
Differing Views of Human Intelligence

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ABSTRACT This article is based on a talk that was given by the author at the Institute of Historical Research on 3 February 2011, on the Victorian polymath Francis Galton and the malign legacy of his eugenic theories. It pays tribute to the pioneering work of the late Brian Simon in challenging the whole idea of 'fixed innate intelligence' and in furthermore insisting that a belief in 'human educability' should be at the heart of the campaign for comprehensive education.

At the end of September 1965, I became a PGCE student in the University of Leicester School of Education, then a leading centre for the promotion of progressive, forward-thinking educational ideas; and the lead tutor for a module I chose to follow on the development of the comprehensive school was Brian Simon. As I explained in my article celebrating fifty years of *FORUM*, 1958-2008, published in this journal in September 2008 (Volume 50, Number 3, pp. 281-293), the autumn of 1965 was a really exciting time to begin a university course preparing to be a secondary school teacher: Robin Pedley had published his influential and widely read Pelican Original called *The Comprehensive School* in 1963; the new Labour Government had just published, on 12 July 1965, its famous, though rather disappointing, Circular 10/65, requesting (and the key word here is 'requesting') all local education authorities to prepare plans for comprehensive reorganisation in their areas; and a new campaigning organisation, called the Comprehensive Schools Committee (CSC), had just been launched at a well-attended press conference in London on 24 September. I found Brian Simon's teaching really inspirational; and I still possess the marvellous handouts he produced for each of our sessions.

One of these handouts, with the title 'Changing Views of Human Intelligence', which has been photocopied for my own PGCE students many times, contained extracts from four texts that Brian considered central to the theme of his course:

By the term intelligence, the psychologist understands inborn, all round intellectual ability. It is inherited, or at least innate, not due to

teaching or training; it is intellectual, not emotional or moral, and remains uninfluenced by industry or zeal; it is general, not specific, i.e. it is not limited to any particular kind of work, but enters into all we do or say or think. Of all our mental qualities, it is the most far-reaching; fortunately, it can be measured with accuracy and ease. (Cyril Burt [Ed.] *How the Mind Works*, 1933, pp. 28-29)

Obviously, in an ideal community, our aim should be to discover what ration of intelligence nature has given to each individual child at birth, then to provide him (*sic*) with the appropriate education, and finally to guide him into the career for which he seems to have been marked out.

(Cyril Burt, broadcast talk reprinted in *The Listener*, 16 November 1950)

None of the intelligence tests conceived and tried over the course of sixty years can satisfactorily distinguish natural talent from what has been learned. Heredity and environment are too closely entangled to be clearly identified. This means that children from 'literate homes', with interested and helpful parents, have an enormous advantage over children from 'culturally poor homes', where books are unknown and conversation is either limited or unprintable. (Robin Pedley, *The Comprehensive School*, 1963, pp. 16-17)

Intellectual talent is not a fixed quantity with which we have to work, but a variable that can be modified by social policy and educational approaches. ... The results of recent investigations increasingly indicate that the kind of intelligence which is measured by the tests so far applied is largely an acquired characteristic. (Ministry of Education, *Half Our Future* (Newsom Report), 1963, p. 6.)

For Brian Simon, the attack on the whole idea of 'fixed innate intelligence' was central to the campaign for the comprehensive school; and the person who figured prominently in his seminar presentations was Cyril Burt (1883-1971). Brian was particularly keen to emphasise the importance of the dogmatic assertions made by Burt in his own contribution to the 1933 collection of papers on the functioning of the human mind, *How the Mind Works*, papers which were all originally delivered as a set of broadcast talks on BBC Radio. As he later wrote in a book published in 1974 (Simon, 1974, p. 241), 'here was a simple, clear, straightforward statement about the precise functioning of the human mind, admitting no doubts, inviting no argument'.

The Lasting Influence of Francis Galton

Cyril Burt was very much a fervent disciple of Francis Galton (1822-1911), the second cousin of Charles Darwin and a man described by one of his biographers (Forrest, 1974) as 'a Victorian genius'.

