipients (1975-1980) by Type of College of Baccalaureate Origin*					
Type of College	N	Percent of Total	Recipients Listing as College of Origin	Percent of Total Recipients	
Black College	87	12.08	3455	54.66	
White College	633	87.92	2865	43.34	
Total	720	100.0	6320	100.0	

*Chi-square for expected versus observed recipients listing black colleges and white colleges as baccalaureate colleges of origin is significant at the .01 level of significance. Reproduced with the permission of author, Brazziel (1983).

TABLE 10

Black Doctorate Recipients (1978-1980) by Productivity of College of
Baccalaureate Origin *

Institution	Recipients Listing as College of Origin (1975-80)	Ratio of Doctorates to Baccalaureates Graduated (1978-80 Lagged to 1968-70)
Talledega College	28	1:12
Morehouse College	77	1:16
Spelman College	59	1:17
Tougaloo College	50	1:19
Clark College	44	1:19
Fisk University	82	1:22
Dillard University	38	1:23
Xavier University	53	1:25
Virginia State University	93	1:27
Morgan State University	92	1:28

* Reproduced with the permission of author, Brazziel (1983).

55 percent of this country's Black doctorate recipients receive their first post-secondary training at 87 traditionally Black colleges and universities.

"The nature of the undergraduate experiences in these institutions is far from clear," is how Brazziel ends his discussion of his finding. He does venture to suggest that the experiences on these highly productive Black campuses may somehow share qualities with "good colleges" everywhere. This author's inclination would be to think that these Black colleges are providing their Black undergraduates with something different than they could receive on White campuses. From a cultural-distance perspective it could be imagined that these institutions were teaching their charges in a more culturally relevant fashion while still importing the behavioral skills and knowledge sets needed by all students pursuing advanced degrees. This, however, awaits investigation.

If nothing else can be learned from the Brazziel paper we must at least recognize the superior validity of Black colleges' admission policies for Black students. Using Black doctoral recipients as a criterion of successful admissions procedures, we see that Blacks are better able to predict future Black performance than Whites. This corroborates the Educational Testing Service findings given earlier.

Why are Blacks able to predict "ability to learn" better than Whites for Black subjects? Because, as Spindler (1975) states, a culture has to be understood from within, on their own terms and by their own standards. This modest statement seems to fit so well the data.

Attempting to predict or understand Black behavior or potential by use of the White standard will only be marginally useful. Blacks are members of the total society and therefore, some understanding and prediction using "societal" norms is possible. But so much more understanding is possible if first we know the norms of the sub-culture. The two studies described below were conducted in order to increase this understanding.

METHOD

Study II consisted of further analyses of the data already obtained from the Master's thesis described herein (Grubb, 1983), with the addition of new information obtained from these subjects.

Study-II

Subjects

The subjects for this study were 80 post-secondard 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 as part of the original study (Study-I). The additional data required for Study-II was obtained during May and June, 1984.

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 were 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 were based on

research findings discussed in the thesis and the theory underlying it - Cultural-Distance . The information obtained from this questionnaire provided the cultural factors which were used to test Hypothesis III of the previous study - Study I: that certain socio-cultural variables could account for the differences in IQ performance between the racial groups (see Appendix D).

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

- (1) Wechsler 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 (MD #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 acceptable reliability (parallel forms, A and B, $r=.77$) and wide spread use. 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 concept which will allow the subject to choose a number between one and four that correctly represents the visual stimulus. The BCT is designed to assess brain damage but was chosen for inclusion in this study because it is a problem-solving task. Results are reported in number of errors (50 being a cut-off score of serious neurological dysfunction). The BCT was included in order to assess subjects on Level-II (transformation) intellectual abilities (Jensen, 1973) without

the hypothesized interference of culturally weighted material found in standardized tests of IQ. The two Memory Drum tasks, Recall and Recognition, were not used in this re-analysis of the original data.

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, graduate students in Clinical Psychology or Educational Counseling, served as experimenters. The tester-testee breakdown is presented in Appendix E.

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 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, order of administration being counterbalanced to avoid practice and learning confounds (see Appendix F). Other procedures utilized in order to minimize tester-testee interactions and test situation confounds are described in the section describing Study III.

New analyses . The following reanalyses of the data from the original study (Grubb, 1983) were completed. All statistically biased ($p < .05$, two-tailed) items (and/or sub-tests) on the WAIS-R, PPVT, and BCT were identified. After this, two adjusted measures of

the WAIS-R and PPVT were created. Each test generated the following: (1) a standardized version of the test (no change); (2) a version of the test with all biased items removed; and (3) a version of the test with equal numbers of Black and White biased numbers retained (this was impossible, however, for the WAIS-R because of the pattern of biased items).

Subjects who originally participated in the previous study were contacted and information on their grade point averages (QCA) and Scholastic Aptitude Test (SAT) scores were obtained (see Appendix G for permission form). Using the five IQ measures (WAIS-R; WAIS-R without biased items; PPVT; PPVT without biased items; PPVT with balanced number of biased items), the Level-II learning task measure (BCT) and SAT scores (Combined, Math, and Verbal) as predictor variables and the grade point averages as criterion, the rank order of predictive validity of the former measures regressed on the latter was determined. This was determined for the total sample, as well as Blacks and Whites alone. Identical analyses using culturally-levelled IQs, based on those variables found to weigh heavily in these measures, were also run. Only grades earned at the Blacksburg campus of Virginia Tech were used in these analyses.

Study II was basically conducted to determine exactly which items (and sub-tests) on the two IQ tests (WAIS-R and PPVT) and the Level-II learning/performance tasks (BCT) were biased, and in which direction. Non-biased, biased-balanced, and culturally-levelled IQs were also compared for predictive validity of academic achievement to the standard measures.

Study-IIISubjects

The subjects of this study were 80 post-secondary school adults (40 Blacks; 40 Whites), primarily undergraduate students at Virginia Polytechnic Institute and State University. Half of each racial group were male and half were female.

Instruments

Cultural and performance variables . The subjects were given the revised Personal Data Questionnaire (PDQ-R) prior to the series of tests (see Appendix H). The Personal Data Questionnaire (PDQ) (Grubb, 1983) (see Appendix A for original instrument) also used in the previous work was reworked based on the outcome of the previous study and improved by incorporating additional items measuring the socio-cultural determinants of intelligence.

A Social Performance Questionnaire (SPQ) (see Appendix I) was also filled out by each subject, including such information as college standing, major, courses taken, QCA, years in college, personal problems, counseling center visits, classes dropped, summer attendance, and hours carried per quarter. Information such as present dating habits, social and family networks, diversity of interests, sports activity, hobbies, living arrangements (alone or with a roommate/on campus or off), part-time work, and other social and non-academic questions relating to current functioning was also assessed as a part of the Social Performance Questionnaire.

Measures of intelligence . The following measures of IQ were given each student:

- (1) Wechsler Adult Intelligence Scale-Revised (WAIS-R),
- (2) Peabody Picture Vocabulary Test (PPVT),
- (3) Booklet Categories Test (BCT).

All of these tests were given to the students in Study I (see Grubb, 1983), and group performance on these measures in this study was meant to serve as a cross-validation of previous outcomes and conclusions.

Personality inventory . The Gordon Personal Profile (GPP), a standardized instrument used to measure five areas of personality development (1-Ascendancy; 2-Responsibility; 3-Emotional Stability; 4-Sociability; and 5-Self-Esteem) was administered to each subject. This inventory (GPP) provided a "simply obtained measure of (important) aspects of personality that are significant in the daily functioning of the normal person" (Gordon, 1978).

The GPP was standardized on 5,847 college students, principally freshmen and sophomores. The instrument has alpha and split-half reliability coefficients, on all sub-scales, within acceptable ranges (all r -values greater than .80).

This instrument was chosen for inclusion in this study in order to explore aspects of personality, and its relationship with social-adjustment, enculturation, and intelligence. The five factors of the GPP were hypothesized to have specific relationships with the other measures in the assessment package (see hypotheses below).

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. Two examiners, one Black male and one White male, both graduate students in Clinical Psychology, tested an equal number of subjects in each cell.

All subjects were given the dependent measures in two settings according to the following formula. Each examiner gave half the subjects of one race and sex the WAIS-R on the first setting, the other subjects within that racial/sexual group received the WAIS-R administration during the second session. Prior to the administration of the WAIS-R, each subject was required to fill out the SPQ.

The PPVT, BCT, and GPP were administered together in the additional required session. Their order was counterbalanced within racial/sexual testee groups. During this session each subject was also requested to fill out the PDQ-R prior to intellectual testing.

The WAIS-R, PPVT, BCT, and GPP were administered and scored according to standard instructions. The derived measures were calculated by a set formula adopted after Study-II was completed (see previous sub-section, Study-II).

Times of testing varied (morning/afternoon/evening and day of week) within and between groups randomly. The two experimenters were also assigned times and subjects on a random basis. Testers wore similar clothing, one color suits with ties devoid of jewelry or other ornamentation. Testers also acted uniformly in the delivery of social praise during testing. Encouragement was given only when the subject

seemed confused as to whether his/her answer was sufficient and only included the phrases: "that's good," "um uh," or "okay," in order to encourage the subject to proceed. No culturally relevant remarks or gestures were performed by examiners which might have differentially affected responding either racially or sexually. Very little prompting was found to be required, since the subjects were undergraduate college students accustomed to being tested.

Both testers were familiarized with the instruments prior to the start of actual subject testing. Practice on every test was begun two weeks prior to subject use. Review of acceptable answers and scoring was also emphasized prior to actual subject contact. Throughout the several months of actual testing (May through August 1984), bi-weekly informal meetings were held in order to go over testing issues and to present and resolve scoring difficulties. Each tester was also required to score eight complete test batteries (two randomly chosen batteries from each racial/ sexual testee category) which were given to the subject (but unscored) by his investigative colleague. This technique was instituted in order to increase inter-tester reliability (which showed no significant inter-tester differences in Study-I).

The dual tester (administration/scoring) tests were discussed by the investigators at the bi-weekly meetings. Questions concerning recorded answers and score interpretations were discussed and resolved. The inter-rater reliability was not determined in the traditional sense of comparing two different sets of scores through differential statistical techniques. The scoring disagreement rate was never more than a few items per assessment package and always resolved

to tester agreement with the provision of more complete test responses or the clarification of criterion used for specific item quantification. In this fashion, disagreement lead to increased reliability over the course of the study. The last several assessment batteries produced no disagreements. The hypotheses of the study were never openly discussed with the tester assisting the author, but there was no effort made to keep him totally blind (the second experimenter was also involved in the previous study).

The consent form (Appendix J) signed by each subject and the General Instructions for testing (Appendix K) read to each subject contains some pertinent information. The subjects were told that a "test is being conducted to determine the suitability of IQ tests with certain populations based on certain demographic data and family histories." Test sessions were conducted in small windowless and sparsely furnished rooms. A brief "get acquainted" time 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.

Prior to any testing, during the first session, each subject was asked to sign permission slips allowing the investigation team to have access to their official SAT scores and transcripts (for both High School and college QCA verification) in addition to High School class size and standing, and college field of study (see Appendix L). At the commencement of all testing, during the second session, subjects were given a racial-specific question to answer using a 7-point Likkert

scale. For the White subjects the question read: "How strongly do you identify with the White middle-class American value system?" The Black subjects were asked to respond to the following: "How strongly do you identify with the Black-American sub-culture?", followed by the question, "How strongly do you identify with the White middle-class American value system?" (see Appendix M for copies of both questions and response scale). These questions were added in order to assess each subjects subjective in-group (and in the case of Black subjects, out-group) affiliation.

HYPOTHESES

In line with the "cultural-distance" interpretation of racial group comparisons, the following predictions were made:

Hypotheses of Study-II

Hypothesis-I:

Analysis of raw IQ data scores will reveal a greater abundance of White-biased items than Black-biased items. Each racial group will evidence a specific sub-score pattern as a result of the distribution of biased items. Those sub-tests showing the highest frequency of biased items will evidence the largest discrepancies between groups.

Hypothesis-II:

There will appear no separate sub-score patterns for the two racial groups on the Level II learning/performance task (BCT).

Hypothesis-III:

Certain of the 9-social-cultural variables will show a significant difference between the two racial groups; creating specific racial PDQ sub-score patterns.

Hypothesis-IV:

Prediction of Black academic performance will be better using the PDQ as a "cultural-levelling scale" with the standardized IQ tests, using the Level-II performance measure (BCT), or using the derived IQ scales (bias manipulation), than the traditional WAIS-R, PPVT, or SAT scales (Combined, Verbal and Math).

Hypotheses of Study-IIIHypothesis-I:

Study-III's results will replicate the results of the previous study (Grubb, 1983; see Appendix D).

Hypothesis-II:

There will appear the same racial sub-score patterns on the dependent measures as seen in Study-II.

Hypothesis-III:

The PDQ-R will be more sensitive to "cultural-distance" than the original PDQ and therefore be able to reduce the difference in IQ scores of Blacks and Whites on all measures of IQ. The racial difference on the PPVT will be reduced below the level of significance (this was not the case in the previous study). Therefore, the PDQ-R will be a more effective cultural-levelling scale.

Hypothesis-IV:

The "culturally-levelled" IQs will be better predictors of academic functioning than the standardized versions for Black subjects.

Hypothesis-V:

The learning/performance measure of intelligence (BCT) will be able to predict Black academic functioning better than traditional IQ instruments.

Hypothesis-VI:

The learning/performance measure of intelligence (BCT) will be able to predict White academic functioning as well as traditional IQ instruments.

Hypothesis-VII:

The correlation of positive personality characteristics, as measured by the Gordon Personality Profile, and academic performance and IQ assessment is predicted for all subjects.

Hypothesis-VIII:

Intelligence test scores will also correlate with social adjustment to college, as measured by the Social Performance Questionnaire (SPQ).

Hypothesis-IX:

Social adjustment will correlate with college academic functioning

based on the Cultural-Distance Perspective 's assumption that increased socialization and system enculturation fosters the development of in-group behavior.

RESULTS

Study-11

Item Bias

Chi-squared tests of homogeneity (Brown & Hollander, 1977) between the Black and White racial groups were calculated for every item on the two measures of IQ: (1) the Peabody Picture Vocabulary Test (PPVT) and the (2) Wechsler Adult Intelligence Scale-Revised (WAIS-R) with one exception, noted below. Twenty items on the PPVT were found to be biased favoring the White group while only one item was determined to be biased toward the Black group (at the $p < .05$ confidence level).

Table 11 lists those items which were found to reject the null hypothesis of racial group performance equivalence on the PPVT and the level of confidence placed on the observed discrepancies. Also marked are those items whose expected cell frequencies rendered item bias interpretation unreliable (statistically). Those chi-squared computations which are marked in Table 11 as presenting "discontinuity difficulty" (items 91, 97, 98, 99, 101, 102, and 105) have cell expectancy values of 5 or less in at least one cell. Because such low frequency cells violate one of the major underlying assumptions to the use of this statistical technique when $df=1$, a corrected chi-square using Yates' correction (see McNemar, 1969; p. 262-263) was performed on each calculation.

It is also suggested that chi-squared analyses with Es between 5 and 10 (inclusive) be subjected to Yates' correction (McNemar, 1969),

TABLE 11. Crosstabulation of Race of Subject (Black vs. White) by Peabody Picture Vocabulary Test (PPVT) questions found to reject the Homogeneity Hypothesis (and Level of Significance).

PPVT Question	Bias Favoring	Raw		Discontinuity Difficulty	Corrected Chi-Square	Significance
		Chi-Square	Significance			
91	White	8.00	0.005**	Yes	5.56	0.018*
97	White	4.68	0.031*	Yes	2.44	0.118(NS)
98	White	4.68	0.031*	Yes	2.44	0.118(NS)
99	White	5.49	0.019**	Yes	4.26	0.039*
101	White	4.68	0.031*	Yes	2.44	0.118(NS)
102	White	8.00	0.005**	Yes	5.56	0.018*
105	White	4.54	0.033*	Yes	3.06	0.080(NS)
109	White	8.82	0.003**	No		
112	White	10.21	0.001**	No		
113	Black	5.21	0.023*	No		
116	White	13.54	0.000***	No		
123	White	5.47	0.019*	No		
124	White	5.49	0.019*	No		
126	White	4.04	0.045*	No		
136	White	5.86	0.016*	No		
142	White	4.45	0.035*	No	3.40	0.065(NS)
143	White	7.23	0.007**	No		
144	White	9.56	0.002**	No		
145	White	10.16	0.001**	No		
146	White	6.08	0.014*	No		
147	White	5.56	0.018**	No		

(NS) = non-significant/ $p < .05^*$ / $p < .01^{**}$ / $p < .001^{***}$

and since the majority of the crosstabulations presented in Table 11 were in this range (PPVT questions 109, 112, 116, 123, 124, 136, 142, and 145), such additional statistics were performed on those items fitting this requirement. Where a change in significance was noted because of the added computational component (PPVT item #142), the change is presented in Table 11. Minimal E values in the remaining PPVT questions (113, 126, 143, 144, 146, and 147) were all above 10 and therefore the original raw chi-squared values were accepted without further manipulation.

As can be seen from an examination of Table 11, White biased items (those correctly answered by Whites significantly more often than by Blacks) outnumbered Black biased items by 20 (questions 91, 97, 98, 99, 101, 102, 105, 109, 112, 116, 123, 124, 126, 136, 142, 143, 144, 145, 146, and 147) to 1 (question 113). Even with the removal of items not attaining significance after the utilization of Yates' correction procedure, the ratio (White to Black) remains 15:1.

Chi-square analyses were also performed on all the items of the Wechsler Adult Intelligence Scale-Revised (WAIS-R) with the exception of the Digit Symbol subtest (since this test is a measure of overall speed of performance and the total score on this sub-test is the only true indicator derivable from its measurement). Table 12 presents the results of the manipulations. As with the PPVT, for those items presenting problems of distributional normality (with at least one cell $E < 5$ or, in the cases where $n > 1$, with $O-E$ distributions that are skewed), the Yates' correctional technique was used to further analyze the crosstabulation. Five items met this criterion: Information-9,

Table 12. Crosstabulation of Race of Subject (Black vs. White) by Wechsler Adult Intelligence Scale-Revised (WAIS-R) questions found to reject the Homogeneity Hypothesis (and Level of Significance)

WAIS-R Sub-Test	Sub-Test Question	Bias Favoring	Raw Chi-Square	Signif	Distribution Difficulty	Corrected Chi-Square	Signif
Informat	9	White	5.69	0.017*	Yes	4.22	0.040*
Informat	11	White	4.17	0.041*	No	3.03	0.082(NS)
Informat	13	White	4.29	0.038*	Yes	2.98	0.085(NS)
Informat	14	White	4.18	0.041*	Yes	2.98	0.085(NS)
Informat	16	White	3.83	0.050*	No		
Informat	20	White	13.58	0.000***	No		
Informat	22	White	4.11	0.043*	No		
Pict. Comp.	19	White	4.49	0.034*	No	3.48	0.062(NS)
Digit Span	B-6	White	7.52	0.023*	No		
Pict. Arra	6	Black	7.84	0.005**	No		
Pict. Arra	7	Black	4.29	0.038*	Yes	2.98	0.085(NS)
Vocabulary	18	White	7.47	0.024*	No		
Vocabulary	21	White	6.45	0.040*	No		
Vocabulary	29	White	6.77	0.034*	No		
Block Design	6	White	15.20	0.004**	No		
Block Design	9	White	10.68	0.030*	No		
Arithmetic	12	White	6.01	0.049*	No		
Arithmetic	13	White	6.54	0.038*	No		
Object Assem	4	White	18.67	0.045*	No		
Comprehension	6	Black	13.33	0.001***	No		
Similarities	2	Black	4.32	0.038*	Yes	2.71	0.100(NS)
Similarities	10	Black	6.36	0.042*	No		
Similarities	13	White	8.05	0.018*	No		

(NS) = non-significant / $p < .05^*$ / $p < .01^{**}$ / $p < .001^{***}$

Information-13, Information-14, Picture Arrangement-7, and Similarities-2.

Those items with minimum cell frequencies between 5 and 10 and/or having less than 2 degrees of freedom associated with the original calculation (Information-11, Information-20, Picture Completion-19, and Picture Arrangement-6) were also recalculated and are presented in Table 12 if this additional computation made a difference in the level of significance (Information-11 and Picture Completion-19). The final column of Table 12 shows six of the original twenty-three biased items were found to describe non-significant racial differences after the secondary manipulations, leaving 14 White-biased (favoring Whites) items and 3 Black-biased (favoring Blacks) items (one item with a minimal cell means less than 5, Information-9, showed no change). This ratio of White-to-Black-biased items (White:Black = 4.67; 14 to 3) compares favorably to the ratio described by Wrobel (1982) and discussed in the body of this paper. Prior to the secondary manipulation the ratio equalled 3.83 (23:6), calculated in the same fashion.

Sub-Score Scatter

Calculation of racial group performance differences using t-tests was completed on each sub-test of the Standard WAIS-R (the PPVT does not have specific sub-tests). Whites significantly outperformed Blacks on three of the eleven sub-tests (Arithmetic, Block Design, and Object Assembly) while Blacks were not significantly superior to Whites on any

subtests. Table 13 and Figure 4 demonstrate the various sub-score patterns for the two racial groups and the total sample.

It can be readily seen (Figure 4) that the racial group performances follow the same proportional pattern with the exception of the Picture Arrangement (PA) and Block Design (BD) area of histogrammic representation. Both are performance measures, the part of the WAIS-R (Performance) on which two of the three White over Black significant differences (Block Design-BD and Object Assembly-OA) are found. It should also be remembered that Blacks and Whites scored equivalently on the WAIS-R Performance IQ difference, whereas there was a significant White over Black WAIS-R Verbal IQ difference, while the present results only show one Verbal sub-test displaying this significant difference (Arithmetic-A).

