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SELECTION OF MINORITY STUDENTS IN HIGHER EDUCATION

*Arthur R. Jensen**

The assumption underlying most compensatory education programs is that students of minority cultural backgrounds possess innate abilities equal to those of other students even though those abilities do not appear on standardized ability test scores. Most compensatory education programs, therefore, are aimed at minimizing the educational difficulties of minority students by intensive, short-term exposure to the learning environment of the dominant culture. Dr. Arthur R. Jensen controverted this premise in his controversial article, "How Much Can We Boost IQ and Scholastic Achievement?" (37 Harv. Ed. Rev. 1 (1969)), hypothesizing that differences in intelligence are primarily genetically determined and is thus unalterable to any significant extent by environmental manipulations. In the following article, Dr. Jensen concludes that compensatory programs alone are probably inadequate to overcome the learning deficiencies of those minority students who do not meet standard university entrance requirements. The implications of Dr. Jensen's research for legal education involve providing a less demanding law school curriculum for minority students since ability to meet standard entrance criteria is claimed by Dr. Jensen as predictive of a student's success in standard curricula.

I. THE BOOM IN HIGHER EDUCATION

In the past decade the United States has seen a fantastic boom in higher education. Nothing like it has ever happened in

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any other country or in any other period of history. Unfortunately, but not surprisingly, it would be fallacious to equate the quantity of increase in college attendance with the quality of the product. College attendance, if not graduation, is now viewed by most middle class parents as an essential ingredient for their children's getting ahead in the world, and the pressure on today's high school graduates to "go on to college" is enormous. Increasing numbers of youths are forced to college not by aptitudes for and interests in academic studies, but in pursuit of the educational union cards that so many view as the *sine qua non* of the good life in our education-conscious society. In the past fifteen years American colleges have increased in enrollment from about 3 million to 7.1 million. Some 40 percent of American youths now continue their formal education beyond high school.

A currently conspicuous element of the general insistence on a college education is the demand for equal opportunity for educationally disadvantaged minority groups, especially the black population, which historically has had much less than a fair share of social, economic, and educational opportunity. The present demand that minority groups have equal opportunities throughout the educational ladder, from preschool and kindergarten through college and graduate training, is one that, if realized, would benefit the whole society. No effort should be spared in pursuit of this goal. Indeed, vigorous efforts are already underway at all levels of education.

The drive for equal educational opportunities has highlighted certain problems which become most conspicuous and troublesome in the sphere of higher education. It is not that colleges create the problems. They are essentially the same educational problems of the disadvantaged that already exist in the first grade in school; they are only greatly magnified at the college level. Before proceeding further, however, it will help to focus the following discussion if we divide the educational problems of the disadvantaged into two main categories, which we will label simply as *extrinsic* and *intrinsic*.

II. EXTRINSIC AND INTRINSIC PROBLEMS IN MINORITY EDUCATION

The *extrinsic* problems are those barriers to equal opportunity in education, employment, housing, and the like, that are a direct result of racial prejudice and discrimination, and economic disadvantage. Unfortunately these factors still exist, more so in some regions than in others, though they are clearly diminishing. Fortunately, they can be combatted by changing people's attitudes regarding racial discrimination, and through legislation. Since it is more feasible to enact and enforce laws than to change attitudes, citizens and their representatives in government must exercise unrelenting pressure for enacting and enforcing laws that help to wipe out all forms of discrimination and unequal opportunity connected with individuals' race or national origin. Also, public subsidy of higher education for all interested and qualified economically disadvantaged persons should become the general rule. In principle, these problems classified as extrinsic should be the easiest for society to solve. I believe and perceive that the majority of citizens are making steady progress toward the desired goal of true equality of opportunity through goodwill and a sense of justice.

But there still remains the other category of problems I have labeled *intrinsic*. Blacks and other disadvantaged minorities understandably want not only equality of opportunity, but equality of performance as well. The problems associated with this legitimate aspiration unfortunately are not so simple as to be attributable to any lack of good will or good intentions on the part of anyone. These are real problems, difficult problems, that loom before all those who are working for equality of educational opportunity for all citizens. The extrinsic factors referred to above seem almost trivial by comparison with the problems that remain even after the barriers of social discrimination in educational treatment are removed. At present, in most of the nation, the problems of minority selection and performance in higher education are almost entirely of the intrinsic variety. By intrinsic, I do not mean irremediable, or that we can point to some group of persons, least of all to the minority persons themselves, who are

“to blame” for the problem. By intrinsic I mean only that the problems are not of the kind that can be solved merely by legislation or by a change of attitudes or policies on the part of educators and college admission boards. While the extrinsic problems may be of considerable legal and political interest, they are of only minor interest from a psychological standpoint, since the intrinsic problems would still exist even if we could eliminate the extrinsic problems overnight. Indeed, as the extrinsic problems of racial discrimination and economic disadvantage are diminished, the remaining intrinsic problems become even more starkly apparent. It is with these intrinsic problems, especially with their psychological aspects, that the present article is concerned. It aims to describe the problem as clearly as our present information permits and to try to gain some understanding of the problem in terms of psychological and educational research.

III. THE ASPIRATION OF MINORITIES FOR COLLEGE EDUCATION

Proportionally fewer blacks than whites graduate from high school; still fewer blacks go on to college; and still fewer blacks attend predominantly white colleges, to say nothing of the more selective and prestigious colleges and universities. Alexander Astin, director of research for the American Council on Education, has summarized the situation:

Among the 1.5 million new freshmen who entered college in 1968, between 6 and 7 per cent were black. Even though many colleges have gone to considerable effort recently to recruit more black students, the proportion has changed only slightly since 1966. In short, the representation of blacks among new college students is far below their representation in the college-age population (about 12 per cent) and shows little evidence of increasing. Furthermore, those blacks who do attend college are not distributed evenly among the various types of institutions. Nearly half of all black freshmen, for example, attend predominantly Negro colleges, while more than half of all the institutions in the country enroll freshmen in classes in which blacks make up less than 2 per cent.¹

The problem, then, is that there continues to be virtually de facto segregation in American colleges, despite recent efforts

1. Astin, *The Folklore of Selectivity*, *SAT. REV.*, Dec. 20, 1969, at 57.

of leading institutions to recruit larger numbers of minority students. The problem is even more acute at the graduate level and in admissions to professional schools, such as law and medicine, because of the large proportion enrolled as freshmen who fail to complete their undergraduate education.

The pressures to recruit more blacks into college is an understandable corollary of the yearning of Americans in general for educational prestige and of the nation's commitment to improving the lot of blacks and other historically disadvantaged groups in our population. Higher education is viewed as a prime instrument in this endeavor. Not only higher education, but the prestigious higher education associated with highly selective big name institutions is seen by many as necessary for the social, economic, and political advancement of the black population.

Sir Arthur Lewis, a professor of economics at Princeton University and a distinguished member of the black community, has clearly expressed this educational goal of black Americans:

While we are 11 percent of the population, we have only two percent of the jobs at the top, four percent of the jobs in the middle, and are forced into as much as 27 percent of the jobs at the bottom. Clearly, our minimum objective must be to capture 11 percent of the jobs in the middle, and of the jobs at the top.

The road to the top in the great American corporations and other institutions is through education. Scientists, engineers, lawyers, financial administrators, Presidential advisers—all these are recruited from the university. Indeed nearly all of the top people come from a select number of colleges—from some 50 or 60 of the country's 1647 degree-granting institutions. The breakthrough of the Afro-American into these colleges is therefore absolutely fundamental to the larger economic strategy of black power.

. . . I am talking about the university partly because it has become so controversial, and partly because if we conquer the top it will make much easier the conquering of the middle—both in our own minds, and in other people's minds.

What can the good white college do for its black students that black colleges like Howard or Lincoln or Fisk cannot do? It can give our people the kind of cachet that is looked for by people who fill the top jobs in the large corporations and other institutions which do the greater part of the country's business. To put it in unpopular language, it can train them to become top members of The Establishment.

. . . Any kind of America that you can visualize, whether capitalist, communist, fascist or any other kind of *ist*, is going to consist of large institutions like General Motors under one name or another. It will have people at the top, middle and bottom. And the problem of the black will essentially be the same: whether he is going to be mostly in the bottom jobs, or whether he will also get his 11-percent share of the top and middle. And his chance at the top is going to depend on getting the same kind of technical training that the whites get as their gateway to the top.²

This, then, is the understandable and worthy aspiration not only of blacks but of all who wish to right the wrongs of inequality of opportunity, of social and economic disadvantage. The chief problem in realizing this aspiration has not been a lack of willingness and support by colleges, least of all those in the top league. The problem has been that there have not been nearly enough blacks who are even minimally qualified by interest and academic preparation for a reasonable chance of success in first-rate colleges. Highly competitive recruiting by colleges across the country has not been able to fill the desired quotas recently established for minority students in our leading institutions, public and private. So far short have these efforts fallen that some educators are advocating the abandonment of the usual standards for college admission in terms of academic preparation as indicated by high school records and college entrance examinations. Dr. O.B. Parker, of Virginia Commonwealth University, for example, has urged that state colleges must educate as many "high risk" black students as they can recruit, even those whose high school records are totally unpromising. He insisted, "Any institution, no matter how prestigious, that isn't reflecting this fact is not doing an adequate job." Is the difficulty of finding enough blacks who are promising college material really so great as to force the recruitment of such "high risk" students in order to achieve a greater proportion of blacks on college campuses?

IV. THE PROBABLE SUPPLY OF COLLEGE QUALIFIED BLACKS

Qualification for college work is not an entirely arbitrary criterion but is dependant upon the standards and degree of

2. Lewis, *The Black Man's Route to the Top*, READER'S DIGEST, August, 1969, at 158-64.

selectivity that the college has traditionally maintained. It is well-known that colleges' academic standards differ greatly, as expressed in the common phrase among college admissions officers and high school counselors, "there's a college for every level of ability." This is not quite true, but it is true that American colleges span a range of academic standards that will accommodate at least 60 percent of high school graduates. On the other hand, only the top 10 to 15 percent of youths, in academic aptitude and scholastic preparation, can reasonably be expected to succeed in the nation's more selective colleges. Few high school graduates of *any* ethnic group or socioeconomic level are adequately qualified to succeed in Harvard, Princeton, or MIT.

A student has the best chance of profiting from a college in which the general level of the student body's abilities and preparation is not too disparate from his own. A useful index of developed academic aptitudes and skills highly predictive of performance in college is the well-known Scholastic Aptitude Test or SAT. It has two main parts—the Verbal, called SAT-V, and the Quantitative, called SAT-Q. The SAT-V is the most frequently used and the most predictive for most college curricula; the SAT-Q has its greatest predictive validity for students in the physical sciences and engineering. The SAT is standardized on a nationwide basis, so that the scores have approximately the same meaning no matter where or when the test was taken. Nationwide, high school graduates who aspire to go to college and who take the SAT as a basis for selection or admission, have an average score of 500. The test has a standard deviation of 100 points; this means that 16 percent obtain scores below 400, 16 percent obtain scores above 600, and 68 percent obtain scores between 400 and 600. Most students who score 500 on the SAT-V have IQs between 115 and 120. Thus, the SAT-V average of 500 is slightly more than one standard deviation above the mean for the general population. Most selective colleges use some combination of high school grades, recommendations, and SAT (or equivalent) scores as the basis for selection and admission. Since SAT scores are not the only criterion, one usually cannot identify any specific score which is the selection cut-off for a particular college or group of colleges of a given category, such as Ivy

League colleges. In practice, however, most selective colleges do not admit students whose scores are much below a SAT-V of 500. Harvard's range may go as low as 500, for example, because many other criteria are used. But the average will be at least 100 to 200 points above this lower boundary. The average score of entering freshmen at Berkeley is close to 600. The top 50 or 60 most selective private and public colleges and universities—the ones presumably referred to in the previously quoted statement by Sir Arthur Lewis—would nearly all fall in a similar range. In other words, they are admitting the top 10 to 15 percent of high school graduates in scholastic aptitude and preparation for college work.