Broadly speaking, Galton's research and published output concentrated on two distinct sets of issues; and his long life can be divided rather neatly into two main parts. During the first part of his career, lasting to around 1860, he was engaged chiefly in exploration and the study of geography – exploration being viewed by most Victorians as a noble and patriotic profession. His travel writing – particularly *Tropical South Africa*, published in 1853 and *The Art of Travel*, published two years later – related to this interest, as did a concern with meteorology, and he has been credited with the discovery of the anticyclone. Then in 1860, his life changed completely, and he determined to devote the second half of his career to issues surrounding human heredity. The key event that sparked this defining turning-point in his life and gave it a whole new meaning and purpose was, by his own admission, the publication in November 1859 of his cousin's *Origin of Species*. In his autobiography, *Memories of my Life*, first published in 1908, he revealed that the publication of this book 'made a marked epoch in my own mental development, as it did in human thought generally. ... Its chief effect was to demolish a multitude of dogmatic barriers by a single stroke and to arouse a spirit of rebellion against all ancient authorities whose positive and unauthenticated statements were contradicted by modern science' (Galton, 1908, p. 287). He went on to say that he would now devote the rest of his life to issues which 'clustered round the central topics of heredity and the possible improvement of the human race' (p. 288). This would include the use of pedigrees, twin studies and anthropometric measurements to prove the heritability of what he referred to as talent and character.

From the outset, Galton was convinced that nature and not nurture determined human ability. Indeed, the very phrase 'nature and nurture' is one that he coined himself, first using it as the subtitle of his 1875 work, *English Men of Science: their nature and nurture*. The chief means of proving his theory about the heritability of intelligence was to be 'pedigree analysis', a fairly unsophisticated device that was to remain an analytical mainstay for over forty years. He reasoned that if 'eminence' or 'superior ability' was heritable, then a great man's closest male relatives were the most likely to exhibit exceptional qualities. And the emphasis here is on male relatives, for Galton had a low opinion of women and they played no part in his research. As one of his more recent biographers, Nicholas Gillham, has pointed out: 'his Victorian mindset viewed notable achievement as principally a male prerogative' (Gillham, 2001, p. 155).

In two articles entitled 'Hereditary Talent and Character', published in *Macmillan's Magazine* in June and August 1865, Galton set out to demonstrate that Darwin's theory of 'natural selection' should not be restricted to the breeding of domestic animals and cultivated plants. What was true of the

breeding process in animals was equally true of the way human beings developed. But obviously things could not be left to chance. It was necessary to use 'selective breeding' for the purpose of promoting one class or race of humans with superior mental qualities, while, at the same time, discouraging and even preventing the propagation of other classes and groups with less desirable traits. This was the 'pseudo-science' – the study of methods of maintaining and improving the innate quality of the human race – to which Galton later gave the term 'eugenics' in his book *Inquiries into Human Faculty and its Development*, published in 1883 (Galton, 1883, p. 17). In the years that followed, Galton always defined 'eugenics' as the science (*sic*) which deals with all the influences that both preserve the inborn qualities of a race and, at the same time, develop them to the fullest extent.

For Galton, it was obvious that real talent and character resided almost exclusively in the upper and upper middle classes, passed on from one generation to the next, and on the very first page of his 1869 book, *Hereditary Genius*, he declared his intention to 'show ... that a man's natural abilities are derived by inheritance, under exactly the same limitations as are the form and physical features of the whole organic world'. In the same way that it was easy to obtain by careful selection a permanent breed of dogs or horses gifted with the peculiar powers of running, or of doing anything else, so 'it would be quite practicable to produce a highly gifted race of men by judicious marriage during several consecutive generations' (Galton, 1869, p. 1). Men must be classified according to their 'natural gifts'; and the study of hereditary genius meant tracing the families of judges, peers, statesmen, commanders, men of science, divines, and so on.

