

Review of "The IQ Game: A Methodological Inquiry into the Heredity – Environment Controversy" by Howard Taylor; Rutgers University Press, New Brunswick, New Jersey, 1980. 276 pp., \$19.50

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Article:

Taylor's book presents a very thorough critique of major studies which purport to show that variation in human IQ depends largely on genetic differences. Coming after the complete exposure of the fraudulent publications by Sir Cyril Burt, it dispenses with Burt's "data" and instead concentrates on more substantial research, including recent attempts to apply path analysis to the problem of genes and IQ.

Although the author assumes prior knowledge of statistical concepts such as regression, correlation and analysis of variance, he does not assume expertise in genetics and therefore explains things such as "heritability" in great detail. The book is rather technical and rigorous, making it suitable as a text for an advanced undergraduate or a graduate course.

Many scientists have questioned the validity of assumptions made by the advocates of "heritability" analysis, but the present work goes further than previous critiques. Taylor shows very clearly that a) a host of conditions must be satisfied before legitimate inferences about genetic variability can be made from correlations among different kinds of relatives, and b) all previous attempts to draw such inferences have not met these conditions. He concludes that heritability of IQ is "not a reliably estimable quantity" and that claims of high heritability" must be resoundingly rejected."

The author obviously has scrutinized the primary sources of research and, although inspired by the work of Kamin (1974), Goldberger (1977) and others, has done an independent analysis of the most important articles which form the foundation for claims by Jensen and Shockley. The multitude of errors he detects are mainly of three kinds: outright dishonesty, flaws in research design and flaws in statistical models upon which data analyses are based.

Numerous instances of arithmetic errors, misquotation and selective citation of published articles are documented. It is noteworthy that these "lapses" of scholarship are not at all random. On the contrary, they consistently occur in one direction so as to make the degree of genetic influence on IQ appear large. Combined with other exposures of malpractice in the literature (see Kamin, 1974; Hirsch,), they provide strong evidence of the hereditarian bias of Jensen and his ilk.

So widespread are errors in this literature that the critical reader now has good reason to doubt every article published on this topic and to check the arithmetic, algebra and original references before seriously considering the "findings" and conclusions. The pitifully low standards of scholarship of many who write on heredity and IQ are scandalous and unforgiveable.

Whether the same situation exists in research on genetics and mental disorders, for example, remains to be seen. The microscopic examination of studies of heredity and IQ by Kamin, Taylor and others is unprecedented. It would serve as a good model to guide similar investigations of other sectors of the literature in behavioral

genetics.

Besides outright fakery, several serious flaws in research design are documented in this book. Kamin (1974) first exposed the fact that many pairs of "separated" monozygotic (one - egg or "identical") twins in three famous studies were not really reared apart. Taylor documents this in great detail and shows that 46 of the 68 pairs of MZ twins in the three studies "were raised in educational, socioeconomic, and interpersonal environments that were strongly or moderately similar." Of great importance is his finding that the linear correlation between co -twins' IQ is .87 for these 46 but only .43 for the 22 pairs who really were reared in different environments from shortly after birth. He also provides several reasons for doubting that even the .43 value reflects purely genetic sources of twin similarity. Taylor's rigorous analysis contrasts sharply with the uncritical acceptance by Jensen and many textbook writers in the social sciences of the high correlation of .8 for IQ of "separated" MZ twins. The misrepresentation of these twins as "separated" again indicates the hereditarian bias and pathetically poor scholarship of many prominent psychologists.

Taylor goes far beyond the work of Kamin in his critique of the quantitative models which form the bases for estimates of "heritability" of IQ. He shows that the formula advocated by Jensen and others to calculate heritability from correlations between IQ scores of monozygotic and dizygotic twins actually contains terms which reflect differences in correlated environments and gene-environment covariance. He terms Jensen's coefficient "bogus heritability" and shows that it tends to overestimate the actual contribution of genetic variation to individual differences in IQ.

Starting from an admittedly simplified model of causation of IQ value by genotype and environment for pairs of related persons, the author uses the method of path analysis to derive several equations which involve heritability, modifiability of IQ, etc. Even the simple model of IQ determination is so complex that it results in a set of equations which are "underdetermined;" that is, there are more unknown terms to be estimated than there are equations or observed correlations between IQ scores of various kinds of relatives. It is impossible to derive any one value of heritability from such a model.

How do the advocates of heritability analysis extricate themselves from this statistical quagmire? Taylor shows that they make a host of assumptions, some explicit and others implicit, about the values of many coefficients and then derive heritability from the observed correlations between relatives. He then makes two very important points: 1) The specific values assumed to be true greatly influence the resulting estimate of heritability, and 2) many of the assumptions made by even the most sophisticated researchers are implausible.

Hence, "heritability" of IQ cannot be reliably estimated at this time. The kind of data needed to estimate the many Parameters in even a simple model do not exist. Taylor does not propose that heritability of IQ is actually zero or that everything depends upon environment, but he does suggest that genetic influences on IQ are relatively small.

This critique of heritability analysis will be very useful for intellectuals who are active in the struggle against racist and fascist ideology. Being produced and distributed by a relatively small enterprise, it needs to be given added publicity by progressive scientists so that the right - wing hereditarians cannot safely evade Taylor's arguments by ignoring his book.

In conclusion, it should be noted that the book has its disappointments. After so many pages of demonstrations showing how heritability analysis is wrong, the author adopts a conciliatory stance at the end of his book where he encourages further research on heredity and IQ. He states: "Obviously, a well -designed large study of MZ twins separated at birth and randomly allocated over a wide range of environments would be intriguing," although he is not optimistic that this can be done. He also argues: "Given the very real policy implications not only for minorities but for everyone else as well, we must have considerably better evidence before concluding that substantial IQ heritability exists."

What are these "policy implications"? Actually, there is only one practical use of a "heritability" estimate for any behavior or mental ability. The magnitude of "heritability" in the narrow sense enables one to predict the initial or short - term change in some characteristic of a population that would result from selective breeding. To encourage further efforts to measure the heritability of IQ has the effect of encouraging the likes of Shockley to persist in their crusade to sterilize the poor.

Quite apart from the ethical question, there are also compelling scientific reasons for discouraging further efforts to measure the proportion of variance in IQ attributable to genetic variation (see Wahlsten, 1979). Heredity itself entails much more than genes in chromosomes, and this broader heredity is related to the environment in non - linear and non - additive ways. Hence the very concept of "heritability" found in the writings of Shockley, Jensen and others is invalid and should be discarded.

Taylor himself provides good reasons to repudiate the concept of heritability as it is commonly employed, but he does not take this important step.

References

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