

ACADEMIC VALUES AND THE JENSEN-SHOCKLEY CONTROVERSY¹

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Open societies are characterized by a plurality of interests and concerns. Values cherished in open societies include the support of conditions conducive to furthering a higher quality of life, an enlargement of the range of freedom, and the pursuit of happiness. Variations in value preferences and structures are integral to an open society. Rational choice involves the determination of those values that are more worthy of satisfying; rational action is concerned with the selection of those instrumentalities most conducive to the attainment of worthy value preferences.

Open societies also support conditions conducive to the growth and application of scientific knowledge. As an activity designed to set forth laws (or well-founded generalizations) through rigorous methodological procedures and to provide instrumentalities and techniques for bringing about a preferred state of affairs, science is supported by those values which advance freedom of inquiry and discussion of ideas. In open societies it is expected that scientists as well as other investigators will differ not only in their value preferences, but also in the procedures they find most propitious for carrying out their investigations and in the conclusions they reach and the recommendations they propose. Integral both to the consideration of values and to the development of scientific knowledge is the freedom to inquire, to publish the results of such inquiry, and to evaluate the views of others.

This article will discuss an issue involving values and scientific inquiry: the controversy related to efforts to link racially-associated genetic factors to intelligence. The first section will discuss this issue as it relates to academic freedom. The second section will analyze the soundness of generalizations made in studies dealing with the heritability of I.Q. and with group differences attributable to racially-derived genetic factors. The authors should say at this point that both of us have been involved for more than twenty-five years in organized endeavors to attain equal and viable educational opportunities for all ethnic groups.

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I

The freedom to express views linking intelligence to race has recently come under attack. Obviously such views, and the methods of argumentation used to support them, have offended the sensibilities of many persons. In expressing their strong opposition to the dissemination of such views, some professional academics have urged not only that studies of this question be condemned without considered examination of their proposed evidence and arguments, but also that the distribution of the reports of such studies be forbidden by professional journals, academic departments, and learned societies. For example, in the "Point of View" column of the December 3, 1973, issue of *The Chronicle of Higher Education*, Charles Isaacs asks "What then is the meaning of a public platform for William Shockley?" and answers his question in the following way. "It is the legitimation of the most pernicious aspects of ruling class ideology, of ideas which have no basis in fact, of ideas which have historically been used only to hold back progress and to justify oppression. No advocacy of any 'freedom' can be used to protect such lies." Isaacs further points out that such ideas can have dangerous consequences and that such a "racist" viewpoint "is and should be, a nondebatable issue." To discuss Shockley's ideas on a university level under the protection of "academic freedom," Isaacs states, is "to hide under some fictional 'marketplace of ideas.'" Consider some of the consequences of this position. The truth of some viewpoints would be so obvious that they would not be subject to reexamination or correction. Identifiable persons or groups would be authorized to specify which ideas would be nondebatable. Some authority would be needed to assure that the nondebatable ideas would not be discussed in academic and other forums. In the end, such a program not only makes possible the imposition of racism as a dogma, but also undermines the free and open forum in which racism could be vigorously challenged.

Academic freedom provides an atmosphere in which professors and researchers in academic communities can explore their scholarly interests and have an opportunity for the full and frank discussion, criticism, publication, and teaching of their considered views. The definitive statement on academic freedom in higher education in this country is the 1940 Statement of Principles of Academic Freedom and Tenure, formulated jointly by the Association of American Colleges and the American Association of University Professors, and subsequently endorsed by more than 85 professional organizations. This statement holds that the "common good," rather than the particular

interest of an individual professor or of an institution, is the overriding consideration in appraising the function of institutions of higher education. "The common good depends upon the free search for truth and its free expression, and academic freedom is essential to these purposes and applies to both teaching and research." The statement further asserts that "Academic freedom in its teaching aspect is fundamental for the protection of the rights of the teacher in teaching and of the student to freedom in learning." The statement also recognizes that academic freedom "carries with it duties correlative with rights."

