

The Creation of Inequality: Myths of Potential and Ability

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Abstract

The old myth about the ability and variability of potential in children is a comforting myth. For those who are uneasy with the degree of inequality they see and would rather seek to justify it than confront it. The myth of inherent potential helps some explain to themselves why they are privileged. Extend the myth to believe in inherited ability and some can come to believe that their children will inherit part of a greater potential. These beliefs create and sustain inequality in society and allow for the creation of levels of ignorance in populations. This article uses insights from social geography and the sociology of education to examine how the myths are sustained past and present. It notes that countries with the highest degree of income inequality and the most unequal education systems have the worst outcomes for young adults, and these are the countries in which eugenic notions of inherited ability are resurfacing.

Keywords: *Education, Inequality, Potential, Ability, Myth*

“While all of you are brothers, we will say in our tale, God in fashioning those who are fit to rule mingled gold in their generation, for this reason they are most precious, but in the helpers are silver, and iron and brass in the farmers and craftsmen. You are all kin, but for the most part you will breed according to your kind. (Plato. Republic bk3 ;415a)

Introduction

It is no wonder that the myth of the metals, or the ‘noble lie’ as Socrates called it, has resonated down the centuries. It is a falsification that allows for the structuring of levels of ignorance in populations. The idea that people differ from each other as much as metals has long provided the ideological justification for class, racial and gender divisions, for oppression, for imperial conquests and subjugation. The myth is still resonating in schools and classrooms in otherwise democratic societies today. It is most often repeated where deterministic assumptions are strongest. These assumptions are that children are born with the potential to be very able, average, less able, unable or disabled. Behind the mantra that every child should be educated to fulfil his or her ‘potential’ the myth of ‘fixed maximum ability’ for the majority remains strong. The myth was sustained in the last century through the continued assertions that something called ‘intelligence’ can be measured by Intelligence Quotient (IQ) tests, with scores

conveniently fixed to fit along a Bell Curve. The curve suggests some rationality in a process of originally labelling children as idiots and imbeciles at the lower end, and as being among the gifted and high ability at the other end. The idea that such a curve exists still resonates globally in education and with politicians and publics, alongside the notion of a ‘potential’ to be eventually fulfilled. Indeed, when the UK New Labour party replaced Clause 4 of its constitution in 1994 it asserted that the Party wished “to create for each of us the means to realise our true potential, and for all of us a community in which power, wealth and opportunity are in the hands of the many, not the few” (Labour party 2015).

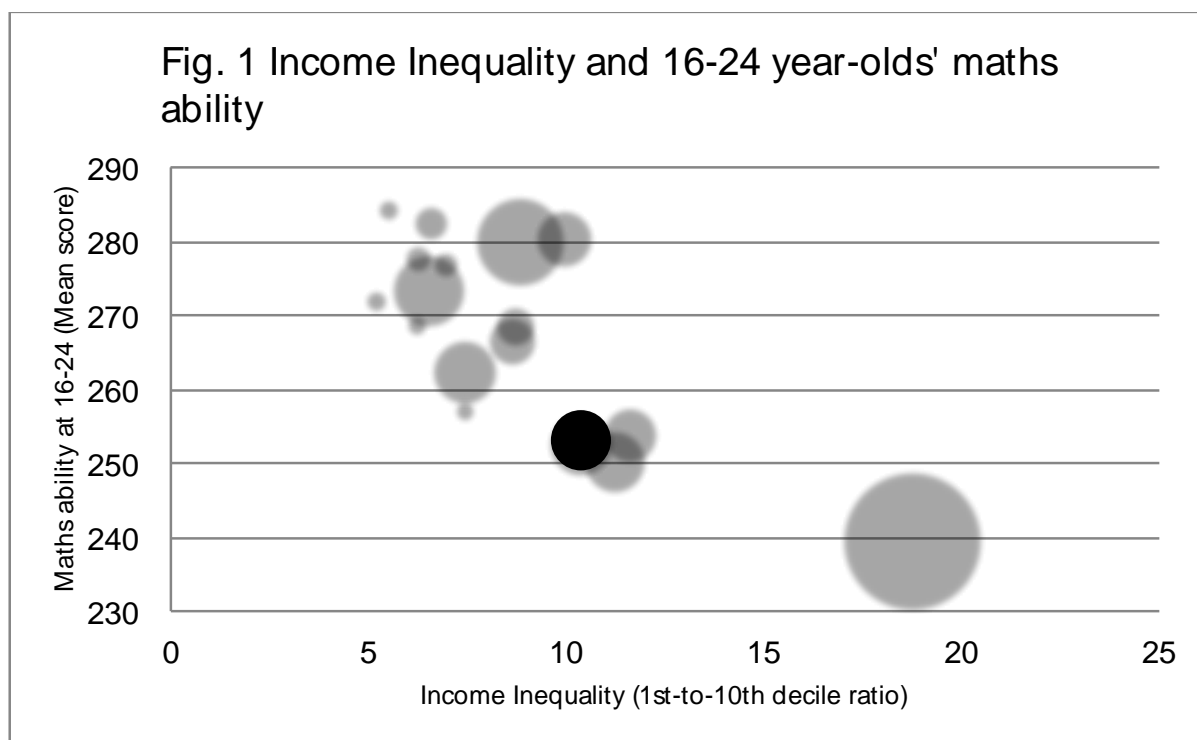
A major task in the sociology of education has been to demonstrate the ways in which inequalities in education and life chances -particularly by social class, race, gender and disability- are sustained and recreated by structures, policies and policy-makers. The inequalities are underpinned by ideological beliefs in the different abilities and potential of different groups. The beliefs are sustained into the 21st century as rationalisations for inequality via eugenic theories of genetic differences, and the enduring influence of psychometric theories of measurable intelligence, all of which have had a profound influence on education system around the world, especially in excluding those considered to have disabilities, special educational needs or lacking basic skills (Cologon 2014, Jha 2010, Richardson et al 2017) . Education policies currently reinforce unequal hierarchies of schooling and higher education, which is damaging both to individuals and society, especially via the anxiety of many parents who fear the loss of economic and social status for themselves and their children. (see Tomlinson 2017). The policies are sustained by the continuing beliefs of those in elite positions about the inferiority of the lower classes and some racial and ethnic groups. For example, in England in 1916, Michael Sadler (Rugby School and Oxford and Master of University College Oxford), having served on a committee that regarded the education of the working class as mainly to protect against ‘social evils’ wrote in the Times newspaper that “German education makes good use of all its second grade ability which in England is far too much a waste product... it has not made good use of second grade intelligence” (Sadler 1916). Almost a hundred years later, in 2013, the then Mayor of London, Boris Johnson (currently the British Foreign Secretary) announced in a public lecture that “ it is surely relevant to a conversation about equality that as many as 16% of our species have an IQ below 85 while about 2% have an IQ above 130”(Johnson 2013).(1) One popular newspaper summarised Johnson’s speech with the headline “*Thickos are born to toil*” (Ashton 2013) In September 2016 the new Conservative Prime Minister Theresa May, announced a return to policies of selection of English children for grammar schools, which were originally intended to give only around 20% of children an ‘academic’ education.