The seven sections of the Booklet Category Test (BCT) were subjected to t-tests comparing the means of the two ethnic groups. Just as in the above reported intellectual sub-test comparisons, the pooled variance estimate of the two samples was utilized because of the independence of group means and the assumption of variance equality. Only one statistically significant difference was noted, on the last sub-test, BCT-7. This specific sub-test is a measure of delayed recall/recognition and here Whites were better performers (made fewer errors) than Blacks ($p < .05$). No other significant differences were noted, and as described previously, the Black and White groups were recorded as having equal overall amounts of the Level-II intelligence measured by the BCT. Very little group-

Table 13

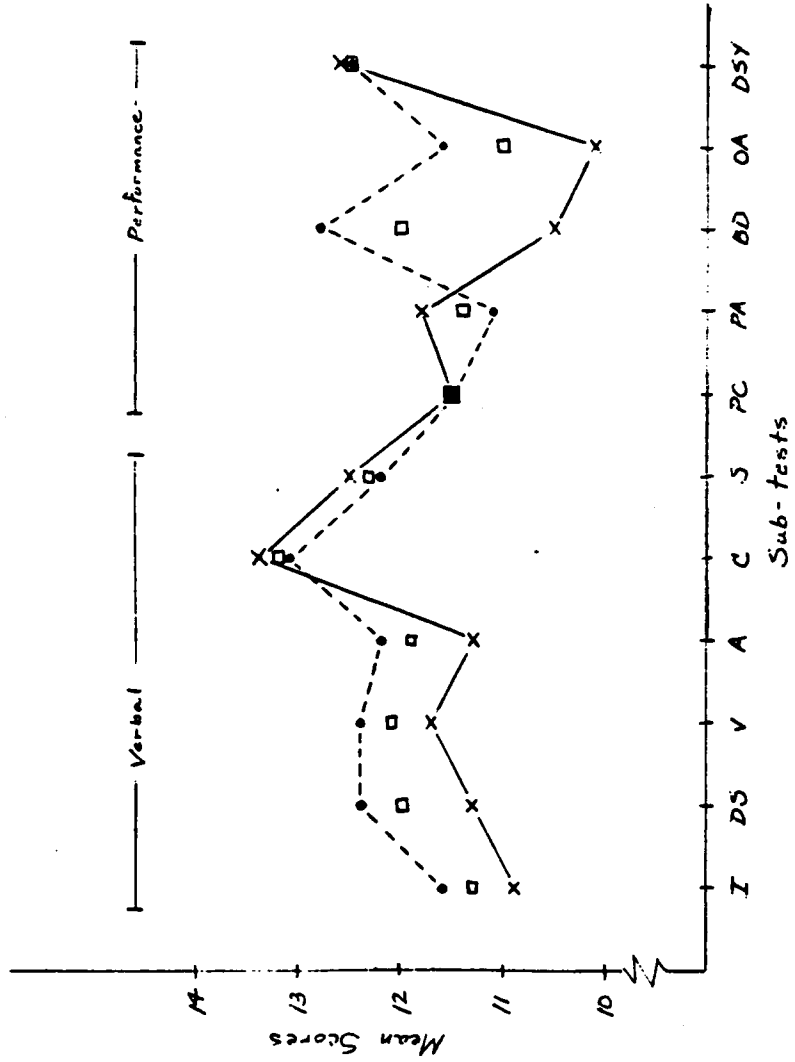
T-test Comparisons of the Black and White Groups
on the WIAS-R Sub-scales

GROUP 1 - RACES EQ 1. Black
GROUP 2 - RACES EQ 2. White

VARIABLE	NUMBER OF CASES	MEAN	POOLED VARIANCE ESTIMATE			
			T	DEGREES OF FREEDOM	2-TAIL PROB.	
I	INFORMATION					
	GROUP 1	32	10.8750	-1.40	78	0.166
	GROUP 2	48	11.6250			
DS	DIGIT SPAN					
	GROUP 1	32	11.2500			
	GROUP 2	48	12.4375	-1.90	78	0.061
V	VOCABULARY					
	GROUP 1	32	11.6563			
	GROUP 2	48	12.3542	-1.40	78	0.164
A	ARITHMETIC					
	GROUP 1	32	11.3125			
	GROUP 2	48	12.2292	-2.07	78	0.042*
C	COMPREHENSION					
	GROUP 1	32	13.3750			
	GROUP 2	48	13.0833	0.45	78	0.652
S	SIMILARITIES					
	GROUP 1	32	12.5000			
	GROUP 2	48	12.2083	0.54	78	0.592
PC	PICTURE COMPLETION					
	GROUP 1	32	11.4688			
	GROUP 2	48	11.5417	-0.14	78	0.886
PA	PICTURE ARRANGEMENT					
	GROUP 1	32	11.8438			
	GROUP 2	48	11.1042	1.39	78	0.170
BD	BLOCK DESIGN					
	GROUP 1	32	10.7813			
	GROUP 2	48	12.8125	-3.54	78	0.001***
OA	OBJECT ASSEMBLY					
	GROUP 1	32	10.0625			
	GROUP 2	48	11.5833	-2.27	78	0.026*
DSY	DIGIT SYMBOL					
	GROUP 1	32	12.5625			
	GROUP 2	48	12.5000	0.12	78	0.905

P < .05* / p < .01** / p < .001***

Figure 4
 Sub-score performance of the Various Groups on the WAIS-R
 (x=Black; ●=White; □=Total Sample)



specific performance scatter was observed; even on the BCT-7 the difference in means (D_m) was only 0.51 error.

Table 14 displays the groups' mean responses to the social-cultural variables surveyed by the Personal Data Questionnaire (PDQ). The White group scored significantly higher on the measures of family income ($p < .01$), combined parental educational attainment ($p < .01$), and the occupation strata of the father's vocation ($p < .05$). Further, the Black group had an average of 1.18 more siblings per family than the White group ($t = 2.73$; $p < .01$). Other differences, though statistically non-significant, can be seen in Table 14. Fathers are more apt to be absent from Black homes than White homes. Black parents are measured as less invested in formal education (Parental Attitude Toward Formal Ed) and the White subjects had a greater variety of social learning (Varied Social Experience). Dwelling conditions in the testees' home of origin and parental supervision styles in those homes also evidenced group specific patterns.

Comparisons of Academic and Aptitude Measures

Table 15 displays the group means, standard deviations, and t -value comparisons of the groups on grade point averages (QCA) and the three Scholastic Aptitude Test (SAT) indices; Verbal (SATV), Math (SATM), and Combined (SATCOMB). No sub-population differences reached the 95% confidence level.

Whites, as a group, tended to score higher on all three SAT measures as expected. Unexpectedly, the Black group mean grade point

Table 14
 T-Test Comparisons of the Black and White groups on
 the Personal Data Questionnaire Variables

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	POOLED VARIANCE ESTIMATE		
				T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.
GROUP 1 - RACES	EQ	1. BLACK				
GROUP 2 - RACES	EQ	2. WHITE				
SIBS	NUMBER OF SUBJECT'S SIBLINGS					
GROUP 1	32	3.4063	2.256	2.73	78	0.008**
GROUP 2	48	2.2292	1.601			
DADSOC	OCCUPATION LEVEL OF FATHER					
GROUP 1	32	4.3438	1.619	-2.49	78	0.015*
GROUP 2	48	5.1667	1.326			
PARED	COMBINED LEVEL OF PARENTS' EDUCATION					
GROUP 1	32	10.9375	3.331	-2.96	78	0.004**
GROUP 2	48	12.8958	2.570			
INCOME	INCOME					
GROUP 1	32	6.0000	2.896	-2.88	78	0.005**
GROUP 2	48	7.7917	2.601			
DADPRESS	YEARS OF FATHER'S PRESENCE					
GROUP 1	32	16.5000	4.000	-0.82	78	0.413
GROUP 2	48	17.1042	2.578			
DWELL	DWELLING CONDITIONS					
GROUP 1	32	10.7813	1.385	-1.82	78	0.072
GROUP 2	48	11.2917	1.110			
SUPAINT	PARENTAL SUPERVISION-INTERVENTION					
GROUP 1	32	10.1563	2.157	-1.59	78	0.117
GROUP 2	48	10.8750	1.864			
PARATTED	PARENTAL ATTITUDE TOWARD FORMAL ED					
GROUP 1	32	29.0000	9.514	-1.83	78	0.071
GROUP 2	48	33.9792	13.238			
SOCEX	VARIED SOCIAL EXPERIENCE					
GROUP 1	32	6.8750	3.367	-0.76	78	0.452
GROUP 2	48	7.5417	4.161			

p < 0.05*/ p < 0.01**/ p < 0.001***

Table 15
 T-test Comparisons of the Black and White group on the
 Academic and Aptitude Measures

GROUP 1 - RACES	EQ	NUMBER OF CASES	MEAN	STANDARD DEVIATION	T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.
GROUP 2 - RACES	EQ	VA TECH GRADE POINT AVERAGE	POINT AVERAGE				
		1. BLACK		2. WHITE		POOLED VARIANCE ESTIMATE	
VARIABLE							
QCA	GROUP 1	32	2.5984	0.677			
	GROUP 2	48	2.5769	0.681	0.14	78	0.890
SATV	SAT-VERBAL						
	GROUP 1	32	477.1875	120.710			
	GROUP 2	48	507.0208	107.721	-1.16	78	0.251
SATM	SAT-MATH						
	GROUP 1	32	550.2500	129.050			
	GROUP 2	48	582.0208	122.304	-1.11	78	0.269
SATCOMB	SAT-COMBINED						
	GROUP 1	32	1027.4375	239.771			
	GROUP 2	48	1089.4583	216.503	-1.20	78	0.233

P < .05*/ p < .01**

average was however, slightly greater than the White mean (2.5984 to 2.5769 respectively). Both groups were in the "C" range of teacher evaluated academic performance.

Prediction of Academic Performance

Accuracy of prediction of current academic functioning, as measured by the students' QCAs, was determined by means of regression equations using the standardized aptitude (SATV; SATM; SATCOMB) and intelligence tests (PPVT; WAIS-RFS; WAIS-RV; WAIS-RP), as well as the bias-manipulated IQ measures (PPVT-minus bias; PPVT-bias balanced; WAIS-RFS-minus bias; WAIS-RV-minus bias; WAIS-RP-minus bias) and the Culturally-Levelled IQs as predictor variables. In Table 16 are presented the results of these manipulations, plus the results of the Level-II learning task (BCT) regressed on QCA.

The IQ measures labelled "bias removed" in Table 16 (WAIS-RFS; WAIS-RV; WAIS-RP; PPVT) were created by equalizing all subjects' performances on each biased item. This was accomplished by the arbitrary assignment of the maximum score receivable on these questions to all testees, thereby eliminating the differential describing the groups.

The "bias balanced" PPVT in Table 16 was formed by equalizing the bias items in the same fashion as described above for the "bias removed" schedule except that pairs of items assumed to measure equivalent difficulty were retained in their originality. This method allowed for equivalence in number and difficulty of Black and White biased items. On the PPVT this entailed the retention of questions

Table 16
Results of Regression Analyses of the Sixteen Indirect
Measures of Aptitude on Current Academic Functioning (QCA)

Predictor Variable	ALL SUBJECTS			BLACK SUBJECTS			WHITE SUBJECTS		
	r ²	F	p	r ²	F	p	r ²	F	p
SATCOMB	.106	9.251	**	.232	9.080	**	.49	2.379	NS
SATV	.119	10.564	**	.314	13.703	***	.039	1.866	NS
SATM	.077	6.436	*	.138	4.813	*	.048	2.296	NS
WAIS-RFS	.020	1.578	NS	.001	0.016	NS	.057	2.763	NS
WAIS-RV	.021	1.672	NS	.012	0.363	NS	.035	1.659	NS
WAIS-RP	.013	1.010	NS	.004	0.111	NS	.056	2.717	NS
PPVT	.040	3.205	NS	.001	0.022	NS	.128	6.751	*
WAIS-RFS									
(BIAS REMOVED)	.022	1.731	NS	.000	0.008	NS	.059	2.912	NS
WAIS-RV									
(BIAS REMOVED)	.024	1.910	NS	.006	0.181	NS	.042	2.018	NS
WAIS-RP									
(BIAS REMOVED)	.010	0.826	NS	.002	0.065	NS	.046	2.239	NS
PPVT									
(BIAS REMOVED)	.050	4.127	*	.002	0.053	NS	.130	6.898	*
PPVT									
(BIAS BALANCED)	.049	4.047	*	.001	0.024	NS	.135	7.198	*
WAIS-RFS									
(CULTURALLY-LEVELLED)	.096	1.295	NS	.295	1.741	NS	.178	1.481	NS
WAIS-RV									
(C-L)	.100	1.349	NS	.292	1.721	NS	.171	1.405	NS
WAIS-RP									
(C-L)	.089	1.191	NS	.307	1.849	NS	.171	1.410	NS
PPVT									
(CULTURALLY-LEVELLED)	.104	1.418	NS	.297	1.763	NS	.220	1.930	NS
BCT	.002	0.164	NS	.000	0.000	NS	.007	0.305	NS

NS = nonsignificant / p < .05* / p < .01** / p < .001***

#112 (White biased) and #113 (Black biased) in their original state. It was impossible to balance the bias on the Wechsler scale in this fashion because of the non-equivalent locations of the sub-populations' biased items. Therefore, "biased removed" WAIS-R IQs were not constructable for this particular sample of adults. "Culturally-levelled" measures in Table 16 were formulated by regression of the standard index on the current college performance and then entering the five social-cultural variables (Grubb, 1983) previously found to be significant cultural carriers as a second step in the overall equation. These five socio-cultural variables, and their acceptance as significant socio-cultural factors was discussed in the original study (Study-I).

The five variables that appeared most often in the ... 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 socio-cultural variables appeared in three or less of the regression equations (Grubb, 1983; p. 79).

Finally it should be noted that all originally identified biased items were used in calculating the above described "manipulated" scores. The reason for such liberality has been discussed previously herein under the rubric of difficulty in bias identification (i.e., the difficulty of group item-bias identification in samples numbering less than thousands).

Table 16 shows that of the 13 IQ measures, only the standard PPVT, PPVT-bias removed, and PPVT-bias balanced indices were useful predictors of student college performance. For the total sample and White group, both the bias-manipulated scales were able to predict performance in school at the 95% level of confidence. Still, only 13% of the White group variance could be accounted for by either of these artificially created tests (slightly more than the variance accounted for by the standardized PPVT). None of the IQ measures (standard, bias-removed, or bias-balanced) were useful in the prediction of Black scholastic performance.

For the Black group of students, the SAT and its two factors were found to be adequate predictors of collegiate functioning. The verbal section of the SAT was accountable for almost 14% of the Black group's variance in grades, being significant at a p value less than 0.001. The SAT-combined ($p < .01$) and SAT-math scores ($p < .05$) were less predictive but still statistically relevant (thus making the SAT scores reliable indicators of the total sample's university academic test tapped abilities). No other reliable predictors were found.

One further analysis using constructed measures was performed. A culturally-levelled measure of the PPVT was formed using the five social-cultural variables found most influential in differentiating Black and White groups. The reasoning for this secondary analysis is described in Study-I (Grubb, 1983):

Since the five "overall" 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 measures but...(not) the White over Black difference on the PPVT IQ. ...the following...post-hoc analys(i)s (was) undertaken... (A)n analysis of covariance was performed on the PPVT using the five most heavily weighted socio-cultural variables determined by its individual regression equation: (1) father's presence; (2) varied social experience; (3) family income; (4) dwelling condition; and (5) father's occupational level. ...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 ($p. 81-82$).

Results of this specific culturally-levelled PPVT IQ when regressed on QCA are presented in Table 17. The culturally-levelled IQ performs a more accurate reading of White testee school performance ($F = 3.57$; $p < .01$) than any of the previously commented on achievement, intellectual, or performance measures (refer back to Table 16). Over a third of all the White group variance on the QCA can be accounted for by the underlying construct measured by this new adjusted reading of intelligence.

Black performance on university based testing is little correlated with this specifically created predictor however; even less so than its weak relationship with the culturally-levelled PPVT IQ based on general socio-cultural variables presented in Table 16. Still, 24% of the Black group's variance is accounted for by the use of this measure in the regression equation. It should also be noted that for the Black population the degrees of freedom were 6 and 25 compared to the White group's $df=6/41$. More on this effect of n will be presented later.

Table 17
 Results of Regression Analysis of the Best Culturally-
 Levelled PPVT IQ on Current Academic Functioning (QCA)

ALL SUBJECTS		BLACK SUBJECTS		WHITE SUBJECTS	
r ²	F	r ²	F	r ²	F
	P		P		P
.212	3.284 **	.240	1.318 NS	.343	3.57 **

NS = non-significant / p < .05* / p < .01** / p < .001***

Study-IIIReplication of Study-I

Untreated IQ and performance data. Analysis of variance (ANOVAs) were performed on each of the measures of IQ (PPVT, WAIS-RV, WAIS-RP, and WAIS-RFS) and the level-II intellectual learning task (BCT). Initially, three-way ANOVAs (race of subject X sex of subject X race of examiner) were run on each of the five dependent measures.

Table 18 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 racial main effects which were determined to have been significant at the .05 level or above.

Whites as a group outperformed the Blacks on all four dependent measures of IQ. The significance of the difference in racial means on the Wechsler scales were as follows: WAIS-R Verbal ($p < .05$); WAIS-R Performance ($p < .01$); and WAIS-R Full Scale ($p < .001$). The significance of the racial mean comparisons on the WAIS-R Performance and Full Scale IQs ($p < .01$) was greater than observed in the original study and more in line with the typical literature report. Although the WAIS-R Verbal group difference was only significant to the $p < .05$ level of significance, the actual probability value was .014 and the difference in IQ points was 5.2 (more on the significance of these differences in results of Study-I and -III will be presented in the discussion section).

Table 18

Means of Total Sample, Groups, and Level of Significance
of Main Effect of Race of Subject
(ANOVA)

SUBJECT CLASS	DEPENDENT MEASURES					
	PVT	IQ TESTS			F S	BCT
		V	P	WAIS-R		
TOTAL SAMPLE	120.08	115.23	111.58	115.45	28.42	
BLACKS	116.35***	112.58*	107.58**	111.83***	27.55 (NS)	
MALES	113.10	115.70	110.95	115.55		
FEMALES	119.60	109.45	104.85	108.10		
WHITES	123.80***	117.87*	115.25**	119.08***	29.28 (NS)	
MALES	126.15	121.25	115.65	121.55		
FEMALES	121.45	114.50	114.85	116.60		
MALES	119.63 (NS)	118.48**	113.30 (NS)	118.85**		
FEMALES	120.53 (NS)	111.98**	109.85 (NS)	112.35**		

NS (non-significant) / *p < .05 / **p < .01 / ***p < .001

All three of the WAIS-R scales indicated a significant Examiner effect on the three-way ANOVAs ($p < .01$). Table 19 contains a breakdown of group performing on the WAIS-R Full Scale by race of subject (RACES) by sex of subject (SEXS) by race of examiner (RACEX). In all the other WAIS-R scales (Verbal and Performance), the same pattern emerged; the White examiner obtained consistently higher measured performance from all subjects regardless of race or sex (this of course posed no interpretative problems for the race of subject differences). On the WAIS-R Verbal and WAIS-R Full Scale, a third main effect was evident, sex of subject. Table 19 also describes the cause of this significant sexual difference at the 99% confidence level; males outperformed females in both racial categories. No two-way nor three-way interactions were noted on the Wechsler scales.

On the PPVT, Whites also outperformed Blacks ($p < .001$) but there was a higher order effect, race of subject by sex of subject ($p < .05$), which disallowed valid interpretation of the main effect of race (especially since there is no recorded significant sexual-difference main effect.) Table 20 displays the complete results of the ANOVA with levels of significance marked. Table 21 shows a breakdown of group performance on the PPVT by race of subject by sex of subject by race of examiner. The ordering of racial/sexual groups on this measure is clearly: (1) White males ($\bar{x} = 126.15$); (2) White females ($\bar{x} = 121.45$); (3) Black females ($\bar{x} = 119.60$); and (4) Black males ($\bar{x} = 113.10$). It is also obvious from Table 21 that nearly all of the racial group differences on the Peabody is accounted for by male differences. The mean differences between White and Black males equals 13.05 IQ points

Table 19

Description of Subpopulations

Criterion variable broken down by	WAISRFS RACES	WAIS-R FULL SCALE RACE OF SUBJECT	Sum	Mean	Std dev	Variance	N
by SEXS		SEX OF SUBJECT					
by RACEX	Code*	RACE OF EXAMINER	Value Label				
Variable							
For entire population			9236.0000	115.4500	11.3694	129.2633	(90)
RACES	1	Black	4473.0000	111.8250	10.9190	119.2250	(40)
SEXS	1	Black	2311.0000	115.5500	10.5555	111.4184	(20)
RACEX	1	Black	1099.0000	109.9000	10.1374	102.7667	(10)
RACEX	2	White	1212.0000	111.1000	7.8429	61.5111	(10)
SEXS	2	White	2162.0000	108.1000	10.2027	104.0947	(20)
RACEX	1	Black	1033.0000	103.3000	6.4472	41.5667	(10)
RACEX	2	White	1129.0000	112.9000	11.2689	126.9889	(10)
RACES	2	White	4763.0000	119.0750	10.7546	115.6609	(40)
SEXS	1	Black	2431.0000	121.5500	7.1117	50.5763	(20)
RACEX	1	Black	1174.0000	117.4000	6.9793	48.7111	(10)
RACEX	2	White	1257.0000	125.7000	4.4485	19.7889	(10)
SEXS	2	White	2332.0000	116.6000	13.1885	173.9368	(20)
RACEX	1	Black	1077.0000	107.7000	10.6776	114.0111	(10)
RACEX	2	White	1255.0000	125.5000	8.7845	77.1667	(10)

Total cases = 80 *(Code: 1 = Black; 2 = White)

Table 20.

Analysis of Variance

PPVT Peabody Picture Vocabulary Test					
by RACEX Race of Examiner					
RACES Race of Subject					
SEXS Sex of Subject					
Source of variation	SS	df	MS	F	P
Main effects	1422.700	3	474.233	4.937	0.004
RACEX	296.450	1	296.450	3.086	0.083
RACES	1110.050	1	1110.050	11.557	0.001***
SEXS	16.200	1	16.200	0.169	0.683
2-way interactions	757.450	3	252.583	2.629	0.057
RACEX RACES	130.050	1	130.050	1.354	0.248
RACEX SEXS	0.200	1	0.200	0.002	0.964
RACES SEXS	627.200	1	627.200	6.530	0.013*
3-way interactions	9.800	1	9.800	0.102	0.750
RACEX RACES SEXS	9.800	1	9.800	0.102	0.750
Explained	2189.950	7	312.850	3.257	0.005
Residual	6915.600	72	96.050		
Total	9105.550	79	115.260		

$p < .05^*$ / $p < .01^{**}$ / $p < .001^{***}$

Table 21

Description of Subpopulations

Criterion variable broken down by by by	PPVT RACES SEXS RACEX	Code Value Label	Sum	Mean	Std Dev	Variance	N
For entire population			9606.0000	120.750	10.7359	115.2601	(80)
RACES							
SEXS							
RACEX							
RACEX							
		1 Black	4654.0000	116.3500	10.6592	113.6179	(40)
		1 Black	2262.0000	113.1000	10.6470	113.3579	(20)
		1 Black	1102.0000	110.2000	10.4966	110.1778	(10)
		2 White	1160.0000	116.0000	10.5093	110.4444	(10)
SEXS							
RACEX							
RACEX							
		2 White	2392.0000	119.6000	9.8803	97.6211	(20)
		1 Black	1161.0000	116.1000	11.4935	132.1000	(10)
		2 White	1231.0000	123.1000	6.8386	46.7667	(10)
RACES							
SEXS							
RACEX							
RACEX							
		2 White	4952.0000	123.8000	9.5601	91.3949	(40)
		1 Black	2523.0000	126.1500	8.5118	72.4500	(20)
		1 Black	1251.0000	125.1000	8.9499	80.1000	(10)
		2 White	1272.0000	127.2000	8.3905	70.4000	(10)
SEXS							
RACEX							
RACEX							
		2 White	2429.0000	121.4500	10.1747	103.5237	(20)
		1 Black	1212.0000	121.2000	10.0200	100.4000	(10)
		2 White	1217.0000	121.7000	10.8633	118.0111	(10)
Total cases = 80							

(1 standard-deviation) while the difference between Black and White females equals 1.85 IQ points (chance level). No other significant main effects or interactions were noted. A separate t-test of racial differences on the PPVT, run as part of other analyses to be described later did confirm a significant racial group difference ($p < .01$), but it is apparent that the difference is a racial/sexual one in this sample of subjects (unlike the clear main effect of race uncovered in the original study - Study I).

Subjects of both races and sexes scored equivalently on the one learning/performance test retained in this study, the Booklet Category Test (BCT). No main effects reached a level of significance, nor were there any significant higher order interactions. Blacks scored fewer errors ($\bar{x}=27.55$) than Whites ($\bar{x}=29.28$) on this measure of Level-II learning ability but the p value of the difference was less than chance (.657).

Regression of the socio-cultural variables. Regression equations were run on the five intelligence and performance measures (as in Study-I), using the twenty-two new socio-cultural variables, a bi-cultural score, and a Cultural-Distance index (total score) derived from the PDQ-R (see Appendix H, the formula for calculating the twenty-four variables is included at the end of the PDQ-R). 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; parental level of education, religiosity, friendship patterns, varied social exposure, and emotional vitality; (2) WAIS-RV; religiosity, parental level of education,

resilience/revitalization, emotional vitality, and father's presence in the home; (3) WAIS-RP; family make-up, Cultural-Distance index, shared participatory space, father/father-substitute presence in the home, and father presence in the home; (4) WAIS-R FS; religiosity, family make-up, friendship patterns, parental level of education, and shared participatory space; (5) BCT; time perspective, parental supervision/intervention in child's life, Cultural-Distance index, number of siblings, and father/father-substitute presence in the home (see Table 22).

The five variables that appeared most often in the above described regression equations were selected to be used in analyses of covariance of the five dependent performance measures. The number of variables entered into the analyses of covariance was limited to five in order to allow for 15 subjects per variable (a conservative statistical manipulation). The six variables (two variables tied for fifth place) occupying the five most numerous appearances were (with number of appearances in the five regression equations given in parentheses): emotional vitality (4); religiosity (3); father's presence in the home (3); parental educational level (3); friendship patterns (2); and shared space (2). The other socio-cultural variables appeared in one or none of the regression equations.

