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Book Review

Will foolish ideas die in an avalanche of data? Review of Human Diversity, Charles C. Murray. Human Diversity: The Biology of Gender, Race and Class, Twelve, New York (2020).

The Bell Curve: Intelligence and Class Structure in American Life (Hernstein & Murray, 1994) (Hernstein died the week before its release) was a publishing event of unusual proportions for an academic book. It was on the New York Times non-fiction best seller list for 15 weeks and is rumored to have sold over a half-million copies. The book was almost entirely focused on the effect of IQ on outcomes for white Americans. One reason for the brisk sales was that the book quickly became controversial. Many critics focused on a very small part of the book where the authors expressed agreement with what had come to be known as the default hypothesis. The default hypothesis said since intelligence was known to be partially genetic and partially environmental any difference between groups was probably also part genetic and part environmental.

To imply that differences between groups could be anything but environmental was sufficient to inflame some unrelenting critics and to regard those advocating such an opinion as racists or worse. These critics supported their hostile accusations by the association of the authors with the Pioneer Fund, a charity that had supported eugenics at the height of its popularity in the early part of the last century when it was endorsed by people like Margaret Sanger, Clarence Darrow, Theodore Roosevelt, Helen Keller, and many more distinguished public figures. This sort of implication by association is equivalent to calling anyone who takes money from the Ford Foundation or drives a Ford an anti-Semite.

In my opinion, these critics had often not read the book, were unfamiliar with current intelligence research, and mostly made *ad hominem* insults and innuendo based on associations regarded as negative. But they were effective in the popular press as they had been before to many others who had been attacked in the same fashion (Jensen, Bouchard, Gottfredson, and many others).

Fortunately, Murray's martyrdom did produce some positive results for the field. I was driving home one evening shortly after the release of the book and heard on the news that the American Psychological Association (APA) had made a statement about the book. Unfortunately, that statement included obviously erroneous information similar to what the negative critics were saying. The next morning I called the APA information office and tried to explain to the person I talked to that the APA statement was in error, specifying the errors that had been made. The person told me, “Everyone has a right to their opinion.” To which I, of course, replied, “But not to their facts.” I have seldom been more exasperated.

After cooling down, I decided to pursue the matter. I had moonlighted for Ray Fowler during graduate school assisting in an attempt to factor analyze the MMPI items. Fowler had served a year as President of APA (1988) and then became Executive Vice President and Chief Executive Officer which he was at the time. I called him and explained my concerns. I suspect there were many other callers because not long after that APA assembled a distinguished commission to write what came to be known as *Intelligence: Knowns and Unknowns* originally circulated in 1995 and then appearing in the *American Pyschologist* (1996).

The publicity coupled with her personal experiences also motivated Linda Gottfredson (1994) to organize an editorial for the Wall Street Journal that presented what was known about intelligence that was endorsed by 52 scientists. Both the *Knowns and Unknowns* (Neisser et al., 1996) as well as the Wall Street Journal editorial were widely seen by the general population and had very positive effects on the public's general understanding of intelligence.

Despite the positive effects that martyrdom can have for the field of intelligence research, it is probably not much fun for the martyr. Murray has written several other books that are related to *The Bell Curve*. Here are a few of them: *Income Inequality and IQ* (Murray, 1998) is about the effects of family environment on outcomes by IQ level showing the importance of IQ in determining major life outcomes like years of education and income. In my opinion, this book does not get enough attention. *Real education: Four simple truths for bringing America's schools back to reality* (Murray, 2008) argues that ability is an important determinant of educational outcomes, too many are going to college, and how well America's gifted are educated will determine its future. *Human accomplishment: The pursuit of excellence 800 B.C. to, 1950* (*Murray, 2003*) surveys human accomplishment and plots the rate of major accomplishment in various fields. It concludes that human accomplishment has been declining since 1750. *Coming apart: The state of white America, 1960–2010* (Murray, 2012) describes the effect of the meritocracy and the increasing segregation of social groups based on IQ levels for white Americans as was predicted in *The Bell Curve*. All of these books have been extremely well documented as *The Bell Curve* was.

So, has he outlived the tornado that was the *Bell curve*? He has not! It has followed him across years. Murray was invited to Middlebury College in Vermont to give a talk on March 2, 2017. Students prevented him from speaking in the venue though his talk was given in another location and live-streamed. Approximately 70 students were punished (Saul, 2014) with something similar to the famed double secret probation of the movie *Animal House*. As an act of retribution to restore the institutions academic integrity, they have invited him back March 31, 2020 to give another talk. Perhaps the faculty at Middlebury can teach their students appropriate scholarly behavior before the end of March.

