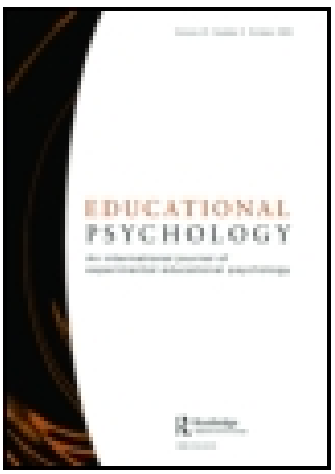

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The Great IQ Debate: new light

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CRITICAL NOTICE

The Great IQ Debate: new light

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Thirteen years ago an article was published in the *Harvard Educational Review* which raised a storm not only in America but throughout the English speaking world and beyond. Arthur Jensen addressing himself to the problem of 'How much can we boost IQ and scholastic achievement?' concluded that intelligence as measured in standardised tests is highly heritable, a composite value for it being given as 0.77 "which becomes 0.81 after correction for unreliability (assuming an average test reliability of 0.95)". He further suggested that pre-natal influences might well contribute the largest environmental influence and discussed evidence which persuaded him that social class and racial variations in intelligence could not be accounted for by differences in the social environment but must be attributed partially to genetic differences. Jensen offered this as a major reason for the failure of the Head Start programme significantly to improve the learning abilities of children on entry into school. A very large number of these children were black, and the implication was apparently clear: their IQs and scholastic attainment could not be substantially boosted. In a country such as America with a strong egalitarian tradition, having painfully gone through the process of desegregating their education establishments, and believing they were in the process of building a great society, Jensen's conclusions resulted in a furious response particularly from those concerned with the education of disadvantaged children. 'Jensenism' became a term of abuse, and some investigators started to look very critically at the quality of the empirical evidence on which his conclusions were based. In this connection the extensively cited researches of the late Sir Cyril Burt were (belatedly) pronounced fraudulent to an extent not as yet fully established.

However, sophisticated researchers, including Jensen, gained from this unhappy affair, and they proceeded carefully to collect and evaluate evidence, much of it published in the last decade, which has a direct bearing on the issues and methods of investigation examined in the by now notorious *Harvard Educational Review* article. It was not only the heritability of intelligence and its relation to social class and racial differences that was in question, but also whether IQ and scholastic

aptitude tests are constructed in such a biased way as seriously to mislead practitioners and others concerned with the origins of scholastic differences. Professor Jensen's book *Bias in Mental Testing,* published by Methuen in 1980 and occupying nearly 800 pages, provided a scholarly attempt to defend the eroded position of psychometrics which by this time was being pronounced upon by judges, journalists and politicians, whose knowledge of the issues were at the same level of sophistication as an Arkansas businessman's on Darwinian theory.

Very recently two books have appeared which are reviewed here. One is Jensen's attempt to reach a lay audience and the other the collected works of Sandra Scarr, one of the courageous scientists who has persisted, often in the teeth of opposition, in gathering empirical evidence on race, social class and IQ.

Straight Talk About Mental Tests
JENSEN, ARTHUR R., 1981
London, Methuen
pp. xiv+269, £8.95

As the preface indicates, this book is written for members of the general public who want to learn more about mental testing and its controversies. It presupposes no background in the specialised terminologies or mathematical underpinning of psychometrics, statistics or quantitative genetics that make most of the serious literature on the 'IQ controversy' so inaccessible to the educated public who are not professionals in the field of mental measurement.

Professor Jensen has proved true to his promise that he is offering non-specialists a much greater scope and depth for understanding the main issues of this topic than are provided by the popular and sensational literature of the Sunday supplement variety. Only someone with extensive research knowledge of the complex issues could write so simply and clearly, yet with authority. The result is a book which can be highly recommended as an introductory text for undergraduates pursuing preliminary courses in differential psychology.

There are seven chapters, the first on the construction of intelligence tests and their predictive validity; the second on the structure of mental abilities; the third on the inheritance of mental ability; the fourth on the possibility that tests are biased in favour of certain social classes or ethnic groups (and against others); the fifth on environmental influence on IQ; the sixth on social class and race differences in intelligence; and the seventh answers important questions put to the author by viewers and listeners in connection with recent television and radio broadcasts.

From this it will be obvious that a great deal of ground is covered, much of it controversial. References to research reports are offered sparingly and appear within the text, while the suggestions for further reading introduce five books "selected so as to represent the main topics of this book while minimizing duplication of contents among the six sections". The reader has to take a great deal on trust, and a reviewer has to be assured that such trust will be justified. With a few minor exceptions my evaluation of the research literature on which many of the arguments are based accord with Professor Jensen's, and on the whole I agree with his conclusions, although I am frankly puzzled by some of the evidence.