When the original analyses of variance were rerun, this time as analyses of covariance, partialling out the effects of the five most heavily weighted socio-cultural factors (the fifth variable was chosen for each ANCOVA based on its appearance in the previously obtained regression analyses of the dependent measures) from the race and sex

Table 22

The Five Socio-Cultural Variables Weighing Most Heavily
in the Regression Equations of Each
Dependent Measures (All Subjects)

	PPVT	WAIS-R VERBAL	WAIS-R PERFORMANCE	WAIS-R FULL SCALE	BCT
Variable No.					
1	Parental Education	Religiosity	Family Make-up	Religiosity	Time Perspective
2	Religiosity	Parental Education	Cultural-Distance	Family Make-up	Supervision/ Intervention
3	Friendship Patterns	Resilience/ Revitalization	Shared Space	Friendship Patterns	Cultural-Distance
4	Varied Soc. Ex.	Emotional Vitality	Father-sub Presence	Parental Education	Siblings
5	Emotional Vitality	Father's Presence	Father's Presence	Shared Space	Father-sub Presence

coefficients, the significant difference between the racial groups was found to be non-reliable on the WAIS-R Verbal Scale (Table 23). The main effect of examiner (since there was only one examiner of each race, the effect may have been individually based rather than racial) and sex of subject remained unchanged from the original ANCOVA (see previous section for discussion of the cause of these differences).

The ANCOVA investigation of the WAIS-RP and WAIS-R Full Scale measures did not reduce the group responding differences to below significance levels. Table 24 displays the levels of significance between the two racial groups prior to and after "culturally-levelling" the various intellectual/performance measures. The p value associated with the Black-White difference on the WAIS-R Performance scale was basically unchanged before and after covarying out the effect of the five most heavily weighted socio-cultural variables (p=.002 before; p=.004 after). The holding constant of the same socio-cultural variables across race on the WAIS-R Full Scale did reduce the level of significance from the 99.9% level of confidence (p=.000) to the 95% level after manipulation (p=.019), but most of the variance remained unaccounted for still.

Using the t-test data on the racial performance difference as a baseline, analyses of covariance was run on the PPVT to: (1) determine if the racial difference could be accounted for through cultural-distance and (2) determine if the race of subject x sex of subject effect could in like manner be explained. Results of such statistical manipulation proved useless. The race of subject by sex of subject statistical difference remained (p<.05) as well as the

Table 23
Analysis of Variance

Source of variation	Sum of Squares	df	Mean Square	F	Signif of F
<hr/>					
WAI SRV					
by RACEX					
RACES					
SEXS					
with EMOT	Emotional Vitality				
RELIG	Religiosity				
DADPRES	Father's Presence				
PARED	Parental Education				
SPACE	Shared Space				
<hr/>					
Covariates	2830.386	5	566.077	8.263	0.000
EMOT	233.595	1	233.595	3.410	0.069
RELIG	1183.356	1	1183.356	17.274	0.000
DADPRES	175.723	1	175.723	2.565	0.114
PARED	719.919	1	719.919	10.509	0.002
SPACE	59.005	1	59.005	0.861	0.357
Main effects	1744.339	3	581.446	8.488	0.000
RACEX	1051.814	1	1051.814	15.354	0.000**
RACES	42.897	1	42.897	0.626	0.432
SEXS	557.922	1	557.922	8.144	0.006**
2-way interactions	189.009	3	63.003	0.920	0.436
RACEX RACES	138.351	1	138.351	2.020	0.160
RACEX SEXS	1.764	1	1.764	0.026	0.873
RACES SEXS	51.176	1	51.176	0.747	0.390
3-way interactions	150.395	1	150.395	2.195	0.143
RACEX RACES SEXS	150.395	1	150.395	2.195	0.143
Explained	4914.129	12	409.511	5.978	0.000
Residual	4589.820	67	68.505		
Total	9503.950	79	120.303		

p < .05* / p < .01** / p < .001***

Table 24

Level of Significance Between the Two Racial Groups as Determined by
 Analysis of Variance (White over Black), with Certain Socio-
 Cultural and Environmental Variables Held Constant

Dependent Measure	Original IQs	Culturally- Levelled IQs	Culturally-Levelled IQs with Adjustment for Years in College
PPVT	F = 11.557 *** ----- t = -.3.29 **	F = 5.784*	F = 2.071 (NS)
WAIS-RV	F = 6.381*	F = 0.626 (NS)	-----
WAIS-RP	F = 10.803**	F = 9.371**	F = 3.165 (NS)
WAIS-RFS	F = 14.194***	F = 6.443**	F = 3.015 (NS)
BCT	F = 0.222 (NS)	-----	-----

(NS) = non-significant / p < .05* / p < .01** / p < .001***

uninterpretable subject racial group main effect (although at a reduced confidence level, $p < .05$).

At this point it seemed as if the results of Study-III were dissimilar from those of Study I. A review of the methodologies of the two studies could produce only three differences, and two of those were planned in advance. One, the number of investigators was reduced from four (2 Black and 2 White) to two (1 Black and 1 White) because no tester-testee racial interactional effects were noted in the original study. This also proved to be the case in the present study so this possible source of confounding was eliminated. Secondly, the number of Black and White subjects was different in the two studies: in Study-I there were 48 White (24 males, 24 females) and 32 Black (16 males, 16 females) subjects, while Study-III enlisted 40 White (20 males, 20 females) and 40 Black (20 males, 20 females) subjects. Theoretically this was a design improvement and would not, per se, change the outcome.

One aspect of the equalization of racial numbers did however have an unforeseen effect on the outcome performance measures: length of time in college. All but a very few of the subjects in the original study were recruited from "Introduction to Psychology" classes as part of the general "subject pool" of the university. Because of this technique, fewer Black than White subjects were obtained and nearly all the students were freshmen (Black and White). In Study-III more assertive recruitment of Black subjects was undertaken, specifically to increase the number of minority subjects and equalize the size of the samples; which was done. Blacks were actively recruited from upper level undergraduate courses (i.e., a Senior Seminar on Black

Psychology, Motivation of Behavior, Psychology of Learning, and other courses) and included in the study, whereas most of the White subjects were again freshmen enrolled in "Introduction to Psychology" sections.

T-test analyses were run on all the subject variables collected and two related demographic variables indicated the groups to be non-equivalent. The class standing and the years in college differentiated Blacks from Whites, as indicated in Table 25, to the $p < .01$ level. Blacks were reliably more likely to have been upperclassmen at the time of testing than their White counterparts. When the effect of years in college was statistically held constant, as had been done in the earlier study through selection methods, the racial differences on all assessment devices were now reduced to non-significance through the process of cultural-levelling (refer back to Table 24). No higher order effects were noted in the new ANCOVAs. Thus, by removing differences in years in college (class standing) between the two sub-groups, the 5 socio-cultural variables listed above were able to account for the racial-groups' IQ performance differences.

Replication of Study-II

Sub-score scatter on the WAIS-R. Calculation of racial group performance differences using t-tests was completed on each sub-test of the standard WAIS-R. Whites significantly outperformed Blacks on two of the eleven sub-tests (Block Design and Object Assembly) while Blacks were not significantly superior to Whites on any subtests. Table 26 and Figure 5 demonstrate the various sub-score patterns for the two racial groups and the total sample.

Table 25

**T-test Differences Between the Black and White
Subjects on Demographic Variables**

Variable	Means	Pooled Variance Estimate		
		T-value	Degrees of Freedom	2-tail Probability
Class Standing				
Blacks	2.550	2.71	78	.008**
Whites	1.925			
Years in College				
Blacks	2.650	3.22	78	.002**
Whites	1.850			

p < .001**

Table 26

T-test Comparisons of the Black and White groups on
the WAIS-R Sub-scales

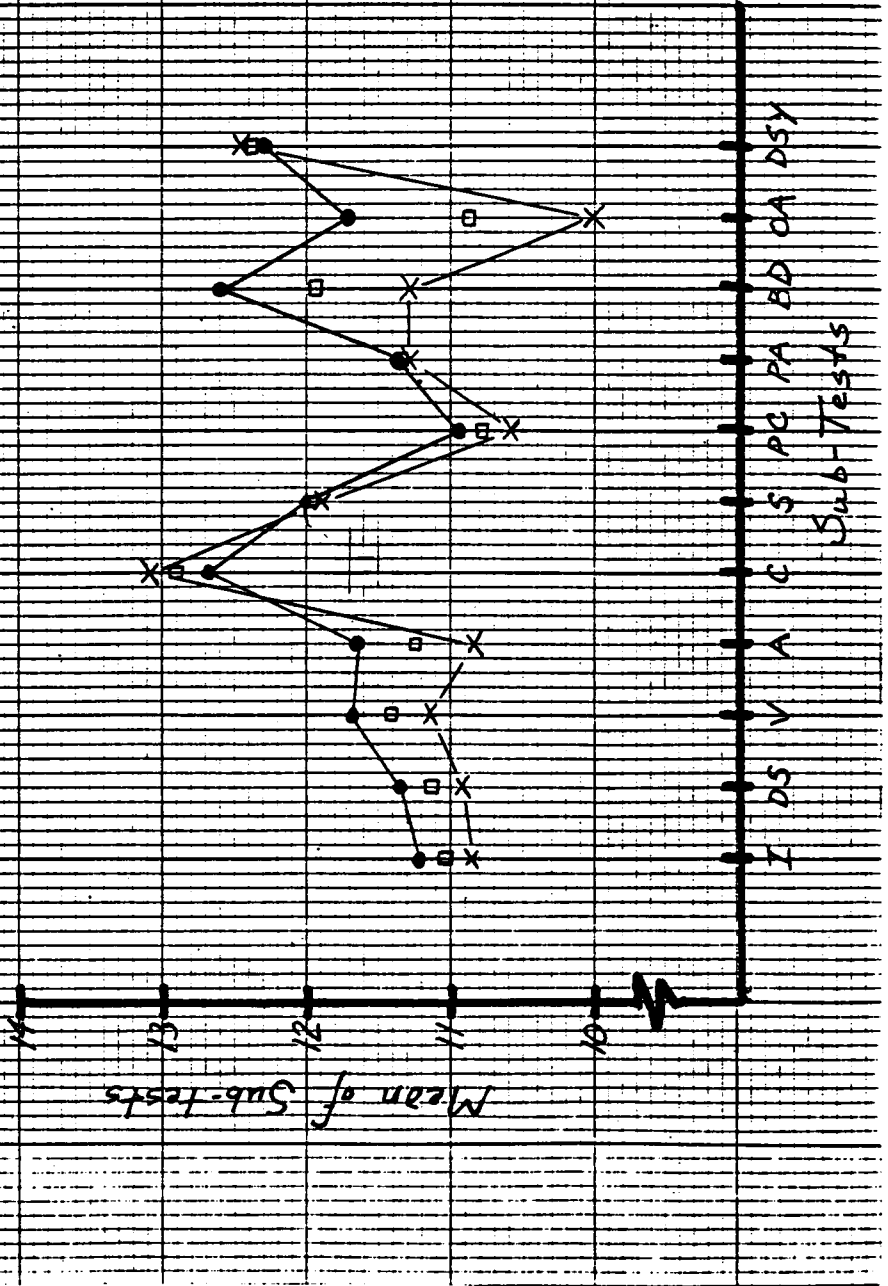
GROUP 1 - RACES EQ 1. Black
GROUP 2 - RACES EQ 2. White

Variable		N	Mean	Standard Deviation	Standard Error	T Value	df	2-tail Prob.																																																																																																																																								
I	GROUP 1	40	10.8500	1.955	0.309	-0.85	78	.397																																																																																																																																								
	GROUP 2	40	11.2250	1.981	0.313				DS	GROUP 1	40	10.9250	2.336	0.369	-0.80	78	.428	GROUP 2	40	11.3500	2.434	0.385	V	GROUP 1	40	11.1250	2.028	0.321	-1.18	78	.250	GROUP 2	40	11.6750	2.212	0.350	A	GROUP 1	40	10.8250	1.866	0.295	-1.92	78	.059	GROUP 2	40	11.6500	1.981	0.313	C	GROUP 1	40	13.0750	2.390	0.378	0.74	78	.461	GROUP 2	40	12.7000	2.127	0.336	S	GROUP 1	40	11.8750	2.198	0.347	-0.26	78	.797	GROUP 2	40	12.0000	2.136	0.338	PC	GROUP 1	40	10.5750	2.308	0.365	-0.78	78	.436	GROUP 2	40	10.9500	1.961	0.310	PA	GROUP 1	40	11.2750	2.460	0.389	-0.15	78	.879	GROUP 2	40	11.3500	1.916	0.303	BD	GROUP 1	40	11.2750	2.276	0.360	-2.71	78	.008**	GROUP 2	40	12.6000	2.098	0.332	OA	GROUP 1	40	10.0000	2.651	0.419	-2.83	78	.006**	GROUP 2	40	11.7250	2.801	0.443	DSYM	GROUP 1	40	12.4500	2.521	0.399	0.27	78	.788	GROUP 2
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$\bar{p} < .05^*/ p < .01^{**}$

Figure 5.
 Sub-score Performance of the Various Groups on the WAIS-R
 (x = Black; • = White; □ = Total)

Verbal Performance



It can be readily seen (Figure 5) that the racial group performances follow the same proportional pattern with minor movement discrepancies in the Picture Arrangement (PA) area of the histogrammic representation (similar to that found in Study-II, yet less striking). A difference between the Black and White samples in Study-III from those in Study-II is that Blacks scored significantly different (White over Black) on the WAIS-R Performance measure in the present study but equivalently in the previous study, even though fewer performance sub-tests evidenced a significant group difference. Also, no WAIS-R Verbal sub-tests significantly predicted racial grouping in Study-III whereas a significant White performance superiority was noted on the Arithmetic (A) sub-test in Study-II.

Sub-test performance on the BCT and PDQ-R. The seven sections of the Booklet Category Test (BCT) were subjected to t-tests comparing the group means of the two ethnic groups. Just as in the above reported intellectual sub-test comparisons, the pooled variance estimate of the two samples was utilized because of the independence of group means and the assumption of variance equality. No statistically significant differences were noted, as described previously, the Black and White groups were recorded as having equal amounts of Level-II intelligence measured by the BCT. Very little group-specific performance scatter was observed, as would be expected.

Table 27 displays the groups' mean responses to the social-cultural variables surveyed by the Personal Data Questionnaire-Revised (PDQ-R). The White group scored significantly higher on the measures of parental educational level ($p < .05$); family income ($p < .05$); and

Table 27

T-test Comparisons of the Black and White groups
on the Personal Data Questionnaire-Revised (PDQ-R)
Variables

GROUP 1 = BLACKS

GROUP 2 = WHITES

VARIABLE		N	MEAN	STANDARD DEVIATION	POOLED VARIANCE ESTIMATE		
					T-VALUE	df	2-TAIL PROB..
SIBS	GROUP 1	40	2.6250	3.372	1.16	78	.248
	GROUP 2	40	1.9500	1.449			
HOMES	GROUP 1	40	3.8750	7.511	0.81	78	.422
	GROUP 2	40	2.8750	2.244			
FAM	GROUP 1	40	8.7000	3.646	0.74	78	.460
	GROUP 2	40	8.1250	3.275			
FRIEND	GROUP 1	40	77.6250	81.740	-0.65	78	.515
	GROUP 2	40	91.7000	108.961			
DADPR	GROUP 1	40	15.8500	5.036	-0.48	78	.632
	GROUP 2	40	16.3500	4.240			
DADSUB	GROUP 1	40	3.8250	0.446	0.59	78	.557
	GROUP 2	40	3.7500	0.670			
DADOC	GROUP 1	40	4.8000	1.363	-1.37	78	.174
	GROUP 2	40	5.2250	1.405			
MOMOC	GROUP 1	40	3.7000	1.652	0.48	78	.633
	GROUP 2	40	3.5250	1.617			
PARED	GROUP 1	40	11.4250	3.426	-2.30	78	.024*
	GROUP 2	40	13.0250	2.759			
INCOME	GROUP 1	40	7.1750	2.678	-2.03	78	.045*
	GROUP 2	40	8.4250	2.818			
DWELL	GROUP 1	40	13.3750	2.519	-2.17	78	.033*
	GROUP 2	40	14.4500	1.853			

(Table 27 continued on following page)

Table 27
(continued from previous page)

VARIABLE		N	MEAN	STANDARD DEVIATION	POOLED VARIANCE ESTIMATE T-VALUE	df	2-TAIL PROB..																																																																																																																																																								
SUPINT	GROUP 1	40	13.5750	2.510	-0.16	78	.872																																																																																																																																																								
	GROUP 2	40	13.6750	2.999				EMOT	GROUP 1	40	13.1000	2.898	0.22	78	.823	GROUP 2	40	12.9500	3.080	RELIG	GROUP 1	40	13.1500	3.378	2.84	78	.006**	GROUP 2	40	10.3500	5.236	RESIL	GROUP 1	40	9.4500	2.112	1.24	78	.219	GROUP 2	40	8.8750	2.040	PATTEO	GROUP 1	40	31.7500	8.276	-1.21	78	.231	GROUP 2	40	34.2000	9.806	WRIT	GROUP 1	40	4.1750	1.678	-0.47	78	.638	GROUP 2	40	4.3750	2.084	ORAL	GROUP 1	40	3.7250	1.921	-0.60	78	.552	GROUP 2	40	3.9750	1.819	BICULT	GROUP 1	40	6.0500	2.353	-0.63	78	.529	GROUP 2	40	6.3500	1.861	CONECT	GROUP 1	40	27.6750	5.423	1.79	78	.077	GROUP 2	40	25.2500	6.617	TIME	GROUP 1	40	5.6250	3.052	-0.66	78	.511	GROUP 2	40	6.0500	2.689	SPACE	GROUP 1	40	7.4750	2.689	0.27	78	.789	GROUP 2	40	7.3250	2.291	VARSOC	GROUP 1	40	13.2750	5.316	0.83	78	.409	GROUP 2	40	12.2750	5.449	HAND	GROUP 1	40	1.3750	0.705	0.00	78	1.000	GROUP 2	40	1.3750	0.740	CDTOT	GROUP 1	40	445.6750	87.556	0.10	78	.918
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	GROUP 2	40	443.3250	113.738																																																																																																																																																											

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

dwelling condition of the family home ($p < .05$). Further, the Black group was more religious than the White group ($t = 2.84$; $p < .01$). Other differences, though statistically non-significant, can be seen in Table 27. Black students are more likely to come from larger families (SIBS) and have closer ties with the members of their family of origin (CONNECT), while White father's of these subjects have attained higher occupational status than the fathers of the Black subjects. The ability to overcome hardships and positive out-look on life (RESIL) and parental attitude toward formal education (PATTED) also evidence group specific patterns.

Comparison of Academic and Aptitude Measures. Table 28 displays the group means, standard deviations, and t -value comparisons of the groups on the students' Virginia Polytechnic Institute and State University grade point averages (VATQCA), the three Scholastic Aptitude Test (SAT) indices (Verbal, SATV; Math, SATM; Combined SATCOMB), the students' high school grade point averages (HSQCA), and the students' high school standing (HSSTND) as a ratio of their class ranking divided by the number of graduating seniors. Whites obtained a significant group performance superiority on the three SAT tests (SATV, $p < .001$; SATM, $p < .01$; SATCOMB, $p < .05$) and received significantly better grades in college ($p < .05$), although both groups were rated by teachers as doing "C" level work (Blacks, 2.24; Whites, 2.54). Blacks and Whites received equivalent grades in high school (HSQCA) (Blacks, 3.26; Whites, 3.34), both groups being "B" students. The position of the subjects in their graduating classes (per unit number of classmates) was also non-significant for race, Blacks placing in the

Table 28

T-test Comparisons of the Black and White Groups on the Academic and Aptitude Measures

Group 1 = Blacks
Group 2 = Whites

Variable	N	Mean	Standard Deviation	t	df	Pooled variance estimate	2-tail prob.
<u>VATCA</u>							
GROUP 1	40	2.2422	0.531				
GROUP 2	40	2.5436	0.750	-2.07	78		.041*
<u>SATV</u>							
GROUP 1	40	450.2500	69.669				
GROUP 2	40	526.2500	88.598	-4.26	78		0.000***
<u>SATM</u>							
GROUP 1	40	519.0000	82.704				
GROUP 2	40	577.2500	106.120	-2.74	78		.008**
<u>SATCOMB</u>							
GROUP 1	40	969.2500	123.130				
GROUP 2	40	1103.5000	168.288	-4.07	78		0.000***
<u>HSOCA</u>							
GROUP 1	40	3.2600	0.496				
GROUP 2	40	3.3343	0.424	-0.72	78		.474
<u>HSSTND</u>							
GROUP 1	40	16.8000	12.445				
GROUP 2	40	17.3250	16.912	-0.16	78		.875

p < .05* / p < .01** / p < .001***

16.8 percentile of their respective classes and Whites placing in the 17.4 percentile (unreversed percentiles; i.e., percentiles from the top).

Prediction of academic performance. Accuracy of prediction of current academic functioning, as measured by the students' college QCAs, was determined by means of regression equations using the standardized aptitude (SATV; SATM; SATCOMB) and intelligence/performance measures (WAIS-RV; WAIS-RP; WAIS-R FS; BCT), as well as the Culturally-Levelled IQs as predictor variables. Other variables utilized as predictors in the same fashion were high school QCA, high school standing, and the racial identification questions (both questions (BQ and WQ) for the Black group and the White Question (WQ) for the White group). In Table 29 are presented the results of these manipulations. "Bias removed" and "bias balanced" IQs were not retained from Study-II because of these measures dismal predictive abilities and the fact (cited in the text) that item bias is an extremely elusive phenomenon, statistically. "Culturally-levelled" measures in Table 29 were formulated in the same fashion utilized in Study-II, however.

Table 29 shows that of the 8 standardized IQ/Performance measures, all but the WAIS-R Performance measure were useful predictors of student college performance. This is in disagreement with the results obtained from Study-II, where only the PPVT was statistically reliable as a predictor for that sample of undergraduates.

For the total sample in the present study, the WAIS-R Full Scale and the WAIS-R Verbal measures were able to predict performance in

Table 22

Results of Regression Analyses of the Sixteen Indirect Measures of Aptitude on Current Academic Functioning (VATQCA)

Predictor Variable	All Students			Black Subjects			White Subjects		
	r ²	F	p	r ²	F	p	r ²	F	p
SATCOMB	0.244	25.19	***	0.091	3.82	NS	0.278	14.66	***
SATV	0.172	16.18	***	0.102	4.32	*	0.146	6.51	*
SATM	0.191	18.42	***	0.033	1.28	NS	0.268	13.90	***
WAIS-RFS	0.079	6.67	*	0.022	0.85	NS	0.082	3.40	NS
WAIS-RV	0.071	7.04	**	0.052	2.09	NS	0.070	2.84	NS
WAIS-RP	0.034	2.78	NS	-----	-----	-----	0.053	2.11	NS
PPVT	0.109	9.55	**	0.058	2.36	NS	0.098	4.13	*
BCT	0.090	7.71	**	0.001	0.03	NS	0.223	10.89	**
HSQCA	0.320	36.69	***	0.237	11.81	**	0.435	29.27	***
HS STANDING	0.153	14.08	***	0.059	2.38	NS	0.221	12.08	**
WHITE QUESTION	0.008	0.63	NS	0.008	0.30	NS	0.001	0.04	NS
BLACK QUESTION	0.042	3.39	NS	0.006	0.23	NS	-----	-----	-----
WAIS-RFS	0.319	5.70	***	0.247	1.80	NS	0.407	3.78	**
WAIS-RV	0.270	4.49	***	0.408	3.79	**	0.382	3.40	**
WAIS-RP	0.141	2.00	NS	0.203	1.40	NS	0.213	1.49	NS
PPVT	0.288	4.91	***	0.190	1.29	NS	0.424	4.05	**

NS= non-significant/ p < .05*/ p < .01**/ p < .001***

Cultural-Levelled

College at the 95% and 99% levels of confidence, respectively. For both racial groups, however, none of the WAIS-R scales were useful, indicating a possible higher-order effect which would limit the interpretability of the total sample results. Of the IQ measures, only the PPVT was a valid indicator of academic functioning for the total sample ($p < .01$) and a racial sub-group (White; $p < .01$). The PPVT, like the Wechsler scales, still was unable to predict Black school performance. Finally, the standardized Level-II intelligence indicator, the BCT, was determined to have predictive validity to the 99% level of confidence with the total sample and White sub-group. Again no usefulness was seen in predicting future Black classroom behavior.