Francis Galton provided Cyril Burt with most of his ruling intellectual passions, notably a belief in the need to substitute scientific procedures for casual observation and subjective impression; a keen interest in measurement and quantification; and a determination to prevent the deterioration of the (white) race by ensuring that the 'able' and the 'gifted' were given the positions of authority in society that their intelligence clearly merited. Burt became an enthusiastic eugenicist and wrote a number of his articles on intelligence for *The Eugenics Review*, a journal founded in 1908.

The Galtonian conception of mental ability which Burt embraced contained the notion of innately determined limits, differing markedly from one individual to another and parallel to those in human bodily development, of which Galton had made a special study. Burt also accepted Galton's line of thinking about ability in two other key respects. For both men, 'intelligence' had to be understood in a particular sense of the term: it was an *intellectual* quality and it characterised the *cognitive*, rather than the *affective* or *conative* aspects of conscious behaviour. The enormous and measurable differences between the intellectual capacity of men (*sic*) was a theme running through every chapter of Galton's 1869 book, *Hereditary Genius*. And secondly, for both men, intelligence or natural innate ability was general, not specific. An individual might have a *specific* ability in a particular area of knowledge, but

always underlying this was something more important and more all-encompassing. It was one of Burt's favourite sayings that 'without a *specific* gift for mathematics, a man could obviously not be a mathematician; but, at the same time, without a high degree of *general* ability, he could never be a *great* mathematician' (quoted in White, 2006, p.13).

The central thread of Burt's career was the topic of human intelligence – or 'innate, general, cognitive ability', as he himself defined it. His very first publication, in 1909 and almost his last posthumous publication, in 1972, alike dealt with intelligence. And it can, of course, be argued that at various stages in his career, he allowed his unshakeable belief in innate ability or intelligence to influence the way he interpreted and presented his data – to the point of distortion and fabrication. In the words of his official biographer Leslie Hearnshaw: 'Burt's belief in the innateness of intelligence was for him almost an article of faith, which he was prepared to defend against all opposition, rather than a tentative hypothesis to be refuted, if necessary, by empirical tests. ... Almost from the first, he showed an excessive and dangerous assurance in the finality and correctness of his conclusions' (Hearnshaw, 1979, p. 49).

Intelligence Testing Challenged

Criticisms of Burt's thinking, which began to attract support in the early 1950s, made reference to the unreal abstraction of cognitive ability from the whole human being in his or her environment. In his short book *Intelligence Testing and the Comprehensive School*, published in 1953, Brian Simon argued that intelligence tests not only 'exclude, or attempt to exclude, any emotional response', but also 'isolate the individual from all social relations and any "real life" situations' (Simon, 1953, p. 60). And a book which appeared the following year, Alice Heim's *The Appraisal of Intelligence*, maintained that 'intelligence ... cannot be separated from other aspects of mental activity', and went on to emphasise the necessity of 'studying intelligence as part of the total personality' (Heim, 1954, p. 1). It is interesting to note at this point that Burt's biographer, Leslie Hearnshaw, came to the conclusion in the late 1970s (Hearnshaw, 1979, pp. 59, 227-228) that these two books really unsettled Burt and, along with the later and more vociferous attacks of others, played a major role in causing him to search for and indeed eventually fabricate data that would substantiate once and for all his theories about the inheritance of 'intelligence'.

As the 1950s progressed, some British psychometrists who had gone along with Burt's theories felt obliged to tone down some of their more doctrinaire statements about human intellectual capacity and come up with something more measured and sophisticated. And this subtle change of emphasis can be seen in a report of a special working party set up by the British Psychological Society with the task of responding to some of the current criticisms of the practice of universal testing and of the very concept of the IQ examination as an accurate measure of so-called innate ability.

