Oxford Review of Education
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/core20

Equality and Education: Fact and Fiction

H.J. Eysenck

Published online: 07 Jul 2006.

To cite this article: H.J. Eysenck (1975) Equality and Education: Fact and Fiction, Oxford Review of Education, 1:1, 51-58, DOI: 10.1080/0305498750010106

To link to this article: http://dx.doi.org/10.1080/0305498750010106

Oxford Review of Education, Vol. 1, No. 1, 1975

Equality and Education: Fact and Fiction

H. J. EYSENCK

In recent years, the discredited notion of *equality of endowment* has gained many adherents, and practical steps have been taken in education particularly to try and adapt reality to this mythology. Equality of endowment (as opposed to equality of opportunity) takes literally the famous statement from the Declaration of Independence that "all men are created equal", and deduces from this erroneous premise a number of equally erroneous consequences. Equality, so conceived, is of course politically impossible, philosophically meaningless, and biologically absurd; Hayek (1960), in his famous classic *The Constitution of Liberty*, has adequately documented the first two statements, and any text on behavioural genetics, such as Dobzhansky's (1973) *Genetic Diversity and Human Equality*, will equally well document the third. As he points out, "equality is confused with identity, and diversity with inequality." (p. 3.) And he goes on to point out that "the easiest way to discredit the idea of equality is to show that people are innately, genetically, and therefore irremediably diverse and unlike. The snare is, of course, that human equality pertains to the rights and to the sacredness of life in every human being, not to bodily or even mental characteristics." (p. 4.) This point was well expressed in the 1952 UNESCO statement on race: "Equality of opportunity and equality in law in no way depend, as ethical principles, upon the assertion that human beings are in fact equal in endownment." Defenders of equality become entangled in this snare when they attempt to minimize or deny human genetic diversity. "They overlook, or fail to understand, that the diversity is an observable fact of nature, while equality is an ethical command." (p. 4.)

It is sometimes said that arguments against the notion of equality of endowment are directed at a man of straw, and that no one actually posits literally equality of the genetic basis of intelligence, or personality. This clearly is not true. In the U.S.A., to take one example, Professor L. J. Kamin, Chairman of the Psychological Dept. at Princeton University, has explicitly stated his belief that there is no evidence to indicate genetic determination of individual differences in IQ. Students in psychology and sociology have boycotted lecturers who attempt to lecture on the application of genetic principles to human behaviour, and have made it impossible for such lectures to be given. Even more frequent than an explicit disavowal of the importance of genetic diversity is an implicit denial; researchers and theoreticians simply disregard intelligence and any other genetically determined factors in their investigation of educational policies and outcomes. Only two examples will be given. The first is the report of the National Child Development Study (Davie *et al.*, 1972), which purports to trace the causal influences which determined the educational and social development of the large number of children followed up over many years. Neither IQ nor intelligence, neither genetics nor heredity are even mentioned in the Index, and the whole performance of Hamlet goes on without the appearance of the Prince of Denmark!

The second example is Boudon's (1973) book *Education, Opportunity, and Social*

Inequality; the author attempts to develop a theoretical model for social mobility and educational equality, but again without any mention of heredity, genetics, and their influence on IQ and social mobility. Boudon even incorporates his prejudices in his very definition of inequality of educational opportunity; he states that "by inequality of educational opportunity, I mean the differences in level of educational attainment according to social background." (p. xi.) Clearly, all consideration of differences in attainment due to genetic differences in ability is ruled out of court by the very definition given! These examples could be multiplied a hundredfold, but this would surely not be necessary; all readers of educational journals and books will be well aware of the fact that it is only the most exceptional paper or book in this field that will take cognizance of genetic factors, or incorporate such factors into the design of an experiment—regardless of the fact that without such an incorporation the whole experiment becomes impossible to interpret. Arguments against the notion of equality of endowment are therefore not directed at a man of straw, but rather at the overwhelming majority of writers in this field, whether they be theoreticians or experimentalists. Their failure to recognize that heredity and environment are but the opposite sides of the same coin, always acting together to determine the observable phenotype, takes their contribution right outside the field of scientific discourse.