There are several things you may notice about Charles Murray from the above summary. First, most of the books he has written could be viewed as presenting pessimistic conclusions. He certainly is not a Steven Pinker optimist who thinks the world is getting better but his writing, taken as a whole, is not pessimistic. Instead, I see him as a disappointed optimist who is looking for ways to make the world get even better. Second, he is someone who likes to work with giant data sets. Third, data are primary and fundamental in his theorizing. Fourth, he is someone who does not and probably cannot duck controversy.

Now, given the brief biography above, what kind of book would you expect Murray to write for what he has said is his last book? *Human*

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diversity fulfills three out of four of the preceding generalizations. He is using huge data sets, data is primary, and he has certainly not ducked controversy. But in this book he is an optimist about the current state of research from beginning to end. And an even greater optimist about the future.

1. The Book

The justification for writing this book is the substantial research progress that has been made in the last 20 years in genetics, neuroscience, and psychology. This research threatens or nullifies the core assumptions of what Murray refers to as the orthodoxy. The orthodoxy assumes that there may be differences within groups but none between groups except for some obvious superficial physical differences like height, skin color, *etc.* But differences between ethnic, gender, or social class groupings will not occur because all groups are assumed to be equal. The strongest defenders of the orthodoxy are liberal academics.

The three main tenets of the orthodoxy that Murray (2020, p. 3) intends to examine are: 1) Gender is a social construct, 2) Race is a social construct, and 3) Class is a function of privilege. He intends to show how research in the last 20 years has ended the possibility that these three statements adequately explain gender, race, and class. To do it, he considers a sweeping panorama of up-to-the-second research and its implications. I try to keep up with the fields discussed but it is a truly breathtaking panorama when you see it all laid out before you. And I might add it is very convincing. So convincing that if there is a card-carrying orthodoxy, they are going to have some very sad meetings when they discuss this book before they end or at least modify their orthodoxy.

At the outset, Murray (2020, p. 7-8) puts forth 10 propositions that he says are carefully worded that he is willing to defend as they are written but not in altered forms. Each is a summary statement of conclusions he draws from the data he reviews. There are four for sex differences, three for race or ethnic differences, and three for class. I will quote each of the propositions as I briefly review the evidence against each of the three assumptions of the orthodoxy.

Before I discuss the details of the book, I will tell you some of the general themes and conclusions presented by Murray. He does not claim that any of the issues are completely resolved. He will claim that given the research techniques that have recently become available, they may well be in the next 20 years. He never claims that any of the major issues are entirely due to biology or genes. Nor does he claim that culture or environment have no effect on outcomes. Murray does relentlessly insist that none of the issues he discusses can be understood without an appreciation for the contributions of genetics or biology and in many cases those contributions are very large.

For those familiar with the research in the areas discussed, it will be clear that Murray is not exhaustive in the research he presents. In fact, he does something surprising for any researcher: He fails to cite his own research some of which could substantially strengthen his case. He, instead, stays focused on recent research that is quite powerful in itself. If he had been encyclopedic, the book would have been at least twice as long. I did find that reading the sometimes extensive notes as I read the book was quite informative.

Areas receive different amounts of attention. The book is divided as follows: Introduction, 18 pages; Gender, 114 pages (plus two appendices); Ethnicity, 76 pages; Class, 64 pages; Speculation on the future, 48 pages; Appendices, 52 pages (includes statistics tutorial, two gender appendices - Sexual dimorphism in humans, and Sex differences in brain volume and variance; Notes, 78 pages; References, 40 pages; Index, 13 pages.

The following sections of this review present gender, race, and class beginning each with the quotation of the pertinent propositions.

2. Gender is a social construct

The four propositions for gender are presented verbatim from the book (Murray, 2020, p. 7) “1. Sex differences in personality are consistent worldwide and tend to widen in more gender-egalitarian cultures. 2. On average, females worldwide have advantages in verbal ability and social cognition while males have advantages in visuospatial abilities and the extremes of mathematical ability. 3. On average, women worldwide are more attracted to vocations centered on people and men to vocations centered on things. 4. Many differences in the brain are coordinate with sex differences in personality, abilities, and social behavior.

Much cross-cultural personality research has found consistent sex differences. From the most conservative to the most liberal societies male and female personality differences are consistent. What is particularly surprising is that in the most gender-egalitarian societies gender differences do not become smaller, as many would expect, but get larger.

Besides sex differences in personality, there are also sex differences in personality disorders. Males more frequently have schizophrenia, stuttering, and Tourette syndrome. Females more frequently have major depression, panic disorders, and anorexia nervosa.