What proportion of black students would meet the same criteria? Surveys by the College Entrance Examination Board estimate that not more than 15 percent and perhaps as few as 10 percent of Negro high school seniors score above 400 on the SAT-V, and only 1 or 2 percent score 500 or more. On the basis of the College Board Statistics, Professor Julian C. Stanley, of Johns Hopkins University, has estimated the total *number* of black high school graduates who could be admitted by the usual criteria to a Johns Hopkins-level college, which may be regarded as fairly representative of the nation's selective colleges. Stanley states that to succeed academically at Hopkins an entering student needs at least upper-20% ability on College Board tests *and* demonstrated ability to earn good grades in high school. (Grades are indicative not only of ability but of interest, motivation, application and other non-intellectual characteristics that enter into scholastic achievement.) Stanley asks,

Firstly, how many Hopkins-level black male high school graduates become available each year? A few rough calculations will quickly give us an approximate figure. If 3,500,000 babies are born in the United States during a given year, 6% of them are black males, half of those black males graduate from high school, 2% of those graduates score 500 or more on SAT-V, and half of those have high enough grades, we find the number to be 1,050.⁴

Stanley estimates that if both males and females were included,

3. Berkeley Daily Gazette, Dec. 15, 1969, at 6.

4. J. Stanley, Letter to the Editor, The Johns Hopkins Newsletter, Oct. 17, 1969, at 10.

the yearly number of available candidates would be about 3,000, a figure more than double that for men alone, since "black women seem academically abler, on the average than black men, and more persistent and successful in school." (This sex difference is discussed in detail in a later section.) Thus, if Stanley's estimate of 3,000 available black students per year who meet the usual entrance criteria for selective colleges is reasonably accurate there simply are not enough qualified blacks to "go around" to all the selective colleges now competing for increased enrollment of black students. But this is only the most visible aspect of the problem, that small part of the iceberg that troubles those college admissions boards desiring more than a "token" one or two percent of black students on their campuses. For without special recruiting and special standards, the percentage of blacks on most college campuses is rarely more than one to two percent of the total student enrollment. In 1964, under the usual admissions procedures, for example, Berkeley enrolled only 1.1% blacks, although public schools in the vicinity had nearly 40% black students.

It is doubtful whether predominantly Negro colleges are promising recruiting grounds for selective white colleges. Too few of their students are in the range of developed scholastic abilities as assessed by the SAT or similar tests to have a reasonable chance of succeeding in the top white colleges. Stanley, for example, compared the SAT-V scores over an eight-year period (1957-65) of the three predominantly Negro co-educational state colleges in Georgia with the three predominantly non-Negro state colleges in Georgia that in 1964-65 had the *lowest* SAT-V averages of all the state colleges. Stanley found,

The median for Negro males (SAT-V=254.0) was at the 1.1th percentile of the white male distribution (median SAT-V=399.9), indicating that 98.9 percent of the white males exceeded the median of the Negro males. The median of the Negro females (258.0) was at the 1.0th percentile of the white female distribution (median=419.3): 99 percent of the white females exceeded the median of the Negro females.⁵

5. J. Stanley, Letter to the Editor, 37 HARV. ED. REV. 475 (1967).

Stanley concludes,

It would appear, then, that if these predominantly Negro state colleges in Georgia were abolished, the bulk of individuals formerly destined for them might not, even disregarding direct racial prejudice, be acceptable to admission officers of most of the least selective four-year predominantly non-Negro state colleges in Georgia. The situation would probably not be much better in the four Georgia state junior colleges, for which the *lowest* SAT-V mean of either sex in 1964-65 was 359.2; compare this with 275.8, the *highest* mean for either sex in any of the three predominantly Negro colleges.⁶

The five or six elite predominantly Negro colleges in the United States, of course, have considerably higher SAT-V averages than the Georgia state colleges mentioned by Stanley. Freshmen in the elite Negro colleges have a SAT-V average close to 400. But there are probably few, if any, predominantly Negro colleges in which the mean SAT-V score of enrolled beginning freshman is as high as 450. The vast majority of students, regardless of their race or socioeconomic level, with SAT-V scores below 500 would experience inordinate difficulties academically in the nation's top 50 or so selective colleges and few indeed could be expected to persist to graduation.

V. REASONS FOR THE DEARTH OF COLLEGE QUALIFIED BLACKS

Before considering the validity of the traditional college selection criteria, particularly entrance examinations such as the SAT, let us accept them for the time being at their face value in order to attempt to understand why their use results in the scarcity of black students for recruitment by selective colleges wishing to apply their standard admission criteria to all prospective students.

The College Entrance Examination Board's Scholastic Aptitude Test (SAT) is the most typical and most widely used college entrance examination. It is essentially a high-level test of verbal and quantitative comprehension and reasoning. It differs from most tests of general intelligence in that it samples

6. *Id.*

from the total spectrum of human mental abilities a narrower range of mental abilities and that it depends to a somewhat greater extent on certain developed scholastic skills, such as reading and arithmetic. The particular abilities tapped by the SAT are those most relevant to the academic demands of the typical college curriculum. SAT scores are undoubtedly highly correlated with tests of general intelligence and with omnibus aptitude-achievement tests such as the Armed Forces Qualification Test. The SAT verbal score (SAT-V) is based on a number of subtests comprising vocabulary, antonyms, sentence completion, analogies, and reading comprehension. The quantitative score is based on verbally presented problems in arithmetical reasoning; in principle a student who has had first year high school algebra should be able to do all the problems, the difficulty of which is based more on level of reasoning than on material covered in advanced mathematics courses. The SAT-V is the most frequently used for college selection and has the higher correlation with freshman grades. The scaled scores on each test range from 200 to 800, with a mean of 500 and a standard deviation of 100 for the total population of high school seniors competing for admission to college. For high school seniors in general, according to the 1968-69 *College Board Score Reports*, the mean SAT-V for boys is 390 and for girls 393. The standard deviation for high school seniors in general is estimated to be 132, as compared with 100 for students seeking college admission. If we assume that high school seniors have an average IQ of 105 on a general intelligence test like the Stanford-Binet or the Wechsler Adult Intelligence Scale, with a standard deviation of 15, it can be estimated that a SAT-V score of 500 (the national average of students competing for college admission and the lower-bound of the more selective colleges) corresponds to an IQ of 117.

Now let us look at the distribution of IQs in the general population. A fairly close approximation of the actual distribution is shown in Figure 1.

In this IQ distribution only about 13 percent of the general population equals or exceeds an IQ of 117; and assuming a mean IQ of 105 for high school graduates, about 20 percent of them fall above IQ 117. This is the group that, by definition,

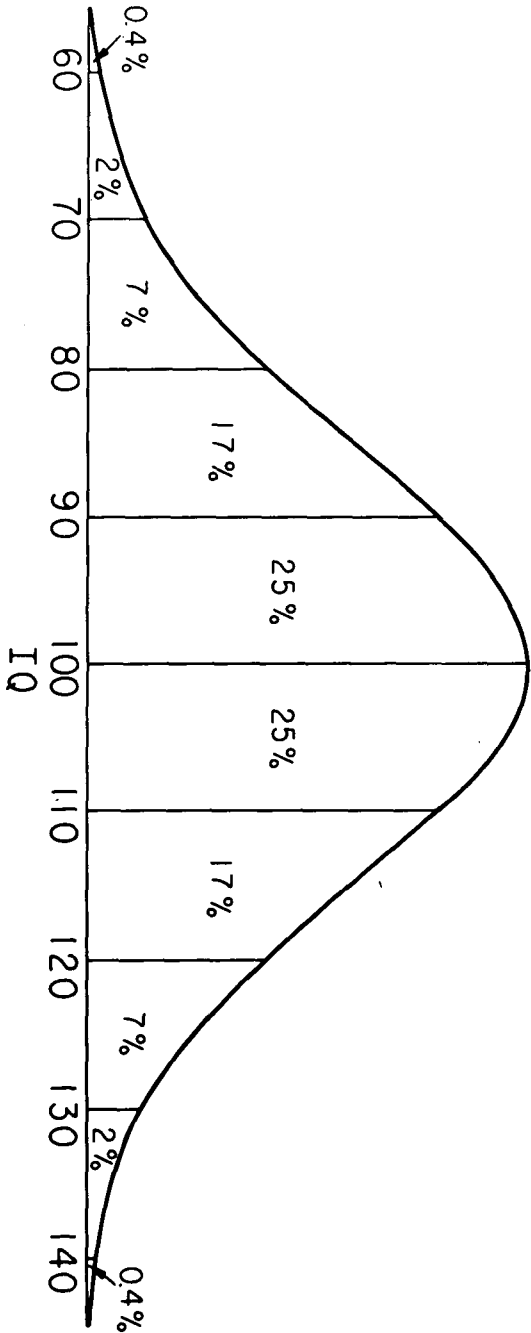


Figure 1. The theoretical or Gaussian distribution of IQs, showing the expected percentages of the population in each IQ range. Except at the extremes (below 70 and above 130) these percentages are very close to actual population values. (The percentage figures total slightly more than 100% because of rounding.)

the selective colleges aim to recruit—the upper one-fifth of high school graduates.

The form of the IQ distribution for the black population is somewhat less certain. The largest single normative study of Stanford-Binet IQs, by Kennedy, Van De Riet, and White, is based on school children in five Southeastern states.⁷ The distribution is shown in Figure 2 in comparison with the white norms for the Stanford-Binet. While these data probably give a reasonably accurate picture of the *form* of the IQ distribution for Negroes, the mean IQ of 80.7 is undoubtedly biased toward the low side as a result of using a Southern sample. A survey of all studies of American Negro intelligence, drawing on samples from all parts of the United States, places the mean IQ closer to 85, with a standard deviation of about 13 (as compared to 15 or 16 for whites).⁸ On the basis of these generally accepted figures, it is estimated that there are approximately 0.7 percent of Negroes with IQs at or above 117. The average IQ of Negro high school graduates, nationwide, is about 90. Given this mean, there would be approximately 2 percent of Negro high school graduates who score above IQ 117. These figures are in close agreement with the actual percentage enrollment of blacks in selective colleges, which, until very recently, has been between 1 and 2 percent, more or less depending on regional variations. In summary, for colleges with a selection cut-off of 500 on the SAT-V, 20 percent of white high school graduates as contrasted with 2 percent of black graduates would be eligible for admission, a per capita ratio of 10 to 1.

This large ratio is attributable to a combination of two factors: the average black-white difference in IQ (about 15 points or 1 standard deviation), and the fact that the form of the distribution of IQs (and of SAT scores) for both blacks and whites approximates the so-called normal, bell-shaped curve shown in Figure 1. Because of the features of the normal distribution, even a relatively small difference between the averages of two populations can make for very large differences

7. Kennedy, Van De Reit, & White, Jr., *A Normative Sample of Intelligence and Achievement of Negro Elementary School Children in the Southeastern United States*, 28 MONOGR. SOC. RES. CHILD DEVEL.No. 6 (1963).

8. A. SHUEY, *THE TESTING OF NEGRO INTELLIGENCE* (2d ed. 1966).

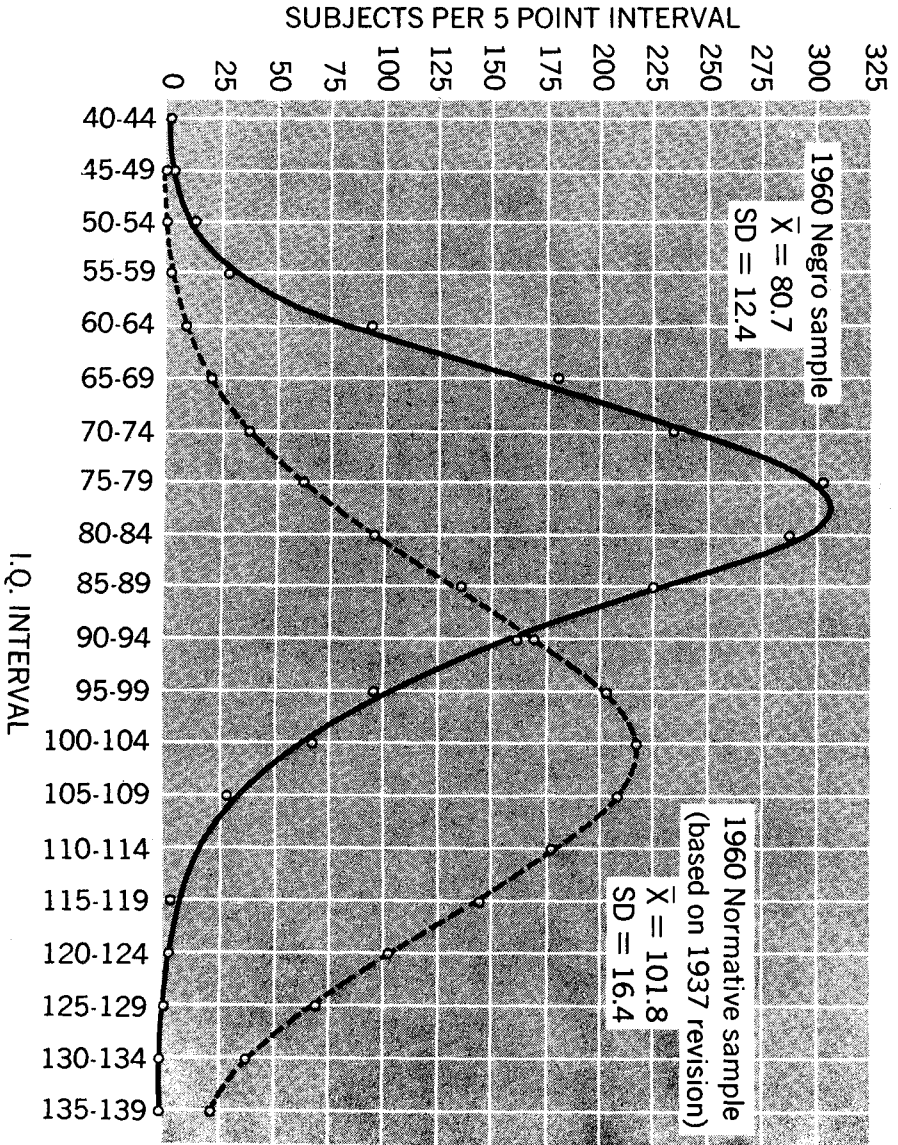


Figure 2. Stanford-Binet IQ distribution of Negro children in five Southeastern states and the white children in the 1960 normative sample. From Kennedy, Van DeRiet + White, Jr., *A Normative Sample of Intelligence and Achievement of Negro Elementary School Children in the Southeastern United States*, 28 *Monogr. Soc. Res. Child Devel.* No 6 (1963).