It is sometimes stated that attempts to give numerical estimates of the degree of heritability of intelligence, or extroversion, or scholastic achievement, are doomed to failure, and that no such estimate is possible. There are two points to be made regarding this objection. In the first place, for most purposes a precise numerical estimate is not required; no geneticist doubts that heredity contributes a large amount to the final measured phenotype in these fields. No geneticist doubts that heredity and environment interact to produce the observed IQ score, or the observed degree of extraversion. Whether the degree of heritability is 50%, 80% or 90% is not particularly important for most purposes (although it might be in particular circumstances); what is important is the undeniable relevance of genetics to mental ability. Given that this is so, those who explicitly or implicitly deny the role of genetics in this interaction process are doing a disservice to education, and inevitably to the children whose future may be fatally disrupted by unwise and ideologically motivated decisions based on erroneous premises.

In the second place, the objections to a numerical estimate of heritability were reasonable before the growth, in recent years, of biometrical genetical analysis. The new methods introduced by Mather & Jinks (1970) among others, for constructing genetic models and testing these experimentally against reality have made them obsolete. It is noteworthy that the critics who maintain the point of view that heritability cannot be assessed quantitatively have in the vast majority of cases expressed this view without apparent knowledge of the actual methods used by geneticists (e.g. Jinks & Fulker, 1970, for an application of these new methods to the analysis of heritability of intelligence, scholastic achievement, and personality,) and in popular papers and journals, rather than in the technical literature. Criticism in science demands full knowledge of that which is being criticized, rather than a mere repetition of ancient shibboleths; it will only be possible to evaluate the criticisms of these new methods when they are expressed in statistical terms, and published in the appropriate journals. Simple statements of denial of the possibility of doing something that has already been done are hardly convincing; something more is surely required when complex scientific arguments are concerned.

Granted that human beings are divergent with respect to mental abilities (Jinks & Fulker, 1970), personality (Eysenck, 1974), and almost every conceivable component of scholastic achievement, it surely behoves us to consider seriously the consequences of this diversity for optimal scholastic success, and even for the achievement of that 'equality

of opportunity' that we feel may be within our grasp if only we knew how to set about getting it. The first, and the most obvious deduction to be made from the fact of the existence of biological human diversity is perhaps the simple statement that doing the same to everyone is not likely to afford equal opportunity to everyone. Blake's famous words about the Ox and the Lion come to mind; how can one create equality of opportunity for two such unlike protagonists? Let us take a simple example. In a particular, clearly demarcated learning task, would it be more helpful to give rules before or after practice? Leith & Trown (1970) showed that extroverted children did better when the rules were given after practice; introverted children did better when the rules were given before practice. Other work has shown that extroverted children prefer instruction by teacher to instruction by machine, and do better that way, while introverted children show the opposite effect (Eysenck, 1967). Other studies have shown differences in the reaction of extroverted and introverted children to blame and praise (Thompson & Hunnicutt, 1944).

If we were now to use identical methods on all children, our choice of motivational procedure (praise or blame), of teaching method (person or machine), and of discovery vs. rule setting method would inevitably disadvantage the more extroverted, or the more introverted children, depending on the precise choice made. Clearly there is no equality of opportunity when all children are treated equally; equality of opportunity, if the term is to have any meaning, implies that conditions are optimized for each particular child, given his own particular personality, pattern of ability, and general biological make-up. This is a very difficult aim to achieve, but it may serve to remind us of what it is we have to strive for. Clearly implicit in this aim is the acquisition of sufficient psychological knowledge to make it possible to gear the child's tuition to his or her personality, using this term in its widest sense, i.e. embracing abilities as well as temperament. In the absence of such knowledge (and the current egalitarian climate is making it more and more difficult to mount experiments which will give us information on genetic diversity in the educational setting, and the optimal interaction patterns to be selected) all talk of equality of opportunity is rather idle chatter; we simply don't know how to achieve any such thing.