This paper uses insights from social geography and socio-historical educational understandings to suggest that among other inequalities it has been persistent and worsening income inequalities that mostly strongly influence educational performance. In particular it uses evidence that shows the UK and the USA have the most unequal income distributions among larger affluent countries of the world and that young people perform worse in international tests at the ages of 16-24 in these two countries as compared to more equitable affluent nations. An examination of the more successful education systems can suggest that policies are less successful in those countries that tolerate and most often try to justify high inequality. The paper notes that instead of accepting this as evidence, policy-makers have persisted in their beliefs about the inferior 'intelligence' of social class and racial groups, using genetic arguments about ability and potential which supposedly lead to differential educational attainment, rather than appreciating the overriding importance of geographical location in areas of poverty, lack of resources, and persistent lack of good jobs. Although it is the task of the social sciences to produce explanations for seemingly intractable problems, the charge can always be made that there can never be causal proof, only suggestion. However, unless people in the UK and USA have genetically changed to become gold, silver and iron, and people in other countries have not, then clinging to Plato's myth is pointless.

International Comparisons

It is clear that countries that have an unequal income distribution are those that do not achieve well in basic education. Three international comparisons are presented below which consider different measures of basic educational achievement and how these all appear to relate to income inequality in affluent countries. While data from the OECD programmes for student and adult assessment have been subject to stringent critique, governments increasingly use their comparative test information to influence policy. (Meyer and Benavot 2013). All the data here is from 2015 or the most recent year available and has been published on-line in a refereed statistics repository (Stotesbury and Dorling, 2015). In each case the average educational scores of people aged 16-24 in each country is compared to income inequality in that country as measured by the ratio of the mean incomes of the best-off 10th of households to the poorest tenth. In the United States, by 2015, the best-off tenth of households enjoyed an average annual income of \$439,883 a year, some 18.75 times more than the \$23,460 a year that the average of the poorest tenth of households survive on each year. The majority of poorer children in the USA are not white and they perform worse of all in international tests. The USA now has the worse level of income inequality in the rich world. In the charts below it is represented by the large blue circle at the bottom of Figure 1 below. Young adults in the United States are – on average – very poor at maths. The second largest circle near the top left hand side of the graph is Japan, a

much more economically equal if more homogeneous country than the USA, one in which most children now grow into young adults who are far better at maths, as is the case in most affluent countries. The UK is the black circle below (see Hennig et al 2015 for more information on income inequality).



Young adults in the UK are not very good at answering basic mathematical questions. Even given that the UK is a very unequal country by income inequality, those aged 16-24 perform slightly worse than would be expected if there were a straight-line relationship. The two other countries nearby in the cluster containing the UK above are Italy and Spain that have suddenly become dramatically more unequal as the poorest tenth of the population have been plunged into mass unemployment and destitution with the great recession. Table 1, below, provides the same data in a form in which the patterns are less clear. Note how much better at maths young adults in Finland, the Netherlands and so many other affluent countries are. None of this is innate. Those countries which today have low income inequalities includes ones which had been very economically unequal just a few generations ago (such as Japan and most of Scandinavia).

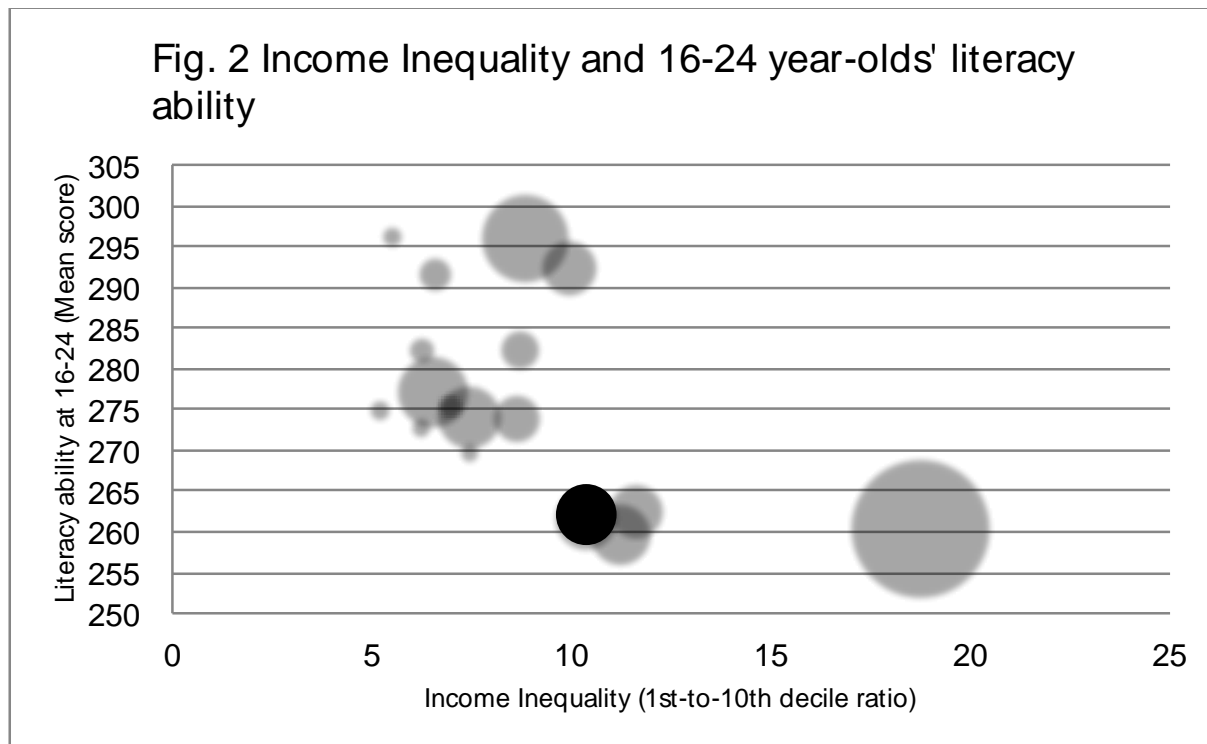
Table 1: Income Inequality and 16-24 year-olds' maths ability

| Country | 1st to 10th Ratio | Population | Mathematical ability at ages 16-24 (Mean score) |
|----------------|-------------------|------------|---|
| United States | 18.75 | 320050700 | 240.0 |
| Italy | 11.23 | 60990300 | 250.8 |
| United Kingdom | 10.37 | 63136300 | 253.1 |
| Spain | 11.62 | 46927000 | 254.3 |
| Ireland | 7.44 | 4627200 | 257.6 |
| France | 7.44 | 64291300 | 262.9 |
| Canada | 8.64 | 35181700 | 267.1 |
| Australia | 8.71 | 23342600 | 269 |
| Norway | 6.24 | 5042700 | 269.2 |
| Denmark | 5.20 | 5619100 | 272.5 |
| Germany | 6.53 | 82726600 | 273.9 |
| Austria | 6.97 | 8495100 | 277.4 |
| Sweden | 6.26 | 9571100 | 278.2 |
| Japan | 8.84 | 127143600 | 280.5 |
| South Korea | 9.95 | 49262700 | 280.9 |
| Netherlands | 6.59 | 16759200 | 283 |
| Finland | 5.51 | 5426300 | 284.8 |

