PERGAMON

Personality and Individual Differences 26 (1999) 761–765

PERSONALITY AND INDIVIDUAL DIFFERENCES

Special review

The Attack on *The Bell Curve*

B. Devlin, S.E. Fienberg, D.P. Resnick and K. Roeder (Eds). *Intelligence*, *Genes and Success*: *Scientists Respond to The Bell Curve*, Springer-Verlag, New York (1997). ISBN 0-387-94986-0, 376 pp.

C.S. Fischer, M. Hout, M.S. Jankowski, S.R. Lucas, A. Swidler and K. Voss (Eds), *Inequality by Design*: *Cracking The Bell Curve Myth*, Princeton University Press, Princeton, NJ (1996). ISBN 0-691-02899-0, 318 pp.

It is doubtful whether any book in the entire history of psychology has been so extensively attacked as *The Bell Curve* by the late Richard Herrnstein and Charles Murray (1994). The book has been the subject of several hundred critical reviews, a number of which have been collected in edited volumes, some of whose very titles such as *Measured Lies* (Kincheloe, Steinberg and Gresson, 1996) betray the emotional strength of the hostility the book has evoked. However, many of the initial attacks on The *Bell Curve* fell wide of the mark. Now we have two more serious books, both of which examine the arguments of The *Bell Curve* and find then deficient. They contain contributions from geneticists, psychologists, sociologists and statisticians, and they attempt to refute all the essential arguments made in *The Bell Curve*

Before considering how well they succeed, it will be useful to summarise H and M's major points. These are (1) the social structure of the United States is to some degree genetically stratified by intelligence and has at its apex a 'cognitive elite' of professionals and senior executives who are genetically superior to the rest of the population; this situation has come about relatively recently through social mobility, by which those with high IQs have risen in the social hierarchy and those with low IQs have fallen; (2) this social stratification by IQ has increased in recent decades as a result of greater equality of opportunity through which those with high IQs are increasingly securing entry to elite universities and occupations, where they are meeting and marrying people like themselves and having elite children; this has been producing a widening intelligence gap between the social classes and this is likely to continue, leading to a caste society with increasingly genetically differentiated social classes; (3) for this to be taking place, intelligence must have a reasonably high heritability, which H and M estimate as lying between 40-80 percent; (4) intelligence is socially important and is a significant determinant of educational attainment, social status and incomes; (5) low intelligence is a significant determinant of a variety of social pathologies including poor educational attainment, chronic unemployment, long term welfare dependency, crime, single motherhood and poverty; (6) these social evils would be reduced if the intelligence of the population could be increased and it would be desirable if this could be accomplished; (7) there is little chance of being able to do this because the things that have been tried such as improving education and headstart programs have little or no impact on intelligence; (8) the situation is getting worse because the genetic component of intelligence is deteriorating through the process of *dysgenesis* or *dysgenics* resulting from the tendency of the intelligent to have fewer children than the unintelligent, for the generation length to be shorter for the less intelligent, and through the large scale immigration of those with low intelligence; (9) blacks have on average lower intelligence than whites and Asians and this contributes to the over-representation of blacks in respect of the social pathologies of poor educational attainment, single motherhood, crime, etc.; the low average IQ of blacks probably has some genetic basis; the social condition of blacks is likely to deteriorate in the future because dysgenics is greater among blacks than among whites and this will lead to a widening of the intelligence gap between blacks and whites; (10) nothing much can be done about any of this; the United States will become increasingly like South America, with high IQ whites and Asians living in fortified enclaves protected by high fences and armed guards from 'the menace of the slums below' (p. 518); (11) the future is consequently

PII: S0191–8869(98)00195–0

pretty bleak and the best that can be done is to try to return to a simpler small town America of yore in which the unintelligent could be usefully employed doing cognitively undemanding jobs and the local cognitive elite could exercise stronger social controls over those who step out of line by punishing them more swiftly and effectively than is done in the megalopises of the contemporary world.