Commitment of the academic community to academic freedom is the recognition that freedom of inquiry and freedom to disseminate its results are a condition essential both to the common good and to the fulfillment of the basic purposes of institutions of higher education. This commitment takes precedence over consideration of whether the discussion of a particular issue would contribute to the common good. The free search for truth does not require justification that in each particular instance the issues being explored would contribute to the common good. Such restraint would undermine the basic principle of the free search for truth. It is precisely in those areas where some interest group believes that certain ideas can have dangerous consequences, or that the advocacy of certain views can be injurious to its interests, that academic freedom becomes most relevant and viable. The legitimacy of the interest group's concern, or the veracity of the views regarded as dangerous, is not the point at issue. Rather it is that such ideas, concerns, and interests need to be fully and freely examined, that contending points of view need to be advanced and criticized on their merits.

Academic freedom and professional responsibility are mutually supportive. Academic professionals are responsible to their peers and to their academic community for the quality of professional work they perform. Plagiarism, deliberate distortion and falsification of data, falsification of professional credentials, gross disregard of professionally recognized norms for protecting the health of human subjects or participants in experimental research, and gross conflict of interest in consulting situations are professionally reprehensible acts. If grounds for bringing charges of professional unfitness against an academic exist, then charges can be brought, and procedures assuring due process can be carried out. Such procedural safeguards help to assure both fairness in treatment of the parties involved and support of academic freedom in the institutional environment.

Parties rejecting the positions of studies linking intelligence to racially-associated genetic factors have expressed a variety of con-

cerns. It is claimed that supporters of such studies are advocates of racism. It is feared that such studies will lead to the adoption of prejudicial educational programs for groups purportedly identified as "inferior," that governmental educational appropriations will be altered adversely as a result of such studies, that further justifications will be given for the perpetuation of existing inequities, or even that a program of planned racial genocide might be recommended. The substantive issues here are serious. Individuals or groups believing that such apprehensions are well founded certainly would be justified in seeking political, legal, and social actions to prevent implementation of policies that would have such consequences.

If a group regards its vital interests threatened, appropriate and viable actions can be taken in a manner consistent both with the Constitutional provisions of the First and Fourteenth Amendments and with overlapping considerations essential for the attainment of the fundamental objectives of higher education. Academic institutions can fulfill their responsibilities on controversial issues only by maintaining conditions essential for the integrity of the teaching and research of the professional staff. These conditions include the freedom to pursue any type of inquiry, to explore any ideas, to consider any proposed solution to an issue, and to have any evidence or methodology developed in research evaluated (and perhaps controverted) by other investigators in the field.

Although academic freedom has been presented here as a principle, as a value essential for the fulfillment of the purposes of institutions of higher education in their contribution to the "common good," its exercise in the present controversy has some significant utilitarian consequences. For example, the hypothesis that "intelligence" as measured by traditional I.Q. tests is ambiguous has additional support. The fact that it is difficult to separate out a single variable, such as a racially-associated genetic factor, in the determination of I.Q. scores has been reinforced. Renewed emphasis has been given to the relationship between the determination of "intelligence" and such factors as prenatal environment, early childhood nutrition, motivation and reinforcements for early development of learning habits and skills, peer group interaction, environmental value structures, quality of instruction, and other cultural and economic considerations.

To summarize, academic freedom provides a viable context in which viewpoints can be advanced and controverted on their merits. To advocate the right of persons to hold views that others find objectionable is to support the democratic process. The position that some ideas are nondebatable, that irrevocable final answers have been attained, undermines the integrity of scholarship and research.

Academic freedom is critical precisely in those areas that are highly controversial and in those instances in which an interest group would censor or restrict the kinds of conclusions investigators would be expected to reach. Nondebatable issues become dogmas subject to cynical rejection as well as to enforcement. Academic freedom also provides opportunities to advance reasons to show why controversial positions are objectionable or their methodologies deficient. Substantive issues cannot be resolved by the use of emotive and derogatory labels. Academic freedom encourages the disputants to present their evidence and arguments before their peers so that well-reasoned and supported conclusions can be distilled.

The views set forth here support the statement on academic freedom and the I.Q. controversy released on February 7, 1974, by the Committee on Academic Freedom and Tenure of the American Association of University Professors, and published in the 1974 Summer issue of the *AAUP Bulletin* (p. 153) and in this journal (Summer 1974).