Source: OECD. 2013. Skills Outlook, table A2.7 [Online]. Accessed September 2015. Accessible from: [www.oecd.org/site/piaac/Skills%20volume%201%20\(eng\)--full%20v12--eBook%20\(04%2011%202013\).pdf](http://www.oecd.org/site/piaac/Skills%20volume%201%20(eng)--full%20v12--eBook%20(04%2011%202013).pdf). Original Source: Survey of Adult Skills (PIAAC) (2012) Data missing for Israel, Greece, Portugal, New Zealand, Belgium, Switzerland and Singapore.

The relationship shown in Figure 1 and table 1 above is not evident if comparisons are made at age 15, as the OECD Programme for International Student Assessment (PISA) does. At age 15 children in the UK appear to perform a little better at Mathematics, but still not as well as in most affluent nations. One hypothesis is that children are being examined by maths GCSE at this age and so have been trained to be good at passing maths tests in the UK but have not actually been taught maths in a way that means they have learnt maths and will remember techniques and ideas. Also post-16 maths education for the mass of young people is minimal and some may not still be in any form of education. The same appears to be happening in the USA – bottom of the league tables for maths. Similar issues are affecting young people in the UK as far as their measured ability in literacy is concerned. As Figure 2 below shows,

again the UK is languishing near the bottom of international league tables, leagues tables which again imply a rough relationship between economic inequality in an affluent country and overall average educational achievement by young adulthood, but now in literacy rather than mathematics.



Interestingly, Spain and Italy join the UK in a tight cluster and this is a quite recent development. Spain and Italy were both more equitable countries a few years ago and ranked higher on international league tables. It is very possible that just as with health – where sudden mass unemployment can appear to be very damaging (as occurred in the 1930s in the UK), sudden and severe economic austerity may have an effect on a population. Our abilities as measured by international tests can alter in just a few years, providing more evidence of a lack of some fixed potential, or inborn capability.

Table 2: Income Inequality and 16-24 year-olds' literacy ability

| Country | 1st to 10th Ratio | Population | Literacy ability at ages 16-24 (Mean score) |
|----------------|-------------------|------------|---|
| Italy | 11.23 | 60990300 | 260.2 |
| United States | 18.75 | 320050700 | 260.9 |
| United Kingdom | 10.37 | 63136300 | 262.1 |
| Spain | 11.62 | 46927000 | 263 |
| Ireland | 7.44 | 4627200 | 270.2 |
| Norway | 6.24 | 5042700 | 273.3 |

| | | | |
|-------------|------|-----------|-------|
| Canada | 8.64 | 35181700 | 274.4 |
| France | 7.44 | 64291300 | 274.6 |
| Denmark | 5.20 | 5619100 | 275.4 |
| Austria | 6.97 | 8495100 | 275.9 |
| Germany | 6.53 | 82726600 | 277.7 |
| Sweden | 6.26 | 9571100 | 282.8 |
| Australia | 8.71 | 23342600 | 282.9 |
| Netherlands | 6.59 | 16759200 | 292.1 |
| South Korea | 9.95 | 49262700 | 292.9 |
| Japan | 8.84 | 127143600 | 296.5 |
| Finland | 5.51 | 5426300 | 296.7 |

Source: OECD. 2013. Skills Outlook, table A2.3 [Online]. Accessed October 2015. Accessible from: [www.oecd.org/site/piaac/Skills%20volume%201%20\(eng\)--full%20v12--eBook%20\(04%2011%202013\).pdf](http://www.oecd.org/site/piaac/Skills%20volume%201%20(eng)--full%20v12--eBook%20(04%2011%202013).pdf) Original Source: Survey of Adult Skills (PIAAC) (2012) Data missing for Singapore, Switzerland, Belgium, Slovenia, Portugal, Israel, Greece

Finally in this trio, Figure 3 illustrates international variations in the ability of 16-24 year olds to solve simple problems. Again, the United States languishes at the very bottom of the pile. But the UK is hardly any better and does not even have the excuse of being as grossly economically unequal as the USA to excuse its low international performance. Data for Spain and Italy are missing here. In hard economic times collecting data becomes a luxury.

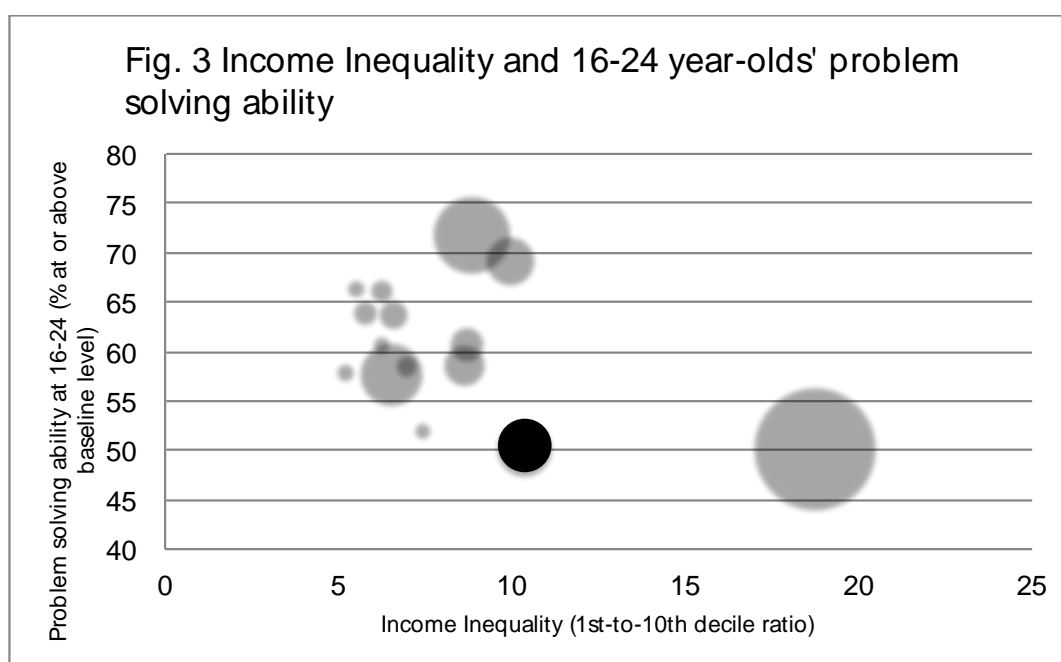


Table 3 below shows just how much better young adults in Scandinavian countries, in both Japan and South Korea, in Northern Europe in the Netherlands and Belgium are, in Germany Denmark and Austria. It forces us to ask – what are we doing so wrong in the UK? Or is there something wrong with our children and young adults? Do we lack potential as a set of four nations? Could it be that we in the UK (and in the USA) are genetically inferior as a whole – with the Irish and Germans being the next most unable? Or is there a better explanation of how the UK and the USA have done so badly recently in comparison with other affluent societies?