Nearly all of these propositions are challenged in the two books under review. In the first of these, Daniels, Fienberg, Devlin and Rhoeder dispute the genetics of H and M. They argue that the heritability of IQ is much lower than that proposed by H and M, that dysgenesis/dysgenics is not taking place and that there is no persuasive evidence for a genetic component to the black-white IQ difference. On the heritability issue, they argue that H and M should have distinguished between narrow and broad heritability (the heritability due to additive genes only, and that due to additive genes plus dominants and recessives). They say that only additive genes are transmitted reliably from parents to children and could become stratified by social class, that hence only narrow heritability should be considered in the emergence of the genetic congitive elite thesis; that the narrow heritability of IQ is only 0.34; and that this is too low to produce a genetic cognitive elite.

There are several errors in this argument. First, contrary to the authors' statements, dominant and recessive genes are transmitted reliably from parents to children and are frequently disproportionately represented in certain populations. For instance, the dominant gene for myotonic dystrophy has an exceptionally high prevalence in the population of the Saguenay-Lac-Saint-Jean region of Quebec, where it is more than 100 times more frequent than is typical for Caucasian populations (Veillette et al., 1992). Similarly, recessive genes for sickle cell anaemia are almost entirely confined to black populations and the recessives for Tay-Sacks disease are carried with much greater frequency among Ashkenazi Jews than among gentiles. There is no reason whatever why the dominant and recessive genes for high intelligence should not have become disproportionately represented among the cognitive elite and those for low intelligence disproportionately represented in the underclass and it is virtually certain that this has in fact occurred.

Second, in estimating the narrow heritability of intelligence at 0.34, Devlin et al. make the mistakes of (a) using the data for all age groups; it has become well known since Bouchard (1993) analysed the data that the heritability of intelligence is quite low among young children, becomes progressively greater among older children and reaches its peak among adults. Probably the explanation for this is that the environment provided by parents exerts effects on young children which wash out by the time they become adult, or that there are genes for intelligence which do not become active until adolescence. Whatever the explanation, the important figure for heritability is that derived from adults and this, according to recent estimates, is around 0.80 (Finkel et al., 1995; Petrill et al., 1998); (b) a second error made by Devlin et al. is that they fail to correct the familial correlations for IQ for measurement error; this should have been done and the effect is to increase the heritability by around 12%. These two mistakes put the heritability estimates made by Devlin et al. way off target. If any criticism is to be made of H and M on their heritability estimate it is that they erred on the side of caution in placing it between 40-80%. The correct figure for adults is around 80%.

Devlin et al. also criticise H and M's conclusion that genetic deterioration for intelligence is taking place through the process of dysgenics. H and M demonstrated an inverse association between intelligence and numbers of children from the National Longitudinal Study of Youth data, from which they inferred the presence of dysgenics. Devlin et al. object that the data are for 25-33 year olds who have not completed their fertility, that higher IQ women tend to have their children later, that only data for completed fertility can be used to establish the existence of dysgenics and that 'insofar as we are aware, there is nothing but anecdotal evidence for dysgenics' (p.61). The extent of their awareness of the evidence on this issue is seriously deficient. It is true that completed fertility needs to be assessed to establish the presence of dysgenics but they fail to note that three studies carried out in the 1980's and 1990's fulfilled this condition on large representative samples of Americans and all three found completed fertility is dysgenic (Vining, 1995; Van Court and Bean, 1985; Retherford and Sewell, 1988). H and M summarise these three studies, but Devlin et al. have failed to notice this. There is in addition a large amount of evidence from censuses and other surveys showing an inverse association between completed fertility and educational level (a proxy for intelligence), and between socio-economic status and intelligence (another proxy for intelligence), summarised in Lynn (1996). The evidence for dysgenic fertility is far from anecdotal. It is securely established. Furthermore, Devlin et al. do not address the dysgenic impact of shorter generation length among the less intelligent, nor that of immigration, for both of which H and M provide evidence.