II

The controversy over the heritability of I.Q. gained public attention in 1969 when Arthur Jensen published his paper "How Much Can We Boost I.Q. and Scholastic Achievement?" in the *Harvard Educational Review*.² In this article, Jensen presented three major conclusions: (a) that 75-80 percent of the variation in I.Q. within groups is explained by genotypic (inherited) variance; (b) that the mean I.Q. difference found between black and white populations is largely attributable to differences in genotype; and (c) that compensatory programs have not significantly altered the I.Q. performance of black children.

Subsequently, numerous critiques, rejoinders, news specials, boycotts, cries of indignation, and attempts to disrupt discussion of the issue have ensued. A large portion of these responses have centered on Jensen's second conclusion: that genetic differences between black and white people account for their different performance on I.Q. tests. Less attention has been given to Jensen's most basic proposition: that 75-80 percent of the I.Q. variation among U.S. Caucasians is to be explained by genotypic variance. On the soundness of this conclusion rests all subsequent research and model construction published by Jensen.³ It is the intent of this discussion to show that the evidence presented by Jensen does not justify his conclusion, and to suggest that the proportion of I.Q. variation accounted for by heritability is exaggerated by Jensen if it is generalized to the U.S. Caucasian population.

Jensen's evidence will be reviewed from two perspectives: (1) the

internal validity of his findings, that is, the extent to which the findings accurately reflect the samples studied, and (2) their external validity, that is, the extent to which these findings may be generalized to larger populations. It will be assumed in this discussion that the genetic model proposed by Jensen to calculate the heritability of any phenotype is adequate, and that intelligence tests are appropriate indicators of intelligence. Although these points are granted here, it is to be recognized that they are in fact debatable.

The data base used by Jensen to establish the proportion of variation in I.Q. which can be accounted for by genotypic variance represents two collections of studies: (a) the correlation of I.Q. scores between monozygotic twins reared apart (a total of 4 studies, sample sizes varying from 19 to 53, median correlation .75) and (b) the correlation between foster parent and child⁴ (a total of 3 studies, sample sizes not reported, median correlation .20). Using this data, Jensen computes an estimate of the proportion of I.Q. variance contributed by genotype and environmental differences. Statistically simplified, a .75 correlation between monozygotic twins reared apart is, in Jensen's model, an estimate of the proportion of variation in I.Q. accounted for by genotypic variance within U.S. Caucasians. This discussion will focus on the problems of estimating genotypic variance for U.S. Caucasians from the studies of monozygotic twins reared apart.

A problem of internal validity: confounding variables

To the extent that other relevant factors vary with I.Q. and are shared by separated twins, these factors will be reflected in the original correlation between the I.Q.'s of separated monozygotic twins. These factors, once controlled, would reduce the amount of I.Q. variance attributable to genotype.

1. *Prenatal environmental similarities.* Jensen states that prenatal environmental *differences* account for "much of the average difference in (the I.Q. of) monozygotic twins, whether reared apart or together."⁵ But twins experience not only differences in the prenatal environment; they also experience similarities, which Jensen fails to take into account. For example, in their prenatal environment twins may not consume the same amount of food, but they would be exposed to a similar composition of nutritional resources and psychologically induced chemicals. These paired similarities would be reflected in the original correlation of .75. If the prenatal environment is taken into account, the amount of variation attributable to genotype is reduced.

2. *Age at separation.* The age at which the monozygotic twins studied were separated is specified for only one of the four studies used by Jensen. In this sample, which Jensen considers the “best” in this respect, the separation of twins occurred at birth or within the first six months. This is one of three studies Jensen classifies as “early separation.” Of the other two studies so classified, the original published report of one shows that the mean age at separation was 13.6 months, the median, 12.5 months.⁶ If this median age of separation is representative also of the third “early separation” study, and the fourth sample (source not specified by Jensen) was based on separation at a later age, then age at separation may well be confounding Jensen’s results.