Table 3: Income Inequality and 16-24 year-olds' problem solving ability

| Country | 1st to 10 th Ratio | Population | Problem Solving ability at ages 16-24 |
|----------------|-------------------------------|------------|---------------------------------------|
| United States | 18.75 | 320050700 | 50.5 |
| United Kingdom | 10.37 | 63136300 | 50.5 |
| Ireland | 7.44 | 4627200 | 52.3 |
| Germany | 6.53 | 82726600 | 58.1 |
| Denmark | 5.20 | 5619100 | 58.2 |
| Austria | 6.97 | 8495100 | 58.9 |
| Canada | 8.64 | 35181700 | 59.0 |
| Australia | 8.71 | 23342600 | 61.1 |
| Norway | 6.24 | 5042700 | 61.1 |
| Netherlands | 6.59 | 16759200 | 64.1 |
| Belgium | 5.78 | 11104500 | 64.3 |
| Sweden | 6.26 | 9571100 | 66.5 |
| Finland | 5.51 | 5426300 | 66.7 |
| South Korea | 9.95 | 49262700 | 69.5 |
| Japan | 8.84 | 127143600 | 72.2 |

Source: OECD. 2013. Skills Outlook, table A2.10b [Online]. Accessed October 2015. Accessible from: [www.oecd.org/site/piaac/Skills%20volume%201%20\(eng\)--full%20v12--eBook%20\(04%2011%202013\).pdf](http://www.oecd.org/site/piaac/Skills%20volume%201%20(eng)--full%20v12--eBook%20(04%2011%202013).pdf). Original Source: Survey of Adult Skills (PIAAC) (2012). Data missing for Italy, Spain, France, Singapore, Switzerland, Slovenia, New Zealand, Portugal, Israel and Greece.

Equal and unequal education systems

While social geographical approaches can link income and other inequalities, and use cross-national data to question why education policies and ideologies contribute to the inequalities observed, this must be complemented by a study of the history, politics, and development of education systems in the more and less successful countries. It is

also important to have a good measure of success of ability retained and problem solving enhanced at later ages rather than test results measured at the end of school age.

While there is a large literature on European and other systems there is a paucity of information linking the income and other inequalities with educational structures, policies and outcomes. International comparisons suggesting the better performance of some countries that are more equitable overall might suggest where policy in the less successful countries has been going wrong. A brief comparison of development of the UK or more specifically the English (2) system as compared with the more successful system in Finland offers an illustration, Finland being a country with a successful economy and minimal income inequality by current international standards.

Social geographical approaches can be used demonstrate the areas by post-code in England from where young people go on to attend prestigious universities. See Figure 4 below.

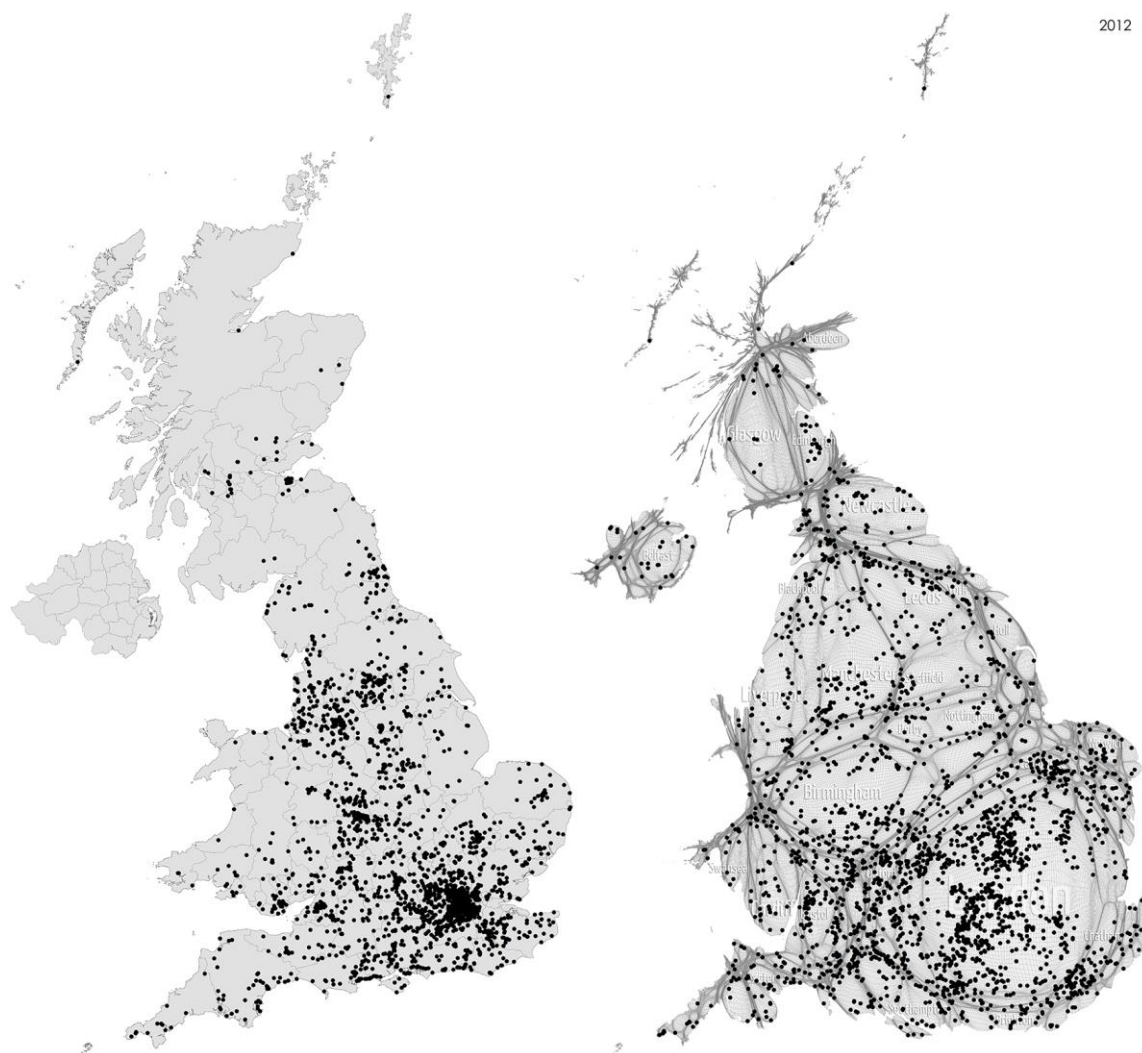


Figure 4: The home locations of undergraduate students attending Oxford University who graduated in 2015. They are shown on an equal area map together with a population cartogram of the UK (points not shown in Northern Ireland). (Heenig et al 2015)