Devlin et al. turn next to the possibility of a genetic component to the back-white difference in IQ. They reject this by citing three studies showing that the IQs of black-white hybrids are not related to their amount of Caucasian ancestry. They fail to cite the 18 studies of the relation of skin colour to IQ summarised by Shuey (1966), of which 16 found that light skin colour, a measure of the amount of Caucasian ancestry, is positively related to IQ. They assert that adoption

studies show the malleability of IQ but fail to note that the leading study of this question by Waldman, Scarr and Weinberg (1992) showed that as young adults blacks adopted by white families showed no IQ gains (Lynn, 1994) and that the authors of this study have conceded that their evidence indicates a genetic component to the low black IQ (Waldman, Weinberg and Scarr, 1994). Finally, Devlin et al. write that 'it is not clear to us why IQ would be positively selected in Caucasians but not in Africans' (p.62). They are apparently unaware of the theory that Caucasians were subjected to the cognitively demanding selection pressures of survival in cold winter environments for around 100,000 years, to which Africans were not exposed, a theory which also explains the high IQs of East Asians, and which now commands wide assent as the evolutionary explanation for the genetically based high mean IQ of Caucasians and East Asians (Lynn, 1991; Miller, 1995; Rushton, 1995; Levin, 1997; Jensen, 1998).

Two later chapters discuss the nature of intelligence and the issue of whether H and M were justified in treating intelligence as a single entity called Spearman's g. Carroll is generally supportive of H and M and says that the scores on tests of various abilities (reasoning, verbal, spatial, etc.) can legitimately be summed to give a single measure which can be called general intelligence. Hunt opposes the concept of general intelligence and prefers the multiple intelligences model. However, he agrees that these are positively intercorrelated and can for practical purposes be summed to give a measure of general intelligence, and concludes that H and M's general intelligence is 'not exactly inaccurate but is simplified in an important way'. This conclusion is not seriously damaging to H and M's case. Everyone from Spearman onwards has accepted that g is a simplification and that there is more to intelligence than g. Simplification of the real world is precisely what science is about.

The book turns next to the importance of intelligence for earnings and other social phenomena. Cawley, Conneely, Heckman and Vytlacil examine the NLSY data for the relation between intelligence and earnings. They calculate that in different subsamples of males and females and of blacks, whites and Hispanics, IQ accounts, for between 0.12 and 0.17 of the variance in earnings, implying correlations of between 0.34 and 0.41. They conclude that H and M were wrong in their contention that IQ is an important determinant of earnings. There are two defects in their analysis. First, they omitted both the unemployed, who have low IQs and no earnings, and college students, who have high IQs and will in time have high earnings. These omissions reduce the correlations between IQs and earnings and adjustments should have been made for them. Second, corrections should have been made for the unreliability of the measures of both IQ and earnings. If these adjustments had been made they would have increased the contribution of IQ to earnings and the authors would have reached a different conclusion.

Cavallo, El-Abbadi and Heeb consider sex and race differences in the contribution of IQ to earnings. They find that the black-white difference in earnings is largely due to IQ differences and that controlling for IQ, black males earn 96% of the earnings of whites, while black females earn 15% more than white females. They do not attempt to explain the reasons for these differences but fault H and M for not breaking down their analysis by sex. The sex difference they reveal is interesting, but it hardly dents H and M's case that the earnings of blacks and whites are pretty much the same once IQ is controlled. In fact, black females earn more than would be predicted from their IQs, possibly because they benefit more than black males from affirmative action.