This report, published in 1957, conceded that, since it was now clear that many pupils could actually *enhance* their IQ scores over a period of time, it must be true that 'environmental' factors had *some* effect on human intelligence – and particularly in the early and teenage years. But although this report did express reservations about all the claims made for the 11-plus examination, and was also critical of the widespread practice of streaming within the junior school, it had nothing constructive to say about education itself as the key to human development. And this refusal to challenge the narrow assumptions of the past meant that only 'heredity' and the vague and generalised category of 'environment' (comprising a wide range of 'active' and 'passive' influences) were recognised as determining factors in a child's intellectual development. As Brian Simon pointed out in a book published in 1971, 'From a theoretical point of view ... the psychometrists, by abandoning "heredity" for "environment" were merely switching from the roundabout to the swings, but without giving any evidence of an intention to leave the fairground' (Simon, 1971, pp. 22-23).

There seemed good reason to hope in the early 1960s that the myth of fixed innate potential in education would soon be exploded. Robin Pedley's 1963 book, *The Comprehensive School*, argued that the public was beginning to lose confidence in a selection examination at 11 whose accuracy and validity rested on the belief that intelligence tests could indeed detect and measure inborn ability (Pedley, 1963, p. 16). And in his Foreword to the 1963 report, *Half Our Future*, Conservative Education Minister Edward Boyle stated authoritatively that 'all children should have an equal opportunity of acquiring intelligence and of developing their talents and abilities to the full' (Ministry of Education, 1963, p. iv). For many campaigners for an end to the divided system of secondary schooling, and particularly for Caroline Benn and Brian Simon, it was essential to make the case for an end to all forms of ability labelling. And this included challenging the fallacy of fixed innate ability at the primary stage, where streaming was common and a child's educational future was often decided at the age of seven. The evidence submitted by the *FORUM* Editorial Board to the Plowden Committee, established by Edward Boyle in August 1963 to 'consider primary education in all its aspects', concentrated on the case for non-streaming in the primary school, a reform which would make it possible to 'open up quite new perspectives for junior-school education' and enable all primary school teachers to 'respond to modern knowledge as to the nature of the child':

When it was held that the child's abilities were largely innate, the function of the school was necessarily restricted to ensuring that a child's fixed innate potential was made actual. Teaching, in this sense, could hardly be described as essentially creative. For it was held that the child's development was limited by factors quite outside the teacher's control – hence the justification for streaming, which grouped children according to their supposed innate capacity. Today, however, many psychologists are tending more and more to adopt a dynamic approach to the development of 'abilities'. These

hold that, strictly speaking, no child can be said to be born with a given ability; rather, he or she is born with what may be described as the anatomical-physiological prerequisites for the development of this or that ability (for instance, mathematical or musical). These abilities can only be developed in practice – in the process of the child's education. Abilities are, therefore, beginning to be seen as the resultant of a complex process of formation, often involving a series of stages, each of which is essential to the formation of the final ability (or mental operation). These are now seen as involving the formation of complex functional systems in the brain, which are formed in the course of life – and which underlie qualitative changes in the mental processes. ... In the words of A.R. Luria: 'It is now generally accepted that in the process of mental development, there takes place a profound qualitative reorganisation of human mental activity, and that the basic characteristic of this reorganisation is that elementary, direct activity is replaced by complex functional systems, formed on the basis of the child's communication with adults in the process of learning'.

(*FORUM* Editorial Board Evidence to the Plowden Committee, reprinted in full in *FORUM*, 7(1), Autumn 1964, pp. 3-14)

Yet while there were many in the 1960s who wanted to lay stress on the concept of human educability, there were, of course, other campaigners who saw comprehensive reorganisation in a different light. They were keen to argue either that comprehensive schools would help to create social cohesion – being, in the words of Circular 10/65, places where 'pupils with differing interests and backgrounds can be encouraged to mix with each other, gaining stimulus from the contacts and learning tolerance and understanding in the process' (Department of Education and Science [DES], 1965, p. 8) – or that the new schools would actually work towards the creation of a less class-ridden society. In a number of speeches and articles, Labour Education Secretary Anthony Crosland (January 1965–August 1967) argued that class had replaced capitalism as the principal dragon to be slain and that comprehensive schools would play a vital role in creating a more equal society. For Caroline Benn and Brian Simon, all this served as an unnecessary distraction, taking people away from the main point that education alone held the key to unlock human development and that we needed to emphasise over and over again that children were not the helpless victims of some mythical fixed potential existing before the start of schooling. In their book *Half Way There*, the preliminary report on the British comprehensive school reform, first published in 1970, they stated categorically, 'A comprehensive school is not a social experiment; it is an education reform' (p. 64).