in the proportions of each population that fall above (or below) some given selection cut-off score. Figure 3 illustrates this effect for two hypothetical populations which differ by only 8 IQ points, their means being 92 and 100. When the selection cut-off (X) is 120, percentages of the two populations that will "pass" are 9.18 vs. 3.07, or a ratio of about 3 to 1. At the other end of the scale a cut-off (X) at IQ 70, generally regarded as the borderline of mental deficiency, results in the percentages falling below 70 of 7.08 vs. 2.28. Thus, an average IQ difference of only 8 points can have quite impressive consequences in terms of population distributions, while a difference of 8 IQ points is trivial in comparing any two individuals. The average difference between full siblings reared together in the same family is about 12 IQ points, a difference which is of little concern to most parents. And the average difference between spouses is about 10 IQ points. Thus, these average differences of 15 IQ points between blacks and whites, which reduces to about 10 or 11 points when the racial means are compared within broad socioeconomic classes, is of major consequence not because a difference of 15 IQ points between any two individuals is important in any significant social sense, but because *as populations* blacks and whites are so disproportionately represented in any selection procedure in which the cut-off is much above the white population mean. Even if the cut-off were at IQ 100, the percentage of whites and blacks exceeding this score would be 50 vs. 12, respectively, a per capita ratio of more than 4 to 1. These ratios are seen not only in screening applicants for college but in Civil Service examinations, personnel selection in business and industry, and in the armed forces.

The supply of black high school graduates who during their high school years have taken the traditional prerequisites for college work is relatively a much smaller percentage than of white students. The ratio of students in academic to non-academic curricula is approximately 3 to 1 for whites and 1 to 2 for blacks. Thus there is a severe reduction in the pool of eligible blacks in terms of academic preparation when high school records are used as part of the selection criteria, as is commonly the case. It is doubtful, however, that merely increasing the percentage of black students in academic

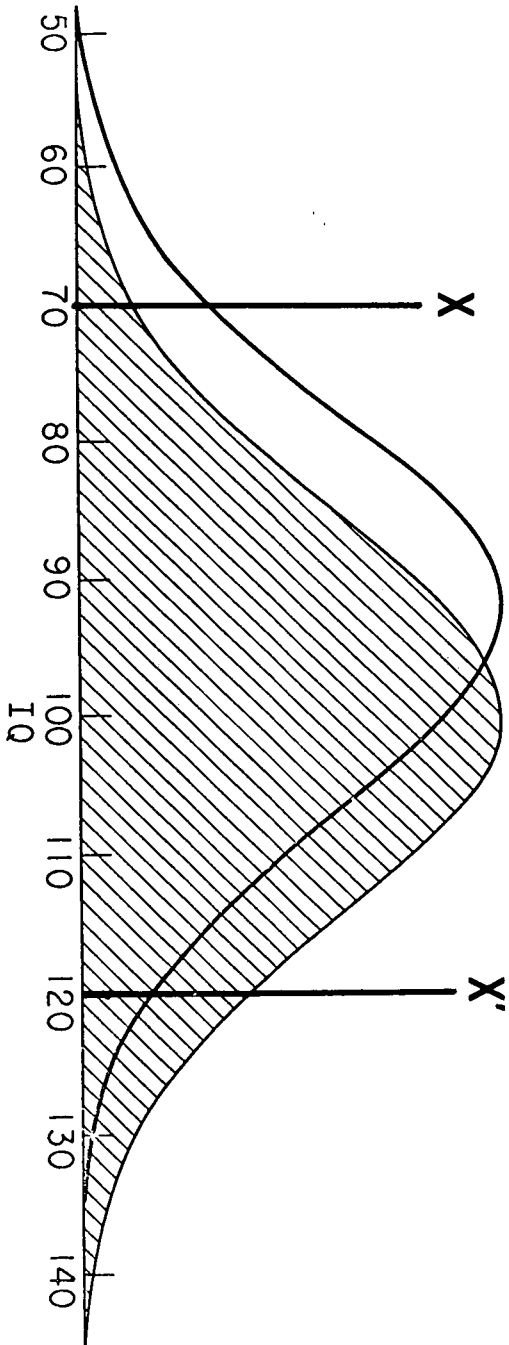


Figure 3. Two normal distributions of IQs with means at 92 and 100. The cut-offs X and X' illustrate the effects of a mean difference of eight points on the proportions of each distribution that fall in the lower and upper "tails" of the distributions.

curricula in high school would have any marked effect on the overall level of blacks' scores on aptitude and achievement tests. There is ample evidence that at present, on the average, black high school seniors who were in academic programs obtain scores on tests of scholastic aptitude and scholastic achievement (e.g., reading, writing, science, mathematics, and social studies) at about the same level as white students who were in *non-academic* programs.

A. *Sex Differences.*

It is a fact of considerable social importance that among blacks there appears to be more academically able females than males. The evidence for this comes from diverse sources. For example, studies based on both sexes show the median overlap of blacks and whites on intelligence tests to be about 12 percent; that is to say, 12 percent of blacks exceed the white median. (By definition, 50 percent of whites exceed the white median.) The Armed Forces Qualification Test (AFQT), administered to nearly the entire male population between ages 18 and 26, shows a black-white median overlap of only 8 percent. From these figures it is a reasonable inference that the black-white median overlap for females would be 15 or 16 percent. This corresponds to a sex difference among blacks of 5 or 6 IQ points. Inference from these data, however, seem slightly to overestimate the sex difference. I have reviewed the evidence on sex differences in intelligence as assessed by a variety of tests administered to some 18,000 white and 15,000 black school children and find that the average difference between boys and girls corresponds to about 3 or 4 IQ points for blacks and 2 or 3 points for whites. Thus, the sex difference is not peculiar to blacks, but is found in both races. It may be slightly smaller in the white population only because many test makers in standardizing the test try to equalize the scores of males and females by eliminating test items that markedly discriminate and by balancing the remaining items so as to minimize any sex difference. Tests which were not made to minimize sex differences usually favor girls. The two consistent exceptions are tests of quantitative and spatial-mechanical ability.

The cause of the sex difference is not definitely known. We

do know that males have a higher rate of infant mortality, are much more susceptible to contracting all communicable diseases, and are psychologically less well buffered against environmental influences, either good or bad. Boys' IQs show higher correlations with environmental factors. Since a disproportionate number of blacks as compared with whites grow up under poor conditions and are therefore subjected to more physical and psychological stresses in the course of their early development, this could account for the slightly greater sex difference among blacks than among whites. There is no need to postulate particular psychological or sociological conditions peculiar to black culture, such as the so-called matriarchical family pattern, to account for the sex difference in IQ and scholastic achievement, which is barely larger than that found for whites.

The only compelling hypothesis concerning the basic cause of the sex difference was advanced by the geneticist Curt Stern, who suggested that the lower vitality of the male is due to the fact that the male has only one X chromosome, while the female has two. If one of the X chromosomes carries recessive genes of lower viability, its effects are usually overruled by dominant genes at the same loci on the other X chromosome. But the male has XY instead of XX, and Y chromosome has very few gene loci and thus cannot counteract the undesirable recessive genes on the X chromosome. It is probably for this reason also that the incidence of various birth defects is so much greater in boys than in girls, and it definitely accounts for the greater incidence in boys of so-called sex-linked defects such as hemophilia and color blindness.⁹

As far as individuals are concerned, sex differences in abilities are practically trivial, as is also the fact that races seem to differ slightly in the magnitude of this small average sex difference. Why, then, was it stated at the beginning of this section that the sex difference is of considerable social significance for blacks?

Again, it is because of the consequences of this seemingly small difference when we deal with whole populations and their ratios of representation above various selection cut-offs,

9. C. STERN, *PRINCIPLES OF HUMAN GENETICS* (1949).

whether the selection cut-offs are based on tests, school performance, or job performance. The higher the selection cut-off, as long as it is related to mental abilities, the greater will be the disparity in the ratio of males to females. Thus, we read in what is now called the *Moynihan Report*¹⁰ that among blacks,

The disparity in educational attainment of male and female youth age 16 to 21 who were out of school in February 1963, is striking. Among the nonwhite males, 66.3 percent were not high school graduates, compared with 55.0 percent of the females. A similar difference existed at the college level, with 4.5 percent of the males having completed 1 to 3 years of college compared with 7.3 percent of the females.

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In 1960, 39 percent of all white persons 25 years of age and over who had completed 4 or more years of college were women. Fifty-three percent of the nonwhites who had attained this level were women.

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There is much evidence that Negro females are better students than their male counterparts.

Daniel Thompson of Dillard University . . . writes:

As low as is the aspirational level among lower class Negro girls, it is consistently higher than among the boys. For example, I have examined the honor rolls in Negro high schools for about 10 years. As a rule, from 75 to 90 percent of all Negro honor students are girls.

Dr. Thompson reports that 70 percent of all applications for the National Achievement Scholarship Program financed by the Ford Foundation for outstanding Negro high school graduates are girls, despite special efforts by high school principals to submit the names of boys.

The finalists for this new program for outstanding Negro students were recently announced. Based on an inspection of the names, only about 43 percent of all the 639 finalists were male. (However, in the regular National Merit Scholarship program, males received 67 percent of the 1964 scholarship awards.)

Moynihan goes on to note that these disparities are carried over to the area of employment and income.¹¹

Negro males represent 1.1 percent of all male professionals, whereas

10. THE MOYNIHAN REPORT AND THE POLITICS OF CONTROVERSY (L. Rainwater & W. Yancey eds. 1967).

11. *Id.* at 77-78.

Negro females represent roughly 6 percent of all female professionals. Again, in technician occupations, Negro males represent 2.1 percent of all male technicians while Negro females represent roughly 10 percent of all female technicians. It would appear, therefore, that there are proportionately 4 times as many Negro females in significant white collar jobs than Negro males.¹²

It is most interesting that every one of these male/female percentage disparities is completely consistent with a male-female ability difference of 0.1 to 0.3 of a standard deviation, which is equivalent to 1.5 to 4.5 IQ points. In other words, the figures that Moynihan presents on the ratio of the sexes for different educational and occupational attainments is just what we would predict on the basis of an average IQ difference between males and females of between 1.5 and 4.5 points, which is the magnitude of the differences we actually find. The main reason that the sex difference is made to appear so much more prominent for blacks than for whites is that these selection cut-offs are in all cases at least one standard deviation (equivalent to 15 IQ points) higher in relation to the black mean than in relation to the white mean. For example, a cut-off at IQ 115 is only one standard deviation above the white mean and 16 percent of whites exceed this score; but the same cut-off is about two standard deviations above the mean of the black distribution, and only about 2 percent of the blacks would exceed this score, making the per capita ratio of 8 whites to 1 black. If black males and females differ by one-fourth of a standard deviation, or about 4 IQ points, the ratio of females to males with IQs above 115 will be roughly two to one. This statistical phenomenon is illustrated in Figure 4.

As can be seen in Figure 4, the relatively small male-female (M-F) difference for Negroes (N) results in quite large differences in the proportions under the male and female curves beyond the selection cut-off (X), and the higher the cut-off the greater will be the ratio of females to males. We see just the opposite effect at the low end of the ability scale. Thus, one of the largest studies ever conducted on the incidence of mental retardation (defined as IQs under 70), showed a sex ratio of 1.68 males to 1 female for whites and only 1.31 males to 1

12. *Id.* at 78.