In addition to large personality differences, there are cognitive differences. Females tend to be better at verbal abilities while males are better at spatial abilities. Both personality differences and cognitive abilities are consistent with career choices. Males tend to choose occupations dealing with things while females are attracted to occupations associated with people.

It would also appear that men and women have markedly different ideas about what their working life should be like. When some of the most talented women from the Study of Mathematically Precocious Youth (SMPY) were surveyed about how many hours a week they would be willing to work if given their ideal job, 30% of women were willing to work no more than 40 h while only 7% of men would work that little. In other questions women showed priorities for community service, time to socialize, and being available to family compared to men (Murray, 2020, p. 75, see also Ferriman, Lubinski, & Benbow, 2009; Lubinski, Benbow, & Kell, 2014). It would appear that these very smart women seek a more balanced life than men. As Murray puts it: “If you try to argue that these women were duped into accepting traditional female roles, you run into a problem: Chances are that the women who made those judgments are a lot smarter than you are.” (Murray, 2020, p. 78).

Murray points out that in 1960, 20 men got professional degrees for every woman who did. By 1980, the ratio was 3 to 1 and by 2005 women exceeded men in obtaining professional degrees. In 2016, the ratio was 1.12 women to 1 man who got professional degrees. Even though the number of women getting advanced degrees had changed, the kind of degrees women get has still been more often people jobs. From the 1960s to the 1980s there were substantial changes in women thing degrees and not people. By 1990, there were 30% of women choosing thing jobs and that percentage has remained roughly constant. From these observations, Murray concludes that the early changes in women's preferences from 1960 to 1990 reflect changes in cultural norms, the current pattern of preferences observed in women must be due partly to cultural patterns and partly innate preferences.

The final chapter in this section cements the ideas of innate preferences by discussing some the research currently underway on sex differences in the brain and how these might be related to sex difference in behavior. In appendices, Murray surveys sexual dimorphism in humans and concludes that for a large portion, likely more than 90% to 95%, of humans are clearly heterosexual males or females. Deviations from standard male and female roles are much rarer than most people believe them to be.

You may have noticed that the picture Murray is painting concerning gender is similar to thoughts expressed by Lawrence Summers,

President of Harvard University, in 2005 concerning women in science and engineering that caused him trouble. However, given the differences that have already been documented between men and women in personality, cognition, and life preferences it may be unfair to expect exact gender equality in every profession. As Murray points out throughout the book, differences between people are simply differences and not necessarily deficits.

3. Race is a social construct

Here are the three propositions for race verbatim from Murray (2020, p.7). "5. Human populations are genetically distinctive in ways that correspond to self-identified race and ethnicity. 6. Evolutionary selection pressure since humans left Africa has been extensive and mostly local. 7. Continental population differences in variants associated with personality, abilities, and social behavior are common."

There can now be very little question about any individuals ethnicity. If there is, for a very reasonable price 23 and me or ancestry.com will provide you with a probabilistic estimate of a person's ancestral origins. There is currently wide acceptance in the general population that our individual genomes represent our ancestors migration out of Africa and subsequent settlement in other parts of the world. These are propositions 5 and 6. The evolutionary differences are best represented by differences between continents (proposition 7) but may be different even within continents, depending on migration patterns.

What is most hotly debated is if differences in personality, abilities, and social behavior can be attributed to the genetic differences that have arisen over the course of human migration. Obviously, this has been a major flashpoint for human intelligence. The techniques that Murray thinks will resolve these debates are Genome Wide Association Studies (GWAS) and polygenic scores. Polygenic scores are based on a large set of single nucleotide polymorphisms (SNPs) that have been shown to be related to the phenotypic trait. These scores are able to predict a complex phenotypic trait directly from genetic material. Obtaining such scores requires large samples from a homogeneous population.

While such scores predict well within a homogeneous group, they do not do well predicting other groups. For example, a polygenic score for height can predict Caucasians of European ancestry's height well but that same polygenic prediction score based on Europeans will do poorly predicting the height of native Africans. Many, including Murray, believe that larger samples of multiple ethnicities will be required to understand genetic differences in complex phenotypic traits like intelligence. However, given the amazing progress that has already been made, it is not out of the question that many issues could be resolved in one or two decades as Murray suggests. It may be that the equally large difference between, for example, Northern and Southern Italians may be a more promising issue to address than the difference between, say, Eastern Asians and Europeans.

Because polygenic scores are complex and can be based on something approaching a 100,000 SNPs, many have said this level of complexity will not be useful in understanding phenotypic traits like intelligence. However, understanding what these SNPs actually do may be very important clues to the underlying biology of a trait like intelligence.