Even under the best conditions, and assuming much more knowledge than we have now, equality of opportunity, as defined above, does not mean equality of outcome. There are no conceivable conditions of educational methodology which would guarantee that the dullest, most idle and destructive child, motivated only for mischief and violence, would achieve as much scholastically as the brightest, most determined and hardworking child, motivated highly for achievement and intellectual development. There are no conceivable political or social conditions which would remove the biological handicap under which many children labour, and even to suggest such a possibility is little better than a cynical and cruel joke played on the least fortunate of our children. Any attempt to achieve equality of outcome must make use of the methods of Procrustes—cut off the feet of those who are too tall to fit on your bed, and stretch on the rack those who are too small. Even then it is doubtful if mental characteristics respond as readily to such treatment as did the physical characteristics of Procrustes' guests.

It follows clearly from what has been said that many modern educational policies are counter-productive, and do not serve any useful function. The idea of forcing all children to go to school for an additional year after the age of 15 is clearly born of the notion of equality of endowment; if such an additional year is useful for some, it must be useful for all. (In Holland, discussions are going on to make education compulsory until the end of the 18th year; this extends the same principle with a vengeance.) But children differ, not only in temperament, or in intelligence, but also in motivation for education; are we

entitled to force them, against their will, to do what we regard as in their best interests—often incorrectly? This surely is manipulation of the worst kind, a refusal to honour the diversity of human nature, and an imposition of our will, regardless of any suffering that may result, on individuals powerless to resist. (They can, and do, vote with their feet, of course; the increase in truancy and criminality which followed this law has served, as nothing else could have done, to convince teachers of the absurdity of a rule which previously many had in fact championed.)

This whole notion can of course be taken further. If all children can benefit from education up to 16, why not University education? Already Holland has introduced the idea that all children who pass the (rather low level) school leaving certificate are entitled to go to University; when the Universities could not cope with the numbers they introduced a lottery—students were not selected on the basis of their past scholastic achievements, but on a purely chance basis. The next step no doubt will be to admit all adolescents, if need be on the basis of drawing lots, to University, including mental defectives and schizophrenics (why should they be omitted?); after that we will begin to draw lots who shall be the professor to teach these unteachables. Given the basis of equality of endowment, all this might make sense; given the facts as they are, this seems the most certain method of ensuring national suicide that mankind has ever devised.

Certainly this egalitarian procession in the democratic countries, advocated most strongly by Marxists and their militant student followers, contrasts quite markedly with procedures in the Communist countries. Nowhere in the world is the meritocratic principle more in evidence than in the schools of the U.S.S.R., the D.D.R., Poland, Hungary and Czechoslovakia. Here advance is entirely on the basis of scholastic achievement (except for the occasional Commissar's son who gets by on the strength of his family connections). The result has been remarkable; standards are much higher than in the democratic countries, and in the special centres of excellence where specially chosen children are educated in mathematics and the 'hard' sciences achievements are similar to those reserved in the Western countries for Universities. But then of course Marx himself would have nothing to do with egalitarianism, which he considered absurd; his ideal of "from each according to his ability" clearly recognized innate differences in ability. It is these differences in ability that modern Communist states build on. The often expressed Communist sentiment: "We will bury you yet" is likely to come true if they continue to cooperate with nature, while we desperately (and no doubt for the best motives) go on fighting against it.

One particular application of the notion that equality of treatment does not make for equality of opportunity highlights a curious development that has recently taken place. ESN pupils have for many years been given special training, as they are unable to take part in ordinary class work. This is a good and welcome realization of the principle in question; ESN pupils require different types of teaching to normal children in order to achieve whatever they are able to achieve. This type of schooling was a benevolent and sensible recognition of inexorable fact, and it has benefited many thousands of children who would otherwise have been lost in the hurly-burly of ordinary teaching. Now many groups complain that children from certain backgrounds are over-represented in these classes, and demand parity—a kind of quota system in reverse. In other words, they are saying that these children should not be allowed to benefit from this benevolent institution on the grounds of some hypothetical egalitarian notion. Next no doubt will come the demand that all ESN educational facilities should be dismantled, on the grounds that they discriminate. Such objections do not take into account the fact that these facilities discriminate in favour of ESN children; the objectors would presumably prefer failure under conditions of equality to success under conditions of special help. Or possibly they

are confused as to what they want, or how what they want can be justified; the arguments presented do not usually enable one to discover the logic presumably underlying them.