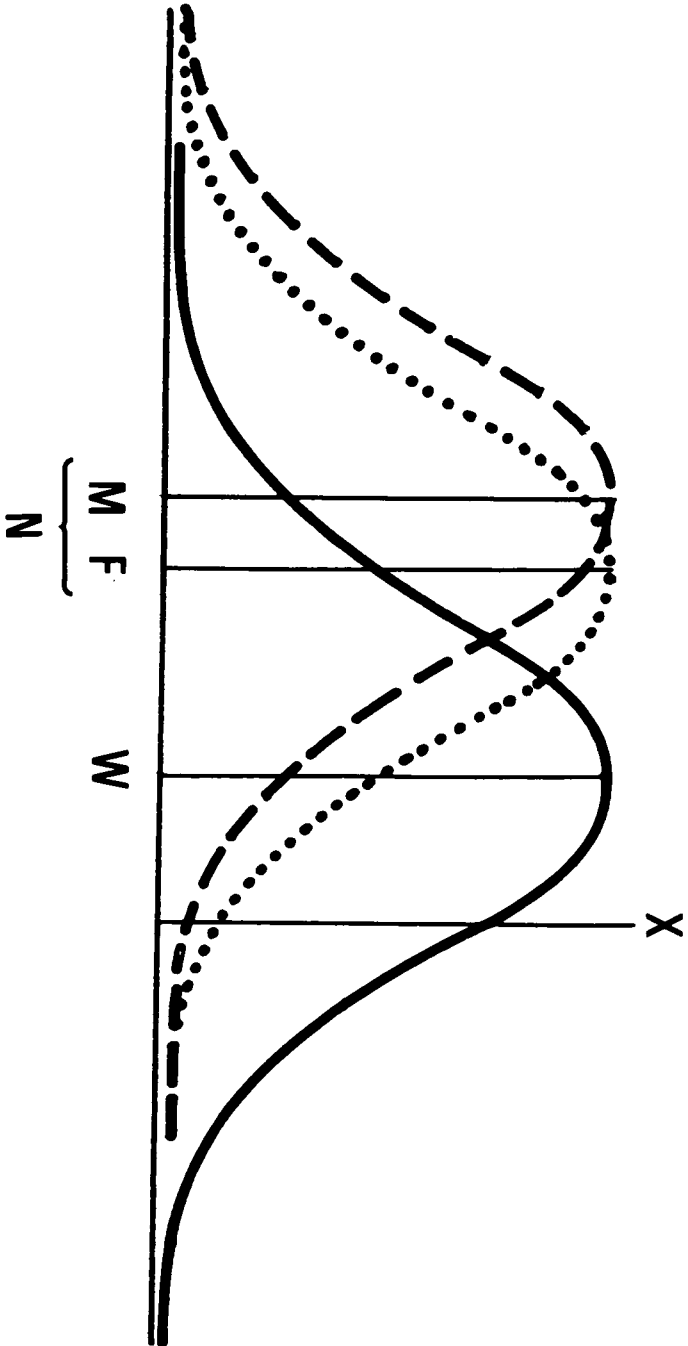


Figure 4. Normal curves for male (M) and female (F) Negroes (N) and for whites (W) (both sexes combined) to illustrate how a relatively small average sex difference can result in markedly different proportions of males and females that fall above any given selection cut-off (X).

female for blacks.¹³ This is just another facet of the same basic phenomenon (with its opposite effect) that we see in selecting persons at the upper end of the ability spectrum.

There is one other aspect of sex differences which tends to counteract the mean difference to some extent when the selection cut-off is high enough. This is a difference in the amount of variance or dispersion of scores, which is reflected by the standard deviation of the distribution. Males have a slightly larger standard deviation (or spread or scores) than females, which means there are slightly more very high and very low scores among males than among females. This is shown in an exaggerated form in the two distributions in Figure 5; both have the same means but different standard deviations. This sex difference in dispersion of IQs is a well-known phenomenon in the white population, but less is known about it in the black. In the white population, above some point (probably about two standard deviations above the mean, *i.e.*, above IQ 130) the percentage of males begins increasingly to exceed that of females. Thus, for example, when Terman sought a large number of "gifted" children (IQs above 140) for his famous longitudinal study, he found a ratio of 12 boys to 10 girls in his final sample of 1528 gifted children.¹⁴ Why this phenomenon seen in the white population does not result in a larger proportion of black males than females above selection cut-offs that are more than two or three standard deviations above the black mean is not known. The question merits investigation.

B. A Word About Intelligence Tests.

Before attempting to say anything about the causes of the racial difference in IQs or other psychometric indices of mental ability, a few words about the nature of intelligence measurement are in order. One of the easiest ways of brushing aside any attempt to understand the observed differences between socially recognized racial groups in performance on intelligence tests is to claim that the tests do not really measure

13. P. LEMKAU & P. IMRE, *EPISTEMOLOGY IN A RURAL COUNTRY: THE ROSE COUNTY STUDY* (Program Report, the Johns Hopkins University Department of Mental Hygiene, July 18, 1966).

14. L. TERMAN *et al.*, *GENETIC STUDIES OF GENIUS* (Vols. I-II, 1925-59).

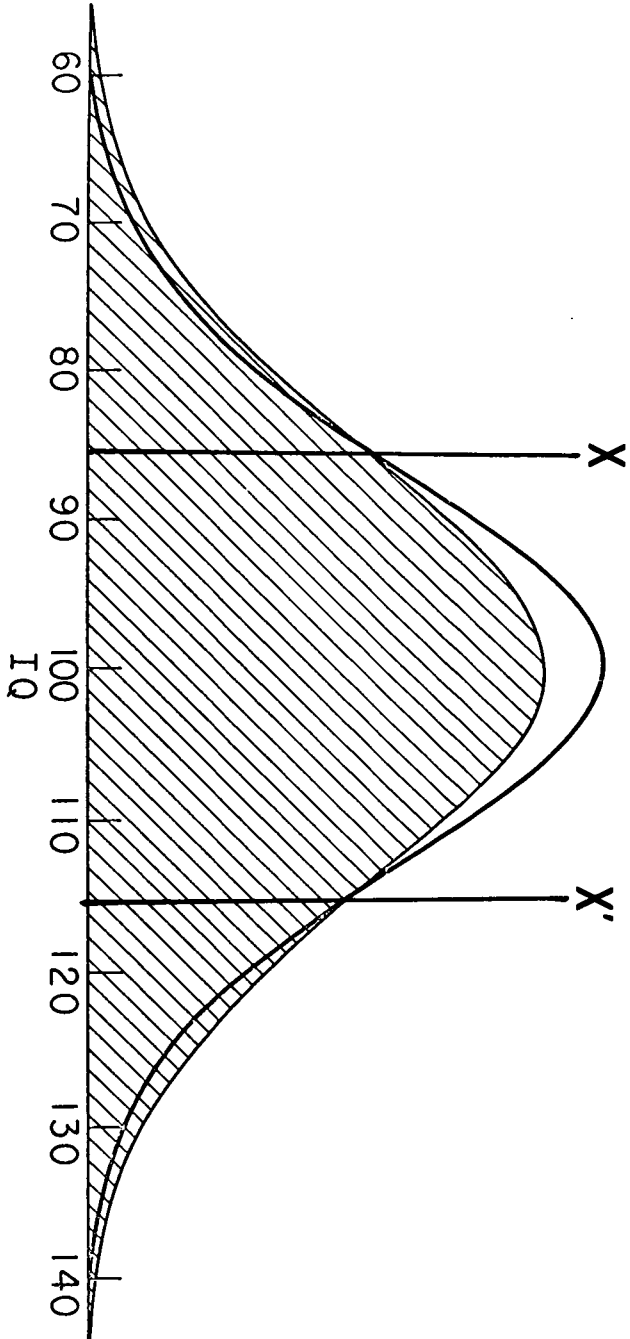


Figure 5. Two distributions that have the same mean but differ in variance (spread). Note that even though the averages of the groups are the same, one group has a larger proportion at the high and low ends of the scale.

intelligence or at least that they are invalid for the group that comes out with the lower average. These misguided arguments are simply the result of their proponents' misunderstanding of what most psychologists actually mean by intelligence and what they claim for intelligence tests.

I have discussed the nature of intelligence and intelligence testing much more extensively elsewhere.¹⁵ The gist of what I have tried to convey is that intelligence is one significant attribute of a person's behavior that distinguishes him within his society. From prehistoric times it has probably been a common observation that persons differ in brightness, in speed of learning, in ability to solve problems, to invent new solutions, and so on. Parents, teachers, and employers are able roughly to rank children and adults in terms of a subjective impression of brightness or capability, and there is a fairly high agreement among different observers in the rank order they assign in the same groups of children. It is helpful to think of the subjective perception of intelligence as analogous to the subjective perception of temperature, which is also an attribute. Before the invention of the thermometer, temperature was a matter of subjective judgment. The invention of the thermometer made it possible to objectify the attribute of temperature, to quantify it, and to measure it with a high degree of reliability. With some important qualifications, the situation is similar in the case of intelligence tests. The most essential difference is that intelligence, unlike temperature, is multidimensional rather than unidimensional. That is to say, there are different varieties of intelligence, so that persons do not maintain the same rank order of ability in every situation or test that we may regard as indicative of intelligence. It so happens that from among the total spectrum of human behaviors that can be regarded as indicative of some kind of "mental ability" in the broadest sense, we have focused on one part of this spectrum in our psychological concept of intelligence. We have emphasized the abilities characterized as conceptual learning, abstract or symbolic reasoning, and abstract or verbal problem solving. These abilities were most

15. Jensen, *How Much Can We Boost I.Q. and Scholastic Achievement?*, 37 HARV. ED. REV. 1 (1969).

emphasized in the composition of intelligence tests because these were the abilities most relevant to the traditional school curriculum and because the first practical intelligence tests were devised to predict scholastic performance. When tests were devised to predict occupational performance, they naturally had a good deal in common with the tests devised for scholastic prediction, since the educational system is intimately related to the occupational demands of a given society. Much the same abilities and skills that are important in schooling, therefore, are also important occupationally. Thus, we find that in industrialized countries practically all intelligence tests, scholastic aptitude tests, military classification tests, vocational aptitude tests, and the like, are quite similar in composition and that the scores obtained on them are all quite substantially intercorrelated. In short, there is a large general factor, or *g*, which the tests share in common and which principally accounts for the variance among individuals. When tests are devised to measure this *g* factor as purely as possible, examination of their item content leads to the characterization of it as requiring an ability for abstract reasoning and problem solving. Tests having quite diverse forms can have equally high loadings on the *g* factor—for example, the verbal similarities and block design tests of the Wechsler Intelligence Scales are both highly loaded on *g*. Tests of *g* can be relatively high or relatively low in degree of “culture fairness.” (The question “In what way are a wheel and a penny alike?” is probably more culture fair than the question “In what way are an oboe and a bassoon alike?”) In short, it is possible to assess essentially the same basic intelligence by a great variety of means.

Standard IQ tests measure the kinds of behavior in abstract and verbal problem situations that we call abstract reasoning ability. These tests measure more of *g*—the factor common to various forms of intelligence tests—than of any of the other more special ability factors, such as verbal fluency, spacial—perceptual ability, sensory abilities, or mechanical, musical, or artistic abilities, or what might be called social judgment or sensitivity. But a test that measured everything at once would not be very useful. IQ tests do reliably measure one very important, though limited, aspect of human performance.

The IQ qualifies as an appropriate datum for scientific study. If we are to study intelligence, we are ahead if we can measure it. Our measure is the IQ, obtained on tests which meet certain standards, one of which is a high *g* loading when factor analyzed among other tests. To object to this procedure by arguing that the IQ cannot be regarded as being interchangeable with intelligence, or that intelligence cannot really be measured, or that IQ is not the same as intelligence, is to get bogged down in a semantic morass. It is equivalent to arguing that a column of mercury in a glass tube cannot be regarded as synonymous with temperature, or that temperature cannot really be measured with a thermometer. If the measurements are reliable and reproducible, and the operations by which they are obtained can be objectively agreed upon, this is all that need be required for them to qualify as proper scientific data. We know that individually administered IQ tests have quite high reliability; the reliability coefficients are around .95, which means that only about 5 percent of the total individual differences variance is attributable to measurement error. And standard group administered tests have reliabilities close to .90. The standard error of measurement (which is about ± 5 points for the Stanford-Binet and similar tests) must always be taken into consideration when considering any individual's score on a test. But it is actually quite unimportant in comparing the means of large groups of subjects, since errors of measurement are more or less normally distributed about zero and they cancel out when *N* is large. The reliability (*i.e.*, consistency or freedom from errors of measurement) per se of the IQ is really not seriously at issue in making comparisons between racial groups when the samples are large. The mean difference between large groups will not include the test's errors of measurement. Moreover, the IQ is a fairly stable measure, especially after individuals have reached school age. The degree to which children maintain their rank order in IQ throughout their development is about the same as the degree to which they maintain their rank order among their age mates in height.