3. *Adoptive environment of monozygotic twins.* Using socioeconomic status as an indicator of environment, there is little evidence that this factor may be confounding the relationship. For one of the studies used by Jensen, there is a slightly negative correlation between socioeconomic ratings of the twins’ adoptive environments. Although data for the other three studies is lacking, the possibilities of similar socioeconomic environments confounding the relationship appear slight.

A problem of external validity: representativeness of sample

The extent to which one may generalize any statistical finding is limited to the population for which it is representative. The method which generally assures “representativeness” calls for random selection of subjects from the population about which one wishes to generalize and, in this case, random assignment to varying environmental conditions found in the same population. Jensen wishes to generalize to the U.S. Caucasian population from these studies. This generalization will be shown to be problematic.

The studies of monozygotic twins reared separately reported by Jensen represent a nonrandom selection of subjects. All twins encountered unusual circumstances which required their separation from each other, and, for at least one member of the pair, separation from the biological parent. These characteristics are not typical of the U.S. Caucasian population, and extensive generalization therefore does not appear warranted.

Of greater significance to the external validity of Jensen’s study is the nonrandom assignment of subjects to environments representative of the U.S. Caucasian population. In attempting to assess the amount of variation in any one factor that is accounted for by a second factor, the homogeneity of the sample studied with respect to any

relevant third variable will affect the answer. If one were to attempt to identify factors which account for the varying frequency of respiratory ailments in a population, for example, several outcomes are possible. If the sample consisted completely of smokers, the amount of variance attributable to heredity, for example, would likely be greater than for a sample consisting of a mixture of smokers and nonsmokers. Each estimate of the proportion of the variance attributable to heredity is highly specific to the population for which it is representative.

The following characteristics might be distributed differently in the monozygotic twin studies and in the U.S. Caucasian population as a whole:

1. *Socioeconomic Status*. It appears that the socioeconomic levels of the adoptive homes of the monozygotic twins studied are fairly representative of the socioeconomic distribution of U.S. Caucasians. Jensen specifically reports on the distribution for one study of twins. In the Burt study of English monozygotic twins, the adoptive homes are representative of all socioeconomic categories in the English census.⁷ However, whether the categories are represented in the same proportion in the twin studies as in the general population is unclear, and the extent to which the socioeconomic levels of England (where the largest samples were obtained) are representative of those of the United States is subject to some question. For example, access to health care varies more by income in the United States than in England.

2. *Family size*. Regardless of income, family size has an effect on the intelligence of children. Children reared in large families tend to perform lower on I.Q. measures than those from small families. As compared to the U.S. Caucasian population, a disproportionate number of adopted children, such as the monozygotic twins, are placed in homes where there are few or no children. This difference in distribution of family size would limit the applicability of Jensen's heritability estimates.

3. *Birth order*. Many researchers in the field of intelligence,⁸ including Jensen, have noted the significant variation in I.Q. performance by birth order. The oldest child is, on the average, superior in mental ability as compared to other children in the family. Whether this phenomena reflects biological or environmental differences has yet to be determined.

If this factor is social, that is, the product of greater attention given the first child, then the applicability of Jensen's studies may be further limited. It is reasonable to suggest that a disproportionate number of adopted children are placed in homes where they constitute the "first

child'' in the family unit as compared to the U.S. Caucasian population.

4. *Family and parental stability.* The extent to which emotional stability affects I.Q. performance is not firmly established. Sufficient reasons do exist to suggest that this factor may be distributed differently in the twins studied by Jensen and in the U.S. Caucasian population.

Adoption agencies consider numerous factors in the selection of homes for children. Many of these factors may be intuitively assessed, but it is reasonable to assume that they include some evaluation of the emotional stability of each parent and the predicted stability of the husband/wife relationship. If a pronounced tendency is evident in this respect, then the samples used in Jensen's analysis may again be limited in their applicability.

It should be clear that none of these factors would be likely to eliminate the role of genotypic variance in I.Q. performance; but, taken collectively, they could only decrease the proportion of the I.Q. variance attributable to genotypic differences in the U.S. Caucasian population. Before an inference about percentages is made, more evidence regarding the representativeness of these or other samples is required.