At the other end of the ability scale there has also occurred a very counter-productive change, namely the abolition of differential types of schooling, of 'streaming' and other methods of grouping together children of similar ability levels. Again, this has been justified in the name of 'egalitarianism', the hypothesis being presumably that if all children are really equal in innate ability, then they ought to be brought up and taught together, without any selection whatever. But as we have seen, they are not equal in ability, and to treat them as if they were is illogical and likely to be to the detriment of both the abler and the less able children. In my *The Inequality of Man* I have discussed this point at some length, and will not do so here again (Eysenck, 1973); let me only add that teachers who have had experience of these developments have reacted quite strongly against the obvious consequences of boredom for the able and stress for the dull. I have also discussed in that book some of the difficulties which arise in carrying out research in this complex field; most of the published work clearly fails to take these complexities into account.

The search for equality in education is usually discussed in purely verbal terms, thus making any quantitative statements impossible. Yet there is no reason why such quantitative statements should not be made, and I believe that doing so will illuminate the whole discussion as nothing else can do. An example for the work of R. C. Atkinson (1972) of Stanford University may serve to illustrate this approach. The work in question concerns the development of computer-assisted instruction programmes for teaching reading in the primary grades (CAI for short). The programme provides individualized instruction in reading and is used as a supplement to normal classroom teaching. Performance is measured on a standardized reading achievement test, and the child spends from 0 to 30 minutes each day on the computer. It has proved possible to construct a statistical model which predicts the child's future test performance as a function of the time he spends on the CAI system (see discussion in Eysenck, 1973). This enables us to decide on how best to allocate rare resources (time on the computer) in such a way as to obtain the best results. But how are we to decide on what results are 'best'? Normally such decisions are made without proper consideration of the alternatives, on the basis of political or social prejudice, and without knowledge of the actual outcomes involved. In the present case, however, the model enables us to make quite explicit statements about the outcomes of different actions. Let P stand for the performance of the children on the terminal test. We can then state four different objectives which might be chosen as 'most desirable'. These objectives are:

(a) Maximize the mean value of P over the class of children.

(b) Minimize the variance of P over the class of children, i.e. try to equalize their performance as much as possible.

(c) Maximize the number of children who score at grade level at the end of the first year.

(d) Maximize the mean value of P, but satisfy at the same time the constraint that the resulting variance of P is less than or equal to the variance that would have been obtained if no CAI were administered. (In other words, try for maximum performance all round, but without increasing the existing differences between children.)

Objective (a) maximizes the gain for the class as a whole; objective (b) aims to reduce differences among children by making the class as homogeneous as possible; objective (c) is concerned specifically with those children who fall behind grade level; objective (d) attempts to maximize performance but insures that differences among children are not amplified by CAI. Now we can calculate the outcomes which attend these four courses of

action. If we follow objective (a) we find that the mean performance of the class is 15% higher than if we had allocated time equally to all children; unfortunately, there is also an increase in variance of 15%—in other words, the difference between the best and worst readers has increased! If we accept objective (b) we find that compared with an equal distribution of time on the computer there is a reduction of overall performance of 15% but there is also a reduction of 12% in variability. Adopting policy (c), we have a reduction in overall performance, compared with equal time allocation, of 9%, and also a reduction in variability of 10%. Objective (d), which attempts to strike a balance between (a) on the one hand, and (b) and (c) on the other, yields an increase in performance over equal time sharing of 8%, and yet reduces variability by 6%. Objective (a) is the most 'meritocratic', objectives (b) and (c) are the most 'mediocratic', while objective (d) attempts to accommodate both the desiderata that there should be maximum improvement, but also a reduction in variability.