Winship and Korenman discuss the effects of education on intelligence and argue that it is greater than H and M allow. They analyse the NLSY data and calculate that each year of education increases the IQ by 2.5 IQ points. Wahlsten also argues that education raises IQ. They fault H and M for being too pessimistic about the scope for raising IQs by improving and increasing education. The weakness of this argument is that many intelligence tests consist of cognitive tasks taught in schools, such as arithmetic and language problems, and this is particularly true of the AFQT used in the NLSY. Scores on such tests do improve with education but this is not necessarily the same thing as increasing intelligence, which consists of many thousands of cognitive skills not taught in schools. The scope for raising intelligence by increasing education is much less securely established than these critics argue.

The relation between intelligence, crime and race is considered by Manolakes. She accepts H and M's contention that among whites IQ is negatively associated with crime. H and M did not consider this relationship among blacks. Manolakes faults them for this and finds that among blacks in the NLSY sample IQ is positively associated with crime. She criticises H and M for not discovering this themselves, failing to note that H and M were not primarily concerned with race differences. She has certainly made a remarkable discovery considering the large research literature showing that crime is predominantly committed by the less intelligent. Before taking this result too seriously it should be noted that the data consist of self-reported crime and people do not invariably report their crimes truthfully. Nevertheless her apparent discovery that IQ is positively related to crime among blacks certainly deserves further research.

The remainder of the book consists of chapters by Glymour, a philosopher who asserts that *The Bell Curve* is

pseudoscience; Zigler and Styfco, who agree that headstart programs do not raise IQs but believe they may have other useful effects; and Lemann, a journalist who doubts whether there is a cognitive elite in America except in the professions of law, medicine and business consultancy. The book ends with a summary by Resnick and Fienberg, respectively a historian and statistician, who endorse the generally tendentious and frequently erroneous arguments of the contributors. The academic disciplines of these authors belie the book's subtitle *Scientists respond to The Bell Curve*. Of the twenty five writers in this book, there is scarcely one who could properly be called a scientist.

Poor as *Intelligence, Genes and Success* is, it is no-where near so bad as *Inequality by Design*. This is a joint effort produced by six members of the sociology department at Berkeley. Their basic argument is that intelligence, earnings and socio-economic status are wholly environmentally determined. Their model (p.74) is that the family and neighborhood environment determine schooling and the cognitive skills of intelligence and educational attainment, that these determine inequality of earnings, which in turn determine the social problems of chronic unemployment, welfare dependency, single motherhood, crime, etc. Since intelligence is determined by the environment and by schooling, it could be increased by providing better environments and better schooling and this would reduce poverty and its associated ills. This should be done by raising the taxation of those with high and middle incomes and distributing the proceeds to the poor.

In order to establish their case that IQ is solely determined environmentally, the authors would have to show that all the twin and adoption studies indicating that intelligence has a moderate to high heritability are flawed, but they make no attempt to do this. They should have considered Taubman's (1976) work on the similarity of the incomes of twins showing that income has a heritability of around 50%. They should also have considered the evidence that intelligence measured in young children remains fairly stable over subsequent years and predicts later educational attainment. For instance, it has been shown that the IQ of 5 year olds predicts their performance in an examination in mathematics taken at the age of 16 at a correlation of.72 (Yule, Gold and Busch, 1982). All this evidence is ignored. The authors of this deplorable book stand squarely in the tradition of sociological ostriches who have for so long averted their eyes from evidence they prefer not to see.

In the early and middle decades of the century sociologists largely ignored the role of genetics and intelligence as determinants of earnings, socioeconomic status, poverty and other social conditions. In the early 1970's a valiant attempt was made by the sociologist Christopher Jencks (1972) to remedy this blindness of sociological analysis. Jencks presented a path model linking genes to intelligence to social outcomes which was a forerunner of the analysis presented in *The Bell Curve*. Jencks seriously underestimated the strength of these causal links because he understated the heritability of intelligence and failed to correct for measurement unreliability but he made a major contribution by formulating the right model. It appears that, so far as the faculty of the sociology department at Berkeley is concerned, he wasted his time.