The last question to be tackled in the final chapter concerns the common fear, amply justified, that scientific knowledge about such subjects as genetics, intelligence and race might be used by racists. The reply is cogent. Any kind of information can be misused by those who are determined to do so. The place to stop

misuse of knowledge is not at the point of enquiry, but at the point of misuse. Enforce laws against racial discrimination in all its forms. To avoid pursuing scientific enquiry for fear that racists will misuse it is to grant them the power of censorship of research. Jensen further argues that beneficial outcomes are more likely to arise from scientific knowledge than from ignorance or dogma. One should not imagine that the educational and social correlates of mental test scores will disappear by not being studied or publicly recognised.

The author believes that the use of mental tests for a variety of purposes in selection and counselling leads to greater social justice than to rely on the opinion of teachers, industrialists or others. But he is also very clear about their limitations and spells these out with utmost clarity. Assuming that some methods will be used in any society for job selection and counselling, the question is not will intelligence test scores predict with unfailing accuracy responsiveness to training or later job success (they will not), but to what extent they will add to other, occasionally more prejudiced, assessments to give a better than chance prediction? Among the many useful items of information contained in the book is that validities close to zero are usual for relatively unskilled or routine jobs (sales, service occupations, machinery workers, packers or wrappers, repairmen) and are fairly high for more skilled jobs that require complex decisions and involve varied responsibilities (high-level technicians, engineers, managerial and professional workers).

So far as college entrance is concerned, high school grades and rank in the graduating class are better predictors of college grades than the controversial Scholastic Aptitude Test. However, the opposite is true for black applicants, probably because high school grading standards are less uniform for blacks. The SAT gives academically talented blacks a better chance of showing their strength than does high school Grade Point Average.

Chapter four entitled 'Are Tests Colourblind?' should be carefully read by any social scientist, teacher or layman who has an intuitive feeling that intelligence tests are by virtue of their construction biased. If they can come up with arguments against the case made here for lack of bias, based on research evidence, as opposed to uninformed prejudice they will command respect, but not otherwise.

On the question of the heritability of mental ability (chapter 3) the same point applies. The author explains some basic principles of genetics, the methods which have been used to investigate the inheritance of intelligence and how estimates of heritability are derived. He correctly points to the range and distinction of biologists and psychologists who agree that there is a very substantial heritability of intelligence and IQ, while recognising the reasons for variations in heritability estimates from one study to another.

One puzzling feature of the data on kinship correlations was recently raised by Plomin and Defries who indicated a discrepancy between older and newer data suggesting a value of h^2 closer to 0.50 from the more recent studies compared with a value of about 0.70 from the older data (excluding Burt's) which on the whole Jensen favours. The reason for this discrepancy is not as yet understood but the investigators state,

> Although we conclude that the new mental test data point to less genetic influences on IQ than do the older data, the new data nonetheless implicate genes as the major systematic force influencing the development of individual difference in IQ. In fact, we know of no specific environmental influences nor combinations of them that account for as much as 10 per cent of the variance in IQ.

This conclusion is in fact supported not only by the evidence summarised in chapter 5 on 'Environmental Influences on IQ', but by careful consideration of the vast amount of published research which I have personally considered.

When we come to chapter 6 on 'Social Class and Race Differences in Intelligence' some readers will become distinctly uncomfortable, despite Jensen's attempt to put the problem in a sensible perspective. It would be comforting to believe that the major cause of the substantial difference in IQ between whites and blacks in the USA is due to a vast over-representation of the latter in grossly disadvantaged social environments. Unfortunately the issue appears to be more complex. Although the full range of IQs in the white population is also present in the black, with considerable overlap between the populations, several large-scale studies have found that the average IQ difference between whites and blacks increases at higher levels of socio-economic status. Further, the *average* IQ level of black children from the highest SES categories is about equal to the *average* IQ level of white children from the lowest categories. The evidence used to illustrate this point is data on a random sample of 622 black and 622 white Californian schoolchildren in ten socio-economic categories obtained for the standardisation of the Revised Wechsler Intelligence Scale for Children (WISC-R).

Jensen says

> The plain fact is that at present there exists no scientifically satisfactory explanation for the difference between the IQ distributions in the black and white populations. The only genuine consensus among well-informed scientists on this topic is that the cause of the difference remains an open question.