It is by translating policies into quantitative estimates of this kind that both adherents and opponents of the doctrine of equality in education can begin to form some idea of the consequences of any particular action they advocate. And when they do so, they may find that both may well agree on a particular programme, rather than fight to the death over ideological niceties. Clearly nothing of this kind can at present be done for most of our educational policies, from the use of the 11+ examination to the retention or not of 'streaming' from comprehensive schooling to the retention of grammar schools. No wonder that our councils are so confused, and that strife abounds. "One's knowledge of science begins when he can measure what he is speaking about, and express it in numbers", said Lord Kelvin, and Kepler pointed out that "as the ear is made to perceive sound and the eye to perceive colour so the mind of man has been found to understand not all sorts of things, but quantities. It perceives any given thing more clearly in proportion as that thing is close to bare quantities as to its origin, but the further a thing recedes from quantities, the more darkness and error inheres in it." No wonder that so much darkness and error inhere in the usual political and ideological arguments about equality; not only are the participants ignorant of the facts of genetic determination of intelligence and personality, but they cannot translate their ideas into quantitative terms, and point to the expected results on their policies. Only advances in educational reserch can remedy this lack, and it can hardly be said that present day educational research is leading us towards this promised land. Until it does our children will suffer for the ideological sins of their fathers.

In what has been said so far many will read (erroneously) a denial of the role of social factors in causing low measured IQ, and failure to reach high level of scholastic achievement. No geneticist, brought up in the tradition of marking the difference of genotype from phenotype, would dream of underestimating the influence of environment; all theories are phrased in terms of *interaction* between heredity and environment, nature and nurture. Even the estimate that 80% of the total variance in IQ is contributed by genetic causes, 20% by environmental ones still gives to environment half the importance that is given to heredity; this amounts to a very considerable sum. It is possible to assess the changes in IQ which best and worst environments, as we know them, can make to measured IQ (Jensen, 1973), and these are quite substantial. (All demonstrated IQ changes which have been achieved in experimental conditions fall well short of the theoretical extremes.) Adherence to the genetic point of view does not therefore imply in any way a reluctance to improve conditions making for inequality of opportunity at present; such improvements can and should be made, and there is no doubt that they will have a beneficial impact on society. What is asserted here is simply that the interactionist position implies that there are definite *limits* to what can be done along these lines; that biology sets a

limit to environmental manipulation which cannot be transgressed; and that attempts to enforce equality of outcome will have the most deleterious effects on our social well being. Communist countries have recognized these verities; why must our militants attempt to be holier than the Pope?

A good demonstration of the limitations of egalitarian policies comes from two types of experiment. We can study the effect on the reduction in variability of IQ of bringing up children under circumstances as identical as human ingenuity can make them (Lawrence, 1931). Taking babies from their mothers and putting them into an orphanage in which they are treated as alike as possible, in closely similar environments with identical food, drink, care, facilities and education, should reduce any differences in IQ between them to vanishing point *if environment were the crucial variable*; in fact nothing of the kind happens —the variability in IQ between children so brought up is reduced by only about 10%, if that! It is unlikely that we could ever succeed in making society as egalitarian, as similar in its environmental effects, as is done in an orphanage; society cannot do much to reduce the differential effect of bright vs. dull parents, for instance. Consequently it is extremely unlikely that even the most egalitarian society would be able to reduce the variability in IQ we observe in our own society to any noticeable extent. And if it were able to do this, then it would also follow that the remaining IQ differences were determined by heredity to an even greater degree than is true today; the elimination of practically all environmental factors would leave IQ phenotype = IQ genotype!

The other study was carried out by Waller (1971) who looked at social mobility within families. He discovered that when two sons of the same parents differed in IQ, it was the brighter one who went up the social scale, the duller one who sank down towards the bottom. His replication of earlier work by Burt and other shows how irrelevant can be the many features of the environment which are so often presented as important in determining IQ; as the differences between the children compared arose within the family, between family causes are irrelevant to the upward and downward social mobility experienced later. This is in good agreement with the genetic evidence which finds little causal role for between family factors. And even the most egalitarian might hesitate to follow Plato and advocate the elimination of the family in order to eliminate within family environmental variance! This study may also give reason to pause to those who argue that social class causes IQ differences, rather than the other way about; here is direct evidence that IQ differences in children coming from the same social class background determine their future social class. The evidence would be conclusive even without this study (Eysenck, 1973), but it does help to illustrate a feature of our modern society which is not always appreciated sufficiently by egalitarians, namely that genetic factors of ability play an important part in raising (or lowering) a person's social status irrespective of his social class at birth.