There is nothing in either of these two books that makes any serious case against the conclusions of *The Bell Curve*. With the exceptions of the chapters by Carroll and Hunt in the first book, the authors systematically distort the data and ignore the relevant evidence. Just what mix of ideology and sheer ignorance is responsible for the positions the authors of these two books adopt is difficult to assess. Whatever the explanation, these two books represent the benighted environmentalist timewarp in which much of contemporary social science is still enmeshed.

Richard Lynn
University of Ulster
Department of Psychology
Coleraine
Co Londonderry, N Ireland BT52 1SA
UK

References

Bouchard, T. J. (1993), The genetic architecture of intelligence. In P.A. Vernon (Ed) *Biological Approaches to the Study of Human Intelligence*. Norwood, NJ: Ablex.

Finkel, D., Pedersen, N. L., McGue, M. and McClearn, G. E. (1995). Heritability of cognitive abilities in adult twins: Comparison of the Minnesota and Swedish data. *Behavior Cenetics*, *25*, 421-431.

Herrnstein, R. J and Murray, C. (1994). *The Bell Curve*. New York; Free Press.

Jencks, C. (1972). *Inequality*. New York: Basic Books.
Jensen, A. R. (1998). *The g Factor*. Westport, CT: Praeger.
Kincheloe, J, Steinberg, S. and Gresson, A. (1996). *Measured Lies*. New York: St. Martin's Press.
Levin, M. (1997). *Race Matters*. Westport, CT: Praeger.
Lynn, R. (1991). The evolution of race differences in intelligence. *Mankind Quarterly*, *31*, 255-296.
Lynn, R. (1994). Some reinterpretations of the Minnesota transracial adoption study. *Intelligence*, *19*, 21–28.
Lynn, R. (1996). *Dysgenics*. Westport, CT: Praeger.
Miller, E. M. (1995). Environmental variability selects for large families only in special circumstances: another objection to differential K theory. *Personality and Individual Differences*, *19*, 903–918.
Petrill, S. A., Plomin, R., Berg, S., Johansson, B., Pedersen, N. L., Ahern, F. and McClearn, G. E. (1998). The genetic and environmental relationship between general and specific cognitive abilities in twins age 80 and over. *Psychological Science*, *9*, 183–189.
Retherford, R. D. and Sewell, W. H. (1988). Intelligence and family size reconsidered. *Social Biology*, *35*, 1–40.
Rushton, J. P. (1995). *Race*, *Evolution and Behavior*. New Brunswick, NJ: Transaction.
Shuey, A. (1966). *The Testing of Negro Intelligence*. New York: Social Science Press.
Taubman, P. (1976). The determinants of earnings: genetics, family and other environments; a study of male twins. *American Economic Review*, *66*, 858–870.
Veillette, S., Perron, M., Mathieu, J., Prevost, C. and Hebert, G. (1992). Sociocultural factors influencing the spread of myotonic dystrophy in the Saguenay-Lac-Saint-Jean region of the province of Quebec. In A.H. Bittles and D.F. Roberts (Eds) *Minority Populations; Genetics, Demography and Health*. London: Macmillan.
Vining, D. R. (1995). on the possibility of the re-emergence of a dysgenic trend: an update. *Personality and Individual Differences*, *19*, 259–265.
Waldman, I. D., Scarr, S., and Weinberg, R. A. (1992). The Minnesota transracial adoption study: a follow-up of IQ test performance at adolescence. *Intelligence*, *16*, 117–135.
Waldman, I. D., Weinberg, R. A. and Scarr, S. (1994). Racial-group differences in IQ in the Minnesota transracial adoption study: a reply to Levin and Lynn. *Intelligence*, *19*, 29–44.
Yule, W., Gold, R. D. and Busch, C. (1982). Long term predictive validity of the WPPSI: an 11 year follow-up study. *Personality and Individual Differences*, *3*, 65–71.
Van Court, M. and Bean, F. D. (1985). Intelligence and fertility in the United States 1912-1982. *Intelligence*, *9*, 23–32.