The validity or importance of the IQ derives entirely from its relationship to other variables and the importance we attach to them. The IQ correlates with many external criteria, and at

the most general level it may be regarded as a measure of the ability to compete in our society in ways that have economic and social consequences for the individual. In the first place, the IQ accords with parents' and teachers' subjective assessments of children's brightness, as well as with the evaluations of children's own peers. In terms of assessments of scholastic performance, whether measured in terms of school grades, teachers' ratings, or objective tests of scholastic achievement, the IQ accounts for more of the variance among individuals than any other single measurable attribute of the child, and much more, incidentally, than does the child's socioeconomic status.

The correlation is quite substantial between IQ and occupations, even when the latter are merely ranked in the order of persons' average judgment of the occupation's prestige. (Correlation is a measure of degree of relationship, on a scale going from 0 [no relationship] to 1.00 [perfect relationship].) Various studies have shown correlations in the range of .50 to .70. This is sufficiently high that the mean differences between groups of persons in occupations arranged according to a prestige hierarchy (which is highly related to income) show highly significant differences in IQ or other mental test scores. In general, any two groups which differ in possessing what are perceived as "the good things in life" according to the criteria and values of our society, will be found on the average to differ significantly in IQ.

When groups are selected from the lower or upper extremes of the IQ distribution, the contrasts are enormous. A classic example is Terman's study of gifted children, selected in elementary school, with IQs over 140, a score achieved only by the upper one percent of the population. These 1,528 children have been systematically followed up to middle age.¹⁶ The group as a whole greatly exceeds a random sample of the population on practically every criterion of a successful life, and, interestingly enough, not just on intellectual criteria. On the average the Terman group have markedly greater educational attainments, have higher incomes, engage in more desirable and more prestigious occupations, have many more entries in

16. L. TERMAN & M. ODEN, *THE GIFTED GROUP AT MIDLIFE* (1959).

Who's Who, have brighter spouses, enjoy better physical and mental health, have a lower suicide rate, a lower mortality rate, a lower divorce rate, and have brighter children (their average IQ is 133). These results should leave no doubt that IQ is quite related to socially valued criteria.

C. *Genetic Factors.*

Studies of the relative importance of genetic and environmental factors in individual differences in IQ are based entirely on tests administered to European and North American white populations and cannot be generalized to other populations or used as a basis for inferring the causes of the average difference between racial and cultural groups. But these studies, taken together, do clearly lead to the conclusion that, in the populations sampled, genetic factors are at least twice as important as environmental factors in accounting for the IQ differences among individuals.¹⁷

D. *Average Black-White Differences in IQ.*

It is interesting that most of the general public believe that the differences they observe between whites and blacks in educational and occupational performance are due, not to differences in abilities, whatever the cause of the differences may be, but to differences in motivation or "will." Surveys by the National Opinion Research Center have found that the average white American generally thinks about black and white differences in status and achievement in terms of differences in effort and motivation to succeed. Some four out of five white Americans reject the notion that white people are born with higher mental capacity than blacks.¹⁸

In scientific circles, the causes of behavioral racial differences are an open issue. They are not known in any rigorous, scientific sense, and so the field abounds in speculations. But the differences are viewed by most psychologists primarily as *ability* differences (regardless of whatever their cause may be) rather than as motivational

17. For a review of this evidence, see Jensen, *supra* note 15.

18. Schuman, *Sociological Racism*, 7 TRANS-ACTION 44 (1969).

differences. Motivational differences, when they exist at all, are seen as a secondary by-product of frustration, discouragement, failure, and the poor self-esteem that results therefrom. To the extent that these effects may occur, they probably arise largely in school, due in part to the failure of many schools to make adequate provision for the large individual differences that are found in developmental readiness for learning various school subjects and the differences in *patterns* of abilities that children bring to the learning situation. I have emphasized these points in more detail elsewhere.¹⁹

In terms of what we can measure with our tests, the facts are quite clear and are generally agreed upon by those who have studied the evidence. In the United States persons classed as black by the common social criteria obtain scores on the average about one standard deviation (*i.e.*, 15 IQ points on most standard intelligence tests) below the average for the white population. One standard deviation is an *average* difference, and it is known that the magnitude of black-white differences varies according to the ages of the groups compared, their socioeconomic status, and especially their geographical location in the United States. Various tests differ, on the average, relatively little. In general, blacks do slightly better on verbal tests than on non-verbal tests. They do most poorly on tests of spatial ability, abstract reasoning and problem solving.²⁰ Tests of scholastic achievement also show about one standard deviation difference, and this difference appears to be fairly constant from first grade through twelfth grade, judging from the massive data of the Coleman Report.²¹ The estimated median test scores, based on the nationwide Coleman study, for various racial and ethnic groups are shown for first and twelfth grades in Table 1.

19. Jensen, *Social Class, Race, and Genetics: Implication for Education*, 5 AM. ED. RES. J. 1 (1968); Jensen, *Social Class and Verbal Learning*, in SOCIAL CLASS, RACE, AND PSYCHOLOGICAL DEVELOPMENT 115 (M. Deutsch, I. Ketz, & A. Jensen eds. 1968); Jensen, *Patterns of Mental Ability and Socioeconomic Status*, 3 J. SPECIAL ED. 23 (1969).

20. A. SHUEY, *supra* note 8; L. TYLER, *THE PSYCHOLOGY OF HUMAN DIFFERENCES* (3d ed. 1965).

21. J. COLEMAN, *et al.*, *EQUALITY OF EDUCATIONAL OPPORTUNITY* (U.S. Department of Health, Education and Welfare, 1966).

Table 1
Estimated Median Test Scores (General Mean = 50, Standard Deviation = 10) for 1st- and 12th-Grade Pupils in the U.S. in Fall, 1965

	Puerto Ricans	RACIAL OR ETHNIC GROUP				Negro	White
		Indian Americans	Mexican Americans	Oriental Americans			
1st GRADE							
Nonverbal	45.8	53.2	50.1	56.6	43.4	54.1	
Verbal	44.9	47.8	46.5	51.6	45.4	53.2	
12th GRADE							
Nonverbal	43.3	47.1	45.0	51.6	40.9	52.0	
Verbal	43.1	43.7	43.8	49.6	40.9	52.1	
Reading	42.6	44.3	44.2	48.8	42.2	51.9	
Mathematics	43.7	45.9	45.5	51.3	41.8	51.8	
General Information	41.7	44.7	43.3	49.0	40.6	52.2	
Average of the 5 tests	43.1	45.1	44.4	50.1	41.1	52.0	

Source: U.S. Office of Education, Commissioner's report on "Equality of Educational Opportunity," July 2, 1966.

The scores for all tests are scaled to an overall national average of 50, with a standard deviation of ten points. Table 2 shows the national percentages of whites and non-whites of ages 3 to 34 enrolled in schools and colleges.

Table 2
Enrollment Status of Whites and Non-whites in Schools and Colleges, Ages 3 to 34, in the United States, October, 1968

Ages (in Years)	Percent Enrolled in School	
	Whites	Non-whites
3-4	15.0	19.5
5-6	88.5	83.3
7-9	99.1	99.1
10-13	99.1	98.9
14-15	98.1	97.4
16-17	90.8	86.7
18-19	50.0	46.7
20-21	32.8	20.1
22-24	14.5	9.2
25-29	7.4	4.0
30-34	3.9	3.9
Total 3-34 years	56.6	57.8

Source: U.S. Dept. of Commerce, Bureau of the Census.

The IQ difference of one standard deviation is also quite constant over the age range from about five years to adulthood. Since the black mean IQ is as far below the white mean (in standard deviation units) at the time of high school graduation as at the beginning of first grade, it means, of course, that the public schools did not create the difference. But neither have they succeeded in narrowing the difference, which, judging from

all the available evidence, has remained approximately constant at least as far back as World War I.²² (Both white and black populations since 1918 have gained in average performance on IQ, scholastic achievement, and military induction tests, but the *difference* between the means has remained close to one standard deviation over the past fifty years.)

E. Causes of the Difference.

While almost no one disputes the existence of the approximately one standard deviation difference between blacks and whites on measures of the kinds of abilities we call intelligence, there is considerable dispute concerning the causes of the difference. Either the existing evidence relevant to this question has not been adequately systematized and analyzed to allow the emergence of any scientifically compelling conclusion or the evidence is still inadequate or inappropriate to yield any generally agreed upon conclusion among the scientific community. There are few, if any, scientists who doubt that the history of blacks in the United States and their poorer social and economic condition are at least partially if not wholly the cause of the observed intellectual differences. But to anyone who has studied the psychological research on this problem thoroughly, it is obvious that the evidence is complex and ambiguous at many points. Most environmental theories are overly simple and do not explain all the facts they are intended to account for. Part of the reason that purely environmental theories of racial differences have not become more refined and rigorous is that they have had virtually no opposition from competing theories for the last two or three decades. In this area, psychologists, sociologists, and anthropologists have not followed the usual methods of scientific investigation, which consist in part of pitting rival hypotheses against one another in such a way that empirical evidence can disprove either one or the other. On the topic of racial differences, social scientists for the most part have simply *decreed* on purely ideological grounds that all races are identical in the genetic factors that

22. McGurk, *The Culture Hypothesis and Psychological Tests*, in RACE AND MODERN SCIENCE 367 (R. Kuttner ed. 1967).

condition various behavioral traits, including intelligence. Most environmental hypotheses purporting to explain black-white intelligence differences, therefore, have not had to stand up to scientific tests of the kind that other sciences depend upon for the advancement of knowledge. Until genetic, as well as environmental, hypotheses are seriously considered in our search for causes, it is virtually certain that we will never achieve a scientifically acceptable answer to this question. My view is that we should unrelentingly seek scientific understanding of socially important problems. Of course, there is nothing *inherently* important about anything. Race differences in intelligence are important only if people think these differences, or their consequences, are important. It so happens that in our society great importance is given to these differences and their importance is acknowledged in many official public policies. Racial inequality in educational and occupational performance, and in the social and economic rewards correlated therewith, is clearly one of the uppermost concerns of our nation today.

Most persons are not concerned with those racial characteristics that are patently irrelevant to performance. The real concern results from the observed correlation between racial classification and educational and occupational performance. Persons who feel concerned about these observed differences demand an explanation for the differences. It is apparently a strongly ingrained human characteristic to need to understand what one perceives as a problem, and to ask for answers. People inevitably demand explanations about things that concern them. There is no getting around that. We have no choice in the matter. Explanations there will be.

But we do have a choice of essentially two paths in seeking explanations of intelligence differences among racial groups. On the one hand, we can simply *decree* an explanation based on prejudice, or popular beliefs, or moral convictions, or one or another social or political ideology, or on what we might think it is best for society to believe. This is the path of propaganda. Or, on the other hand, we can follow the path of science and investigate the problem in the same way that any other phenomena would be subjected to scientific study. There is nothing to compel us to one path or the other. This is a matter

of personal preference and values. And since persons differ markedly in their preferences and values, we will inevitably see both of these paths being followed for quite some time. My own preference is for a scientific approach to the study of these phenomena. Our experience tells us that the scientific approach, by and large, leads to more reliable knowledge of natural phenomena than any other method that man has yet devised. If solutions to educational problems depend upon recognizing certain psychological realities in the same sense that, say, building a workable spaceship depends upon recognizing certain physical realities, then surely we will stand a better chance of improving education for all children by choosing the path of scientific investigation.