We may conclude that equality of endowment is a myth, a fiction dreamed up for ideological and political reasons; that this myth is dangerous if we allow it to dictate educational policies which go counter to biological reality; and that equality of opportunity presents us with a much more realistic ideal to follow. We must also conclude that equality of opportunity is not as obvious a concept as it appears at first sight, and that thorough, quantitative studies are required in education before we can even begin to know what we are doing. Choices have to be made at all times, and until these choices are presented to us in a more quantitative manner than is customary at present, they are not likely to be made in a wise and moderate manner. Last, there is nothing in the genetic interaction model which says that environmental sources of inequality should not be reduced or eliminated, in order to achieve greater equality of opportunity (in so far as this does not interfere with liberty; Hayek has pointed out the danger of emphasizing one

ideal to the exclusion of other equally or even more important ones!). What the evidence does suggest is that the consequence of such reduction of inequality would be strictly limited, and very much smaller than hoped for by egalitarians. Children will continue to take out of education what they bring into it; the bright will take out a lot, the dull only little. There is not much that educationalists can do about this at the present; the possibility always exists that new methods may change this situation, but until these new methods have been discovered, and proved themselves, it may be suggested that they are more likely to increase than decrease the differential existing at present between bright and dull children with respect to school achievement. Unless we adopt a deliberate policy of handicapping our bright children—a policy whose malevolent cruelty would only be exceeded by its debilitating effects on our national welfare—our best hope is probably to adopt the suggestion by Jensen (1973), namely to capitalize on the existing association-forming abilities of the duller children, rather than to force them to make use of precisely those forms of learning in which they are genetically inferior to the brighter children.

REFERENCES

ATKINSON, R. C. (1972) Ingredients for a theory of instruction. *American Psychologist*, **27**, pp. 921–931.

BOURBON, R. (1973) *Education Opportunity, and Social Inequality*. (London, Wiley).

DOBZHANSKY, T. (1973) *Genetic Diversity and Human Equality*. (New York, Basic Books).

DAVIE, R., BUTTER, N., & GOLDSTEIN, H. (1972) *From Birth to Seven*. (London, Longman).

EYSENCK, H. J. (1974) Genetic factors in personality development. In A. R. Kaplan (Ed.). *Human Behavior Genetics*. (Springfield, C. C. Thomas).

EYSENCK, H. J. (1973) *The Inequality of Man*. (London, Temple Smith).

EYSENCK, H. J. (1967) *The Biological Basis of Personality*. (Springfield, C. C. Thomas).

HAYEK, F. A. (1960) *The Constitution of Liberty*. (London, Routledge & Kegan Paul).

JINKS, J. L. & FULKER, D. V. (1970) A comparison of the biometrical, genetical, MAVA and classical approaches to the analysis of human behavior. *Psychological Bulletin*, **73**, pp. 311–349.

JENSEN, A. R. (1973) *Educability and Group Differences*. (London, Methuen).

LAWRENCE, E. M. (1931) An investigation into the relation between intelligence and inheritance. *British Journal of Psychology*, Monog: Supplement, 16, No. 5.

LEITH, G. V. M. & TROWN, E. S. (1970) The influence of personality and task conditions in learning and transfer. *Programmed Learning*, **7**, pp. 181–188.

MATHER, K. & JINKS, J. J. (1971) *Biometrical Genetics*. (London, Chapman & Hall).

THOMPSON, G. C. & HUNNICUTT, C. U. (1944) The effect of repeated praise or blame on the work achievement of 'Introverts' and 'Extroverts'. *Journal of Educational Psychology*, **25**, pp. 257–266.

WALLER, J. H. (1971) Achievement and social mobility. *Social Biology*, **18**, pp. 252–259.