The Psychometrists Fight Back

Despite a growing realisation that 11-plus selection prevented large numbers of young people from experiencing the full education to which they were entitled, there were still groups of diehard psychometrists and eugenicists in the 1960s and 1970s who remained committed to the concept of innate mental ability and to the desirability of using intelligence tests for the purpose of allocating pupils to specific types of secondary school at the age of 10 or 11.

It was in 1969 that Professor Arthur Jensen (a pupil of the eugenicist Hans Eysenck, who had himself been one of Cyril Burt's postgraduate students) published a controversial article in America in the *Harvard Educational Review* entitled 'How much can we boost IQ and scholastic achievement?' (Jensen, 1969). This very long paper, running to over 120 pages, acquired considerable notoriety because it set out to reiterate Cyril Burt's theory of fixed innate intelligence in terms not only of 'class' but also of 'race'. In Jensen's view, just as working-class white children were inferior in terms of measured intelligence to middle-class and upper-class white children, so black children were innately inferior to white children. There was nothing that could be done about this so that those liberal and progressive thinkers who were in favour of massive compensatory education programmes designed to equalise opportunities were guilty of seriously misleading the American Government. Any attempt to compensate for a 'natural' state of affairs was clearly a waste of time and money.

Jensen's inflammatory views were reiterated by Charles Murray and the late Richard J. Herrnstein in their book *The Bell Curve: intelligence and class structure in American life*, published in 1994 (Herrnstein & Murray, 1994). This book set out to secure acceptance of the 'twin realities' that people differed in intelligence for reasons that were not their fault and that intelligence had a powerful bearing on how well people did in life (p. 527). According to the authors, it was undeniable that the mean IQ of Asian Americans (referring principally to those from China, Japan and Korea) was a little higher than that of European Americans, which was, in turn, considerably higher than that of African Americans. And much of the explanation for this phenomenon lay in genetic rather than environmental factors. Herrnstein & Murray were well aware that the principal themes of their book were capable of provoking considerable anxiety and disquiet, acknowledging right at the outset that:

The differences and relationships we will be discussing in this book are among the most sensitive in contemporary America – so sensitive, in fact, that hardly anyone writes or talks about them in public. ... It is clear that people have shied away from the topic for many reasons. Some think that the very concept of intelligence has been proved a fraud. Others recall totalitarian eugenic schemes based on IQ scores, or worry about such schemes arising once the subject breaks into the open. Many fear that discussing intelligence will promote racism. (p. xxi)

The justification for producing yet another book on the subject lay in the fact that the Federal Government had to be dissuaded from providing additional resources for the education of the poor in a vain attempt to remedy a situation that was 'genetically determined'. Indeed it was essential that the Federal Government should shift money away from programmes for the 'disadvantaged' to programmes for the 'gifted' and 'highly intelligent'. There needed to be 'a change of heart within the ranks of the country's educators'. In the words of Herrnstein & Murray:

Until the latter half of the 20th century, it was taken for granted that the chief purpose of education was to educate the gifted – not just because they deserved it through their own merit, but because, for better or worse, the future of society was so dependent on them. It was further understood that this education for the highly intelligent must aim for more than technical facility. It must be an education that fosters wisdom and virtue through the ideal of the 'educated man'. Little will change until our educators once again embrace this aspect of their Vocation. (p. 418)