This map illustrates where UK-domiciled students live who attended Oxford university. On the equal population cartogram placed next to it, it becomes clear that many times more young people from some neighbourhoods in Britain arrive in Oxford than from other. Just over 2700 dots represent on year's intake at Oxford. If all things were equal they would come from much wider set geographical areas – the dots would be far less clustered on the population cartogram. Studies in the sociology of education have long pointed out the different educational outcomes by location and type of school attended. High A level grades are more likely to be ‘a signpost to your street, school and socialisation’ than inherent ‘ability’ (Dorling et al 2001). Private schooling and parental wealth still provide major avenues into ‘good’ universities. The clustering on the paper is also far too pronounced to be explainable simply by the location of where children live who secure AAA or above at A level. Other research by the authors (not shown here) has confirmed that. And other countries show it is possible not to have such a clustered set of children attending ‘top’ universities in a country; but to achieve that you have to both treat all children far more equitably throughout their school careers and also have a less steep university hierarchy within a country. The best example of this in the world is found in Finland.

In Finland there is far wider opportunity for young people to go into good higher education whatever type of schools is attended. Finnish education includes high quality vocational education. In England it is so much more likely that it is from more privileged areas and from more privileged schools that young people go into ‘good’ universities and do not go into vocational education. How these inequalities develop can only be explained with some historical and political understanding.

England

In England a national public education system developed a good half century behind many other European countries, the general view being that the labouring classes did not need education, and it was not until 1891 that there was totally free elementary education. Currently government in the UK expects all potential workers to reach minimal levels of literacy, numeracy, problem solving and digital understanding, (Tomlinson 2013), but the graphs above show how badly the country does at this. The country is now more unequal in income, educational outcomes and life chances than it has been since the 1930s. Schooling moved from religious, private and charitable provision into a largely secular state system, although as the 1886 Schools Inquiry

Commission put “The different classes of society, the different occupations in life, require different teaching” (Schools Inquiry Commission 1886:93). It may well be that the perseverance of views such as this that have helped move the UK educationally to the current position. Private schooling and the old universities continued to cater for elites, and secondary and higher education for the working classes was contested. There were some early advocates for a common comprehensive system but from 1945 a tripartite system of schools made up of grammar, technical, and secondary modern schools with an examination to select by ‘ability and aptitude’ emerged,- technical schooling never developing. Comprehensive schooling with no selection became a permissive but not enforced policy from the 1960s and around 36 local authorities (out of 143) retained some selective grammar schools Under successive governments state education was transformed into a competitive business-oriented system, centralized via funding and curriculum, overseen by a semi-privatised inspectorate, and with minimal democratic influence. Educational attainments had slowly improved, once attention was given to girls, minorities, and working class children, and by 1993 around 33% of young people were progressing to an expanded university sector. During the 1990s, as income inequalities widened, school choice policies increased social class and ethnic segregation. Children entering school during this period were the young adults aged 16-24 shown in the tables above to be doing badly.

Successive governments attacked ‘failing schools,’ denigrated teachers, and introduced new entry into teaching intended to by-pass universities. A Labour government introduced an ‘academy’ programme from 2003. Secondary schools were to be run by business or religious sponsors with funding direct from central government, and no local democratic input. The Conservative government accelerated this programme from 2010, encouraging both secondary and primary schools to convert to academy status, with the intention that by 2020 all school in England would be semi-privatised ‘academies’. A further policy developed from 2010 was that of “Free Schools. These were intended to be opened and run by interested parents, community or religious groups, again with central funding and no input from elected local authority members. By 2016 over 60% of England’s secondary schools and almost 15% of its primary schools were semi-privatised schools. The school curriculum was determined by government appointed agencies, and English school children were among the most tested in the world. All this was rationalised by assertions of a need to raise standards. Fees for university education are currently £9000 and rising, and although more young people from lower socio-economic groups now gain university places, students attending the top universities still come from the most privileged areas. The fragmented semi-privatised unequal system now in operation, despite an apparent concern for the disadvantaged, increasingly depends on either selection by supposed ability or buying houses near desirable schools. The 2016

proposed return of selective policies via grammar schools, is again rationalised by the assertion that it will help disadvantaged children to obtain an improved education and raise standards overall. In reality, based on all previous evidence, it will contribute to strategic levels of ignorance, which is perhaps the intention.

Finland

Although Finland in the 19th and early 20th century was a mainly agrarian society, only achieving independence from Sweden in 1917, education was similar to the UK in that schooling was mainly provided by religious and private bodies, although ‘folk’ schools developed from the mid 19th century, offered a basic education and private grammar schools catered for a small middle class. Most children up to 1950 left school after a basic 6 year long provision. Sahlberg (2010) has documented the aims of the post-war economic development as using the principle of equal opportunity in education to transition from agrarian to an industrial economy and, from 1965 to 1990, creating a public comprehensive school system within a welfare state. Intentions were to improve basic education for all, and to use higher and vocational education to create a high-tech knowledge based economy. Up to 1970 the system was selective, with a minority, usually from the Swedish speaking middle class, progressing from elementary school to grammar school, to gymnasium and to university. The majority attended civic schools and vocational school.

While respect for vocational education was always present, the common beliefs at this time were that lack of ‘ability’ and ‘talent’ and home environment restricted learning. Critics including those from universities who complained that it was not possible to have the same expectations of children who came from different backgrounds and abilities. Despite these views reform went ahead in the 1960s and 1970s, laying the basis for a system based on a vision that a good public education system for all that should be publicly financed, locally governed, and with a consistent focus on equity and co-operation at all levels. From 1970 onwards the *peruskoulu*, a nine year comprehensive basic school, developed. Although some 20 different governments of varying views have been in charge since, the welfare state model, equal basic education, and a belief that all children and young people are capable of learning has survived.