For this Black group of students, the SAT-V was found to be an adequate predictor of collegiate functioning ($p < .05$), accounting for over 17% of the Black group's variance in grades. The SAT-M and SAT-Combined scales were not found to be significantly relevant in the Black sample, but were for predicting the total sample's ($p < .001$) and White sample's ($p < .001$) level of work. The SAT-V was also reliable when applied to the total ($p < .001$) and White ($p < .05$) regression equations.

The "culturally-levelled" IQs increased predictive validity of the standardized measures in those cases where they were already valid predictors. The WAIS-R Full Scale (when "culturally-levelled") became more able to predict the performance of the total sample when compared to the standardized WAIS-R FS (change: $p < .05$; $r^2 = .08$ to $p < .001$; $r^2 = .32$). The WAIS-R Verbal (when "culturally-

levelled") also showed increased ability to account for variance in teacher-rated performance in the total sample (change: $p < .01$; $r^2 = .07$ to $p < .001$; $r^2 = .27$). Cultural-levelling of the PPVT also evidenced increased efficiency over its standardized version for the total sample of students (change: $p < .01$; $r^2 = .11$ to $p < .001$; $r^2 = .29$), and the White sample (change: $p < .05$; $r^2 = .10$ to $p < .01$; $r^2 = .42$).

A second effect that cultural-levelling (partialling out the effects of culture) had on some of the IQ measures, for some of the subject categories, was to make the instrument a reliable predictor of college test-tapped behavior where previously the standardized instrument was found to be statistically useless.

For the Black subjects, the WAIS-R Verbal IQ now became a valid predictor of college QCA ($p < .01$), accounting for almost 41% of the variance in the criterion. The White group college functioning was also validly described by the regression equation utilizing WAIS-R Verbal as a predictor ($p < .01$), with an equivalent amount of variance accounted for (38%) now. The WAIS-R Full Scale also was able to predict White college performance after being culturally-levelled ($p < .01$; $r^2 = .41$); something the standardized WAIS-R FS was unable to do.

Regression equations were also calculated to determine how well group identification could predict school success. Neither the question assessing identification with the "White middle-class American value system" (White Question - WQ) nor the question measuring strength

of identity with "the Black-American sub-culture" (Black Question -BQ) (see Appendix M) showed any correlation to academic functioning in the total or Black subject pools. The single question administered to the White students (WQ) was also found to be a non-significant predictor of college behavior.

Besides the standardized SAT-V and culturally-levelled version of the WAIS-R Verbal (already described), only the student's high school grade point average (HSQCA) was a reliable predictor of college grade point average for all three student groupings (total, $p < .001$; Black, $p < .01$; White, $p < .001$). The relative high school graduating position of the students (HS STANDING) was unable to predict future Black school performance, but did significantly account for much of the future White ($p < .01$) and total sample ($p < .001$) variability on college tests and other teacher evaluated projects. No other reliable predictors were found.

Personality Characteristics and Measured Intelligence

Pearson partial correlational analyses were performed comparing the five indices of personality assessed by the Gordon Personal Profile (GPP) (1-Ascendancy, GPPA; 2-Responsibility, GPPR; 3-Emotional Stability, GPPE; 4-Sociability, GPPS; and 5-Self-Esteem GPPSE), and the measures of intellectual (PPVT, WAIS-RV, WAIS-RP, WAIS-R FS, BCT) and academic (VATQCA, SATV, SATM, SATCOMB, HSQCA, HSSTND) functioning.

Tables 30 and 31 present the results of these analyses for the TOTAL subject group. For the PPVT, two GPP scales correlated to a significant degree with this measure of verbal intelligence; Emotional

Table 30
 Relationship of Personality Variables to IQ
 PEARSON CORRELATION COEFFICIENTS
 (TOTAL SAMPLE)

	GPPA	GPPR	GPPE	GPPS	GPPSE
PPVT	-0.1319 (80) P= .122	-0.0029 (80) P= .490	0.2271 (80) P=.021*	-0.2077 (80) P= .032*	-0.0161 (80) P= .444
WAISRV	-0.1777 (80) P= .057	-0.1681 (80) P= .068	0.1338 (80) P=.118	-0.1157 (80) P= .153	-0.1023 (80) P= .183
WAISRP	-0.1552 (80) P= .085	-0.2427 (80) P= .015*	-0.0488 (80) P= .334	-0.1517 (80) P= .090	-0.2537 (80) P= .012*
WAISRFS	-0.1954 (80) P= .041*	-0.2430 (80) P= .015*	0.0490 (80) P=.333	-0.1517 (80) P= .090	-0.2033 (80) P= .035*
BCT	0.1263 (80) P=.132	-0.0264 (80) P= .408	-0.1151 (80) P= .155	0.1510 (80) P=.091	0.0625 (80) P=.291

(Coefficient / (Cases) / Significance)

p < .05*/ p < .01**/ p < .001***

Table 31
 Relationship of Personality Variables to Academic Assessment
 Pearson Correlation Coefficients
 (Total Sample)

	VATQCA	SATV	SATM	SATCOMB	HSQCA	HSSTND
GPPA	-0.0884 (80) p= .218	-0.2159 (80) p= .027*	-0.2022 (80) p= .036*	-0.2418 (80) p= .015*	0.0066 (80) p= .477	-0.0131 (80) p= .454
GPPR	0.1850 (80) p= .050*	-0.1039 (80) p= .180	0.0291 (80) p= .399	-0.0388 (80) p= .366	0.0715 (80) p= .264	-0.0352 (80) p= .378
GPPE	0.2615 (80) p= .010*	0.2404 (80) p= .016*	0.2589 (80) p= .010**	0.2899 (80) p= .005**	0.2545 (80) p= .011*	-0.2139 (80) p= .028*
GPPS	-0.1356 (80) p= .115	-0.2674 (80) p= .008**	-0.2519 (80) p= .012*	-0.3002 (80) p= .003**	-0.0433 (80) p= .351	0.0105 (80) p= .463
GPPSE	0.0598 (80) p= .299	-0.0992 (80) p= .191	-0.0770 (80) p= .249	-0.1013 (80) p= .186	0.1098 (80) p= .166	-0.1042 (80) p= .179

(Coefficient / (Cases) / Significance)

p < .05* / p < .01** / p < .001***

Stability (positively, $p < .05$) and Sociability (negatively, $p < .05$). Two personality scales also correlated (negatively) significantly with the WAIS-RP (Responsibility, $p < .05$; Self-Esteem, $p < .05$). Finally, for the Total sample of subjects, Ascendancy, Responsibility, and Self-Esteem were negatively related to performance on the WAIS-R Full Scale ($p < .05$).

In Table 31, it can be readily seen that for the entire 80-subject testee population Emotional Stability correlates positively to all measures of teacher assessed skills (VATQCA, $p < .01$; and HSQCA, $p < .05$) plus the SAT triad (V, P, Combined; $p < .05$ or $.01$). Only a significant negative relationship between GPPE and high school standing (HSSTND) is witnessed ($p < .05$), which because of non-reversal of high school standing percentile scores is actually a positive relationship. Other significant correlations in this table are overwhelmingly negative: GPPA and SATV ($p < .05$); GPPA and SATM ($p < .05$); GPPA and SATCOMB ($p < .05$); GPPS and SATV ($p < .01$); GPPS and SATM ($p < .05$); GPPS and SATCOMB ($p < .01$). Only the remaining significant relationship between GPPR and VATQCA was found to be positive ($p < .05$).

In Tables 32 and 33 are presented the equivalent analyses performed on the Black subject sample. In Table 32 all mathematically relevant relationships are negative. A significant relationship can be seen to exist between the GPP construct of Responsibility (R) and all three WAIS-R scales (V, $p < .05$; P, $p < .05$; FS, $p < .01$). The only other relationship to reach significance in Table 31 is between Self-Esteem (GPASE) and the WAIS-R Performance IQ ($p < .05$). In Table 33, Black subjects' high school standing (HHSTND) positively correlates

Table 32
 Relationship of Personality Variables to IQ
 Pearson Correlation Coefficients
 (Black Subjects)

	GPPA	GPPR	GPPE	GPPS	GPPSE
PPVT	-0.0547 (40) p= .369	-0.1751 (40) p= .140	0.0182 (40) p= .456	0.0335 (40) p= .419	0.0133 (40) p= .467
WAISRV	-0.1908 (40) p= .119	-0.2833 (40) p= .038*	0.0489 (40) p= .382	0.0029 (40) p= .493	-0.0649 (40) p= .345
WAISRP	-0.2246 (40) p= .082	-0.3493 (40) p= .014*	0.0441 (40) p= .393	-0.1836 (40) p= .128	-0.3192 (40) p= .022*
WAISRFS	-0.2451 (40) p= .064	-0.3845 (40) p= .007**	0.0265 (40) (p= .436	-0.1080 (40) p= .254	-0.2356 (40) p= .072
BCT	0.1792 (40) p= .134	0.1018 (40) p= .266	0.1180 (40) p= .234	0.1713 (40) p= .145	0.2191 (40) p= .087

(Coefficient / (Cases) / Significance)

p < .05* / p < .01** / p < .001***

Table 33
 Relationship of Personality Variables to Academic Assessment
 Pearson Correlation Coefficients
 (Black Sample)

	VATQCA	SATV	SATM	SATCOMB	HSQCA	HSSTND
CPPA	-0.1986 (40) p= .110	-0.1262 (40) p= .219	-0.1441 (40) p= .188	-0.1682 (40) p= .150	-0.0622 (40) p= .351	0.0539 (40) p= .371
GPPR	0.2001 (40) p= .108	-0.2242 (40) p= .082	0.0026 (40) p= .494	-0.1251 (40) p= .221	0.1950 (40) p= .114	-0.2700 (40) p= .046*
GPPE	0.2314 (40) p= .075	0.1178 (40) p= .235	0.2924 (40) p= .034*	0.2631 (40) p= .050*	0.2807 (40) p= .040*	-0.2764 (40) p= .042*
GPPS	-0.1683 (40) p= .150	0.0277 (40) p= .433	-0.1335 (40) p= .206	-0.0740 (40) p= .325	-0.0706 (40) p= .333	0.0458 (40) p= .390
GPPSE	0.0284 (40) p= .431	-0.0147 (40) p= .464	0.0141 (40) p= .466	0.0011 (40) p= .497	0.1299 (40) p= .212	-0.1901 (40) p= .120

(Coefficient / (Cases) / Significance)

p < .05* / p < .01** / p < .001***

with both responsibility (GPPR) ($p < .05$) and emotional stability (GPPS) ($p < .05$) as measured by the GPP. The Gordon index of Emotional Stability also positively relates to the SAT-Math and SAT-Combined scores as well as HSQCA. No other correlations were uncovered for the Black group.

For the 40 White subjects only two correlations were found between standardized IQ measures and personality characteristics measured by the GPP. Table 34 displays the two relationships. The measure of sociability (GPPS) was negatively related to the PPVT IQ ($p < .05$), while Emotional Stability (GPPE) and the same verbal IQ related in a highly significant positive manner ($p < .001$). Table 35, again displays a strong tendency for the measure of emotional stability (GPPE) to change within a group relative to the SAT scalings (SATV, $p < .01$; SATM, $p < .05$; SATCOMB, $p < .01$) and teacher ratings (VATQCA, $p < .05$). Finally, for the White sample Sociability (GPPS) is negatively related to two SAT SCORES (Verbal, $p < .05$; Combined, $p < .05$).

Intelligence and Social Adjustment to College

The Social Performance Questionnaire (SPQ) provided the means of indexing the degree of student adjustment to campus life. Sixteen measures of adjustment were derived from this schedule (see Appendix I) plus two demographic scales (Class Standing - Class; and Years in College - Years). Table 36, 37 and 38 present the degree of correlation between these 18 indices and performance on the intellectual/learning measures for the Total subject population, the

Table 34
 Relationship of Personality Variables to IQ
 Pearson Correlation Coefficients
 (White Subjects)

	GPPA	GPPR	GPPE	GPPS	GPPSE
PPVT	-0.0469 (40) p= .387	0.1843 (40) p= .127	0.4898 (40) p= .001***	-0.2925 (40) p= .034*	0.1238 (40) p= .223
WAISRV	-0.0738 (40) p= .325	-0.0663 (40) p= .342	0.2330 (40) p= .074	-0.0952 (40) p= .280	-0.0374 (40) p= .409
WAISRP	0.0254 (40) p= .438	-0.1567 (40) p= .167	-0.1121 (40) p= .246	0.0747 (40) p= .323	-0.0933 (40) p= .284
WAISRFS	-0.0310 (40) p= .425	-0.1287 (40) p= .214	0.0996 (40) p= .270	-0.0001 (40) p= .500	-0.0591 (40) p= .359
BCT	0.1277 (40) p= .216	-0.1005 (40) p= .269	-0.2355 (40) p= .072	0.1922 (40) p= .117	0.0014 (40) p= .496

(Coefficient / (Cases) / Significance)

p < .05* / p < .01** / p < .001***

Table 35
 Relationship of Personality Variables to Academic Assessment
 Pearson Correlation Coefficients
 (White Sample)

	VATQCA	SATV	SATM	SATCOMB	HSOCA	HSSTND
GPPA	0.0600 (40) p= .356	-0.1225 (40) p= .226	-0.1362 (40) p= .201	-0.1504 (40) p= .177	0.1131 (40) p= .244	-0.0460 (40) p= .389
GPPR	0.1896 (40) p= .121	-0.0284 (40) p= .431	0.0556 (40) p= .367	0.0201 (40) p= .451	-0.0622 (40) p= .352	0.1279 (40) p= .216
GPPE	0.3084 (40) p= .026*	0.4004 (40) p= .005**	0.2785 (40) p= .041*	0.3864 (40) p= .007**	0.2435 (40) p= .065	-0.1748 (40) p= .140
GPPS	0.0056 (40) p= .486	-0.3198 (40) p= .022*	-0.2187 (40) p= .088	-0.3062 (40) p= .027*	0.0488 (40) p= .382	-0.0064 (40) p= .484
GPPSE	0.1737 (40) p= .142	0.0083 (40) p= .480	-0.0279 (40) p= .432	-0.0132 (40) p= .468	0.1320 (40) p= .200	-0.0471 (40) p= .386

(Coefficient / (Cases) / Significance)

p < .05* / p < .01** / p < .001***

Table 36

Relationship of Social Adjustment Variables (SPQ) to IQ
Pearson Correlation Coefficients
(Total Population)

CLASS	YEARS	COUSL	DROP	HOURS	ACDEMEX	PROBS	DATES	TRIPMI
PPVT	-0.0105 (.80) p=.463	-0.1257 (.80) p=.133	-0.2280 (.80) p=.021*	0.2853 (.80) p=.005**	0.0020 (.80) p=.493	-0.1686 (.80) p=.067	0.0443 (.80) p=.348	-0.0074 (.80) p=.474
WAISRV	-0.1933 (.80) p=.043*	-0.2012 (.80) p=.037*	-0.2032 (.80) p=.035*	0.2118 (.80) p=.030*	-0.2302 (.80) p=.020*	0.0354 (.80) p=.377	-0.0282 (.80) p=.402	-0.1019 (.80) p=.184
WAISRP	-0.2356 (.80) p=.018*	-0.1523 (.80) p=.089	-0.1560 (.80) p=.083	-0.0336 (.80) p=.384	-0.1718 (.80) p=.064	-9.9995 (.80) p=.498	0.1987 (.80) p=.039*	-0.1355 (.80) p=.115
WAISRFS	-0.2492 (.80) p=.013*	-0.1930 (.80) p=.043**	-0.2000 (.80) p=.038*	0.1132 (.80) p=.159	-0.2394 (.80) p=.016*	0.0213 (.80) p=.426	0.0872 (.80) p=.221	-0.1255 (.80) p=.134
BCT	0.1060 (.80) p=.175	0.0366 (.80) p=.373	0.0244 (.80) p=.415	-0.1127 (.80) p=.160	0.0335 (.80) p=.384	0.0700 (.80) p=.269	0.0334 (.80) p=.384	0.0798 (.80) p=.235

(Table 36 continued on following page)

Table 36

(Continued from previous page)

	EXTRACT	PEERS	HOUSE	WORK	FIT	PAIS	ADJUST	NEWPEER	CALLMI
PPVT	0.0913 (.80) p = .210	0.0449 (.80) p = .346	-0.2009 (.80) p = .037*	-0.0552 (.80) p = .313	0.1768 (.80) p = .058	-0.1689 (.80) p = .067	-0.0131 (.80) p = .454	-0.1556 (.80) p = .084	-0.0840 (.80) p = .229
WAISRV	-0.0463 (.80) p = .342	-0.0231 (.80) p = .419	-0.0205 (.80) p = .428	-0.1767 (.80) p = .058	0.2430 (.80) p = .015*	-0.0224 (.80) p = .422	0.1579 (.80) p = .081	0.0335 (.80) p = .384	-0.0718 (.80) p = .264
WAISRP	0.0409 (.80) p = .359	0.1620 (.80) p = .076	0.0647 (.80) p = .284	0.0287 (.80) p = .400	0.1537 (.80) p = .087	0.0719 (.80) p = .263	0.1150 (.80) p = .155	0.546 (.80) p = .315	-0.0934 (.80) p = .205
WAISRFS	-0.0119 (.80) p = .458	0.0626 (.80) p = .290	0.0227 (.80) p = .421	-0.0964 (.80) p = .198	0.2357 (.80) p = .018*	0.0284 (.80) p = .401	0.1597 (.80) p = .078	0.0550 (.80) p = .314	-0.0851 (.80) p = .227
BCT	-0.0534 (.80) p = .319	-0.0578 (.80) p = .305	0.0172 (.80) p = .440	-0.0190 (.80) p = .434	-0.2879 (.80) p = .005**	-0.0674 (.80) p = .276	-0.0398 (.80) p = .363	0.0393 (.80) p = .365	0.0798 (.80) p = .241

(Coefficient / (Cases) / Significance)

p < .05* / p < .01** / p < .001***

Table 37

Relationship of Social Adjustment Variables (SPQ) to IQ
PEARSON CORRELATION COEFFICIENTS
(BLACKS)

CLASS	YEARS	COUSL	DROP	HOURS	ACDEMEX	PROBS	DATES	TRIMI	CALIMI	
PPVT	-0.0206 (.40) P=.450	-0.0449 (.40) P=.392	-0.0520 (.40) P=.375	-0.3112 (.40) P=.025*	0.2372 (.40) P=.070	-0.1475 (.40) P=.182	-0.2457 (.40) P=.063	0.1523 (.40) P=.174	0.0933 (.40) P=.283	-0.0814 (.40) P=.308
WAISRV	-0.2649 (.40) P=.049*	-0.3144 (.40) P=.024*	-0.1528 (.40) P=.173	-0.2508 (.40) P=.059	0.0954 (.40) P=.279	-0.3475 (.40) P=.014*	0.1824 (.40) P=.130	0.0852 (.40) P=.301	-0.0411 (.40) P=.401	-0.1747 (.40) P=.141
WAISRP	-0.3936 (.40) P=.006**	-0.3971 (.40) P=.016*	-0.1097 (.40) P=.348	-0.2330 (.40) P=.211	-0.2741 (.40) P=.043*	-0.3215 (.40) P=.022*	0.0246 (.40) P=.440	0.1947 (.40) P=.114	0.0941 (.40) P=.282	-0.0395 (.40) P=.404
WAISRFS	-0.3948 (.40) P=.006**	-0.3971 (.40) P=.006**	-0.1097 (.40) P=.250	-0.2330 (.40) P=.074	-0.0883 (.40) P=.294	-0.4059 (.40) P=.009**	0.1389 (.40) P=.196	0.1474 (.40) P=.182	-0.0004 (.40) P=.499	-0.1305 (.40) P=.211
BCT	0.3047 (.40) P=.028*	0.3632 (.40) P=.011*	0.0423 (.40) P=.398	0.1841 (.40) P=.128	-0.0820 (.40) P=.307	0.2420 (.40) P=.066	-0.2017 (.40) P=.106	-0.1857 (.40) P=.126	0.0053 (.40) P=.487	0.2065 (.40) P=.101

	EXTACT	PEERS	HOUSE	WORK	FFIT	PALS	ADJUST	NEWPEER
PPVT	-0.0166 (.40) P=.460	-0.0257 (.40) P=.436	-0.1206 (.40) P=.229	0.2017 (.40) P=.106	0.1651 (.40) P=.154	-0.0169 (.40) P=.459	0.0310 (.40) P=.425	-0.0453 (.40) P=.391
WAISRV	0.0284 (.40) P=.431	0.2483 (.40) P=.061	-0.1029 (.40) P=.264	-0.1270 (.40) P=.217	0.1255 (.40) P=.220	0.0913 (.40) P=.288	0.1217 (.40) P=.227	0.0225 (.40) P=.445

(Table 37 continued on following page)

Table 37
(continued from previous page)

	EXACT	PEERS	HOUSE	WORK	FIT	PALS	ADJUST	NEWPEER
WAISRP	-0.0383 (.40) P=.407	0.2060 (.40) P=.101	0.1698 (.40) P=.147	0.3063 (.40) P=.027*	0.0964 (.40) P=.277	0.3217 (.40) P=.021*	0.1423 (.40) P=.191	-0.1909 (.40) P=.119
WAISRFS	0.0204 (.40) P=.450	0.2938 (.40) P=.033*	0.0164 (.40) P=.460	0.1079 (.40) P=.254	0.1401 (.40) P=.194	0.2438 (.40) P=.065	0.1481 (.40) P=.181	-0.0835 (.40) P=.304
BCT	-0.1225 (.40) P=.226	0.0383 (.40) P=.407	-0.2669 (.40) P=.048*	-0.0967 (.40) P=.276	-0.1105 (.40) P=.249	-0.2931 (.40) P=.033*	0.0181 (.40) P=.456	0.3540 (.40) P=.013*

p < .05* / p < .01** / p < .001***

Table 38
 Relationship of Social Adjustment Variables (SPQ) to IQ
 Pearson Correlation Coefficients
 (Whites)

CLASS	YEARS	COUSL	DROP	HOURS	ACDEMEX	PROBS	DATES	TRIPMI
PPVT	0.4342 (.40) p=.003**	-0.1463 (.40) p=.184	0.0724 (.40) p=.329	0.2509 (.40) p=.059	0.4442 (.40) p=.002**	-0.0598 (.40) p=.357	-0.1995 (.40) p=.109	-0.1527 (.40) p=.173
WATSRV	0.0302 (.40) p=.0007	-0.2122 (.40) p=.094	-0.0251 (.40) p=.439	0.2459 (.40) p=.063	0.0260 (.40) p=.437	-0.0695 (.40) p=.335	-0.2191 (.40) p=.087	-0.2170 (.40) p=.089
WATSRP	0.1341 (.40) p=.0012	-0.1949 (.40) p=.094	-0.0270 (.40) p=.434	0.0671 (.40) p=.340	0.1798 (.40) p=.133	0.0163 (.40) p=.460	0.1015 (.40) p=.266	-0.3328 (.40) p=.018*
WATSRFS	0.1072 (.40) p=.0252	-0.2308 (.40) p=.114	0.0054 (.40) p=.487	0.1889 (.40) p=.122	0.1231 (.40) p=.225	-0.0463 (.40) p=.388	-0.0848 (.40) p=.301	-0.2968 (.40) p=.031*
BCT	0.0065 (.40) p=.439	0.0438 (.40) p=.076	-0.0695 (.40) p=.335	-0.1478 (.40) p=.181	-0.1164 (.40) p=.237	0.2372 (.40) p=.070	0.1180 (.40) p=.234	0.0883 (.40) p=.294
EXACT	PEERS	HOUSE	WORK	FIT	PALS	ADJUST	NEWPEER	CALMI
PPVT	-0.0159 (.40) p=.461	-0.3678 (.40) p=.010**	0.0440 (.40) p=.394	0.0164 (.40) p=.460	-0.3463 (.40) p=.014*	-0.1696 (.40) p=.148	0.2615 (.40) p=.052	-0.0989 (.40) p=.272
WATSRV	-0.1364 (.40) p=.1898	0.0081 (.40) p=.480	-0.2244 (.40) p=.082	0.2820 (.40) p=.039*	-0.1262 (.40) p=.219	0.1333 (.40) p=.206	-0.0337 (.40) p=.418	-0.0113 (.40) p=.472
WATSRP	0.0204 (.40) p=.120	-0.0683 (.40) p=.338	-0.1600 (.40) p=.162	0.0776 (.40) p=.317	-0.1763 (.40) p=.138	0.0141 (.40) p=.466	0.1924 (.40) p=.417	-0.1393 (.40) p=.196
WATSRFS	-0.0976 (.40) p=.263	-0.0214 (.40) p=.338	-0.2473 (.40) p=.062	0.2127 (.40) p=.094	0.1779 (.40) p=.136	0.0962 (.40) p=.227	0.0818 (.40) p=.308	-0.0650 (.40) p=.345

(Table 38 continued on following page)

Table 38
(Continued from previous page)

	EXACT	PEERS	HOUSE	WORK	FIT	PALS	ADJUST	NEWPEER	CALLMI
BCT	-0.0451 (40) p= .391	-0.0924 (40) p= .285	0.1554 (40) p= .169	0.0125 (40) p= .469	-0.4870 (40) p= .001***	0.0801 (40) p= .312	-0.0849 (40) p= .301	-0.1473 (40) p= .182	0.0309 (40) p= .425

(Coefficient / (Cases) / Significance)

$p < .05^*$ / $p < .01^{**}$ / $p < .001^{***}$

Black sample, and the White sample respectively. The 16 adjustment measures, with their abbreviated representations as listed in the tables (presented here in parentheses) are: (1) Counseling Center visits (COUSL); (2) number of classes dropped (DROP); (3) average number of hours carried per quarter (HOURS); (4) number of courses taken, academic exposure (ACDEMEX); (5) variety of social problems faced (PROBS); (6) dating habits/frequency (DATES); (7) number of trips home divided by miles to parents' residence (TRIPMI); (8) number of phone calls to family of origin divided by miles (CALLMI); (9) degree of involvement in extracurricular activities (EXTACT); (10) extent of peer network on campus (PEERS); (11) living situation while at college (HOUSE); (12) part-time employment (WORK); (13) subjective experience of enjoyment and comfort in college (FIT); (14) number of pre-college friends also attending Virginia Tech (PALS); (15) mean subjective rating of college adjustment for each year attended (ADJUST); and (16) new peer group formation, determined by subtracting number of home town pals from total number in present campus peer support system (NEWPEER).