In summary, this is a well-constructed, interesting and somewhat disturbing book which should be at the disposal of anyone (particularly novitiates) who partakes in informal or formal discussion on the emotive issues which the author addresses. It raises nearly as many questions as it answers.

Race, Social Class, and Individual Differences in I.Q.
SCARR, SANDRA, 1981
New Jersey, Lawrence Erlbaum Associates
pp. xiii × 545, $49–95, £21.95

Sandra Scarr is one of the leading thinkers and researchers in human behavioural genetics, her interest having been stimulated when, as an undergraduate in the Sociology Department at Vassar, she was told that all individuals and groups were equally endowed with everything important for development. Finding little evidence for this confident assertion, she decided as a postgraduate student to research genetic differences in motivation and personality. Later, on moving to the University of Pennsylvania in 1966, a quick glance at the local scene told her that the most interesting question of practical importance was: 'Why do black children perform so poorly in school and on intellectual tests?' This question had been addressed in hundreds of studies that merely charted the magnitude of the performance differences between blacks and whites at many age levels and in many locales. There must be, she thought, more analytically powerful ways to get at the causes of these performance differences. Thus, in 1967, she began a unique programme of research with three previously unused strategies to study the sources of racial difference in intellectual performance: (1) studies of genetic individual variability within the

black population by the twin method; (2) the study of genetic markers of individual degrees of African ancestry and the possible relationship of ancestry to intellectual differences among blacks; and (3) the study of transracial adoption by which socially classified black children were reared in the cultural environment sampled by both tests and schools.

A further unique study undertaken in collaboration with Richard Weinberg concerned white adolescents adopted in infancy into families ranging in socio-economic status from working class to professional, using a design similar to that employed by Barbara Burks in the 1920s and Alice Leahy in the 1930s, with younger children and their parents as subjects.

These several reports were published in the 1970s, and by virtue of the issues which they addressed provoked critical comments from hereditarians, environmentalists and also others who believe that research of this kind is useless in resolving important social questions. Sandra Scarr has now gathered all these together into one volume which is probably the most important book on the nature/nurture issue ever published. The author is an exceptionally clear thinker and vivid writer, and, as might be expected, the volume is well-organised and presented. Part I contains three theoretical papers on genetics and intelligence; part II the research reports on race and IQ, together with critical evaluations; part III concerns social class and individual variation; and part IV is entitled 'Conclusions and Implications'. It is typical of this humane and balanced scholar that she invited two scientists associated with somewhat extreme views to write commentaries especially for this book. Thus part V contains chapters by Leon Kamin and Arthur Jensen, together with a response by Scarr to the latter only and a delightful epilogue in which she has the last word.

The author believes that she has demonstrated that the substantial IQ and school attainment differences between black and white Americans have their origins in variations in child rearing practices between the minority and majority cultures rather than in genetic differences. However, when it comes to social class differences across white adopting families, all offering humane environments within the majority culture, genetic effects are shown to be the predominant determining factor. Scarr the scientist says,

> Going straight to the heart of the matter, I think that most evidence points to a 'heritability' of about 0.4 to 0.7 in the U.S. white population and 0.2 to 0.5 in the black, given that 'heritability' here means the proportion of genetic variance among individuals sampled in twin and family studies, which, as I have repeatedly noted, are not representative of bad environments. If one could include people with really poor environments, the proportion of environmental variance might rise; on the other hand, the genetic variance might also be increased. It is hard to predict whether or not the proportions of variance would change, and in which direction.
>
> It is important to note here the small effects of environmental differences on IQ scores among the people in our white family samples. This suggests that within the range of 'humane environments', from an SES level of working to upper-middle class, there is little evidence for differential environmental effects within the whole group. The average level of these environments is such that the black and white children reared by these families perform intellectually somewhat above the population average, even though they have average biological parents. Thus, the environments sampled in family studies are better than average at fostering intellectual development. But why are the relatively poor families rearing black and

> white *adopted* children whose IQ scores are nearly as high as those in professional families? It must be that all these seeming environmental differences that predict so well to outcome differences among biological children are not primarily environmental differences, but indices of genetic differences among the parents and their biological offspring.

The social moralist later pleads that all children be given the opportunity to learn their own culture. "In this view *an enlightened social policy ought to maximize the heritability of intelligence in all groups.* Populations with low heritabilities are those with the greatest environmental inequalities."