Essentially *peruskoulu* takes students from all socio-economic backgrounds to 16, with additional help for all who have learning difficulties at various times, but without stigmatising labels. There are no policies of segregation or exclusion of students with learning or behavioural problems. Students then progress to upper secondary general schooling usually leading to university or into well-resourced upper secondary vocational school leading to vocational college or university. The key to the success of

education has been the establishment of an excellent teacher education. Teachers, trained for a minimum of five years, are respected, well-paid and expected to exercise professional judgments. They have much control over the curriculum, assessment, school improvement and community involvement. Education in Finland is regarded as a public good, there are no selective schools or competition between schools, and no external inspectorate, higher education is free and the Ministry of Education works in co-operation with educational institutions.

In his award-winning book *Finnish Lessons* (Sahlberg 2015) Pasi Sahlberg notes that although changing to a successful education system takes time and needs government support, a system based on competition, denigrating teachers, semi-privatised schools and business management, is not the key to success. Belief that all young people can learn, with no assumptions that hereditary factors will limit learning, characterises a Finnish system very different to that in the UK and USA. In Finland geographical location is not a key to higher education destination, and there are no elite groups asserting that some children are less capable of learning.

Genetic Theories

While governments may believe in the economic and moral right of advancement by intrinsic merit, claims that some are more gifted and worthy than others are now bolstered by a revival of hereditary claims. Work in genomics and behavioural genetics have led some to claim that “the ability to learn from teachers is, we know, influenced more by genes than experience” (Asbury and Plomin 2104:7). In fact contemporary work using genome wide studies makes no claims that genetic make-up significantly determines the educational or social destiny of children along an ability continuum (Dorling 2015a). Despite this the belief that children differ in inherent abilities and that this is largely due to inheritance, again appears to influence policies supporting selection and separation of young people in schooling.

Studies are still published which claim that all kinds of traits, including criminal behaviour, are largely determined by inherent qualities within children (Kendler et al 2015). Traditionally such determinism has been described as the expression of god-given predilections, identifying the inherently ‘gifted’ and the ‘delinquent’. Kendler’s study of children in Sweden found that 27.4%-29.6% of male half-siblings (children with different fathers but the same mother) committed more crimes as compared to less than half as many full sibling brothers who were reared together (14.8%). Convolutioned genetic reasons are then put forward to try to explain this but, of course, children are more likely to have half-sibling in neighbourhoods where it is more common to commit crimes. (Dorling 2015 b)

Burt and Simons (2014) have recently pointed out how dangerous these deterministic approaches are but it appears that the early 20th century popularity of eugenic theories, and the resulting nature-nurture debates, are now being resurrected via advances in biotechnology and human genetics to support notions of the *bright* and the *dull*, the *academic* and the *practical* mind, the *grammar* school, the *secondary modern*, and the *special needs* student. Part of the reason for the resurgence of eugenic-like thinking is increasing economic inequality in recent decades, especially in the UK and US which both now have grossly unequal labour markets that gives very high levels of remuneration to a few, and low-wage or unemployment to the many. Low educational performance followed by low wages can be falsely legitimated by claims of intrinsic inabilities when economic inequalities are high. Elite groups are more likely to seek to justify inequality in these terms than pay higher wages. Eugenics was last at its height of popularity when the countries were as unequal economically as at present.

Of course genetic variability between individuals will account for some of the variance between groups that are socially, economically and in all others ways apparently similar (Fox, 2015), but chance will play a far larger part in any individual's particular trajectory. At the height of eugenicism it was realised that, even if 'ability' was mostly inherent, that would mean that the children of better-off parents would *not* be the most frequent source of future superiority.. Biologist Raymond Pearl, one of the earliest critics of the eugenic movement, although still sympathising with some of the ideas, wrote in 1927 that: "I frankly do not see the usually alleged cause for eugenic alarm, for the reason that history demonstrates, I believe, that the superior people of the world have always been recruited from the masses, intellectually speaking, in far greater numbers than they have been reproduced by the upper classes". (Pearl, 1927 p. 166). Pearl did not have more recent genetic information to hand but as geneticist Turkheimer has pointed out, if "all other sources of variation between people are accounted for then everything is heritable" (Turkheimer, 2000, p.160)..*Genes only matter greatly when everything else matters hardly at all*. It may be the case that the vast improvements in mass education that have occurred are now producing far more educated people than it is assumed can be accommodated in a digital global economy and this may be yet another contemporary reason for the perpetuation of myths supporting inequality (Tomlinson 2017). The idea that most people can be educated and participate more equally in democracies continues to be a problem for those who see themselves as superior. Yet Adam Smith in 1776 thought the differences between a philosopher and a street porter "seems to arise not so much from nature as from habit, custom, and education." (Smith 1776) and almost 240 years later, Conley suggested that perhaps "raw parent-child

correlations in education may reflect one-sixth genetic transmission and five-sixths social inheritance” (Conley et al 2015:82)

Eugenics and defective people.

It is not accidental that the less successful countries in basic education, the USA and UK, which are also the most economically unequal, have reverted to hereditarian and pseudo-eugenic explanations for educational performance, which appears to be influencing political elite thinking. Indeed it was not accidental that as soon as the possibility of a secular mass elementary education and an educated working class became a possibility that the English upper classes found ways of denigrating the educational possibilities of the minds of the lower classes. This tied in with the first wave of eugenic thinking that the lower classes were likely to be uneducable, as demonstrated by the sorry conditions of much of the working poor of the time. In the USA, as Lazerson pointed out, many of the ‘defects’ in children discovered by school boards in the early 20th century- dirty, unkempt children with sight and hearing problems, -were the result of poverty and slum living (Lazerson 1983).

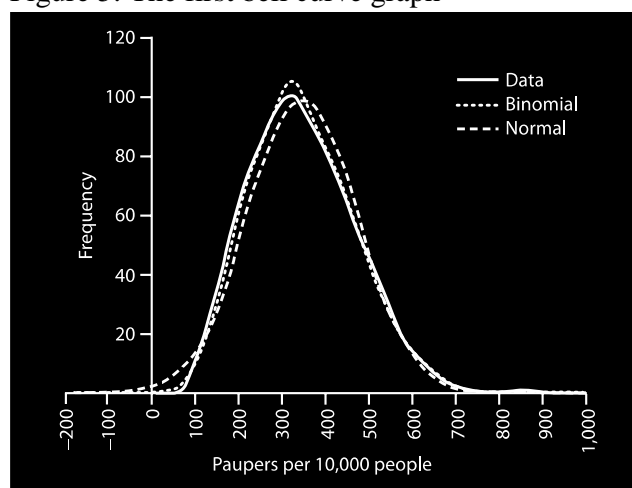
It was Francis Galton, second cousin to Charles Darwin who set himself to provide a ‘scientific’ base for selective breeding to improve the genetic inheritance of the human race, worried that the working classes with their ineducable minds were ‘over breeding’ and reproducing defective people who were a possible danger to an ordered society. In Galton’s books (Galton,1869,1883) he advocated selective breeding policies and used the term eugenics. He argued, as did other medical and political interests at the time, that just as genius and talent was ‘inborn’, and confined largely to the upper classes, so low ability, alongside mental defects, delinquency, crime, unemployment, prostitution, illegitimacy, and other social evils were inherited largely within the lower social classes. Very similar claims are emerging today from some economists, one suggesting that “In the case of England, we can observe some groups that are so elite that it takes 25 generations for them to become average” (Clark, Gregory. 2016, p. 95). Clark never clearly explained where he obtained information for this statement and there is no genetic data on 25 generations of the population of a whole country. Despite this, he went on to suggest “it’s a dismal discovery that genetics could actually predict what people’s outcomes are going to be’ (ibid, p. 95). These are the kinds of assumptions that eugenics a century earlier made.