The BCT correlated very little with any of the social adjustment measures. One relationship was between the BCT and the students' subjective rating of college enjoyment/comfort (FIT). For the White sample FIT was positively related to BCT mastery (negatively related to the BCT measured errors) at the 99.9%-level of confidence. The total sample measured relationship between these two variables was less ($p < .05$) because no significant relationship was described by Black performing. Black BCT measured ability did correlate negatively with new peer group formations (NEWPEER, $p < .05$) and positively with number

of pre-college friends on campus (PALS, $p < .05$) in addition to social living arrangements on campus (HOUSE, $p < .05$).

Other Black social adjustment scores correlated with one or more of the Wechsler scales or the PPVT. Number of classes dropped (DROP) was negatively associated with PPVT performance ($p < .05$), while hours per quarter (HOURS) and total hours taken (ACDEMEX) were negatively associated with various Wechsler scales (see Table 37). Also, WORK and PALS were positively correlated to Black WAIS-R Performance IQ ($p < .05$), and PEERS was related in the same fashion to WAIS-R Full Scale scoring.

Fewer significant correlations were found between the Social Performance Questionnaire indices and intellectual performance within the White sample, (Table 38). Besides the positive relationship between the demographic variables, class standing (CLASS) and years in college (YEARS), and PPVT ($p < .01$); ACDEMEX ($p < .01$), HOUSE ($p < .01$), and PALS ($p < .05$) also seem to relate to the PPVT-IQ (the second two negatively). Number of travel miles home for visitation (TRIPMI) was also negatively correlated to WAIS-RP ($p < .05$) and WAIS-R FS ($p < .05$) responding, while college FIT moved in harmony with the WAIS-R Verbal ($p < .05$).

In Table 36 are presented the correlations for the combined Black and White subjects. Measures relating to increased college involvement are positively related to intellectual performance while those tapping difficulty with collegiate integration show negative

correlations with measured IQ. The one major exception is the previously described amount of time in college (CLASS, YEARS, and ACDEMEX).

Social Adjustment and Academic Performance

Hypothesis-IX of Study-III states: "Social adjustment will correlate with college academic functioning based on the Cultural-Distance Perspective's assumption that increased socialization and system enculturation fosters the development of in-group behavior." Table 39 displays the degree of correlation between the 18 variables derived from the SPQ, for the three student groupings (all subjects, Black subjects, and White subjects), and college grade point average (Virginia Tech Academic Functioning (QCA)).

For both the Black and White samples, number of visits to the counseling center (COUSL) was negatively correlated to teacher tested scholastic achievement ($p < .05$). Both groups also agreed that increased average hours taken per quarter (HOURS) and subject assessment of personal adjustment to college (ADJUST) were factors significantly related to good academic performing (Blacks; HOURS, $p < .05$; ADJUST, $p < .05$; Whites; HOURS, $p < .01$; ADJUST, $p < .05$).

Three additional measures of social performance were significantly tied (negatively) to academic testing for the White samples. Number of classes dropped during one's university career (DROP, $p < .05$), and number of problems admitted to (PROBS) (i.e., dating, study habits, money, health, family, etc.) while in college ($p < .05$) both seem to have a negative impact of White student performance. It should be

Table 39

Pearson Correlation Coefficients of Social Performance Questionnaire
(SPQ) and College Academic Functioning (VATQCA)

Virginia Tech Academic Functioning (QCA)			
SPQ Variable	All Subjects	Black Subjects	White Subjects
CLASS	0.0029 (80) p= .490	0.2520 (40) p= .058	-0.0738 (40) p= .325
YEARS	-0.0296 (80) p= .397	0.2232 (40) p= .083	-0.1141 (40) p= .242
COUSL	-0.3480 (80) p= .001***	-0.3574 (40) p= .012*	-0.3276 (40) p= .020*
DROP	-0.3266 (80) p= .002**	-0.2482 (40) p= .061	-0.3413 (40) p= .016*
HOURS	0.3987 (80) p=0.000***	0.2797 (40) p= .040*	0.4328 (40) (p= .003**)
ACDEMEX	0.0025 (80) p= .491	0.0028 (40) p= .493	0.1094 (40) p= .251
PROBS	-0.2923 (80) p= .004**	-0.2496 (40) p= .060	-0.3149 (40) p= .024*
DATES	0.0166 (80) p= .442	0.0265 (40) p= .436	-0.0713 (40) p= .331
TRIPMI	-0.1853 (80) p= .050*	-0.0102 (40) p= .475	-0.3021 (40) p= .029*
CALLMI	-0.1629 (80) p= .074	-0.1016 (40) p= .266	-0.1960 (40) p= .113
EXTACT	-0.1062 (80) p= .174	-0.0581 (40) p= .361	-0.1701 (40) p= .147
PEERS	-0.0828 (80) p= .233	-0.1786 (40) p= .135	-0.1205 (40) p= .230

(Continued on next page)

Table 39
 (Continued from previous page)

HOUSE	0.0403 (80) p= .361	-0.1035 (40) p= .263	0.0963 (40) p= .277
WORK	-0.2106 (80) p= .030*	-0.2242 (40) p= .082	-0.2128 (40) p= .094
FIT	0.1816 (80) p= .053	0.0537 (40) p= .371	0.2109 (40) p= .096
PALS	0.0217 (80) p= .424	-0.1169 (40) p= .236	0.1465 (40) p= .184
ADJUST	0.3534 (80) p= .001***	0.3568 (40) (p= .012*	0.3205 (40) p= .022*
NEWPEER	-0.0273 (80) p= .405	-0.0114 (40) p= .472	-0.1052 (40) p= .249

(Coefficient / (Cases) / Significance)

p < .05* / p < .01** / p < .001***

noted that a like, though non-significant, trend was seen among the Black students as regards the variables DROP and PROBS in relation to QCA ($p=.6$ for both relationships). Finally, for whites the number of travel miles accumulated per quarter on trips to their parents' homes (TRIPMI) was also related to QCA in a fashion which might suggest less involvement with the family of origin fosters higher college grades ($r=-0.3021$, $p<.05$). All the above described relationships are also reflected in column 1 of Table 39, the total sample statistics. Those correlations where the Black and White sub-samples agree in statistical significance, are highly significant when the two groups are combined.

One additional significant relationship was uncovered in the total sample that did not reach significance for either of the racial groups. Working while in college (WORK) was negatively related to course grades for all subjects and all three groups presented in Table 39, but reached a reliable level of interpretability only when all 80 students were considered ($p<.05$). It should also be noted the first two variables listed, CLASS and YEARS, do not correlate with academic functioning for any of the three sub-divisions of the students, although they were both significantly related to IQ test performance (negatively) as mentioned earlier.

DISCUSSION

Study-II

It will be recalled that the purpose of this study was to determine the degree of item and sub-test bias in the various measures of IQ used in Study-I and to determine if "cultural-levelling" of those indices would positively affect predictive validity (as measured by college grade point average) for the two racial sub-groups. The discussion of the obtained results will be undertaken in the order of the originally generated hypotheses.

Hypothesis-I

The chi-squared tests of homogeneity between the Black and White racial groups on the items of the Peabody Picture Vocabulary Test (PPVT) and the Wechsler Adult Intelligence Scale-Revised (WAIS-R) (excluding Digit Symbol), found 16 items on the former and 17 items on the latter to be racially biased. Of the 16 PPVT items showing a significant racial correct response rate, all but one question were biased in favor of the White race (White-biased). In a like view, 14 of the WAIS-R items evidencing statistically reliable group performance differences were White-biased, leaving only 3 items favoring Blacks (Black-biased).

The ratio of White-to-Black-biased items for the WAIS-R was 14:3 or 4.67 (White/Black), and as noted previously, this ratio compares to previously published reports of a White-to-Black-biased item ratio

around 5.0. The White-Black item bias ratio of the PPVT was even more disproportionate at 15.0, suggesting that the PPVT is at least 3 times more culturally-biased against Blacks than the WAIS-R. This fact could help explain why the socio-cultural variables used to "level" cultural-distance in the original study (Grubb, 1983) were ineffective in completely bridging the chasm between the two races as measured by the PPVT. When one considers that the Personal Data Questionnaire (PDQ) variables were able to reduce the originally significant racial difference on the WAIS-R, with its five to one ratio of racially relevant material, to non-significance, the difficulty encountered in the PPVT can more rightly be laid upon inherent test-culture interweave than with lack of "variable-X" identification. Even so, as will be discussed below, reformulation and augmentation of the original socio-cultural variables were effective in obviating the test pattern sequelae of built-in racial-bias.

Each racial group displayed a specific sub-test pattern of WAIS-R responding (refer back to Figure 4). No significant racial group differences were uncovered in the Verbal portion of the WAIS-R, and Black sub-test performance was roughly equivalent to White sub-test scatter in this area (Verbal IQ). Only one sub-test reached the 95% level of confidence: Arithmetic, favoring Whites over Blacks.

The two racial groups differed markedly on the Performance half of the WAIS-R however. Two of the five sub-tests revealed significant racial differences (Table 13) White over Black (Block Design and Object Assembly), and the histographic representation of successive sub-test administration sequence (Figure 4) displays three cross-points in the

two racial sub-score pattern plots (between Picture Completion and Picture Arrangement; between Picture Arrangement and Block Design; and between Object Assembly and Digit Symbol). The performance section of the WAIS-R produced identifiable racial group sub-score profiles, whereas the six verbal sub-tests were poorer differentiators between the two student samples. It would seem that, relative to Whites, Blacks are slightly less able to answer specific questions involving mathematical computations without the aid of pencil and paper, as well as being reliably less apt to correctly reproduce geometric figures using bi-colored blocks or putting novel "jig-saw-like" puzzles together under time constraints. While two of the three significant White over Black sub-tests were part of the Performance IQ, only four items in all the five performance sub-tests reliably differentiated the two groups, and one of those favored Blacks (refer back to Table 12). This leaves 13 biased items in the WAIS-R Verbal. How are these facts to be explained?

For one thing, over half of the biased Verbal items are in two lengthy sub-tests, Information (4 White-biased items) and Vocabulary (3 White-biased items). Secondly, the single White-biased item in the Similarities sub-test is equalled by one Black-biased question in the same sub-test. Another Black-biased item can be found in the Comprehension section (the only biased item in that sub-test) and a single White-biased item is in like manner isolated in the Digit Span (backwards - 6). Finally, two White-biased items were identified as Arithmetic problems. Those sub-tests displaying significant racial differences were those sub-tests with a higher frequency of White-

biased items, as predicted in Hypothesis-I. One of the four questions in the Object Assembly sub-test (25% biased items) and two of the nine Block Design questions (22% biased items) were White-biased. Over 14% of the Arithmetic sub-test consisted of White-biased items (2 out of 14), causing this sub-test to show the White superior performance described above. No other sub-tests approached these levels with the exception of Vocabulary, with its 13.7 White-biased question percentage. The other WAIS-R sub-tests ranged from zero (Picture Completion) to 7% (Digit Symbol) in White-biased item content.

When examined in this fashion, a few isolated biased items seem much more ominous. When one or two questions can account for a quarter of the points received in a sub-test and result in reliable racial group responding differences, how can their continuance in such measures be justified? Surely replacement could be incorporated which did not bear the mark of favoritism, yet would discriminate equivalently between high and low functioning intellects, and in such a fashion more accurately represent the item domain (Haertel, 1985). In any event, Hypothesis-I was upheld in regards to all three of its predictions: (1) analysis of raw IQ data would reveal a greater abundance of White-biased items than Black-biased items; (2) each racial group would evidence a specific sub-score pattern as a result of the distribution of biased items; and (3) those sub-tests showing the highest frequency of biased items would describe the largest discrepancies between the groups.

Hypothesis-II

In the same fashion that the sub-tests of the WAIS-R were analyzed, the sub-sections of the Booklet Category Test (BCT) were subjected to t-tests comparing the group means of the two ethnic groups. Only one statistically significant difference was discovered. The last sub-section, BCT-7, showed a slight White over Black performance superiority (0.51 fewer mean errors). No other significant differences were noted and as previously mentioned in the text; Blacks and Whites performed equivalently on this measure (BCT) of level-II intelligence.

It should be noted that the seventh sub-section of the BCT is also the shortest, therefore a difference in group means of .5 item would have more effect than in a sub-section with twice the number of questions. By merely increasing the number of items (or rejecting those reliably identifying racial membership) sub-test differences could be eliminated (assuming mean difference remained constant). Hypothesis-II was upheld in the main: no specific racial sub-score patterns were identified even though there was a significant difference on the final sub-test of the BCT.

Hypothesis-III

For the social-cultural variables to be adequate descriptors of cultural-distance, they would of necessity be required to produce significant differences between the races on several dimensions. Therefore, it was hypothesized that "certain of the 9 social-cultural variables (would) show a significant difference between the two racial

groups; creating specific racial PDQ sub-score patterns." This was indeed the case.

T-test analyses identified Blacks as originating from families with more siblings than Whites (Blacks, 3.41; Whites, 2.23). Whites were significantly more likely to come from families where the father's occupation was more prestigious, family income was higher, and the level of education obtained by the parents was higher than the Black counterpart. Other variables in the Personal Data Questionnaire (PDQ) approached a level significance: (1) Whites came from homes equipped with better facilities for play and study and (2) White students had parents who expressed more positive attitudes toward formal education than Black students. From the above, confidence in the ability of the PDQ to measure the cultural gulf between the races is substantiated.

Hypothesis-IV

Regression analyses were performed on students' QCA using the various standardized measures of IQ (PPVT, WAIS-R Verbal, WAIS-R Performance, WAIS-R Full Scale), the college entrance exams used at the university from which the subject population was taken (SAT-Verbal, SAT-Math, SAT-Combined), and the Level-II learning task (BCT). Culturally levelled IQs were also regressed on college QCA, as well as bias-manipulated IQs (bias-removed IQ versions of the PPVT, WAIS-RV, WAIS-RP, and WAIS-RFS; a bias-balanced version of PPVT-IQ).

Only the "bias-removed" and "bias-balanced" PPVT IQs were effective predictors of college grade point average for the total 80-subject population. Besides these contrived scores, the SAT trio

(Verbal, Math, and Combined) were the only other assessment instruments showing reliable predictive validity for the total student sample.

The reason for the two sets of variables being over-all (total 80 subject sample) effective in predicting collegiate performance have different sub-group bases. The PPVT bias-manipulated scales were effective in predicting the White student QCA but less useful for describing Black student academic attainment. The standardized version of the PPVT was also effective in predicting the White group's criterion performance but less able to account for sub-group variance than the PPVT bias-removed measure or the PPVT bias-balanced measure, thus accounting for the total group non-significance of the standardized PPVT. The non-significant predictive utility of the PPVT for the Black group was unchanged by bias-manipulation. The WAIS-R IQs (standardized, bias-manipulated, and culturally-levelled) were unable to predict any of the three group's (total, Black, or White) response pattern, nor was the culturally-levelled PPVT and the "non-biased" level-II learning task (BCT).

Hypothesis-IV was therefore not upheld: (1) prediction of Black academic functioning was not better using the PDQ as a "cultural-levelling scale" with the standardized IQ tests than the traditional WAIS-R, PPVT, or SAT scales; (2) prediction of Black academic functioning was not better using the Level-II performance measure (BCT) than the traditional IQ tests or college entrance exams; and (3) prediction of Black academic functioning was not better using the derived IQ scales (bias-manipulated) than the traditional measures. In fact, the reason for the total-subject predictive validity of the SAT

triad of scores was the fact that all three of these scales reliably predicted Black school tested ability, while unable to significantly relate to the college performance of the White group. How are these unforeseen results interpreted?

One, it must be remembered that none of the original IQ scores (PPVT; WAIS-R Verbal; WAIS-R Performance; WAIS-R Full Scale) were shown to reliably predict Black academic functioning, as measured by QCA. Apparently reducing the cultural-distance between White and Black groups on these measures would not be expected to compensate for any pre-existing poor predictor-criterion relationship. For this particular sample of subjects, IQ as measured by the WAIS-R scales are insignificantly related to school performance for both Black and White subjects. Cultural-levelling nor bias-manipulation could alter these facts.

Now the PPVT did show a reliable ability to predict White school grades. Neither cultural-levelling nor bias-manipulation could render it suitable for similar predictive purposes with the Black sample. The culturally-levelled PPVT did account for almost 30% of the variance in Black QCA responding whereas the standard-version PPVT could account for only 0.1% of the variance of the criterion. In fact the culturally-levelled PPVT accounted for more Black sub-group variance than did the standard PPVT regressed on the White sub-group. A definite trend toward significance was developing but because of the small subject size of the Black population ($n = 32$) and the prohibitive F required based on degrees of freedom (6 and 25), even more variance accountability was required.

The White sub-group had a similar difficulty as regards the PPVT. The original covarying out of the five most general socio-cultural variables and the regressing of this "culturally-levelled" IQ onto the criterion measure produced a non-significant finding, yet accounted for almost twice as much White group QCA variance as did the standard index (refer back to Table 16). Sample size and required df had again been prohibitive.

In Study-I (Grubb, 1983) it was hypothesized that the PPVT, "Unlike the broad Level II intellectual abilities assessed by the WAIS-R IQ scales ... (was) tapping a singular trait that could either be biological in nature or the result of a particularly restricted set of sub-cultural factors." Study-I proceeded to demonstrate the probability of the second alternative by analyzing group differences when the PPVT's specific five high-loading PDQ socio-cultural variables were removed. In this study (II), we again used this technique, forming a culturally-levelled measure of the PPVT using the five social-cultural variables found most influential in differentiating Black and White ethnicity. When this specific culturally-levelled PPVT IQ was regressed on QCA, White group prediction was significantly increased (Table 17). This is as expected and again shows the specificity of this IQ. Black performance again was not reliably predicted for the same reasons given previously. It seems apparent that cultural-levelling increased predictive validity in those measures already possessing some degree of predictor-criterion relationship. If such is the case, what is the need for this cultural content of tests? There is no need, would be the position of the Cultural-Distance Hypothesis.

Study-II provided some empirical evidence for the benefits of bias-item removal in addition to the cultural-levelling just described. By removing all biased items from the PPVT (biased-removed PPVT) and removing all but one racially equivalent pair of biased items from the PPVT (biased-balanced PPVT), the originally non-significant Total QCA-PPVT relationship was increased to the point of reliable predictive validity. For the Black sample no change in reliability was noted and no increase in variability accounted for was evidenced. In the White sub-group, a small increase in ability to account for variance was noted although the significant relationship remained at the 95% level of confidence. The real point of this is that the non-biased PPVTs are at least as good as predictors of this White sample's college performance as the original biased PPVT. Also the mixed-raced sample is improved, suggesting that at least some Blacks could be predicted with the new measure. And if only White predictive validity is enhanced, what cause is there to retain the 20 non-functional biased items on the PPVT? As the office for Minority Education of the Educational Testing Service (ETS) has predicted (An Approach for ..., 1980):

If the test is made more fair for minorities, it is incidentally likely to become more fair for majority members, and the hoped-for closing of the majority-minority discrepancy may not occur. There will, however, be less unfairness to the minority groups, because the assessment will be more accurate to the facts, and those who are qualified are more likely to be recognized as such (p. 13).

Study-III

To refresh the reader's memory, Study-III was conducted in order to: (1) replicate the findings in Study-I and Study-II; (2) evaluate the ability of the revised PDQ to account for Cultural-Distance ; (3) investigate the relationship of personality characteristics to academic achievement and IQ assessment; (4) investigate the relationship of intelligence test scores and academic performance to college adaptation and enculturation; and, (5) determine if the IQ assessment indices, when culturally-levelled by the PDQ-R, are able to better predict college grade measured proficiency than the standardized measures. This review will follow the same format introduced in the discussion of Study-II.

Hypothesis-I

The analyses of variance (ANOVA) of the four IQ measures showed a reliable White over Black performance difference on all scales. The Peabody Picture Vocabulary Test (PPVT) had Whites scoring about 7-1/2 IQ points above Blacks. The difference between the two groups on the WAIS-R Full Scale was also extremely reliable, there being a 7-1/4 IQ point discrepancy on this measure. The difference between the racial groups was less within the Wechsler sub-scales. On the WAIS-R Verbal and Performance IQs, Whites outperformed Blacks at the 95% and 99% levels of confidence, respectively (refer back to Table 18).

The racial differences observed in Study-III therefore replicated the results found in Study-I. The present findings are even more in

line with the usually observed differences between random samples of Blacks and Whites, approaching the 1-standard deviation difference traditionally observed between the races in IQ performance. This sample of students were less self-selected since a vigorous effort was made to recruit equal numbers of Blacks and Whites for the present undertaking. It is possible that both groups were in this fashion more normalized; in addition to other extraneous variables at work to regress the current results toward the national group means. In any case, both Blacks and Whites evidenced lowered mean group responding on all the dependent measures when compared to the original study's results (with the single exception of Black BCT performance; Table 40). A second result of this more characteristic relationship of group scores is that a reliable White over Black difference on the WAIS-R Performance measure was found this time; compared to the marginally significant difference uncovered in Study-I.

The significant Black-White difference of the three-way ANOVA (race of subject x sex of subject x race of examiner) on the PPVT was rendered uninterpretable by a second-order effect, race of subject x sex of subject, which reached significance (refer back to Tables 18, 20, and 21). There was no significant main effect of sex on this measure, therefore all the racial difference was identified as being a White male over Black male advantage (13.05 IQ points). This particular sample of students proved once again how much more representative they were of the population in the literature. Here, on the PPVT, is demonstrated the racial-sexual interaction of culture and

Table 40

Comparison of the Groups' Mean Performance
on the 5 Dependent Measures used in
Both Study-I and Study-III

Subject Class	Dependent Measures				
	PPVT	IQ Tests			Learning Task BCT
		WAIS-RV	WAIS-RP	WAIS-RFS	
Blacks Study-I	117.67	114.25	109.01	114.06	28.91
Blacks Study-III	116.35	112.58	107.58	111.83	27.55
Whites Study-I	124.06	120.35	115.54	120.77	22.90
Whites Study-III	123.80	117.87	115.25	119.08	29.28
Total Study-I	121.432	117.91	113.29	118.09	25.30
Total Study-III	120.08	115.23	111.58	115.45	28.42

cross-cultural contact. This subject was discussed in the Introduction and described more fully in Study-I (Grubb, 1983):

...Black-American boys...are being taught a more distant intelligence (as measured from the supra-culture'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. ... 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 (pp. 49-50).