The data obtained in these large and unusual projects are, of course, not without blemish. Both Kamin and Jensen point out what they believe to be methodological defects, while the former, typically, has reanalysed all the data and suggests that a refusal to reject a null hypothesis of zero heritability is a more prudent and realistic conclusion than Scarr's assertion that heritability lies somewhere between 0.4 and 0.7. He says:

> The great merit of Scarr's plentiful empirical research lies, in my view, in the demonstration that no scientific gain is to be had from further 'behavior genetic' research on the heritability of IQ. The same data set from which Scarr concludes that IQ is substantially heritable can also be used—as Scarr is willing to share her raw data—to show that IQ is not at all heritable. The data are not, after all, the product of clearly designed and well-controlled experimentation. They are necessarily correlational data, collected in difficult and inevitably flawed settings. The patterns discerned within such data are many and complex. The interpretation of these complex patterns, I believe, must reflect the investigator's theoretical bias.

Jensen's chapter outlines a number of the obstacles to clear thinking in the field of differential psychology including what he calls the Middle-of-the-Road-Fallacy. One textbook writer, for example, having noticed that Jensen claimed heritability to be 0.80 while Kamin maintained it was 0, concluded that heritability was likely to be 0.40, the average of the extremes. Jensen says:

> One is reminded of the 16th-century astronomers who tried to reconcile the conflicting theories of Ptolemy and Copernicus by claiming that some of the planets revolve around the earth whereas others revolve around the sun! Scientific knowledge, of course, does not advance by 'averaging' expert opinions or theories or by tallying box scores of empirical findings that seem to favor conflicting theories. The illogic of believing that a middle-of-the-road position will more closely approximate the truth than any of the conflicting positions, however, should not be confused with scientific *agnosticism* regarding the point in question. Agnosticism is simply an admission of doubt and open-mindedness, and of resistance to premature judgment where the evidence is inadequate or inconclusive.

This brings us to his evaluation of three key studies by Scarr and her colleagues. Jensen disagrees with Scarr's strong conclusions on the origin of racial differences, and declares that the evidence as yet available should lead to an openly agnostic position "which is all one can scientifically justify at the present time". He also says:

> One argument for the study of racial differences, which is rarely mentioned, is that it will test whether psychology can actually behave as a science on a question of social importance or if, in the final analysis, psychology can only rationalize popular prejudices and social ideologies.

In fact, of course, social and political factors have featured in the choice of research area since time immemorial, and most assuredly not only in the social sciences. One may agree with Jensen's sentiments while at the same time acknowledging that for valid psychological research to be undertaken in a free society the willing co-operation of potential subjects must be obtained, not always easy in the case of investigations in sensitive areas. However, it seems to this reviewer that were we to follow some of Kamin's arguments to their logical conclusion, not only would there be little human behavioural science with ecological validity, but psychology as a scientific enterprise would wither away, while some other branches of the human sciences would be seriously at risk.

Scarr writes a spirited rejoinder to Jensen some of whose points are, however, cogent. Like her, I would hope that readers might refer to the relevant sections of the chapters, where studies have been criticised or contradicted, for their own evaluations of the evidence. As the author says:

> All of us find it easier to accept information that is congruent with our beliefs and prior conclusions than to admit evidence that is discrepant. For Jensen, acceptance of the evidence *for* genetic differences among individuals and social-class groups and rejection of evidence *against* racial genetic differences and rejection of evidence *for* individual and social-class genetic differences are compatible with his views. Both look at the forest of results in those studies that support their prior conclusions and examine the individual trees in those that seem to contradict. (This human frailty is the basis of the closer scrutiny that Jensen's and my research receives from most reviewers and editors.) I am surely not exempt from this failing.

In another important part of the final chapter Scarr gives the following defence of her work and its interpretation.

> From my point of view, the most important fact is that the flaws of one study are not the same as those of another; there are nonoverlapping cracks in the evidence. Even though one adoption study confounds age of placement with preadoptive experience, the next does not; the second study compares samples of biological and adoptive families with different parents, whereas the first study sampled only adoptive parents—most of whom had their own biological children. Each study can be criticized for its lack of perfection, but laid on top of one another, the holes do not go clear through.

Nor does it trouble her greatly that she has been criticised by developmental psychologists for not measuring the socialisation processes by which children come to be different from each other. In this connection she makes the important point that "The hypothesis that parent socialization practices have anything to do with children's intellectual development must be tested with genetically unrelated families."

This book can be recommended without reservation as a model of how social research should be presented, warts and all. It is to be hoped that not only Scarr but others who are talented and humane will have the courage and determination to continue research in her chosen fields. After all the proper study of mankind is man.

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