Eugenic theories were taken up early by those on both the political left and right. ⁽³⁾. And an English Eugenics Education Society was founded in 1907. The Society became an influential pressure group, concerned to promote the fitness of the ‘Anglo-Saxon race’, and worried that mass elementary education was demonstrating that large numbers of children were defective, feeble-minded, delinquent and subnormal. A

1908 report (*RCCCFM 1908*) emphasised the seriousness of inherited mental deficiencies, ‘feeble-minded’ women being especially to blame by over-producing defective children. Subsequent interventions, common to other countries as well as England to prevent propagation included forced institutionalisation, sterilization, and labour camps. In the state of Victoria, Australia, an Eugenics Society continued to lobby into the 1930s for the sterilization of ‘defective’ people, and in Sweden and the USA the sterilization of ‘defective’ women (often without their consent) continued well into the 1970s. Lowe (1980) argued that the subsequent linkage of eugenics with the Nazi programmes of sterilization and euthanasia has down-played the links between the massive impact on current education of initial eugenic thinking. It is assumed that the horrors of the extermination of whole populations on the grounds of defect, disability, racial, ethnic or religious origins can never be repeated, and that more recent research in behavioural genetics and heritability studies and conclusions drawn from them, are all benign.

The links between eugenic thinking and the assumptions of mental measurement of ‘intelligence’ and ability were already being made by the later 19th century. At this time Darwin’s theories were being extrapolated to humans as Social Darwinism, and links were promoted between heredity and social problems. Karl Pearson built on Galton’s ideas of correlation and produced numerous mathematical improvements to develop statistical techniques for use in the new science of psychology. As a founder member of the Eugenics society, he extended his techniques to support arguments for the over breeding of paupers in certain areas producing a graph showing the geographical distribution of paupers in 1885, which conveniently formed a ‘normal’ or Bell Curve of where paupers were located. (Dorling 2015 :117). As Dorling pointed out, Pearson was purporting to show that the geographical distribution of paupers followed a natural pattern, the result of breeding (not poverty or unemployment), and his date was most probably fabricated.

Figure 5: The first bell curve graph



(Source, Dorling, 2015b :117)

IQ and mental measurement

Although Alfred Binet had, at the request of the French Ministry in 1905 produced tests to help find children of low ability, he never believed that “intelligence is a fixed quantity”, and “we must react against this brutal pessimism (Binet 2013:40) In England there were no such reservations. A committee originally chaired by Galton was set up to gather psychological measurements of the British population. In keeping with a prevailing view that levels of national intelligence were declining due to high levels of reproduction of the ‘genetically unfit’ (Heron 1906), the Board of Education approved the general testing of children. Tests duly showed that those in elementary schools were ‘less intelligent’ than those in private schools, with suggestions that differences were innate. Once tests for mental measurement were adopted by the profession of psychology, and William Stern in 1911 proposed ‘IQ’ as term for describing general intelligence the notion was accepted that after testing children could be assigned an IQ score, and that these scores could be ranked in a bell curve from low to high. (see Hearnshaw 1979 and Herrnstein and Murray 1994, whose book was actually entitled *The Bell Curve*, for their statistical explanation of the fictitious curve and associated standard deviations).

In England Cyril Burt, who had known Galton in his childhood, had great influence on government education policies through the 20th century. From his appointment as the first educational psychologist in London in 1913, it was eugenic concerns and implacable beliefs in inherited ‘intellectual ability’ that influenced Burt in his career (Hearnshaw 1979, Tomlinson 1981). His career included giving advice to government concerning the administratively convenient and educationally spurious notion that there were three types of minds- the academic, the technical and the practical, which on the basis of tests measuring their ability and aptitudes, could separate children out at 11 into the different schools and subsequent careers. These beliefs in children of different capabilities has cast a long and pernicious shadow over the twentieth and into the twenty-first century. Burt backed up his claims by reference to his studies of identical twins (including his subsequent fraudulent twin data) supposedly demonstrating the overwhelming influence of genetic inheritance on school achievements, and the long saga of attempts to demonstrate the mental inferiority of lower social classes and races continued, with lower class and black women continuing to be a major target. Despite Philip Vernon arguing in the 1950s that coaching for tests could raise an individual child’s IQ by 15 points (Vernon 1957), dependence on IQ and other tests of ‘intelligence’ have continued to form the basis for beliefs about different potential and ability. The tutoring industry in many countries is based on beliefs that intense coaching can raise levels in verbal and non-verbal mental tests.

In England Hans Eysenck, a student and later colleague of Burt claimed in his 1971 book that the IQ of black Americans was always 15 points below whites (Eysenck 1971) In the USA Arthur Jensen's views (1969) and Herrnstein and Murray (1994) continued the attempts to 'prove' genetic influence dominating the poorer educational, economic and social behaviour and attainments of lower social classes and racial groups. The attacks on *The Bell Curve* thesis produced a defence of the book in a letter to the Wall Street Journal, signed by 54 Professors, one of whom was Robert Plomin (see below). A major flaw in fixed hereditarian beliefs though, lies in the "Flynn Effect". James Flynn's conclusion after careful study, that even if IQ tests are taken as a measure of intelligence, IQ points are rising at the rate of three points every decade. (Flynn 2009, 2012). A spate of publications discussing and attempting to explain this followed. Explanations varied from suggestions that children were better trained to pass tests, improved health, smaller families, technical developments and other notions (Geake 2009). The population could actually be getting smarter as a result of being educated, but this is not a message those wedded to notions of the superiority of the few, want to hear. Those with hereditarian beliefs in different capacities for learning are overwhelming based in both the USA and UK; the two countries that perform so badly today on international comparison.