I maintain, therefore, that the causes of observed differences in IQ and scholastic performance among different racial groups is, scientifically, still an open question, an important question, and a researchable one. Official pronouncements, such as "It is a demonstrable fact that the talent pool in any one ethnic group is substantially the same as in any other ethnic group" (U.S. Office of Education, 1966), and "Intelligence potential is distributed among Negro infants in the same proportion and pattern as among Icelanders or Chinese, or any other group" (U.S. Department of Labor, 1965), are without scientific merit. They lack any factual basis and can be regarded only as hypotheses. Last year, in the *Harvard Educational Review*, I challenged this prevailing hypothesis of genetic equality by suggesting that we also scientifically investigate alternative hypotheses that invoke genetic as well as environmental factors as being among the causes of the observed differences in patterns of mental ability among racial groups.²³ The fact that different racial groups in this country have widely separated geographic origins and have had quite different histories which have subjected them to different selective social and economic pressures make it highly likely that their gene pools differ for some genetically conditioned behavioral characteristics, including intelligence, or abstract reasoning ability. Nearly every anatomical, physiological and biochemical system investigated shows racial

23. Jensen, *supra* note 15.

differences. Why should the brain be any exception? The reasonableness of the hypothesis that there are racial differences in genetically conditioned behavioral characteristics, including mental abilities, is not confined to the poorly informed, but has been expressed in writings and public statements by such eminent geneticists as K. Matter, C.D. Darlington, R.A. Fisher, and Francis Crick, to name a few. The fact that we still have only tentative conclusions with respect to this hypothesis does not mean that the opposite of the hypothesis is true. Yet some social scientists speak as if this were the case and have even publicly censured me for suggesting an alternative to purely environmental hypotheses of intelligence differences. I have always advocated dealing with persons as individuals, each in terms of his own merits and characteristics and I am opposed to according treatment to persons solely on the basis of their race, color, national origin, or social class background. But I am also opposed to ignoring or refusing to investigate the causes of the well-established differences among racial groups in the distribution of educationally relevant traits, particularly IQ.

Many questions about the means of guaranteeing equality of educational opportunity are still moral and political issues at present. When there is no compelling body of scientific evidence on which policy decisions can be based, such decisions must avowedly be made in terms of one's personal social philosophy and concepts of morality. Many goals of public policy must be decided in terms of values. The results of research are of greatest use to the technology of achieving the value-directed goals of society. The decision to put a man on the moon was not primarily a scientific decision, but once the decision was made the application of scientific knowledge was necessary to achieve this goal. A similar analogy holds for the attainment of educational goals.

VI. THE VALIDITY OF COLLEGE SELECTION PROCEDURES

The question concerning the *causes* of intelligence differences are, in fact, quite irrelevant when it comes to the use of tests for predicting performance in college. Doing well academically in college depends upon a conglomeration of

developed abilities, skills, and thinking habits, which scholastic aptitude tests are designed to assess. The important question to the college admissions office is not why students differ on these tests, but whether the tests are valid for their intended purpose, namely, predicting college grades or probability of not flunking out before graduation. Of most importance to the present discussion is whether such tests and other selection criteria are unfair to minority groups.

The *reliability* of a test refers to the consistency and stability of its scores. It is measured by the reliability coefficient, which can have values from 0 to 1. A reliability of 0 means the scores are no more stable than numbers drawn at random in a lottery. A reliability of 1 means the individual's score (or relative standing in a population) is constant from one testing to another. To determine the proportion of error of measurement in test scores, we subtract the test's reliability from 1.00. The reliability of SAT test scores over a 10 months period ranges between .85 and .90, which is high for a group-administered test. Direct coaching on the SAT results in a gain in score, but not much of a gain—approximately one-tenth of a standard deviation (about 10 points on the SAT), which is less than the test's standard error of measurement.

The *validity* of a test refers to the degree to which it can predict performance in another situation. It, too, is expressed as a correlation coefficient with values from 0 to 1. A good criterion against which to assess the validity of the SAT-V is college grade point average (GPA). Among those students who survive four years of college, the correlation between SAT-V and GPA is above .40.²⁴ This is a high validity coefficient, considering that in most colleges the test was used to screen out initially those students with poor prospects of succeeding and that those who left college before their fourth year were not included in the validity estimate.

How should one interpret a validity coefficient? It can be shown that the benefit from a selection program increases in direct proportion to the validity coefficient. To put this fact into easily understood and concrete terms, Cronbach gives an example from industrial personnel selection.

24. L. CRONBACHS, *ESSENTIAL OF PSYCHOLOGICAL TESTING* 232 (2d ed. 1960).

Suppose the 40 applicants out of 100 who score highest on a test are hired. We can consider the average production of randomly selected men as a baseline. An ideal test would pick the forty men who later earn the highest criterion score; the average production of these men is the maximum that any selection plan could yield. A test with validity .50, then, will yield an average production halfway between the base level and the ideal. To be concrete, suppose the average, randomly selected worker assembles 400 gadgets per day, and the perfectly selected group of workers turns out 600. Then a test with validity .50 will choose a group whose average production is 500 gadgets, and a test of validity .20 will select workers with an average production of 440 gadgets.²⁵

The principle is essentially the same in educational selection, except that instead of number of gadgets produced we would be speaking of the amount of knowledge and skills acquired, that is, those aspects of college performance reflected by course grades and scores on achievement tests.

The Law School Admission Test (LSAT), which is now in wide use by law schools, correlates about .30 with first year law school grade average, and about .40 when the LSAT is combined with students' undergraduate grade point average. Validities would doubtless be higher over the whole course of instruction and if there were no initial selection of students on the basis of LSAT scores and undergraduate grades.

A. *Predictive Validity of High School Grades.*

As a general rule, the best predictor of future performance is past performance in similar situations. We might therefore expect that the best predictor of a student's performance in college is his performance in high school, and, in fact, this is generally true. For most students, high school grades are the best predictor of college grades. Prediction is still far from perfect, of course. But it is so much better than chance that if the same odds were given at Monte Carlo to a gambler with a modest bankroll, he could easily own all of Monaco within a few hours. For example, boys with an A average in high school are seven times more likely than boys with a C average in high school to obtain a B average in college, and A average boys are more than twice as likely to get a B average in college as are boys with a B average in high school.²⁶

25. *Id.* at 349.

26. Astin, *supra* note 1.

But there are obvious shortcomings with high school grades or rank in high school class. The most serious is the fact that all high schools do not maintain the same grading standards, and a B average in one school might be equivalent to an A average in another in terms of actual scholastic achievement. Schools' grading standards differ on a regional basis and even among schools in the same city. College entrance tests do not have this drawback when they are administered nationwide under standard conditions and on the same dates for everyone, as is the case with the SAT and the LSAT.

Also, it has been found that although high school grades make a greater contribution than SAT scores in predicting college grades for whites, this is not true for blacks.²⁷ High school grades also have lower validity for black males than for females. Objective examinations, on the other hand, have the same predictive validity for blacks as for whites. Thomas and Stanley state:

Explanations for the relative ineffectiveness of high school grades in predicting freshman grade point average of black students are a matter of conjecture. A few of the more plausible hypotheses that could be advanced are: (a) invalidity of grades [as an index of actual achievement] in high school and/or college, particularly for black males; (b) unreliability of grades and grade reporting in black high schools; (c) inter-group differences in personality characteristics; and (d) restriction in range due to selection processes.²⁸

The authors conclude:

The importance of this research is augmented by the fact that most colleges and universities still rely quite heavily on the high school grade-point average as a criterion for student admission. Many selective institutions are using high school grades without test scores in the belief that the latter are not predictively valid for black college aspirants. Our findings suggest that, on the contrary, academic aptitude and achievement-test scores are often (relative to high school grades) better predictors of college grades for blacks than they are for whites. The best forecasts are made, however, when *both* test scores and high school grades are used optimally to predict college grades.²⁹

27. Thomas & Stanley, *Effectiveness of High School Grades for Predicting College Grades of Black Students: A Review and Discussion*, 7 J. ED. MEAS. (in press 1970).

28. *Id.*

29. *Id.*

VII. POPULAR MISCONCEPTIONS ABOUT SELECTION TESTS

There are a number of common misconceptions about college selection tests, such as the SAT. All of them can be clearly refuted by ample research evidence, although a detailed review of all the relevant research is obviously beyond the scope of the present article, which can present briefly only the most important conclusions.

A. *Are Tests Unfair to Minorities?*

Blacks are the only minority on which there is extensive research concerning the validity of college selection tests.³⁰ For predicting college grades, either in predominantly black colleges or in integrated colleges, as well as in selection in industry and in the military, aptitude tests predict performance criteria just as well for blacks as for whites. In technical terms, we can conclude that the regression of scholastic performance (as measured by grade point average) on aptitude test scores is the same for blacks as for whites; the slope and the intercept of the regression line are the same in both groups. This means that the same mathematical formula (regression equation) can be used for predicting the performance of a black student as of a white student, given their individual test scores. In other words, a black student performs academically no better or no worse than a white student with the same score. Most of the few published studies that have not found this to be the case have found just the opposite of the popular misconception that tests underrate the academic ability of black applicants. If the tests err, it is in slightly *over-predicting* the blacks' academic achievement in college; that is, blacks do slightly less well in their courses than whites with exactly the same aptitude test scores. This

30. See Boney, *Predicting the Academic Achievement of Secondary School Negro Students*, 44 PERSONNEL & GUIDANCE J. 700 (1966); Cleary, *Test Bias: Prediction of Grades of Negro and White Students at Integrated Colleges*, 5 J. ED. MEAS. 115 (1968); Hills & Stanley, *Prediction of Freshman Grades from SAT and from Level 4 of SCAT in Three Predominantly Negro State Colleges*, PROCEEDINGS AM. PSYCH. ASS'N 241 (1968); Hills & Stanley, *Easier Test Improves Prediction of Negroes' College Grades*, 39 J. NEGRO ED. (in press 1970); Ruch & Ash, *Comments on Psychological Testing*, 69 COLUM. L. REV. 608 (1969); Stanley & Porter, *Correlation of Scholastic Aptitude Test Scores with College Grades for Negroes versus Whites*, 4 J. ED. MEAS. 199 (1967).

difference, however, is too small to have any practical significance. What the evidence does indicate is that there is no psychometric basis for "adjusting" or weighting test scores differently according to the testee's skin color. In short, the tests themselves are quite color-blind in terms of predictive validity.

B. Are Verbal Tests Biased Against Blacks?

One of the commonest misconceptions is that blacks do more poorly on verbal tests as compared with other types of tests, probably because verbal tests are presumed to be more culturally and educationally loaded, thereby reflecting certain environmental advantages that are unequally distributed in the black and white populations. But the fact of the matter is that blacks get higher scores on verbal tests than on almost any other kinds of mental tests—spatial, mechanical, or quantitative. The eleven subtests of the Wechsler Adult Intelligence Scale, for example, can be categorized into verbal and non-verbal (or "performance") tests. Most studies have shown that blacks obtain relatively lower scores on the non-verbal tests. We have recently completed an analysis of test score data on more than one thousand black and white school children who were given two tests differing markedly in their dependence upon verbal and cultural knowledge. One test, the Peabody Picture Vocabulary Test (PPVT) presents the child with 150 sets of four pictures in each set; the child points to the one picture named by the examiner. The names are words like *wiener*, *kangaroo*, *caboose*, *peacock*, *capsule*, *bronco*, *kayak*, *amphibian*. The other test was Raven's Progressive Matrices, a non-verbal test consisting of patterns of abstract geometric forms. A part of the pattern is missing in each matrix of figures and the child has to select the missing part necessary to complete the pattern from among six multiple-choice alternatives. The correct choice is dependent not upon perceptual acuity per se, but upon logical reasoning—the ability to grasp the principle or general rule governing the over-all pattern. It turns out that black children, though performing more poorly than white children on both tests, obtain relatively lower scores on the Matrices Test than on the Picture

Vocabulary Test. Mexican-American children in the same schools, on the other hand, showed just the reverse. They scored below the black children on the verbal test and above them on the non-verbal.

The one class of tests that have been found to show the least difference between black and white subjects are tests of immediate and rote memory.³¹ The differences between blacks and whites referred to here are based on entire school populations; they are the differences that actually exist in intact groups, not the differences (or possible lack of any difference) if all environmental background factors were controlled. No knowledgeable person would claim that the observed differences do not reflect a host of environmental factors or that genetic factors might not also contribute to the differences. As pointed out previously, scientists have not yet answered this question. But the test differences, whatever their cause, have predictive validity in school and college performance. Verbal aptitude tests predict academic achievement better than other kinds of tests, and so they are the most widely used. The fact that verbal ability is the black's strong point, relative to other mental abilities measured by tests, means that selection based on verbal tests favor blacks more than if non-verbal tests were used.

C. *Are Grades or Ratings Unfair to Blacks?*

The fact that predictive validities (and regression lines) have been found to be the same for blacks and whites suggests that academic performance, not skin color, affects college grades. At least this seems to be true when the selection procedures are the same for blacks and whites. I have not found any published research studies of college grades when blacks and whites are admitted under different selection procedures. One hears informally of a variety of grading consequences at different colleges having different selection standards for black and white students. Some professors say, for example, that grades on the average are the same for blacks as for whites; others say that grading standards are changed for black

31. Jensen, *Another Look at Culture-Fair Tests*, in MEASUREMENT FOR EDUCATIONAL PLANNING 50 (Western Regional Conference on Testing Problems, Proceedings for 1968). See also note 19 *supra*.

students; still others say that grading standards are lowered for *all* students in mixed classes in order to keep very low grades at the same minimal proportion as in unmixed classes. Obviously these casual observations must be evaluated only as speculative hypotheses until someone systematically collects and properly analyzes some actual relevant data.