Many reported cases of the type presented by the PPVT racial-sexual group configuration are recorded in the archives (Arinoldo, 1981; Carter and Walsh, 1980; also see Sowell, 1977), so was not totally unexpected. With this in mind, it can safely be stated that this study replicated the results of Study-I as regards intelligence test performance.

Study-III also replicated Study-I in a second major way. Blacks and Whites scored equally well on the Booklet Category Test (BCT), according to similar three-way (race of subject by sex of subject by race of examiner) ANOVA. Further, no higher order interactions were discovered. Once again, independent evidence is presented for the equivalency of Black-White level-II intellectual functioning, suggesting inherent bias in the standardized assessment devices. Stoddard (1984) demonstrates how cultural biases can be innocently incorporated into the most "culture-free appearing" tests:

Case in point: when native Indian children are asked to draw a person, they do poorly; but they excel when asked to draw a horse. Hopi Indians score an IQ of 124 on the "draw a man" test, yet Arabs score only 60 because of their cultural belief that reproducing a picture of a

human being brings misfortune to the reproducer, and captures the spirit of the poser (p. 20).

In order to be certain of our assessment that cultural-distance was indeed at the base of the observed racial IQ differences (and absent from the non-biased level-II learning task), Study-III also attempted to replicate the removal of this group distance in a fashion similar to that done in Study-I. Analyses of covariance (ANCOVAs) were conducted on all four dependent measures using the five most frequently included socio-cultural variables in regression equations on all dependent measures. When the ANCOVA was run on the WAIS-R Verbal IQ, the previous significance of the White above Black responding difference was rendered non-significant. This change tends to support the contention that culture is at the root of the oft-observed Black-White IQ performance difference, at least on the WAIS-R Verbal.

Reanalysis of the PPVT and WAIS-R Performance and Full Scale IQs did not meet with the hypothesized results. Only when the one variable resulting from more active recruitment of Blacks (number of years attending college, or class standing) was also covaried out of the analyses of covariance (ANCOVAs), therefore holding this variable constant as was the case in Study-I, did the removal of cultural-distance also equalize test performance. Blacks and Whites, as sampled in Study-III, were determined to possess equal amounts of intelligence measured by all four IQ schedules, once cultural-distance and "time in college" were removed (see Tables 24 and 25). Thus, Study-III replicated all the results found in Study-I.

A few words should be given to the unexpected results of recruiting more Black subjects in order to have equal sub-group participation in Study-III. As has already been explained in the Results section, one of the ways Study-III was able to gain more Black subjects (40) over that of Study-I (32) was through active recruitment of Blacks in upper level classes. This was necessary because of the relatively small number of Black students at Virginia Tech compared to White students. Also, as already described, this had the unforeseen effect of increasing the difficulty of reducing the Black-White difference through cultural-levelling. The question now is why?

One study by Firestone and Brody (1975), which was aimed at determining educational quality and its relationship to school size, sociological variables, and funding issues showed that sophomores in large secondary schools performed significantly better on standardized tests than their fellow class mates. In Study-III it is therefore interesting to note that the mean of the White sub-group on the demographic variable asking for class standing was 1.925, or the Sophomore level, while the mean response of the Black sub-group was at the junior level (2.550). Might length of college attendance also affect motivational aspects of standardized IQ testing? Further investigation of this matter remains to be undertaken.

Very little on the interaction of test-taking and class standing could be found in the literature. A study by Madrayo-Peterson and Rodrigues (1976) demonstrated that Black freshmen felt less stress and reported more interpersonal satisfaction than upperclass Black students. Might there be either an "upperclass slump" affecting all

student performance or a "freshman glow" at work on Black underclass performance that is at work universally? Maybe both these little research effects were the cause of the present curious results. As in most research, new questions were raised that now await further empirical investigation.

Perhaps, the inability of the researchers to provide meaningful grade-related reinforcement for study participation (all subjects were given extra credit points regardless of IQ scores received) had a differential effect on freshmen and upperclassmen, as proposed by Kvale (1984):

An intrinsic motivation for learning at the start of school is, through grading, transformed to an extrinsic motivation, with an accompanying disinterest in the process and content of learning.

It is possible that the grading of learning creates a vicious cycle: when an originally interesting activity is graded, it may become less interesting, and then a stronger grading pressure is required to ensure further learning, which becomes still duller, requiring still more external pressure, etc. And when such a vicious cycle has been started, the common argument that grades are necessary to motivate pupils to learn, has its validity (p. 5).

As has been described herein, high school grades best predict college grades for all subjects and little difference in grade performance was noted between groups. Also, class standing/years in college did not significantly correlate with QCA as it did with IQ test performance. In all, as was stated in Study-I (Grubb, 1983) "When all the above is considered, a fairly strong case can be established for the legitimacy of the Cultural-Distance perspective."

Hypothesis-II

Hypothesis-II stated that "there (would) appear the same racial and sub-score patterns on the dependent measures as seen in Study-II." Comparing Figures 4 (Study-II) and 5 (Study-III) will quickly allow the reader to see the stable sub-score patterns of both racial groups on the WAIS-R. Even though both groups scored somewhat lower overall in Study-III than what is reported for Study-II, the same basic relationships both intra- racially and inter- racially remain.

Both Blacks and Whites scored highest on the Verbal sub-test of Comprehension (C) in Table 4 and 5, with Blacks slightly more proficient each time. The poorest Black performance was in both cases the Performance measure, Object Assembly (OA), where (again in both studies) a significant White over Black difference was found.

The most variable area of the WAIS-R performance histogram appears located on the Performance IQ and centered around the area of Picture Arrangement (PA) and Block Design (BD). The White PA sub-test performance on Study-III was less depressed relative to other White sub-test performance than in Study-II, while Black BD performance also evidenced the same change from Study-II to Study-III. Otherwise, the graphic representations are almost exact replications and it appears that specific racial-cultural profiles are being presented.

This finding is another area for continued study. It follows on work begun in the 1960s with the introduction of the "ethnic-profile hypothesis." Ruch (1984) states that this hypothesis holds that "different ethnic groups may have consistently different patterns of thought." Lesser, Fifer, and Clark (1965) looked at 320 Black, Jewish,

Puerto Rican, and Chinese children in New York City. They found specific sub-scale relative ability for each of the four groups. Jews and Blacks scored both absolutely and relatively higher in verbal abilities than Puerto Rican and Chinese (although tests were modified and given in the childrens' primary language to equalize for English proficiency). Blacks were also noted to be the lowest scoring group in math abilities, a result replicated by the present studies. Werner, Simonian, and Smith (1968) examined the intellectual profiles of 635 ten-year-old Hawaiian children (Anglo, Japanese, Filipino, Portuguese, and Native Hawaiian) on the Primary Mental Abilities test. They found White children to have high verbal and abstract reasoning skills but relatively less demonstrated spacial and numerical ability. This profile is also reproduced in our WAIS-R representations (high Verbal and Comprehension sub-test scores and low Picture Completion, Picture Arrangement, and Arithmetic sub-test scores). Movement of these racial-cultural intellectual reliances over time may tell educators a great deal about what skills are deemed important in the different American sub-cultures during different historical periods, and curriculum could possibly be developed around these culturally relevant strengths.

It should also be noted that the Booklet Category Test (BCT) was subject to sub-test analyses and as was found in Study-II, very little sub-score difference was seen between the races on this measure of level-II intelligence. Blacks and Whites thus evidenced equivalent performance profiles on this a priori assumed non-biased intellectual index. Study-III even found no reliable difference in ethnic performance on the 7th sub-test, where Study-II uncovered a slightly

significant White over Black superiority. In fact, Blacks were slightly better (non-significantly) on the BCT in Study-III (also a reversal from Study-II). Since all differences (except as noted in the one exception above) centered around zero (correlationally), no valid interpretations can be made, only interested notice taken.

Hypothesis-III

The revised Personal Data Questionnaire (PDQ-R) was able to account for the racial-ethnic differences on all the IQ scales, even the Peabody. This was an improvement over the performance of the original PDQ. This difference was accounted for with the combination of class standing and the PDQ-R socio-cultural variables in the ANCOVA comparing the racial groups. Because of this fact, the New Personal Data Questionnaire (PDQ-R) was more effective in accounting for cultural-distance than the original scale (PDQ), and therefore Study-III's third hypothesis was also upheld. This improvement of "cultural-distance" measurement moves the idea of a "cultural-levelling scale" one further jot toward becoming a viable option in culture-free testing.

Bersoff (1979) has followed the development of two pressures forcing school personnel to greater awareness of possible test bias: (1) legal proceedings challenging the disproportionate tracking of Black and other minorities into special education classes, and (2) federal mandates such as P.L. 94-142, which require among other things, an assessment of a child's adaptive behavior and cultural background. Hopefully, research in the area of cultural measurement and levelling

will reduce the likelihood of the former while increasing the reality of the latter.

Hypothesis-IV

The only standardized IQ or aptitude measure able to predict Black college grade point average (QCA) in Study-III was the Verbal section of the Scholastic Aptitude Test. With cultural-levelling the WAIS-R Verbal IQ also was able to reliably predict Black college performance, accounting for a sizeable percentage of criterion variance (41%). Hypothesis-IV was upheld in that "the 'culturally-levelled' IQs (were) better predictors of academic functioning than standardized versions for Black subjects." Although only the culturally-levelled WAIS-R Verbal IQ reached a significant level of reliability, all measures witnessed as increased F-value and criterion variance accountability through cultural-levelling (refer back to Table 29).

Hypotheses-V & VI

The predictive validity of the BCT was useless in regards to the Black subject pool but highly reliable for the White and Total samples. Hypothesis V was therefore not upheld concerning the BCT and Black college grade predictive ability but hypothesis VI, dealing with the same question related to White performance, was upheld. The BCT was a more valid an indicator of White college proficiency than any of the standardized IQ tests.

It is uncertain why the BCT was able to accurately predict White (and total group) academic level in this study when no statistically

significant results were seen in any group in Study-II. It may just be an artifact of this specific White subject sample, especially when you consider that none of the WAIS-R scales adequately described their pattern of college test responding (also replicative of Study-II). It is clear that such a non-biased measure as the BCT does not predict Black college tested abilities.

It also may be true, as Kvale (1984) alleges, that school grade measured learning is more a level-I performance than a level-II ability. Ausubel and Robinson (1969) state that rote learning (level-I intelligence) replaces deep learning (level-II intelligence) when three conditions are present: (1) learning under anxiety and with expectations of failure; (2) requirements of verbatim reproduction of learned materials; and, (3) with pressure to display knowledge on a superficial level (without need for practical application). Kvale (1984) states that the school grading system therefore furthers level-I learning. He states that:

Learning for an examination often involves anxiety, and with grading along the normal curve about half the pupils must expect to fall below average. Thus, according to these conditions, the grading system again appears to promote an inefficient rote learning (p. 6).

Kvale's theorizing has been upheld by analyses of test construction (Balch, 1964; Kirkland, 1971); experimentation contrasting demand expectations (grading) and relaxed (non-graded) conditions (Fransson, 1977; Marton & Saljo, 1976); and student surveys (Becker, Geer and Hughes, 1968). States one respondent to the Becker et al. (1968) study:

I've gone into classes where that's all you could do is memorize...memorize and memorize. And then you go in to take the final and you put it all down on the paper, everything you've memorized, and then you forget it. You walk out of the class and your mind is purged. Perfectly clean. There's nothing in it. Someone asks you the next week what you learned in class and you couldn't tell them anything, because you didn't learn anything.

It is possible that the more years of college experience of the Black group had increased the amount of reliance of level-I learning in order to progress from class to class and therefore, a level-II intellectual measure such as the BCT would not be expected to correlate with such a different strategy of criterion measured performance in this group. The results of the two studies which looked at IQ test and BCT predictive validity towards school grades (Study II & III) found conflicting results however, and therefore, this "examination amnesia" hypothesis (Kvale, 1985) requires more investigation.

One thing is apparent from Study-III, high school grades (HSQCA) predict college grades very well for both White and Black subjects (see Table 29), accounting for more Total population and sub-group variance than any other measure. Whereas the extremely reliable SAT-combined scale accounted for about 25% of the Total and White group variance, the high school graduating QCA of both groups accounted for 32% and 43% of college grade variance respectively.

For the Black group only the SAT-Verbal quotient (of the 3 SAT scores) was an effective predictor of college level work, but high school QCA was still the best non-manipulated predictor of this group's college performance, accounting for 24% of the college grade variance. Davis and Temp (1971) found that of 19 institutions of higher

education studied, SAT scores predicted White college performance to a statistically acceptable level of accuracy in 18 of the 19 colleges or universities (95% institutional hit rate). For Blacks in the same institutions, only 63% institutional accuracy was seen (12 out of 19). Further, as Williams and Mitchell's (1980) literature review shows, SAT scores are not used to determine college success but only first year scholastic performance. They cogently stress that "it would be instructive to determine what the prediction would be for the overall success in college." Might the predictive validity of the SAT-scales decline with time in college, based on the grade learning/motivational issues previously discussed. This avenue of inquiry may prove practically useful and be the basis of the Black-White cross-over effects of the SAT measures' predictive validity witnessed from Study-II to Study-III. The big question is why the supposed need for an independent measure of knowledge such as the SAT or WAIS-R, when such measures account for only between 5 and 25 percent of the variance in scholastic performance (Sternberg, 1984), and when the best possible measure (high school scholastic performance) is a constructually valid predictor, easily assessable, and empirically most descriptive?

Hypothesis-VII

Prior to beginning the present study, the author assumed that "the correlation of positive personality characteristics, as measured by the Gordon Personality Profile (GPP) and academic performance and IQ assessment (would be uncovered) for all subjects." In researching the archives for previous understanding in this area, it was early

realized that this hypothesis would not be upheld. Much information from prior work in many areas convinced this investigator that even those traits given positive valence may be contraindicative of other positively valued traits. Bowles and Cintis (1977) for example, found submissiveness and an extrinsic learning motivation to correlate positively with high school grades while creativity and independence were negatively correlated. Thus, we see two personality characteristics which are negatively valued by Western culture (submissiveness and extrinsic learning) to seemingly improve grade-tested academic performance, while two positively valued personal traits (creativity and independence) appear to hamper school ascendancy.

Study-III showed similar results. Emotional stability, as measured by the GPP, was positively correlated to high school and college QCA, the SAT triad of scholastic tests, the PPVT, and high school standing (refer back to Tables 30, 31, 32, 33, 34, and 35). Sociability and Ascendancy were found to be negatively correlated with grades and the results of the SAT measures.

As far as personality characteristics and IQ performance were determined, Self-Esteem was negatively correlated with WAIS-R scores as was the Gordon Personality Profile measure of Responsibility and the WAIS-R. Ascendancy also evidenced a negative relationship with the WAIS-R, gaining significance on the Full Scale in the total subject pool. As in the Bowles and Cintis (1977) study cited above, personality characteristics measuring independence or creativity (Self-esteem and Ascendancy) were negatively related to school performance and standardized testing while measures of conformity (Emotional

stability and Responsibility) were significantly related to test performance and/or grades.

Once again it appears that the socialization process is at work. Those subjects more socialized (conservative and conforming) to accept further socialization (school instruction) appear to report higher levels of socialization (test abilities) and are graded as possessing more culturally-valued knowledge (collegiate grade point averages). Blacks and Whites seem to be rewarded and punished in parallel fashion by the supra-culture on the development of these personality dimensions. It appears that one has to become increasingly more academically enculturated to progress through our school systems (see also Longstreet, 1978). As others have stated, education is a national culture shared by all. This seems to be very true.

But what does this scholastic enculturation do to the individual ego (which is really the manifestation of its particular sub-cultural matrix)? Well, as we see in Tables 30 through 35, self-esteem is not maximized, in fact, high self-esteem is negatively related to high academic performance. This fact reaches significant proportions in the Black subjects studied (and is reflected in the Total Sample), possibly because of the greater adjustment from sub-cultural self-esteem to supra-cultural (academic) self-esteem required of them over their White counterparts. In both cases however, self (or sub-culture, Black and White) is sacrificed to the national (or at least institutional) norm.

This readjustment would be hypothesized as being more difficult for more culturally-distant groups. This is what the present findings seem to indicate and what other investigations have uncovered.

Information provided in the review section has shown that: (1) Blacks are better predictors of Black performance; (2) Blacks progress toward a terminal doctoral degree in greater numbers if gradually moved into mainstream academia by attendance at formerly all-Black undergraduate institutions; and, (3) Mexican-Americans often display academic and job performance profiles mid-way between Blacks and Whites. Finally, a study concerning attitudes of minority students toward a large Southern university (Patterson and Sedlack, 1979) demonstrated the adjustment of cultural self to academic self. This study found that Asian-Americans and Hispanics tended to feel more comfortable in the predominantly-White academic environment and held more positive perceptions of the university and its services than did Black-Americans. From the Cultural-Distance Perspective, the farther distance of Blacks from the supra-cultural norm would have been predicted and thus the results expected; the effect on positive personality characteristics should also have been anticipated. With the above now more clearly understood, we shall focus in on social adjustment.

Hypothesis-VIII

Tables 36, 37, and 38 show the correlations between the social adjustment variables measured by the Social Performance Questionnaire (SPQ) and the intellectual and academic performance measures. For the Black sample, many significant relationships between social adjustment variables and standardized measures of IQ were negative. Besides the already discussed negative correlation between class standing/years in college, Black academic performance was negatively related to: (1)

number of classes dropped; (2) credit hours taken per quarter; and the class standing related variable - total number of academic credit hours completed. Significant positive relationships included: (1) the WAIS-R Performance IQ with part-time employment and pre-college on-going campus friendships and (2) the WAIS-R Full Scale IQ with total peer relationship on campus.

White subjects' WAIS-R Performance and Full Scale IQs were negatively related to semester miles travelled visiting their family of origin. Also subjective assessment of college fit was positively related to IQ (WAIS-V and BCT) for the White sample, while living off-campus and/or alone and pre-college friends at the university showed a negative correlation (PPVT). Less White group adjustment-IQ relationships reached a level of significance, possibly suggesting a ceiling affect at work in this group. This would be expected from a Cultural-Distance Perspective, since little normative distance would be expected between the university universe and the average White subjects' "home sub-culture" (Gordon and Tresmaine, 1980).

Table 36 is witness to the total 80-subject sample. It is clear from these results that those variables measuring increase campus involvement and enculturation are positively related to IQ achievement (number of dates per week and subjective evaluation of college fit) while those variables signifying poor college adjustment are negatively correlated with measured IQ (counseling center visits, classes dropped, and living off campus and/or along). What is more noticeable about social adjustment and IQ correlation (Tables 36, 37, and 38), is the fact that once the demographic variables (class standing, years in

college, and hours taken) are eliminated, how few significant relationships remain.

Hypothesis-IX

More significant and cross-group consistent relationships are evidenced by Table 39. Here are listed the Pearson correlational coefficients of the SPQ variables and college academic functioning (QCA). Seven relationships reached a significant level for the total subject pool. These relationships (with one exception) were also repeated in either one or both of the ethnic sub-groups, therefore, the attention of this section will be focused on the merged group (column 1, Table 39).

For this 80-subject sampling of college students, social adjustment was very clearly related to academic functioning. Number of counseling center visits, number of classes dropped, and social-adjustment problems encountered on campus were negatively correlated with QCA for all students (significantly). These are surely measures of collegiate adaptation difficulties. To underscore the validity of this interpretation we need only note that subjective assessment of ones college adjustment formed a significant and positive relationship with grades for all subjects (and all subject categories). These students were not only well aware of their college milieu enculturation but made moves to adjust their academic/social lives in order to better fit-in (notice that perceived student college match (FIT) approaches significance) in the same manner as the variable - ADJUST).

Table 39 also shows that those students more involved in out-side relationships (and thus less apt to be as fully involved in college life) performed less well grade-wise. Working had a slightly negative effect on grade point average, as did trip-miles travelled to one's family home per quarter. Both are easily recognized as either: (1) the retention of pre-college sub-cultural attachment (the family unit), and/or (2) the influence of competing sub-cultural systems for the time, attention, and behavioral (both overt and covert) control of the student (the family and the work-place).

It would appear that college life enculturation is fostered by complete and increasing involvement. Unlike the effect class standing and years in college had on IQ-test performance (lowering performance), these variables were unrelated to college grades. The conceptually related measure, number of credit hours carried per quarter (HOURS) was however, positively related to academic performance. Once again, students seemed well able to judge their own ability for university success.

Miller and Parlett (1970) have stated that good grades may not only reflect intellectual understanding, but social learning as well. They report finding a repeated relationship between such social awareness factors as efforts toward making a good impression on instructors and students social sensitivity to teacher expectations. Are these social learning descriptors anything different from the variables in our present social adjustment assessment? Probably one in the same. In fact, the original intent of the Jesuits, who introduced the grading system in Europe during the 16th century, was threefold:

(1) discipline; (2) competition; and, (3) diligence (Kvale, 1985). According to Durkheim (1977) this method of instruction had the intended twin effect of increasing inter-group competition and superficial rote learning. Today, although our espoused aims of education have changed, the original behavioral system apparently still leads to the original educational conclusions.

One final note on the matter of school-system enculturation. Neither the White nor Black identification questions held any predictive validity for school ascendancy or test-taking ability, underscoring the foreignness of our American educational system to both sub-cultures. This may be one of the most meaningful results to come out of this investigation.

Limitations

Many of the limitations of this study are the same as those listed in Study-I (Grubb, 1983). For the White subjects and a large percentage of the Black population, this study utilized self-selected college students. The high mean scores of both Black and White groups on the measures of IQ may be interpreted by some as reducing the external validity of this project, even though replication of Study-I's results would indicate fairly good validity within a large university population. Only further research on more randomly constructed samples will be able to adequately counter this argument.

The difference in sub-group selection methods may also have reduced the clear interpretability of the witnessed Black-White differences. As was clear from the material presented herein, the

active recruitment of Black students to equalize n size, resulted in the two racial groups being different in a very important fashion. Other differences created as a result of such experimenter subject-selection may not have been identified and still affected the observed outcomes.

The small sample size (N = 80) also could in like fashion be called to account for the predicted results. Future comparisons of racial groups using the conceptualizations put forth in this paper with larger samples will surely have to be conducted before its validity can truly be accepted. In addition, studies utilizing various different racial-cultural groups not included in this project are needed. Culture would be expected to account for Oriental, Hispanic, and Native-American group differences on IQ measures when these groups are contrasted one against another or the two groups in this study. The Cultural-Distance (CD) hypothesis, to be accepted as accurately measuring "cultural-distance", would be expected to account for the disparity of all sub-groups' intellectual and academic performance.

This study gives added weight to the Cultural-Distance Hypothesis' argument that factor-X can be measured and useful in accounting for racial-ethnic-cultural group differences. In developing this study some old flaws were eliminated only to have new problems arise (i.e., the equalization of sub-group numbers creating selection inequalities). What is more pertinent for the evolution of this theory is the number of new questions raised. To be viable, the CD hypothesis must answer the following questions and incorporate the resultant knowledge into its data base.

Why is the academic grade-based system of learning "foreign" to even White students (and how)?

What socio-cultural values foster easy sub-cultural to scholastic identity adaptation?

How is it that cultural-distance can account for standardized test performance, yet the equalization process bespeak little of future school performance?

Why (and how) does progress through the college system enhance grade performance (rote learning) while reducing standardized test performance (non-rewarded level-II intelligence)?

Answers to some of these questions were attempted in the Discussion section. These answers were based on the CD perspective, with corroborating research cited to enhance the arguments. Others could however propose different explanations for some of the findings.

As an example, the racial-genetic viewpoint holds that group performance differences between Blacks and Whites on standardized IQ tests are probably the result of inborn racially transmitted quantitative intellectual capacity discrepancies. The specific sub-score scatter on the WAIS-R IQ index could be interpreted in a manner suggestive of this position. Tables 13 and 26 describe the racial group differences on the eleven sub-scales for Study-II and Study-III respectively.