4. Class is a function of privilege

Here are the three propositions for class, again verbatim (Murray, 2020, p. 8). "8. The shared environment usually plays a minor role in explaining personality, abilities, and social behavior. 9. Class structure is importantly based on difference in abilities that have a substantial genetic component. 10. Outside interventions are inherently constrained in the effects they can have on personality, abilities, and social behavior."

In my opinion, the importance given class by some is largely a result of using genetically uninformative designs. It is now generally agreed that as a person approaches adulthood, the effects of childhood common environment goes to zero meaning the home environment has little impact on adult outcomes of children (Proposition 8). The socioeconomic status (SES) a person achieves as an adult depends importantly on intelligence which is the chief determiner of years of education which is a major determinant of occupation and income (Poposition 9). It is education and occupation that is generally used in measures of SES.

Increasingly, evidence is showing that interventions to change personality, abilities, or social behaviors are totally ineffective or have small effects (Proposition 10). When there are effects, these are often transient. This suggests that personality, abilities, and social behaviors are relatively impervious to environment (so long as the environment is not radically aberrant). This makes it more likely that what outcomes a person has in life are less due to environment and more due to biology.

Although I have not gone into detail about the research that Murray presents to support his ideas, the preceding brief discussion gives the flavor of the work presented. The research that Murray considers in detail is highly supportive of the points he is making. The writing is also modest in its assertions and very well done. Even for readers who are highly familiar with research in this area, the book is well worth reading. It not only gives an appreciation for the big picture but projects a very optimistic future using the powerful research methods that are discussed.

5. How will this book be received?

I am an unrelenting optimist. After reading this book, I find it hard to believe that there is anyone who could believe that gender, race, or social class could be entirely due to culture or environment without any biological or genetic basis. The current evidence is overwhelmingly against a purely environmental explanation. Indeed, there is very little trustworthy information that environment or culture contribute much to gender, race, or social class though Murray does not say that. What evidence there is almost always confounded with genetic contributions because people who present such evidence often fail to use genetically informative methodologies.

It is my hope that there will be relatively little negative reaction to *Human Diversity*. If that proves to be true we may have reached an important inflection point in this saga, a point at which a model including genetics will be mandatory in any research. However, even if there are vociferous negative reactions to Murray's book, the methodologies and techniques available to current researchers will soon make that inflection point inevitable. Murray believes, as will anyone who reads this book, that the model that will dominate going forward will not be purely environmental or cultural but will include a strong biological/genetic component. If there is a strong reaction to this conclusion, let us hope that it is a dying gasp. The belief that anyone can be anything they want is highly destructive and needs to die. We are all shaped by our biology, we are all unique, and all equally valuable in our uniqueness. The sooner we can understand our uniqueness, the sooner each will find their optimum niche and the better off we all will be.

However, if the effects are more negative than expected keep in mind the long list of scientific ideas that have been incorrectly opposed: round world not flat, evolution, heliocentric universe, germ theory, bacteria cause stomach ulcers, tectonic plate theory to name a few. In some cases opposition lasts for centuries. We can only hope that a century of mistaken ideas about the role of genetics in human behavior is enough.

6. Advice to other future reviewers of this book

Read the book. This is always good advice when reviewing a book. Do not go to the index and look up controversial words and read just those sections. I am sure some have done that before but it is always

obvious in your reviews because you miss the main point of the book.

If you are not familiar with the established science in the area do not hesitate to contact someone who works in the area. Anybody on the editorial board including the editor of *Intelligence* would be glad to help you. I would be happy to provide you with a list of people with different perspectives who would be glad to answer your questions. Remember that common lay beliefs about intelligence and individual differences are often wrong. Do not wing it without help because you will be inviting embarrassment.

Do not engage in *ad hominem* attacks. Calling people racists or fascists or other nasty names does not resolve scientific debates. And it doesn't make you any friends, either. Neither does it convince anybody you are right. The only readers who will take any pleasure in your words will be uninformed people who already agree with you.

If you wish to show that environment is the major or only influence on human behavior, identify which environmental variables are most important in a genetically informative design. Studies that show high correlations with environmental variables, of which there are some, are potentially confounded with genetic effects unless a genetically informative design is used. A genetically informative design can separate the genetic and environmental sources of variation. Few environmental variables have been identified using such designs and generally account for little variance. The general conclusion is that environmental effects are unique to each individual and so are hard to identify. It is not that there are no environmental effects. Everybody realizes there probably are but no one has been able to identify them in a systematic way.

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