A grading bias that would systematically lower the course grades of black students, however, seems unlikely. I base this conjecture on some evidence published by the Educational Testing Service which indicates that when whites are asked to rate blacks on their job performance, there is a tendency for them to overrate slightly rather than to underrate blacks as compared with whites. The study was based on large samples of black and white medical technicians employed in 36 Veterans Administration hospitals throughout the country. Supervisors rated the job-knowledge of the medical technicians working under them. The ratings were analyzed in four combinations: blacks rated by blacks, blacks rated by whites, whites rated by blacks, and whites rated by whites. All the technicians were also given a job-knowledge test which sampled only the knowledge that medical technicians must have and that can be picked up on the job. The result was that for any given job-knowledge test score, blacks rated by blacks received the highest rating, blacks rated by whites received the next highest rating, and whites rated by whites received the lowest rating. The ratings of whites by blacks showed absolutely no relationship to job-knowledge test scores, but the average over-all rating was about the same as that of blacks rated by blacks. All of the other ratings showed a very substantial correlation with job-knowledge scores. The job-knowledge scores were also compared with the scores on nine aptitude tests that were given to all the technicians. The authors of the study state:

Scores on every one of the nine aptitude tests predicted scores on the job-knowledge test somewhat better for Negroes than for whites. If there was any bias, it was in the opposite direction from what might be expected. White technicians with any given aptitude score tended to do better on the job-knowledge test than Negro technicians with the same aptitude score. If these aptitude tests were used in selection, the future performance of white technicians would more often be under-estimated.³²

32. *Bias in Selection Tests and Criteria Studied by ETS and U.S. Civil Service*, ETS DEVELOPMENTS (Princeton, N.J., 1969).

D. Do Tests Measure Socioeconomic Status More Than Ability?

It is a fact that test scores are correlated with socioeconomic status (SES). This had led some critics of tests to claim that tests are a pernicious means of keeping persons in the social class of their origin, especially persons from poor families who, were it not for the tests used by schools and colleges, could move upwards in status educationally, occupationally, and economically. The facts do not bear out this complaint. Any other means of selection or prediction for college-going potential disfavors children of low-SES more than do objective tests. Interviews, ratings, and teacher's judgments are all more subject to influence by the veneer of social-class; objective tests, in effect, "read through" the superficial appearances associated with socioeconomic status and are far more accurate than any other means we presently have for assessing academic aptitude and probability of success in a given college. The use of objective tests is still the best safeguard that persons from a low-SES background will be given a fair chance in the selection procedure. Wider use of tests in schools, combined with wise counseling, would actually *increase* the pool of identified potential college-level candidates from economically disadvantaged backgrounds. Academically gifted children from poor families are much more likely to be identified by tests than by parents or teachers. Aptitude tests, properly used, tend to protect the rights of qualified minority group members. In comparison, the personal interview is notoriously invalid as a selection procedure.³³ It is an interesting, but theoretically unexplained, fact that high IQs (*i.e.*, above 120) and consequently high academic potential are somewhat more evenly distributed among social strata than are low IQs (60-80), which are most heavily concentrated in the low-SES segment of the population. Tests can help parents and school authorities to spot the academically talented in disadvantaged groups, children whose abilities might otherwise go unrecognized because of the nonintellectual values of their

33. Dunnette & Bass, *Behavioral Scientists and Personnel Management*, 2 INDUSTRIAL RELATIONS 115 (1963).

family environment and the stereotypes many school personnel and employers may hold about the intellectual potential of children of the poor. By the same token, tests identify those students of mediocre academic ability who come from upper-middle class homes that provide the social advantages of proper diction, manners, and the like, which can often be misread by teachers and employers as signs of superior intellectual ability. Some persons have actually objected to selection tests on the ground that they identify low ability in the upper classes as well as in the lower classes. Thus, it is perhaps understandable that tests are criticized from both directions.

If we correlate students' SES and IQ with scholastic performance, we find that IQ accounts for much more of the individual differences in performance than does SES. It is possible statistically to examine the correlation between SES and scholastic achievement with the correlation attributable to IQ eliminated, and the correlation between IQ and achievement with the contribution of SES removed. A typical study, for example, found a correlation of .62 between intelligence tests scores and scholastic attainment, with SES held constant, and a correlation of .30 between SES and scholastic attainment, with the IQ held constant.³⁴ (The magnitude of the difference in the degree of relationship represented by two correlation coefficients is based on the difference between their squares, so a correlation of .62 represents more than four times as great a relationship as a correlation of .30). Thus, intelligence contributes a large share of variance in achievement (education, occupation, income) that is *unrelated* to the social class of birth. Findings such as these have led sociologist Otis Dudley Duncan to the following conclusion:

In view of the loose relationship between IQ and social class in the United States, it seems that one very constructive function of the ability measured by intelligence tests is that it serves as a kind of springboard, launching many men into achievements removing them considerable distances from the social class of their birth. IQ, in an achievement-oriented society, is the primary leaven preventing the classes from hardening into castes.³⁵

34. S. WISEMAN, *EDUCATION AND ENVIRONMENT* 67 (1964).

35. Duncan, *Ability and Achievement*, 15 *EUGENICS Q.* 1 (1968).

E. Are Recruited Students the Same as Self-Selected Students?

Selective colleges sometimes admit a small percentage of applicants with relatively low SAT scores (say, in the 350 to 450 range), or with unpromising high school records. Since some proportion of these students actually succeed in college, it is assumed that there will be approximately the same proportion of successes among students with similar low SAT scores who are *recruited* by the college. This is a false inference. The consequences of recruitment of high risk students must be evaluated empirically; it can not be inferred from data on self-selected students with similar SAT scores. Students who strive to get into a particular college and who, for one reason or another, manage to gain admission despite low test scores or unpromising high school grades, usually have, as they say, "other things going for them." They are exceptionally motivated, or under strong family pressures to succeed, or know how to manage their time and study habits exceptionally well, and so on. Consequently a considerably higher percentage of them will succeed than can be expected in any random selection of the college-age population with similar low scores. In terms of statistical probabilities, the student with an SAT in the 350-450 range who gets into a selective college on his own steam is more likely to succeed than a student of the same ability who is simply recruited by the college. The academic performance of recruited "underqualified" students needs to be evaluated in its own right.

The reason for assuming a probable difference is that self-selected students differ from randomly selected college-age persons on a number of personality and character traits that are related to performance in an academic setting. Using the California Psychological Inventory (CPI), Gough compared groups of high school seniors of similar ability who did and who did not go on to college. Every college-going student was matched with a non-college-going student for sex and IQ, and both groups of students were then compared on each of the eighteen personality scales of the CPI. The groups differed on a number of personality characteristics as assessed by items of the CPI. Examination of the items that discriminate most

between the groups led Gough to the following composite description of the college-bound youths, "mature and rationale, more capable of achieving in a logical and responsible manner." The non-college youths could more often be characterized as "poorly organized, less certain of what they can or should do, and . . . less capable of directed and resolute endeavor."³⁶ The questionnaire scales that Gough was able to derive from this study would undoubtedly be useful in the recruitment of college students and should add significantly to the predictive validity of the SAT and high school grades.

F. *The Smallpox Fallacy.*

This particular misconception, also called the "goiter fallacy," results from the frequent observation in highly selective colleges that there are very few failures or students with overwhelming academic problems. Therefore, it is argued, why do we need any selection tests—since just about everyone makes the grade? This argument is directly analogous to the question, "We don't see much smallpox, so why urge everyone to be vaccinated?" or "Who sees anyone with a goiter these days, so why insist on iodized salt?" (In fact, goiter has actually increased in frequency in recent years mainly because of this fallacious reasoning by the public.) When a college's particular selection standards are relaxed, the kinds of problems the selection process was originally intended to minimize can be expected to increase.

VIII. CONSEQUENCES OF IGNORING SELECTION CRITERIA

In connection with the drive to admit greater numbers of minority students into selective colleges, there has been general recognition of the need to lower admissions standards, at least for the minority students, and this has led to much discussion—but so far little or no real research—on the consequences of lowered standards. About all that can be reported at present are the questions, hopes, fears, and speculations of psychologists and educators who, by virtue of

36. Gough, *College Attendance Among High-Aptitude Students as Predicted from the California Psychological Inventory*, 15 J. COUNSELING PSYCH. 269 (1968).

their research specialization, are intimately concerned with the selection process. It has been predicted, for example, that racial segregation in American higher education will grow unless different norms are used by the elite colleges in the selection of minority students, since these colleges are becoming more selective and therefore the cut-off is higher up the tail of the ability distribution. The problem is summarized clearly by Professor Lloyd G. Humphreys of the University of Illinois:

In the ability area in which the highest 25 percent of Caucasians are found, which is the area from which the more distinguished state universities draw their students, only about 5 percent of the Negroes have a competitive ability level.

The emotional response to this is that the tests are "culturally bound" and do not evaluate Negroes "fairly." The data are remarkably consistent, however, in showing that these tests are equally accurate predictors of academic performance for both races during at least the first year in the standard curriculum.

When the above ratio of 5 to 1 is corrected for the proportion of Negroes in the population, there is only about one Negro to every 30 Caucasians on a nationwide basis who is in the top 25 percent of our population. In order to obtain more than a token number of Negro undergraduates, admissions standards have to be substantially lowered. When this is coupled with the present severe competition for qualified Negroes, and a crash recruitment program, student quality may deteriorate substantially. The result this past academic year on this campus [University of Illinois, Champaign] was a difference between the means of the two races that was 2.4 times the standard deviation of the Caucasian distribution.³⁷

Humphreys goes on to speculate about the possible consequences of such lowered selection standards:

A difference between the means of the races of one standard deviation is difficult to deal with if the goal is something like 15 percent Negro admissions. As the difference increases, difficulties multiply. There will be an intolerable level of dropping of Negro students on academic grounds during the first year unless there is massive intervention. A desirable form of intervention is to establish special sections and special remedial courses. An undesirable form is for the faculty to assign grades in regular racially mixed classes on the basis of skin color rather than on performance. In the present

37. Humphreys, *Racial Differences: Dilemma of College Admissions*, 166 SCIENCE 167 (1969).

emotional climate, if more desirably forms of intervention are not sufficiently massive, this second type becomes inevitable.³⁸

Professor Julian C. Stanley of The Johns Hopkins University has suggested that college revolts by blacks have been fueled by the academic frustration of academically underqualified students exposed to curricula that are impossibly difficult for their developed abilities. He states:

A number of studies have shown that scholastic-aptitude tests are quite resistant to coaching. Claims for remedial courses and tutoring seem largely unsubstantiated. Thus, the college that admits a number of "high-risk" freshmen and looks for academic miracles is probably inviting trouble, unless it provides easier curricula.³⁹

Stanley goes on to ask to what extent

many of the black students at Cornell and other highly selective colleges regard most of their courses as "irrelevant" *because those courses are too difficult for them*. Published reports from Cornell and several other selective colleges show that a large percentage of their black freshmen are seriously underqualified academically, compared with most of the freshmen with whom they compete. This factor, almost always ignored in discussions of demands by black students, deserves prominence as probably having potent explanatory value. It seems likely that academic difficulties interact with racial sensitivities to frustrate and infuriate many black students. The percentage of black freshmen in a college who would not have been admitted by a "colorblind" admissions office may be a fairly good index of forthcoming demands by black students who may, of course, be led by academically qualified blacks who themselves are making good grades.⁴⁰

Professor Humphreys expresses a similar concern:

There is another effect of bringing in Negro students who are far below their fellow students in readiness to do academic work. A group of young people who are newly imbued with pride in race are placed in a situation in which they are, by and large, obviously inferior. A scientist qualifies this inferiority by adding "at their present stage of development," but this is slight consolation to the student involved. The causal chain from frustration to aggression is well-established. A large ability difference as a source of aggression cannot be ignored. The universities are damned if they don't admit

38. *Id.*

39. Stanley, *Confrontation at Cornell*, 7 *TRANS-ACTION* 54 (1969).

40. *Id.*

more Negroes, but they are also damned in another sense if they do.⁴¹ 0038

A much less conspicuous but educationally more consequential effect of lowering admission standards in the most selective colleges is that more of the academically less prepared students are forced into courses and majors that are not of their choosing but are academically easier and thus permit them to get through. This diminishes the number of black professionals who graduate from college, persons with the kind of education that permits them to fill socially and economically important and needed positions as doctors, lawyers, engineers, chemists and the like. In the most selective colleges the pre-professional programs are among the more difficult and competitive majors. By recruiting black students who are not up to this competition academically, selective colleges drain off black talent into the "black activist" field and create shortages of black professionals—physicians, dentists, lawyers, etc. A greater proportion of these same students could succeed in these majors in somewhat less selective colleges. Ironically, the most intensive recruiting efforts are made by the most prestigious colleges, which offer the least chance for blacks to succeed in their standard curricula, and not by the more average run of colleges in which more blacks might succeed. Programs in "black studies" and the like will not give black Americans what they most need to gain from higher education. Sir Arthur Lewis has observed:

The current attitudes of some of our black leaders toward the top white colleges is, therefore, bewildering. In its most extreme form, what is asked is that the college set aside a special part of itself to be the black part: a separate building for black studies, separate dormitories and living accommodations for blacks, separate teachers, all black, teaching classes open only to blacks. The teachers are to be chosen by the students, and will for the most part be men whom no African or Indian or Chinese university would recognize as scholars, or be willing to hire as teachers.