Prominent among those who accept the arguments of *The Bell Curve* and believe that intelligence is to a large extent genetically determined is former Chief Inspector of Schools Chris Woodhead, who, following his resignation from office in 2000, has helped to establish an 'anti-department of education' at the University of Buckingham and has also launched an education company – 'Cognita' – which now owns fifty private schools. In his most recent book, *A Desolation of Learning*, published in 2009, he argues that 'children are not equally intelligent, and some are not very intelligent at all' (Woodhead, 2009, p. 41). Mr Woodhead is clearly a great admirer of the education writings of D.H. Lawrence and, in particular, of Lawrence's *The Education of the People*, which was written in 1918 and is included in an edited collection of Lawrence's writings on education compiled by Joy and Raymond Williams and published as a Penguin paperback in 1973. In a chapter with the title, 'Has Mr Balls Never Met Jimmy Shepherd?' (who actually grew up to be Lawrence's dustman), Woodhead argues that Lawrence was right in rejecting the whole concept of human educability and in denouncing the education system in this country which is both 'extravagantly expensive' and, at the same time, simply 'turns out a lot of half-informed youth who despise the whole business of understanding and wisdom and who realise that in a world like ours nothing but money matters'. Woodhead quotes with evident approval two of Lawrence's more dogmatic statements on human intelligence and the purpose of education:

We have assumed that we could educate Jimmy Shepherd and make him into a Shelley or an Isaac Newton. At the very least, we were sure that we could make him a highly intelligent human being. And we're just beginning to find our mistake. We can't make a highly intelligent human being out of Jimmy Shepherd. And why should we, if the Lord created him only moderately intelligent? Why do we

want always to go one better than the Creator?
(Williams, 1973, p. 133)

And:

Every teacher knows that it is worse than useless trying to educate at least fifty per cent of his scholars. Worse than useless: it is dangerous, perilously dangerous. And what is the result of it? Drag a lad who has no capacity for true learning or understanding through the processes of education, and what do you produce in him, in the end? A profound contempt for education, and for all educated people. It has meant nothing to him but irritation and disgust. And that which a man finds irritating and disgusting, he also finds odious and contemptible. (Williams, 1973, p. 129)

Learning without Limits

The concept of human educability has been reinstated in an important recent book which demonstrates conclusively that if we can only find the appropriate teaching approaches, the so-called 'ceiling' of a child's performance and achievement is way beyond anything we can at present envisage. The book in question, which was published in 2004, is appropriately titled *Learning without Limits*. It reports on the findings of the Learning without Limits Project set up at the University of Cambridge School of Education in 1999; it is co-authored by Susan Hart, Annabelle Dixon, Mary Jane Drummond and Donald McIntyre, drawing on the work of nine teachers who were chosen to participate in the Project; and it is dedicated to Brian Simon. The key idea behind this Cambridge Project was to assemble a group of experienced classroom teachers who had rejected ideas of fixed innate ability and to study their classroom practice in order to try to identify the chief concepts and methods that could be said to characterise teaching free from preconceived assumptions about 'intelligence' and intellectual development. For Brian Simon, it was essential to stress that learning is a social activity which takes place when the child is interacting with both the teacher and other members of the class; and the authors of *Learning without Limits* quote one of Brian's powerful passages from his 1953 book, *Intelligence Testing and the Comprehensive School*:

The teacher who sets out to educate the children under his [sic] care, meets them as human beings. He first searches for ways of welding his class together into a group, knowing that learning is not a purely individual affair which takes place in a vacuum, but rather a social activity; and that the progress of each child will be conditioned largely by the progress of the group as a whole. He begins, then, by concentrating on the interests children have in common, rather than by underlining their individual differences. As the work of the class takes shape, however, individual children make varying

contributions: some may draw well, others may be good readers, others may be quick with figures. The teacher's task is not, of course, to see that the children who are good at some particular activity shine to the detriment of their companions, but rather to see that each child contributes to and enlivens the work of the class as a whole, and that all encompass the necessary basic skills. There is no better means of ensuring this than the stimulus given by other children within a cohesive group. (Simon, 1953, p. 103)

In a sense, we have now come full circle, discussing two works fifty years apart, which, together, emphasise the original, and sometimes neglected, educational rationale for the comprehensive reform: the need to dismantle all the structures rooted in the fallacy of fixed ability or potential.

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