Whites significantly outperformed Blacks on two performance scales (Block Design and Object Assembly) in both Study-II and Study-III. The White over Black superiority in Arithmetic skills (a verbal sub-scale) was statistically significant in Study-II and showed the same trend (though not reaching the 95% level of confidence) in Study-III. Figures 4 and 5 also display the above mentioned differences but also

allows us to examine the relationship of the non-significant group sub-score patterns. Blacks can be seen to outperform (nonsignificantly) Whites in both studies on the measure of social understanding (Comprehension). This and two other sub-scales which show equivalence of supra-cultural reasoning ability (Picture Completion) and construct usage (Similarities) inter-racially could be interpreted by some as an indication of a shared culture in which Blacks and Whites are equally experienced.

Since the groups seem to hold the same "cultural" views on social relations and responsibilities (as measured by the items on the Comprehension sub-test), view behavior as meaningful temporally and moving unidirectionally (i.e., Picture Completion), and categorize the environment in similar fashion (Similarities) while Whites clearly test better on tasks which appear "non-cultural" (i.e., Block Design, Object Assembly, and Arithmetic), the above described hereditarian viewpoint is a viable option for understanding the WAIS-R sub-score patterns. In this instance, the argument put forth in this paper's hypothesis, that cultural-distance best describes any inter-group differences, looks at first glance to be severely lacking. Throughout this dissertation reference has been made to the usually observed fact that those questions differentiating intelligence intra-racially are the same items that best describe inter-group differences. From the Cultural-Distance perspective this fact can be easily explained as an artifact of the measuring instruments:

. . . 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. The tests are not responsive to what is salient to the sub-culture but absent in the major culture, however (Grubb, 1983; p.26).

Black performance on the WAIS-R reflects those areas of the national cultural experience which are required of Blacks in a predominantly White learning environment (Virginia Polytechnic Institute and State University). In such a situation, and in the role of undergraduates, Blacks would be by definition required to understand and use the meta-learning strategies and have knowledge of specific constructs, categories, and social relationships valued by the supra-culture. Thus, it would be expected that Black students in a formerly all-White (and currently predominantly all-White) university would do as well as their white counterparts on intellectual scales measuring those skills necessitated by the roles occupied. In this instance, the student role (Black or White) requires certain behaviors and therefore minority students' "response patterns are indications of what is salient to (the) minority sub-culture on the tests and within the major culture, and what is not."

Those test differences which were significantly in the White group favor (Arithmetic, Block Design, and Object Assembly; all timed tests) can be seen as specific competencies useful for specific student majors but not equally required of all. Also, the sub-tests representing Black-White differences are timed, giving subjects added credit for quick responding. By Cultural-Distance definition then,

these sub-tests are indicators of "what is not" particularly salient for these samples of Black undergraduate college students.

Another important point to remember is that a theory must not only describe and predict certain affirming phenomena but deal with all available information to be accepted as truly viable. Therefore, although the sub-scale scatter of the two racial groups on the WAIS-R can be interpreted as either genetically or environmentally (culturally) determined, other findings presented herein and elsewhere can not. This is the test that we must use: universality.

It was reported early in this paper how Jensen and others found low-IQ Blacks scoring much higher than expected, based on intelligence scores, on learning/performance measures. These differences in "low intelligence" Blacks were noted while equivalent "low intelligence" Whites also tested poorly on the same learning tasks. These findings with non-student populations underlies the universality of the Cultural-Distance (C-D) hypothesis. The C-D viewpoint would predict such an occurrence, because it assumes an inherent bias in the standardized IQ tests which "measure" intellectual capacity unequally between the groups. Both Study-I and Study-III demonstrated this underrepresentation of Black general intelligence on standardized indices while displaying no difference in learning task tapped level-II intelligence.

The cultural and exo-system analysis put forth here also presented evidence on Black-White standardized test taking equivalency at the lower end of the Gaussian curve. This fact would not be expected from a purely micro-level genetic determination. From the C-D perspective

it is entirely logical: those members of the general population least able to benefit from socio-cultural learning (the severely and profoundly retarded) would display a uniformity across racial groups not seen in more normal segments.

Some theorists have even proposed a "two-group" theory of mental retardation to explain the underprediction of the frequency of retardates in the severely/profoundly range (see Weiner, 1982; chapter 3). These are the retardates considered to have some organic deficiency and are often known as untrainable or custodial respectively. This is also the group of mental defectives, those known to have some heritable genetic basis, where the frequency of Blacks and Whites show no differences. Where would one most expect to find racial group differences than in this group? How can the genetic viewpoint be reconciled to these facts?

One final bit of information should be useful in comparing our group-difference hypothesis with that of the racial-geneticists. Weiner (1982; chapter 3) reviews the literature on the "two-group" theory of mental retardation. Besides the "defective" retardates described above (IQ<50), this theory ascribes to a second group of retardates described as "familial" or "normal." These people have no identified genetic defect and usually test out in the mildly to moderately range of IQ (50 to 70). These individuals are also classified by our educational system as educable and trainable mental retardates respectively. Thus we can assume, and research proves, that these retardates are influenced by educational and cultural influences (i.e., the environment).

It is in the mildly/moderately retarded groups that we again witness an overrepresentation of Black and other minorities. This fact would be expected from the Cultural-Distance perspective since we now find the influence of cultural factors at work on the subjects and within the test batteries. This is why we find an overrepresentation of Blacks and Chicanos in special education classes and why the area of the normal bell-shaped curve bounding this population ($3 < \text{Standard Deviations} < 2$) conforms to expected frequencies for the general population.

"Factor-X" is at work in this area (of the distribution curve) and within these populations in the same fashion and with the same results as within the greater percentage of the population lying nearer the mean national test performance. Therefore, we observe the same 1-standard deviation "shift" of Blacks toward the low end of the curve and the total (Black and White) population actual distribution closely following the "normal-curve" frequency distribution.

Further evidence in the artificialness of the Black "developmental lag", witnessed on IQ tests with groups possessing normal intelligence ($\text{IQ} \geq 70$) and suffering familial (or normal) retardation ($50 \leq \text{IQ} < 70$) while being absent in the organic retarded ($\text{IQ} < 50$) category, is the fact that up to 55% of the Black mildly and moderately retarded population can be redesignated normal when the American Association for Mental Deficiency (AAMD) criteria for mental retardation is evoked: significant subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior. Using developmental

adaptation scales measuring self-care, social knowledge, employment and economic information, and other skills necessary for everyday independent living and problem solving, many authors (see Weiner, 1982; chapter 3) have repeatedly reported the significant difference between racial groups (Blacks over White) on these measures and some have concluded (as did the state of California) that these "false-Black retardates" are merely a product of our testing system. Weiner (1982) explains that these studies:

. . . suggest that standard tests of intelligence do not adequately measure the functioning ability of socioculturally disadvantaged youngsters, most probably because they require skills that receive relatively little emphasis in their home and school environments. Conversely, most advantaged children appear able to draw on past learning at home and in school to earn intelligence test scores above 70, unless they are handicapped by the kinds of organic pathology that reduce IQ below 50 (p. 86).

Weiner (1982) further argues that strict application of AAMD's two-dimensional definition of mental retardation will help reduce the prevalence of mental retardation "primarily among disadvantaged segments of the population, who can frequently give a better account of themselves on measures of adaptation than on IQ tests."

These are all results described and predicted by the main tenants of the Cultural-Distance hypothesis. To quote part of the original C-D definition again:

. . . (standardized IQ) tests are not responsive to what is salient to the sub-culture but absent in the major culture, however (Grubb, 1983, p. 26).

With all of the information presented from various sources and disciplines, a good case can be made for the Cultural-Distance hypothesis.

Final decisions on the correctness of the opinions await carefully planned and discharged experimentation. Till that time, the Cultural-Distance hypothesis shall continue to provide a new focus for "group-differences" investigations and the mill of potentially major discoveries and developments in the area of intellectual assessment, cross-cultural understanding, and several related fields in social-learning/enculturation.

CONCLUDING REMARKS

The implications of this study are several. First, it replicated the original study and went beyond it in demonstrating the reality and very real effect of cultural-distance in group IQ comparisons. In this sense, it even more forcefully underlines the points enunciated in Study-I (Grubb, 1983) concerning the relevancy of the Cultural-Distance Perspective.

The increased variance accounted for by the new Personal Data Questionnaire (PDQ-R) demonstrates an increased robustness of the instrument. The added variables augment, and in some instances supplant, some of the original PDQ socio-cultural variables. Factor analytical techniques and empirical testing with larger sample sizes will no doubt refine these preliminary variables into a few significant universal indices having even more explanatory power.

The fact that Blacks and Whites again scored equivalently on the Booklet Category Test (BCT), a level-II intelligence measure, corroborates the hypothesis that the significant White over Black performance difference on standardized IQ tests is not a result of innate superiority-inferiority status relationships, but an artificially constructed by-product of inherent test-biases. Too often our cultural myopia has fostered the view that differences between groups within nation-states, thus groups sharing the "same national" culture, must be the result of biology and not environment (physical or social). This slip of logic has been described by Harkness (1980) as the "invisibility of the culture in psychology theory." Possibly this

study will help psychology to examine itself within a cultural framework; thus allowing it to view culture at work in its subjects of investigation, even when these subjects are members of a larger shared culture. As Brislin (1983) observed:

Since so many aspects of culture are not assessed in the typical study within any one country, the study's results are too often attributed to genetic factors or to some supposed universal process (p. 368).

Group intelligence (racial, ethnic, national) is neither genetically determined nor universally defineable. Some within-culture individual difference can be accounted for by genetic factors but, as the focus of this paper continually attempted to demonstrate, higher level analyses (above the individual) are needed to understand group behavior. Merlin (1981-82) has evoked the categorical concept of *Aufhebung* in discussing the different levels of material development. This concept is also useful for comparing the effects of the different levels of social reality in which mankind operates.

The *Aufhebung* philosophical concept proposes that "the laws of a higher level 'abolish' the conditions of a lower level." Merlin further elaborates by suggesting:

...that the same human property is both typical (in the sense of being lawfully determined), if we regard it in connection with other properties at the same hierarchical level, and individual, in relationship to properties at another hierarchial level...

At the higher hierarchical levels in human beings...the typical exists along with the socially typical (p. 53).

Therefore, one of the obvious difficulties with group IQ (or any performance) difference interpretation revolves around the issue of "not being able to see the forest for the trees." Hopefully the three

studies presented in this paper will give other psychologists the desire to back up and take a larger view of things. Perhaps, other scientists will recognize the socially typical distal factors overriding the individually typical proximal factors when large group comparisons are undertaken. And as long as there are different cultures defining reality, this functional scientific viewpoint will be necessary. Pure racial, sexual, or other group differences (and characteristics) can only exist at a stochastic level. But to view human behavior from such a restricted subject-item analysis simply reifies the response and ignores the respondent; and such a tragic error!

Recent investigations of cultural concepts of intelligence demonstrate the exo- and macro-system effects on learned behavior. Gill and Keats (1980) found that Malaysians described intelligence in terms of social skills while Australians emphasized academic skills such as reading, writing and verbal behavior. This type of cross-national study is applicable within modern nation-states, as demonstrated by the present report.

Someday this nation may enjoin all its citizens to belong to one totally equal uni-culture. This has always been the American ideal and has always been the fallacy over which American science has tripped. It may become a reality at last. Recent reports have seen test performance on standardized college entrance measures more equalized between racial groups (Black youths..., 1985; Jones, 1984). The age-old "intellectual" gap is gradually being narrowed. With it, I would suspect, so is the Black-White cultural distance. Someday cross-

cultural investigators may have to cross frontiers in order to ply their trade, but at present one need not approach the border: the work remains here at home, and so do the questions.

Most important of these questions could be; how might investigators develop a cultural perspective and identify their own cultural cache of untested assumptions? The answers will be slow in coming, as is all scientific knowledge. Some wrong turns will be made along the way, some dead ends encountered. This author's belief that positive personality characteristics would correlate with college grade ascendancy was found to be untenable. Besides the reasons given within for this incorrect prediction, other more personal confounds can be shown to have set the author up for this mistake.

His personal sub-cultural (or supra-cultural) belief structure was at the root of this prediction. Just the term "positive" should have alerted one to the cultural value attached to these scale qualifications. First, what is positive about ascendancy, emotional-stability, responsibility, sociability, and self-esteem is all culturally determined. Apparently, what was deemed positive or valuable on the personal level was not what the academic sub-culture deemed valuable. Secondly, the author assumed his cultural-baggage was toted by everyone: that his knowledge was universal. These are the two common mistakes of micro-level investigators described above. This humiliating example demonstrates how seductive the trap is, even to those accustomed to working from the macro-level. But all is not lost if one allows these foibles to instruct, to underscore the all encompassing problem of investigator-investigatee cultural emmeshment.

One's culture is very strong; mistakes will be made. If one can at least read unexpected results from the higher analyses and accept one's cultural interference as it becomes apparent, progress can still be made. It is hoped that this study will foster such self-critical evaluations while encouraging active meta-analytical cross-cultural investigations. Sensitivity is the by-word here. As example, Flaugher (1978) describes very different results that are naturally derived from viewing intelligence as a stable trait (aptitude) or a variable determined by external influence (achievement):

If test performance is low and it is seen as an index of achievement, then there is pressure to increase the application of society's educational resources to improve achievement. If the test result is seen as an index of aptitude, however, then the same low test score may be justification of the withdrawal of educational resources (p. 672).

Again is witnessed the effect of the macro-level societal value system, and its effect on lower-order systems. This study hopes to forward the culturally transmitted knowledge of cultural awareness in the general sense. In the more immediate frame, it hopes to increase awareness of the cultural influences determining group IQ performance both in origin (sub-culturally specific adaptive behavior and system enculturation) and observation (supra-culturally held norms of our scientific community). Further investigation is needed, and based on the favorable results contained herein, further investigation is warranted. The Cultural-Distance Hypothesis has proven its usefulness.

The elusive (i.e., overlooked) "factor-X" has been identified. We are the cause of the Black-White difference in measured IQ. We as a

nation, based on certain principles of equality and individual freedom/responsibility; we as separate racial/ethnic groups, bound to the national whole by history, each with a place of separate functioning which fostered the evolution of sub-culturally specific, complex, and exquisite behavioral patterns; we as different cultural groups, with our different systems of values, beliefs, and mores; we as scientists, with our professional identity and magical ability to reduce and quantify; we as lay public, with our personal prejudices and fears, with our unquestioning faith in the professionals; we all are the cause because we all are the sum total of all our supra- and sub-cultures. Through us, our many different cultural heritages speak, and this diversity of cultures is the source of Cultural-Distance, the elusive "Factor-X."

"AUNT AGGY"- A VIRGINIA SLAVE IN THE 1840s*

You t'inks I'm mistaken, honey! But I know t'ings dat de wite folks wid all dar larnin' nebber fin's out, an' nebber sarches fo' nudder...

No honey! De good Lawd doan gib ebery-ting to his wite chilluns. He's gib' em de wite skin, an' larnin'. An' he's made 'em rich and free. But de brack folks is his chilluns, too, an' he gibs us de brack skin an' no larnin', an' hab makes us t' work fo' de wite folks. But de good Lawd gib us eyes t' see t'ings dey doan see, an' tells me be patient, 'cause dar's no wite nor brack in hebben. An' de time's commin' when he'll make his brack chilluns free in dis yere worl', an gib' em larnin', an' good homes, an' good times. Ah! honey, I knows, I knows!

*Livermore, M. (1897). The Story of My Life. Hartford, Conn., pp. 306-307.

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¹Individualized Data Base Project of the Pacific State Hospital, Pomona, California (as of June 30, 1975). Data obtained from the President's Committee on Mental Retardation, Washington, DC 20201.

²Information obtained from Bureau of the Census; 1970 figures.

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APPENDICES

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

Buddhist

Hindu

Moslem

Other _____

6. What is your present religious affiliation?

Catholic

Protestant _____

Orthodox _____

Jewish

Buddist

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 0

 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):

Dwelling Conditions

Type of Dwelling	Rent	Own
<u> </u> Project	R 1	0 0
<u> </u> Trailer	R 2	0 3
<u> </u> Apartment	R 3	0 4
<u> </u> Condo	R 4	0 5
<u> </u> Duplex	R 5	0 6
<u> </u> House	R 5	0 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% of 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

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

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# EDO]3849. 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

- | | |
|---|---|
| <p>1. Apartment:
Old Tenement
New Project
Rooming House</p> | <p>2. Condition of Building:
Adequate
Deteriorated
Poorly cared for</p> |
| <p>3. Care of Apartment:
Clean and neat
Poorly cared for</p> | <p>4. Books in Home:
Yes No</p> <p>TV in Home:
Yes No</p> |
| <p>5. Heating:
Adequate
Inadequate</p> | <p>6. Ventilation:
Adequate
Inadequate</p> |
| <p>7. Clothing:
Adequate for weather
Inadequate</p> | <p>Cared for
Neglected</p> |
| <p>8. People present at interview:</p> | |

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 fell into each category are given in Chapter 5, Table 18.

<u>Item</u>	<u>Score</u>	<u>Item</u>	<u>Score</u>
Adult Male in Home		Educational Level ⁺	
Father	2	High School Graduate	7
Relative or other male	1	Some high school	6
No male	0	Junior high graduate	5
Adult Female in Home:		Some junior high school	4
Mother	2	Elementary school	
Relative or other Female	1	5th, 6th grades	3
No female	0	3rd, 4th grades	2
Number of Children		1st, 2nd grades	1
(Actual number of children		Work Status of Mother	
in family)		Full-time	2
Birth Order		Part-time	1
Oldest or only	2	Not working	0
Middle	1	Attendance at Nursery and/	
Youngest	0	or Kindergarten	
Type of Dwelling		Yes	1
Living in Project	1	No	0
Not in project	0	Number of Different Schools	
Care of Apartment		Attended	
Clean and Neat	1	1-2 schools	7,6
Not clean; not neat	0	3-5 schools	5,4,3
Room/Person Ratio		6-7 schools	2,1
(Number rooms, exclusive of		Days Absent Annually	
bathroom, divided by number		Under 20 days	2
of people in family)		20 - 30 days	1
Occupational Level ⁺		Over 30 days	0
Skilled: manual & clerical	6,7,8,9*		
Semi-skilled: manual &			
clerical	3,4,5*		
Unskilled: service	2		
Not working	1		

⁺ 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 | D. General Social Awareness |
| B. Awareness of the Child as
an Individual | E. Rationality of Discipline |
| C. Concern for Education | 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

(Hypotheses of Study I - Grubb, 1983)

Hypotheses 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.

APPENDIX E

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
KJI	WHITE	3	6	3	6
DJL	WHITE	5	6	5	6

APPENDIX F

TYPICAL TESTING SCHEDULES WITHIN RACIAL/SEXUAL CELLS

(1=WAIS-R; 2=PPVT; 3=BCT; 4=MD#1 & #2)

Possible 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

APPENDIX G

Phone # _____

Phone Instructions

You were involved in a psychology experiment last Spring (1983) which was useful in determining the relationship between IQ scores, intelligence, and school performance. The experiment was conducted by Professor Henry Grubb in the Psychology Department.

Today, I'm calling in order to get two pieces of additional information from you in order to complete some further analyses related to this project. We would appreciate your allowing us access to your (1) Spring 1983 QCA (grade point average) at Virginia Tech and (2) your high school SAT scores.

Would you be willing to give me these two items of information now or could we arrange a time to meet and discuss this further? You realize of course, that this information will be handled in the strictest confidence and in no way will you ever be identified with it either to the school or at any future time in the literature.

If possible we would like to have your permission to access this information from the university computer because we find that students often are unable to remember their QCA after the passage of a year and also usually do not bring copies of SAT scores with them to campus.

Name

Approve

Address

Does not Approve

Signature (if possible)

Witness (or contact)

Overall

Major (score)

Major (title)

(QCA-Spring 1983)

Verbal

Math

Combined

(SAT Scores)

APPENDIX H

Culture History Inventory of Learning Distance

(CHILD)

[Personal Data Questionnaire (PDQ) Coding Form]

SOCIO-CULTURAL VARIABLE	RAW SCORE	SCALED SCORE
I. SIBLINGS		(B)
II. HOMES		(B)
III. FAMILY MAKE-UP		(B)
IV. FRIENDSHIP PATTERNS		(B)
V. FATHER PRESENCE		(W)
VI. FATHER/FATHER-SUB PRESENCE*		
VII. FATHER'S OCCUPATION		(W)
VIII. MOTHER'S OCCUPATION		(W)
IX. PARENTAL EDUCATION		(W)
X. FAMILY INCOME		(W)
XI. DWELLING CONDITIONS		(W)
XII. SUPERVISION/INTERVENTION, PARENTAL		(W)
XIII. OPENNESS/EMOTIONALITY		(B)
XIV. RELIGIOUSITY		(B)
XV. RESILIENCE/REVITALIZATION		(B)
XVI. PARENTAL ATTITUDE/SCHOOL ACHIEVEMENT		(W)
XVII. ORAL/WRITTEN TRADITION (Positive/Oral)	+	(B)
ORAL/WRITTEN TRADITION (Negative/Wrt.)	-	(W)
B1-CULTURALISM*		(W) (B)
XVIII. CONNECTEDNESS/EXTENDED FAMILY		(B)
XIX. FLUID/FIXED TIME PERSPECTIVE		(B)
XX. SHARED SPACE/EXPERIENCE		(B)
XXI. VARIED SOCIAL EXPOSURE		(W)
XXII. HANDEDNESS*		
TOTAL SCORE**	(W)	(B)

*DO NOT ADD IN THE TOTAL

**ADD "(W)" SCALED AND "(B)" SCALED SCORES SEPARATELY, SUBTRACT "(B)" TOTAL FROM "(W)" TOTAL TO GET GRAND TOTAL

(GRAND TOTAL)

PERSONAL DATA QUESTIONNAIRE

(PDQ) Coding Form

Variable	Question	Score	Total
I	3	_____	_____
<hr/>			
II	4	_____	_____
<hr/>			
III	5	_____	
	6 (m. gran)	_____	
	6 (p. gran)	_____	
	6 (a, u, o)	_____	_____
<hr/>			
IV	7 (1x _____) = _____		
	(2x _____) = _____		
	(2x _____) = _____		
	(1x _____) = _____		
	(2x _____) = _____		
	(3x _____) = _____		_____
<hr/>			
V	9	_____	_____
<hr/>			
VI	8	_____	
	10	_____	_____

VII	11	_____	_____
-----	----	-------	-------

VIII	12	_____	_____
------	----	-------	-------

IX	13	(f) _____	
		(m) _____	_____

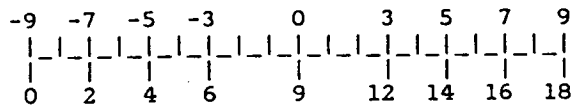
X	14	_____	_____
---	----	-------	-------

XI	15 (type)	_____	
	15 (care)	_____	
	15 (r/p)	_____	
	15 (bed)	_____	_____

XII	16	_____	
	17	_____	
	18	_____	
	19	_____	
	20	_____	
	21	_____	
	22	_____	_____

- XIII 23 _____
- 24 (f) _____
- 24 (m) _____
- 24 (b) _____
- 24 (s) _____
- 24 (bf) _____

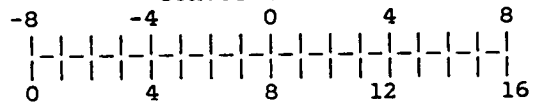
Conversion Scale



- XIV 25 _____ *
- *All signs 26 _____ *
- must match

27(___ x ___) = _____ *

Conversion Scale



- XV 28* (+ _____) + (- _____) = (_____)
- *Add "+" and
- "-" seperately

XVI	29	_____
*Special	30	_____
Coding	31	_____
0 books 0 pt.	32	_____
1-9 b. 1 pt.	33*	_____
10-19b. 2 pt.	34	_____
20-29b. 3 pt.	35	_____
30-39b. 4 pt.	36	_____
etc.	37	_____
	38*	_____
	39	_____
	40	_____
	41	_____
	42	_____
	43	_____
	44	_____
	45	_____

Conversion Scale

0	2/8	4/8	6/8	1	2	3	4	5	6	7	8	>				
0	1	2	3	4	5	6	7	8	7	6	5	4	3	2	1	0

XVII 46* + _____ (B) = | _____ |

*record "-" and --- = _____ (B1-C)

"+" seperately - _____ (W) + 1 = | _____ |

XVIII	47	_____
	48	_____
	49	_____
	50a	_____
	50b	_____
	50c	_____
	50d	_____
	50e	_____
	50f	_____
	50g	_____
	50h	_____
	50i	_____
	50j	_____
	50k	_____
	50l	_____
	50m	_____
	50n	_____
50o	_____	
50p	_____	

XIX	51	_____
	52	_____
	53	_____
	54	_____

XX	55	_____
	56	_____
	57	_____
	58	_____

XXI	59	_____	
	60	_____	
	61	_____	
	62	_____	_____

XXII	63	_____	_____
------	----	-------	-------

6. Did you visit the following "extended family" members (and how often) as a child?

Maternal Grandparents	<u> 0 </u>	never visited
	<u> 1 </u>	visited infrequently (less than once a year)
	<u> 2 </u>	visited regularly (at least once a year)
	<u> 3 </u>	visited frequently (between 2 and 6 times a year)
	<u> 4 </u>	visited often (more than 6 times a year or lived with them)
Paternal Grandparents	<u> 0 </u>	never visited
	<u> 1 </u>	visited infrequently
	<u> 2 </u>	visited regularly
	<u> 3 </u>	visited frequently
	<u> 4 </u>	visited often
Aunts, Uncles, and Others	<u> 0 </u>	never visited
	<u> 1 </u>	visited infrequently
	<u> 2 </u>	visited regularly
	<u> 3 </u>	visited frequently
	<u> 4 </u>	visited often

7. Of the friends you had in childhood, how many fit into the following categories? (write number)

<u> 1x </u>	same age (school grade) friends
<u> 2x </u>	older friends
<u> 2x </u>	younger friends
<u> 1x </u>	same-sex friends
<u> 2x </u>	opposite-sex friends
<u> 3x </u>	relatives as friends (brothers, sisters, cousins, etc.)