It is undoubtedly the case that mental measurements, testing and the notion of IQ continue to be useful to powerful groups who benefit from existing social class structures and 'traditional' education systems, and put barriers in the way of learning, designed to exclude a mass of young people who are actually capable of learning to higher levels. Over half a century ago Raymond Williams pointed out that the long revolution whereby the majority of ordinary people might become educated and democratic citizens, had always faced a "steady resistance of privileged groups to any kind of extension of wealth, democracy, education or cultures which would affect their exceptional status" (Williams, 1961:377)

A New Eugenics

It seems that one project of neo-liberal governments and those who have the power to influence social and economic structures, has for the past thirty-five years been to try to denigrate social-democratic attempts to value the capabilities of all citizens. The 'long revolution' of the attempts from the Industrial Revolution onwards to gain opportunity, voice and justice for ordinary people, who were constantly regarded as inferior members of society, was, according to one commentator, 'halted or in ruins' by 2012 (Clark, T. 2012) (4). Major tools in the structuring of inferiority have been the propagation of widespread beliefs that there really are strong differences in the educational potential between children- a belief currently substantiated by continued IQ and other tests of 'intelligence', and currently by a new eugenics movement.

Despite all the claims made by those who spend vast amounts of money carrying out studies on twins, a recent analysis of over 14 million twins involved in twin studies showed that of the thousand of studies conducted, 1507 concerned cognitive ability, 5178 psychiatric traits, 3371 Neurological issues, but only a tiny 54 studies looked at areas where genetic factors are known to play a strong part. (Polderman et al. 2015).

Into the 21st century the debates have been infused with new life with the completion of the first stage of the Human Genome Project, the creation of massive DNA bio banks, and an expansion in neuro-sciences, genomics and behavioural genetics. All this matters for education as currently people working in these areas are influencing government education policies. Robert Plomin, currently working at Kings College London was closely connected to former Education Minister Michael Gove. His then advisor, Dominic Cummings, produced a long paper which quoted Plomin's assertion that scores in national curriculum tests are 60-70% dependent on heritability, and phonics tests given to young children apparently showed a similar 70-30% dependence on genetic heritability (Cummings 2013). Plomin, with his colleague Asbury, has suggested that children be fitted with a 'learning chip' to identify their genetic potential and be taught accordingly (Asbury and Plomin 2014: 161-162). Plomin, when challenged in a radio interview over signing the letter noted above in support of the Herrnstein and Murray book which asserted racial differences in 'intelligence', claimed that he preferred to take a "softly softly" approach to racial issues (BBC Radio 4. 2015). As Gillborn has pointed out, (Gillborn 2016) despite numerous opportunities afforded to him to address the issues Plomin has chosen not to disassociate himself from the racism in *The Bell Curve* (Herrnstein and Murray 1994). When important academics are reluctant to take the lead in opposing racism, and support publications which denigrate racial and ethnic groups, their own research appears less benign than claimed. This is especially worrying in societies where politicians continue to be reluctant to enact positive education policies that might help end hatred and xenophobia.

More controversial research in the genetics of cognitive ability claims that researchers are missing the 'cognitive heritability' genes for individual educational performance, but the search continues (Shulman and Bostrom 2014). Other geneticists have suggested that there are severe limitations in the search for "missing genes" that will supposedly demonstrate levels of scholastic achievement (see Kumar et al 2016). The motivation for the wish to create Huxley's Brave New World appears to be economic, and some economists have suggested that raising IQ levels in a whole society can improve human capital and increase wages. If governments begin searching for super-humans for advantage in a competitive global economy and world, not only have we been here before in historical terms, but the implications for geo-political rivalry can

only be imagined. If governments in the UK and USA wish to see how education is better arranged then they need to look to other countries in the affluent world with less income inequality. Perhaps genetic theories of intelligence are popular in these two countries again because their education systems are inefficient and do not benefit the society as a whole.

Conclusion

Explanations for educational disparities and inequalities cannot be produced by any one discipline. This article has linked insights from social geography and the sociology of education to argue that countries which have the most inequitable income distribution are also the most likely to have young adults over 16 performing badly on educational tests of achievement. It has suggested that divisive and unequal educational policies help create this situation and also suggested that longstanding beliefs, derived from eugenic thinking and mental measurement, sustain myths of inherited potential and differential abilities. It will take much scholastic and educational work to begin to question and demolish these now ‘common sense’ beliefs, and it is of great concern that there is renewed political interest in demonstrating supposed inborn genetic difference which will sustain a different and unequal education. A question for the UK might be; whose children actually benefit from the current system?⁽⁵⁾ If the answer is “hardly any except for an elite few”, and if as a whole the country is performing badly, then how long will it take government to realise that over 30 years of misplaced educational policies lead to the bottom of the international league tables. A conclusion could be that more competition, intense testing, school and university league tables, the biggest private school sector in Europe, grammars, Free schools, and an end to democratic input are mistaken policies. Dorling (2016) has pointed out that in England (and the USA) there is a need to recognise that competitive schooling systems produce poor results by international standards and without better frameworks, an end to deterministic beliefs about learning capabilities, and of course a more equal distribution of income, the inequalities described above will continue to be socially reproduced.

Notes

(1) Although Johnson no doubt assumes he is in the top 2% of ‘our species’, his grasp of statistics is shaky. Dorling has pointed out that if the mean of IQ scores is taken to be 100, 16% of the scores are bound to be below 85: Dorling, D. (2013) The Problem with the Truth, Strike Magazine Blog, December 1st, <http://www.strikemag.org/top-cornflake/> A copy can also be found here: http://www.dannydorling.org/wp-content/files/dannydorling_publication_id3879.pdf

(2) Policy documented here refers to England and Wales, although after 1999 and devolution of government, Wales took control of its own education system. Scotland largely controlled a separate system after 1945 and from 1999 controlled its own system, as does Northern Ireland, NI retains

separate catholic and protestant schooling, and at 11 it is possible to take an examination for entry into grammar schools of both religions.

(3) Members and sympathisers with the ideas of the Eugenics Society included poets T.S.Eliot and W.B. Yeats, writers Aldous Huxley .George Bernard Shaw and H.G.Wells, and psychologist Raymond Cattell who in 1933 congratulated the Hitler government for passing laws enforcing the sterilization of the unfit. The writer D.H Lawrence, admiring the German philosopher Freidrich Nietzsche, thought that schools for the working classes should be closed and boys should only attend craft workshops and gymnastics, the girls work at domestic studies.

(4) Note that it is Gregory Clark (not T Clark) who thinks he can uncover genetically inherited ability using surnames, and who seems to be propagating old myths (Clark, Gregory. 2016).

(5) This paper began life as a lecture entitled ‘Theories of Potential and the Creation of Inequality in Education,’ the 5th annual lecture of the Oxford Education Society, given by Danny Dorling at Lady Margaret Hall, Oxford, on September 18th. 2015. It has been greatly improved by working in collaboration – which is how education is achieved.

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