Concluding observations

Further research into the heritability of I.Q. has merit; the implications of such research remain open. Jensen would note that even a well-established estimate of the inheritability of a trait is not immutable.⁹ More important, ways of altering performance on I.Q. tests are not limited to the eugenics program proposed by William Shockley.¹⁰ The phenotypic expression of a disease with an heritability as high as .9 can be altered by manipulations in the environment. The same holds for performance on I.Q. tests.

As a popularized interpretation of Jensen's research, Shockley's discussion of the inheritability of I.Q. should not be ignored. His argument as presented in the *Phi Delta Kappan* is tautological, true by definition. To provide proof that 80 percent of the variance in I.Q. is attributable to genotype, Mr. Shockley asks the reader to conduct a card experiment designed to determine the mix of cards that will produce the scatter diagram of the paired I.Q.'s of the monozygotic twins reported by Jensen. Briefly, five numerically valued cards are drawn at random and their values summed to obtain a hypothetical value for an I.Q. score. Only if four out of the five cards drawn are of the same value for each pair of twins is it possible to replicate a scatter

diagram of the paired monozygotic twins reported by Jensen. Although this exercise may be illustrative of some basic statistical operations, it is not evident that 80 percent of I.Q. variation is attributable to genetic differences. Other findings, which Shockley reports as outcomes of his own research, are presented without accompanying replicability information. The tone of his writing serves to inhibit objective discussion of issues and therefore is scarcely felicitous in a scientific forum. ("Dear reader, does a thought-blocker prevent you from recognizing the familiar because I have presented it in an unfamiliar light?"¹²)

Given the significant limitations of Jensen's research and the possibility for environmentally induced changes in I.Q. performance, what can account for the attention given this topic by the mass media? It is not necessary to conclude that "racist" media personnel account for this attention. Instead, consideration should be given to basic media principles. A "newsworthy story" has been characterized as follows: If a dog bites a man, that's not news, but if a man bites a dog, that's news. It is Jensen's unusual conclusions, and the academic community's unusual response to Shockley's attempted explanation, that attract the attention of the media. The attention given Shockley's discussion of I.Q. heritability is explained by another pattern evident in our public debate forum: the tendency to generalize expertise. (The converse, the tendency to generalize stigma, is a well-formulated concept in the field of social deviance. That is, a person known to be deviant in one dimension of normative standards will be considered deviant in others.) In this case, the acquisition of a Nobel Prize in one scientific field is generalized to accord expertise in other scientific fields.

These patterns in mass dissemination of scientific findings, and the inevitable incorporation of these findings into debates on social policy, suggest that social scientists should institutionalize some method for communicating their findings and the accompanying limitations and implications to the general public. Just as Watergate brought to the forefront the need to have legal expertise involved in the activities of the mass media, the I.Q. controversy has made the same need apparent for social science expertise. In an era when research findings are widely distributed, it is incumbent upon researchers to be rigorous in their application of scientific principles and to be involved in the dissemination not only of their findings, but of the implications and limitations of their own research as well as the research of others.

NOTES

1. William J. Kilgore prepared the first section of this article, Barbara Sullivan the second.
2. Winter issue, Volume 39, No. 1, 1969.
3. This problem is especially applicable to Jensen's publication *Educability and Group Differences* (New York: Harper & Row, 1973).
4. "Foster care" as used in Jensen's article refers not to temporary placement in a home but to permanent placement or adoption.
5. Jensen, *op.cit.*, p. 68.
6. H. H. Newman, F. N. Freeman, and K. J. Holzinger, *Twins: a Study of Heredity and Environment* (Chicago: University of Chicago Press), 1937.
7. Jensen, *op.cit.*, p. 52.
8. On the importance of birth order see W. D. Altus, "Birth Order and Its Sequelae," *Science*, 1966, Vol. 155, pp. 44-49.
9. Jensen, *op.cit.*, p. 43.
10. William Shockley, "Dysgenics, Geneticity, Raceology: A Challenge to the Intellectual Responsibility of Educators," *Phi Delta Kappan* (January 1972) pp. 207-307.
11. *Ibid.*, p. 298.