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

<u> 0 </u>	0 - years
<u> 1 </u>	1 - 5 years
<u> 2 </u>	6 - 10 years
<u> 3 </u>	11 - 15 years
<u> 4 </u>	16 - 18 years

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

NUMBER OF YEARS PRESENT

10. How many years of your childhood were spent in a home where a male "father-figure" was present (if your biological or adoptive father was not always present)?

<u> 0 </u>	0 - years
<u> 1 </u>	1 - 5 years
<u> 2 </u>	6 - 10 years
<u> 3 </u>	11 - 15 years
<u> 4 </u>	16 - 18 years

11. 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 _____

12. What is (was) your mother'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 _____

13. Level of Educational Attainment:

- Parent: Father X
 Mother 0
- 1 0 years schooling
2 1 - 6 years
3 7 - 8 years
4 9 - 11 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 masters degree
10 holds professional, Ed.D., Ph.D. or other terminal degree

14. 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

15. 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
<u> </u> Project	R 1	0 0
<u> </u> Trailer	R 2	0 3
<u> </u> Apartment	R 3	0 4
<u> </u> Condo	R 4	0 5
<u> </u> Duplex	R 5	0 6
<u> </u> House	R 5	0 7

Care of Dwelling (mark all that apply)

 1 Clean
 1 Neat
 1 Orderly

Room/Person Ratio

 4 2.0+ rooms per person
 3 1.5 - 2.0 rooms per person
 2 1.0 - 1.4 rooms per person
 1 0.5 - 0.9 room per person
 0 Less than 0.5 room per person

Sleeping Arrangements (the majority of your childhood)

 0 Slept in multi-purpose room (example: slept on fold-out couch in family room)
 1 Shared bed with sibling(s) or other relative(s)
 2 Shared bedroom (but not bed) with sibling(s) or other relative(s)
 3 Had private bedroom

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

 2 Always
 1 Sometimes (explain) _____
 0 Never

17. Did the family eat supper together?

 2 Frequently
 1 Seldom
 0 Never

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

 2 Yes
 1 Sometimes (explain) _____
 0 No

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

 2 Yes
 1 Sometimes (explain) _____
 0 No

20. At what age were you first granted complete freedom to set all personal limits (such as hour to be home at night, freedom to choose adult past-times such as drinking and smoking, etc.)?

7 21 years or older
6 20 years old
5 19 years old
4 18 years old
3 17 years old
2 16 years old
1 13 - 15 years old
0 younger than 13-years old

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

2 yes
1 at times (explain) _____
0 no

22. Did the family do things together on weekends?

2 quite often
1 seldom
0 never

23. Were you able to talk openly to your parents about childhood problems such as dating, sex, drinking, or your emotions?

0 never
1 very little
2 some; or as I got older
3 quite often and on certain topics
4 very much so and always

24. How would you describe the relationship you had with the following people:

Father (or substitute male):

3 very open and close (genuine)
2 open but formal
1 distant
0 very distant or no relationship

Mother (or substitute female):

3 very open and close (genuine)
2 open but formal
1 distant
0 very distant or no relationship

Brother(s) (or male substitutes):

3 very open and close (genuine)
2 open but formal
1 distant
0 very distant or no relationship

Sister(s) (or female substitutes):

3 very open and close (genuine)
2 open but formal
1 distant
0 very distant or no relationship

Your Best Friend:

3 very open and close (genuine)
2 open but formal
1 distant
0 very distant or no relationship

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

4 yes (2 or -2, depending on valence in # 26 & 27)
0 no

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

-1 Catholic
1 Protestant _____
-1 Orthodox _____
-1 Jewish _____
0 Hinduist
0 Hindu
1 Moslem
0 Other _____

27. What is your present religious affiliation? How often do you attend?

<u>-1</u> Catholic	<u>6</u> more often than once a week
<u>1</u> Protestant _____	<u>5</u> every week
<u>-1</u> Orthodox _____	<u>4</u> at least twice a month
<u>-1</u> Jewish _____	<u>3</u> at least once a month
<u>0</u> Hinduist	<u>2</u> about every other month
<u>0</u> Hindu	<u>1</u> between once and five times a year
<u>1</u> Moslem	<u>0</u> less than once a year
<u>0</u> Other _____	

28. Which of the following sayings most closely fit your religious or philosophical outlook on life? (check all those you agree with)

1 what goes around comes around
-1 you can never go home again
1 we have all sinned and are only saved by God
-1 if manning works at it, this earth could be a paradise
1 there is a better time to come
-1 if you take your bed, sleep in it
1 we are all one before the Lord
-1 nobody can really know another person
1 you can't keep a good man down
-1 never a lender nor a borrower be
1 live life as it comes
-1 one added straw can break a camel's back
1 all I have is time
-1 each man should carry his own weight
1 death is a part of life
-1 you must plan for progress

29. Of the following, which statement best describes the attitude 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"

30. 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)

31. How much time do (did) your father and you spend at leisure activities (hobbies)?
- 3 A great deal
2 Some
1 Very little
0 We never do (did)
32. 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
33. Give me an estimate of the number of books your father reads (read) a year Special Coding -
34. Does (did) your father read newspapers, or other reading material?
- 3 Everyday
2 Often
1 Seldom
0 Never
35. 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 relatively unimportant
0 Education was worthless in the "real world"
36. Did your mother 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
37. 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
38. Give me an estimate of the number of books your mother reads (read) a year Special Coding -
39. Does (did) your mother ever read newspaper or magazines?
- 3 Everyday
2 Often
1 Seldom
0 Never
40. Was a room or special place provided for your studies?
- 1 Yes
0 No

41. 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
42. Which most nearly describes your parents reaction to poor school grades?
3 extremely upset and vocal
2 upset
1 little reaction
0 no big deal
43. Which most nearly describes your parents reaction to reported bad behavior in school?
3 extremely upset and vocal
2 upset
1 little reaction
0 no big deal
44. Which did you attend in elementary school?
3 A private school
2 A church school
1 A public school
* Other (explain) Code Either 1, 2, 3
45. Which did you attend in high school?
3 A private school
2 A church school
1 A public school
* Other (explain) Code Either 1, 2, 3
-
46. Did your parents (or others) do any of the below? (check those that apply):
-1 read you "fairy-tales" or other childrens books when you were young
1 tell you "ghost stories" or other improvised tales based on folklore or built around certain themes
1 sing songs with you
1 teach you songs by singing them to and with you
-1 teach you to read music or songs by use of music books
-1 record your babyhood in a baby book
1 recount the family geneology through tales and stories
1 sing with friends in your presence
-1 leave written notes to you on the refrigerator, by the phone, or elsewhere
1 hold to the belief that "a man's word is his bond"
-1 tell you to "always get it in writing"
-1 explain the meaning and use of a "little white lie"
-1 write letters to relatives and friends
-1 require you to write letters
1 use the telephone as a means of keeping in touch with other family members
-
47. Did (do) you and your father have many long talks?
1 yes
0 no
48. Did (do) you and your mother have many long talks?
1 yes
0 no

49. Which best describes your childhood home on a typical evening?
3 lots of conversation, singing, music, and/or noise
2 some conversation; orderly discussion
1 very quiet, little verbal interaction
50. How did you learn how to:
 a. Ride a bicycle All answers: (0 = School, Formal organizations; 1 = Mother; 2 = Father; 3 = Grandparents, Siblings; 4 = Aunts, Uncles, Significant Others)
 b. Tie your shoe Significant Others
 c. Jump rope (1 = practice; 2 = observation)
 d. Eat with a fork _____
 e. Cut food with a knife _____
 f. Drive a car _____
 g. Sing _____
 h. Dance _____
 i. Cook a meal _____
 j. Ask for a date _____
 k. Fight _____
 l. Tell time _____
 m. Play checkers _____
 n. Wrap a present _____
 o. Tell the difference between the truth and a lie _____
 p. Help others _____
-
51. Which type of person is (was) most like your father? (only check one)
0 future oriented
3 present oriented
1 past oriented
52. Which type of person is (was) most like your mother? (only check one)
1 Analytical: I analyze things; look at the separate parts one at a time
3 Holistic: I feel things; look at the entire problem
53. How important is (was) it for your father to have definite plans about his future?
0 very important
1 important
3 of little importance
4 unimportant
54. How important is (was) promptness to your mother?
0 very important
1 important
3 of little importance
4 unimportant

55. Who made the major decisions in your childhood home?

- 0 your father
 1 your mother
 4 sometimes either, depending on the decision.
 3 both, as a team

56. Were the children consulted about major family decisions?

- 0 never
 1 on certain occasion
 3 usually
 4 always

57. Did your parents argue or settle arguments in your presence?

- 1 no, never
 2 sometimes
 3 yes, quite often

58. Were you allowed in "adult conversations"?

- 1 no
 2 sometimes, as I got older
 3 yes, always

59. How many and to which clubs, societies, and organizations did you belong to before coming to college (ages 0 -16)? (list them).

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

- 3 a lot
 2 some
 1 only a few
 0 hardly any

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

- 1 one
 2 two to nine
 3 ten to nineteen
 4 twenty to twenty-nine
 5 thirty to thirty-nine
 6 forty to forty-nine
 7 all fifty

62. Have you even been abroad? _____ where? _____

63. Are you?

- 1 right-handed
 3 left-handed
 2 ambidextrous (explain key uses of each hand) _____
- _____
- _____

Coding of the Socio-Cultural Variables

- I. NUMBER OF SIBLINGS
transfer total number of siblings from Question No. 3
- II. NUMBER OF CHILDHOOD HOMES
transfer total number of homes from Question No. 4
- III. FAMILY MAKE-UP
total responses from Questions No. 5 and 6
- IV. FRIENDSHIP PATTERNS
Question No. 7
- V. FATHER PRESENCE
transfer total years of father's presence from Question No. 9
- VI. FATHER AND FATHER-SUBSTITUTED PRESENCE
total responses from Questions No. 8 and 10
- VII. FATHER'S OCCUPATIONAL LEVEL
Question No. 11
- VIII. MOTHER'S OCCUPATIONAL LEVEL
Question No. 12
- IX. PARENTAL EDUCATION
Question No. 13, give credit for each parent's background
- X. FAMILY INCOME
Question No. 14
- XI. DWELLING CONDITIONS
totals from Question No. 15
- XII. SUPERVISION AND INTERVENTION, PARENTAL
total responses from Questions No. 16 - 22
- XIII. OPENNESS TO FEELINGS, EMOTIONAL VITALITY
total responses from Questions No. 23 and 24
- XIV. RELIGIOUSITY
total responses from Questions No. 25 and 26
plus result of Question No. 27
- XV. RESILIENCE AND REVITALIZATION
totals from Question No. 28
- XVI. PARENTAL ATTITUDE TOWARD SCHOOL ACHIEVEMENT
total responses to Questions No. 29 - 45
Questions No. 33 and 38 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
30-39 books	4 points

+tc.

- XVII. INTERGENERATIONAL COMMUNICATION (ORAL VS. WRITTEN)
Question No. 46
- XVIII. CONNECTEDNESS/EXTENDED FAMILY PATTERNS
totals from Questions No. 47-50
- XIX. TIME PERSPECTIVE (FLUID VS. FIXED)
Questions No. 51-54
- XX. SHARED PARTICIPATORY SPACE/EXPERIENCE
Questions No. 55-58
- XXI. VARIED SOCIAL EXPOSURE
total responses from Questions No. 59-62
- XXII. HANDEDNESS
Question No. 63

APPENDIX I

SOCIAL PERFORMANCE QUESTIONNAIRE

-- (SPQ) --

Coding Form

Variable	Question	Score	Total
I	1	_____	_____
II	2	_____	_____
III	4	_____	_____
IV	5	_____	_____
V	6	_____	_____

VI	7	_____	
	8	_____	
	9	_____	_____
<hr/>			
VII	11	_____	_____
<hr/>			
VIII	12	_____	_____
<hr/>			
IX	13	_____	= _____
	14	_____	trips
	(13) _____ x (14)	_____	= _____ mileage
<hr/>			
X	14	_____	
	15	_____	= _____
	(14) _____ x (15)	_____	= _____ calls call-miles
<hr/>			
XI	16	_____	
	17	_____	
	18	_____	_____

XII	19	_____	
	20	_____	_____
XIII	21	_____	
	22	_____	_____
XIV	23	_____	_____
XV	24	_____	
	25	_____	_____
XVI	26	_____	_____
XVII	27 (f)	_____	
	27 (s)	_____	
	27 (j)	_____	
	27 (sr)	_____	_____
			average

XVIII

$$(XII) \underline{\hspace{2cm}} - [2 \times (XVI) \underline{\hspace{2cm}}] = \underline{\hspace{2cm}}$$

Social Performance Questionnaire (SPQ)

Name _____ Date of Birth _____ Sex _____

Address (Local) _____ Race _____ Nationality _____

Phone No. _____

- (Record class year:
1=Fr.: 2=SoPh:
3=Jr.: 4=Sr.: 5=Grad.)
1. What is your present major(s) and class year? _____
major(s) _____ class year _____
2. How many years have you attended college? (include this year)
- 1 yr.
 2 yrs.
 3 yrs.
 4 yrs.
 5 yrs.
 6 yrs.
3. What is your QCA, overall and in your major?
overall QCA _____ major(s) QCA _____
4. How many visits have you made to the Counseling Center.
- never
 one
 two
 three
 four, five, six
 seven to twelve
 more than twelve
- give examples or reasons _____

5. How many classes have you dropped.
- none
 one
 two
 three
 four
 five or more
6. What is the average number of credit hours you have carried per quarter.
- 6 or less hours
 7 or 8 hours
 9 hours
 10 or 11 hours
 12 to 15 hours
 16 to 18 hours
 19 or more hours
7. How many courses have you taken? (give total number, including present courses) _____

8. How many courses outside your major have you taken? (give total number) (Record No.)

9. How many summer sessions, of those possible (2 per summer), have you attended? (give total number)

 Record Number

10. Why do you (or don't you) attend summer sessions.

11. Which of the following are presently problems for you? (check those applicable)

- dating
- leisure activities
- academics
- study habits
- family relationships
- making friends
- money
- health

12. How often do you date?

once or less per month

between two and four times per month

once a week

twice a week

more than twice a week

13. How often do you go home?

once or less a quarter

two or three times per quarter

once a month

more often than once a month

14. How far do you live from your parents home in miles?

15. How often do you talk to your parents by telephone?

once or less a quarter

two or three times a quarter

once a month

two or three times a month

once a week

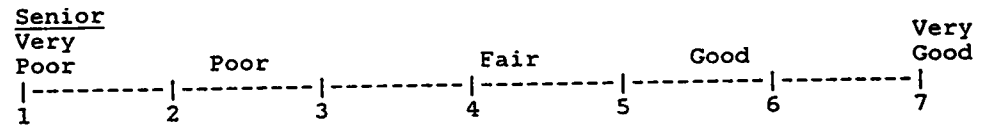
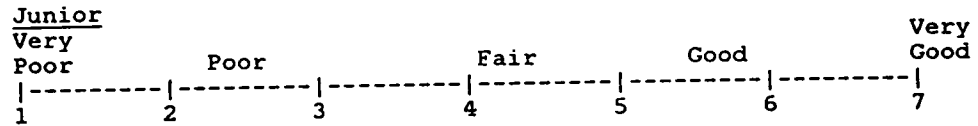
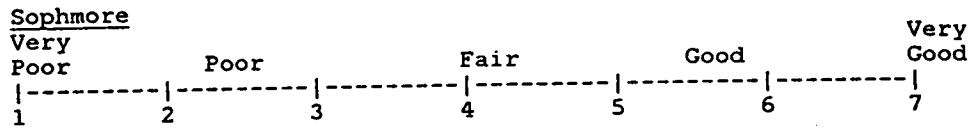
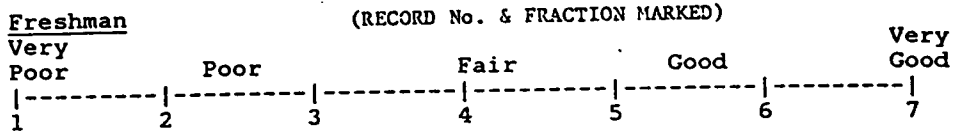
more often than once a week

16. How many organizations do you belong to now? (name them)

17. How many hobbies do you have? (name them)

18. What sports do you participate in at present? (name them)
 (Record Total Number)
-
-
19. How many people can you turn to for help here when you are having trouble?
- none
 one
 two or three
 four or five
 six to ten
 more than ten
20. How many people do you feel obligated to help in their time of need (here in college)?
- none
 one
 two or three
 four or five
 six to ten
 more than ten
-
21. Do you live alone?
- yes
 no, with one other
 no, with more than one other
22. Do you live:
- on campus?
 off-campus?
-
23. Do you have part-time work?
- no
 yes
-
24. Do you enjoy college?
- not at all
 some
 mostly
 every minute
25. Do you feel comfortable in college?
- not at all
 some of the time
 most of the time
 all of the time
-
26. How many of your friends from High School currently attend this college?
- none
 one
 two or three
 four or five
 six to ten
 more than ten
-

27. Rate your adjustment to college for each year you have attended. (on a scale from 1-very poor adjustment to 7-very good adjustment).



-
28. What is the worst problem you have faced here at college?

29. Any other comments you may have that concern your adjustment to college living:

Coding of the Social-Adaptation Variables

- I. CLASS STANDING
Quantify class year from Question No. 1
- II. YEARS IN COLLEGE
record number from Question No. 2
- III. COUNSELING
Question No. 4
- IV. DROPPED CLASSES
Question No. 5
- V. HOURS CARRIED
Question No. 6
- VI. ACADEMIC EXPOSURE
total from Questions No. 7, 8, and 9
- VII. PROBLEMS
total responses to Question No. 11
- VIII. DATING
Question No. 12
- IX. HOME VISITS
(A.) TRIPS HOME
Question No. 13
(B.) EQUIVALENT MILEAGE
response to Question No. 13 multiplied by
total from Question No. 14
- X. HOME CALLS
(A.) CALLS HOME
Question No. 15
(B.) CALL-MILES
response to Question No. 15 multiplied by
total from Question No. 14
- XI. EXTRACURRICULAR ACTIVITIES
totals from Questions No. 16, 17, 18
- XII. PEER SUPPORT
total responses from Questions No. 19 and 20
- XIII. HOUSING
totals from Questions No. 21 and 22
- XVI. WORK
Question No. 23
- XV. COLLEGE FIT
add Questions No. 24 and 25

- XVI. HOME TOWN PALS
Question No. 26
- XVII. COLLEGE ADJUSTMENT
determine mean of all responses to Question No. 27
-
- XVIII. NEW PEER GROUP FORMATION
subtract two times Variable No. XVI (HOME TOWN PALS)
from Variable No. XII (PEER SUPPORT)

APPENDIX J

Department of Psychology - HJG-02

Subject No. _____

CONSENT FORM

The purpose of this research is to investigate the relationship of IQ scores and performance on learning tasks, and to evaluate both sets of behaviors as a function of early environmental conditions and as predictors of later academic functioning. You will be asked to fill out a social performance questionnaire and a personal data questionnaire that will give the investigators a general understanding of your current adjustment and personal learning history. You will also be required to take two tests which are often used to assess general intelligence and to perform a learning task which will involve memory and problem solving. Finally, a personality inventory will be given you and permission to examine your academic record requested.

The total assessment procedure will take 3-hours, divided into 2 - 1½ hour sessions. For your participation in this research, you will receive 3-bonus points toward your grade in Introductory Psychology (Psych. 2000). If you should only attend the first test session, you will receive 1-bonus point.

Your responses on the questionnaires and the three assessment devices will be used to explore the relationships among IQ test scores, personality measures, and performance measures with different age, sexual, ethnic, cultural, and religious groups. 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.

Upon completion of all testing your name and any other identifying information such as telephone number and address, will be removed from your file. From that point forward only a code number will differentiate your test responses from other students in this study. Your QCA and SAT scores will be seen only by the major investigator, and once the information is obtained, the consent form with your name and signature will be destroyed and the records will only be identified with your code number.

All records will be kept under lock, available to the two researchers only. No other use but what has been stated above will ever be made of the data collected. Should the results of this study ever be published in a scientific journal, no personal identification of any particular subject will ever be made.

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
Research Director
961-5388

Thomas H. Ollendick
Research Advisor
961-6451

William W. Schicht
Human Subjects Coord.
961-5346

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 confidential 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.

Student ID#

Date

APPENDIX K

General Instructions

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

The first questionnaire is about the environmental and family aspects of your childhood, ages birth to 18; the second is concerned with your present life at college. The entire assessment you will undergo is to be used in determining the relationship between IQ and social performance, and their predictive value for academic functioning with certain populations based on demographic data and learning histories.

We will also be reviewing your High School QCA, your SAT scores, and your college QCA in order to determine the predictive value of these various tests.

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.

APPENDIX L

Permission to Review Records

I grant Henry J. Grubb, M.S., when bearing this signed document, to review my official scholastic records in order to aid a scientific study of the effects of social forces on educational achievement. The investigator reviewing my academic record will be interested in, and therefore only allowed access to, four factors: (1) my QCA, (2) my SAT scores, (3) my High School standing, and (4) my High School QCA.

 Name of Student Granting
 Permission - Please Print

 Signature of Student

 Witness Signature

 Date

(Va Tech QCA - SPRING 1984)

 Overall (Score) (Major Score) (Major Title)

(SAT Scores)

 Verbal Math Combined

HIGH SCHOOL - QCA
 & Standing

 QCA (FINAL) STANDING (%) STANDING (No.)

 Class Size

APPENDIX M

Final Question (W)

How strongly do you identify with White middle-class American value system? (Rate your identification on the seven-point scale below: 1 = do not identify with the value system / 7 = completely identify with the value system).

Do not Identify	Weakly Identify	Moderately Identify	Strongly Identify	Completely Identify		
I-----I	I-----I	I-----I	I-----I	I-----I	I-----I	
1	2	3	4	5	6	7

Final Question (B)

How strongly do you identify with the Black-American sub-culture?
(Note your identification on the seven-point scale below: 1 = do not identify with the sub-culture / 7 = complete identify with the sub-culture).

Do not Identify	Weakly Identify	Moderately Identify	Strongly Identify	Completely Identify		
I-----I-----I-----I-----I-----I-----I						
1	2	3	4	5	6	7

CURRICULUM VITAE

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