Doubtless some colleges under militant pressure will give in to this, but I do not see what Afro-Americans will gain thereby. Employers will not hire the students who emerge from this process. And their usefulness even in black neighborhoods will be minimal.⁴²

41. Humphreys, *supra* note 39.

42. Lewis, *supra* note 2, at 160.

IX. SOLUTIONS TO THE PROBLEM

Solutions to the problem of increasing the enrollment of minority students in colleges and universities need to be thought about both in terms of short-range tactics applicable almost immediately and in terms of long-range improvement strategies. Any proposed solutions at this time are bound to be speculative. We are not sure what will work and the only way to find out is to try a variety of proposals. But their results must also be properly evaluated. We are sadly lacking objective information about the actual academic and personal consequences of admitting underqualified students to institutions of higher education. What we do know with great confidence is that when minority students actually meet the same selection standards as the regularly admitted students, they can be expected to perform as well as anyone else with comparable qualifications and therefore their minority status *per se* is of no consequence academically.

If, on the other hand, in the interest of increasing minority enrollments, an institution wishes to admit underqualified students (in terms of its standards for regular students), it must weigh the disparity between the underqualified and the regular students against the institution's facilities and programs for meeting the special needs of those students who cannot compete successfully in the regular curricula. There is no getting around the fact that higher education is a highly competitive affair and, given the values and the needs of our technological society, this fact is not likely to change in the foreseeable future. Therefore, it seems manifestly callous and unfair to admit large numbers of underqualified students into college programs on a "sink or swim" basis, without any special provisions of course counseling, remedial classes, tutoring, and the like. Either an inordinate percentage will "sink" or instructors will alter their standards of evaluation. The latter effect, of course, is often seen as an injustice by those minority students who are qualified by the usual standards and who could earn good grades from a "colorblind" evaluation. If college grades are no longer indicative of the student's performance in courses, the inevitable consequence will be for graduate schools, professional schools,

and employers to rely increasingly on other means of assessment, most probably objective tests.

A. Compensatory Programs.

There is as yet little published hard evidence on the effectiveness of compensatory and remedial programs in helping academically underqualified students to make the grade in selective colleges. Probably no one in this country has established more contacts and received more information about such programs around the country, or has analyzed the relevant data more thoroughly, than Professor Julian C. Stanley, an expert in educational and psychological measurement at The Johns Hopkins University. It is worth quoting some of his published observations in this area. Referring to Professor Humphreys' concern about the situation at the University of Illinois where specially admitted black students had an average academic aptitude 2.4 standard deviations below the mean of the white distribution, Stanley states:

In studying various remedial, tutoring, and coaching programs for many years, I have found no evidence that anyone knows how to leap an academic-readiness gap nearly that large.

Especially, the developed verbal and mathematical abilities represented by college-entrance examinations such as the Scholastic Aptitude Test seem highly resistant to accelerated growth at high school and college levels. One hears many anecdotes about academic miracles, but upon closer examination they almost always prove to be unsubstantiated or highly atypical.⁴³

Stanley states elsewhere:

Admissions officers of selective colleges run serious academic risks if they ignore . . . test scores, high school grades, and other such evidences of readiness to succeed in a given college. Enrolees academically underqualified for the institution will need new curricula of suitable difficulty. If these are not offered voluntarily by the college, they will probably be demanded by the black students. Tutoring and remedial courses are not likely to be enough.⁴⁴

In a footnote, Stanley adds:

The metaphor of the disadvantaged student as an empty vessel

43. Stanley, *How Can We Intervene "Massively"?*, 167 SCIENCE 123 (1970).

44. Stanley, *Achievement by the Disadvantaged*, 163 SCIENCE 622 (1969).

waiting to be filled up quickly is implicit in most discussions of the probable benefits of tutoring and remediation at the college level, but I know of no rigorous evidence (though unsubstantiated anecdotes abound) that students initially low in high school grades and academic aptitude test scores "catch up." . . .⁴⁵

The growth of academically relevant abilities is a long, slow, cumulative process extending continuously all the way from kindergarten (or earlier) up through the college years. The senior year in high school or the college freshman year is a late stage indeed for trying to remedy deficiencies in intellectual habits and skills that take many years to develop, and unfortunately no one has discovered the means of bringing a student with a SAT score of 300 up to the level of a student with, say, 500, after he has reached college age. But at present we also do not know how to do this even beginning in elementary school or the preschool. Great and massive efforts are being made to improve the scholastic performance of disadvantaged children, but so far no large or lasting effects have been found which would lead one to believe that the present methods will significantly increase the supply of college-level academic talent among the disadvantaged. At present, it seems, the best we know how to do is to identify such talent as exists; this being the case, no effort or resources should be spared in making sure that potential college-level talent not be overlooked or be allowed to wither for lack of adequate educational stimulation and cultivation.

I have reviewed more extensively elsewhere the results of the best known efforts generally to boost IQ and scholastic achievement at the public school level.⁴⁶ A nationwide survey and evaluation of the large, federally funded compensatory education programs by the U.S. Commission on Civil Rights concluded that these special programs had produced no significant improvement in the measured intelligence or scholastic performance of the disadvantaged children whose educational achievements they were specifically intended to raise. The evidence presented by the Civil Rights Commission leads one to question whether merely applying more of the same approach to compensatory education on a larger scale is likely

45. *Id.* at 622 n.2.

46. Jensen, *supra* note 15.

to lead to the desired results, namely increasing the benefits of public education to the disadvantaged. The well-documented fruitlessness of these well-intentioned compensatory education programs should lead us to question the assumptions, theories, and practices on which they were based. Some small-scale experimental intervention programs have shown more promise of beneficial results, but they have not been in progress long enough to know yet whether the gains are maintained in the later years of schooling. I do not advocate abandoning efforts to improve the education of the disadvantaged. Increased emphasis on this effort is needed, in the spirit of experimentation, with a greater diversity of approaches and more rigorous evaluation in order to increase our chances of discovering the methods that work best.

B. Discovery and Cultivation of Academic Talent.

If we do not know yet how to create or inculcate academic talent in children, we can at least identify it with considerable accuracy. But this talent needs to be discovered early and it must be encouraged and cultivated over a period of years if it is to be of advantage to the student entering college. Even a potential Einstein without the developed intellectual values and acquired scholastic skills would not be able to succeed in college. Therefore, if we are to increase the number of minority and disadvantaged students who can go to college profitably, I would urge that we seek academic talent in these groups as early in their schooling as possible, and then make very certain that it is properly encouraged, stimulated, and cultivated. The less culturally biased tests should assist considerably in this effort, tests like Raven's Progressive Matrices and Cattell's Culture-Fair Tests of *g*. Children with above-average scores on these kinds of tests, properly administered and given over a period of time in order to overcome test shyness, etc., can be regarded as academically talented, especially if they are more than one standard deviation above the general population mean. Such children, when they are from a disadvantaged background, should be given special attention. They should not be forced to languish in classes with a high percentage of slow learners who demand most of the teacher's attention. The able

children especially need the stimulation of smaller classes, better teachers, and tutorial attention from teacher's aids and volunteer college students. The tutorial attention is not so much for purely scholastic reasons as for giving the child intellectually and academically-oriented persons with whom he can feel some identification and who can help to fire his enthusiasm for learning and thinking. It is their values and attitudes about intellectual matters, rather than their abilities, that keep many children of the poor from developing the scholastic skills that are needed for college. Greater efforts can be made to prevent the loss of academic potential resulting from unstimulating and discouraging home and school environments.

C. *Widening College Opportunities.*

Stanley has urged that more colleges representing a much wider range of difficulty levels than is found in the most highly selective "prestige" institutions make greater efforts to recruit minority students, provide scholarships, and the like. He states:

A basic principle, applicable across socio-economic levels and races, is that students achieve their academic goals best at institutions where they are not too poorly (or well) prepared to compete academically. Students would not seem to be served best academically by being admitted to those major universities and selective colleges for which they lack even marginal readiness. The some 3000 colleges in this country provide enough variability in academic difficulty to accommodate almost every high school graduate who wishes to be a college student.⁴⁷

Elsewhere he says:

The old rule of guidance and admissions that a student is well advised to attend a college where he is not almost hopelessly outclassed academically holds for blacks as well as for others. Many colleges and universities exist which are easier than those in the Big Ten, for example. It is cruel psychologically, dangerous racially, costly economically, and unproductive educationally to set up quotas of blacks for selective colleges and universities, however humanitarian that might seem. Most academically quite underqualified students can be got through to degrees there only if easier curricula are developed specially for them, and that needlessly

47. Stanley, *supra* note 46.

and probably inefficiently duplicates resources already available in state colleges, many private institutions, and open-door community colleges.⁴⁸

D. Enhancing the Value of Diverse Education.

The question of selection for higher education finally must be viewed in the total perspective of education for all our nation's youth. Resolving the problem of minority selection in college is but a small portion of the total problems of education. The public schools are actually failing to be of real benefit to a large segment of our youths, particularly minority youths. In Chicago alone it is claimed that some 47,000 school age children are out of school and out of work at any given time. And one thousand drop out of public school each month. In some Chicago high schools the *average* reading level even of those who graduate is seventh grade. In the streets of Harlem there are over 70,000 high school drop outs of college age and younger.⁴⁹

Public education has not come to grips with these problems. The solution, I believe, lies in diversified school programs that permit and encourage students with different patterns of abilities and interests to attain employable skills in today's society. College education in the traditional sense is a minority path for *any* racial and socioeconomic group. Other educational paths must be made attractive and valuable. Unfortunately the national yearning for educational prestige has forced into college many youths of all races who would have done better in something else. While college enrollments go up, nearly a quarter of the young men and women who turn eighteen every year are not educated to the minimum level of employability for the eight out of ten job opportunities which do not require a college education. The federal government invests \$14 in the nation's universities for every \$1 it puts into vocational education programs; yet it spends up to \$12,000 per person in remedial programs to get the unemployed off welfare rolls. Some change in our educational values clearly seems

48. Stanley, *supra* note 45.

49. *Where Failure Makes the Grade: Two Schools for Dropouts*, 16 CARNEGIE Q. (No. 4a 1968).

called for, with more emphasis on the needed occupational goals to be met through education and less on the mere prestige value of "going to college." Colleges and universities are often criticized as being elitist institutions. So be it. There is nothing wrong with having institutions of higher learning intended for only a small percentage of the population in a democratic society, provided the elitism is one of intellectual merit rather than one of privilege based on social class, race, or family background. But it will take more effort and scrupulous care to make the privilege fully available and accessible, both financially and psychologically, to those of academic promise from socially and economically poor backgrounds. Academic talent and interest must be assiduously sought in all segments of our society and encouraged to fulfillment whenever it is found. This seems the surest way at present of insuring the greatest benefits of higher education to minorities and to society as a whole. Dedication to the ideal of equality of *opportunity* means, at our present point in history, sensitivity and watchfulness for practices, policies, and attitudes which create discrimination disfavoring minorities, and full legal implementation and enforcement, where necessary, to prevent such discrimination. But the ideal of equality of *performance* depends upon strict adherence to dealing with persons, not as members of particular subgroups in the population, but as individuals, each in terms of his *own* abilities and drives and potentials. Equality of opportunity must apply to all segments of the population and can be evaluated accordingly. But equality of performance, we know, is achieved by persons as individuals, not as a percentage of some socially defined population group. When the individual is lost sight of as merely part of a "quota," his own achievements and self-esteem are jeopardized. The value of equality of opportunity for all groups in our society is that it permits to the fullest extent the recognition of excellence in performance by individuals, regardless of the group into which they were born.

