Crossing the Rubicon from the Social to the Biological Sciences

Reviewed work: *Human Diversity: The Biology of Gender, Race, and Class* by Charles Murray

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Charles Murray is one of those people who already knows the first line of his obituary. When *The Bell Curve*—coauthored with Richard Herrnstein—was published in fall 1994, it caused a sensation in the scientific and political communities and catapulted Murray into infamy that will last the rest of his life and beyond. (Herrnstein passed away shortly before the book was published.) The intense reaction to *The Bell Curve* has lasted so long that in 2017 when Murray visited Middlebury College to speak about a different book, student protests erupted into a riot which caused property damage and hospitalized his host.

Herrnstein and Murray's (1994) central thesis was that socioeconomic differences in the United States were partially the consequences of differences in intelligence. Most of the book focused on individual differences, but three chapters focused on average differences among racial and ethnic groups, and two chapters explored the policy implications of these differences. These five chapters, though constituting a minority of the book, were the topic of much of the reaction to *The Bell Curve*. Despite the backlash, two statements on the scientific knowledge regarding intelligence research were published by experts (Gottfredson, 1997; Neisser et al., 1996), largely vindicating the scientific findings in *The Bell Curve*. Both statements still serve as standards of factual accuracy about intelligence over two decades later (Warne et al., 2018).

However, Murray's oeuvre since 1994 has built little on the findings in *The Bell Curve*. A few peer-reviewed articles (Murray, 2002, 2006, 2007) and a slim monograph (Murray, 1998) are re-analyses of data or explorations of the magnitude of mean group differences in intelligence. Murray's recent books have been concerned with a variety of topics, many of which have little or no bearing on intelligence research. *Human Accomplishment* (Murray, 2003) is a historiometric examination of the greatest human artistic and scientific accomplishments from

800 BC to 1950 AD. *By the People* (Murray, 2015) is a libertarian guide to using civil disobedience to thwart the overreach of the regulatory state. Only *Coming Apart* (Murray, 2013)—a description of the widening cultural, socioeconomic, and political gaps between wealthy and poor White Americans—touches on similar themes. But even here, intelligence research is supporting player, mostly in the context of college admissions tests functioning as a sieve that allows bright people to pass into the upper echelons of the socioeconomic hierarchy, while leaving their low scoring peers behind.

After over a quarter of a century, Murray has returned to the themes of *The Bell Curve*, with his new book, *Human Diversity: The Biology of Gender, Race, and Class* (Murray, 2020). The title is an informative one. Murray's horizons have expanded beyond socioeconomic inequality and race differences to include gender differences. Paradoxically, Murray's broader treatment is paired with a focus on causes that are more basic than intelligence: genes, hormones, and brain structure. Intelligence research makes appearances in the book—the chapters on socioeconomic inequality develop many ideas from *The Bell Curve*—but individual differences in intelligence are no longer a fundamental cause of inequalities. Instead, it is genes and biology; IQ is now one of many mediating variables between biology and social outcomes.

Two Inequality Cultures

In the introduction to *Human Diversity*, Murray introduces the orthodoxy of the "sameness principle," which states that, "In a properly run society, people of all human groupings will have similar life outcomes" (Murray, 2020, p. 2). If the sameness principle is correct, then average group differences in life outcomes are *prima facie* evidence of an unjust society. This is the dominant culture of sociology and anthropology, two fields in which scholars generally minimize or reject biological or evolutionary explanations of inequality (Horowitz et

al., 2014, 2019). It is also a worldview that is generally amiable to the leftist politics that dominates among scholars in those fields and psychology (Inbar & Lammers, 2012). Murray (2020, p. 3) summarizes the orthodox perspective on the tripartite issues of gender, race, and class into three simple claims:

1. Gender is a social construct.

2. Race is a social construct.

3. Class is a function of privilege.

These claims are fundamental to the culture that relies on the sameness principle because if the inequalities are merely social constructs or the function of privilege, then creating an egalitarian world with equal outcomes is simply a matter of changing society, altering the environment, and eliminating the structural problems in social and economic systems. Utopia is always just around the corner.

In contrast to the sameness principle, another culture—underrepresented in the social sciences—holds that inequalities are at least partly rooted in individual differences. These differences can aggregate to result in average group differences in important variables that are correlated with or have a partial causal impact on life outcomes, such as socioeconomic status. Unsurprisingly, Murray belongs to this latter culture; *The Bell Curve* was also a presentation of such science, though rooted in intelligence research instead of biology.

Human Diversity is a presentation of the biological science that undermines the sameness principle as it applies to gender, race, and class. As such, the book serves as an introduction to the relevant biology for social science scholars, students, and interested non-experts. It is a convenient ford in the river that divides biology and the social sciences. But beware: Once this

Rubicon is crossed—and biology begins informing the research and theory of the social sciences—there is no going back.

A Multidisciplinary Book

Unlike *The Bell Curve*, *Human Accomplishment*, and other large-scale works that Murray has written in the past, *Human Diversity* contains very little original data analysis. Instead, it is a book of synthesis. The research that Murray cites appeared originally in journals and books in neuroscience, behavioral genetics, differential psychology, population genetics, and other areas. Few psychologists will be competent in all areas of research that Murray draws upon—and even interdisciplinary experts may learn something new. (The discussion on epigenetics was most enlightening to me.)

But among the experts, Murray's discussion is a rehash. Descriptions of classic, well-known studies are plentiful, and for most of *Human Diversity* Murray prefers to paraphrase the viewpoints of expert scientists who produced the studies. Murray proposes no grand unified theory of inequality, nor does he stray from the most empirically solid findings. To readers familiar with Murray's work, this is unsurprising. He and Herrnstein took the same tack in *The Bell Curve*. Where both books seem controversial is not their science, but Murray's willingness to write frankly about scientific findings that violate what Haidt (2020) calls the "sacred values" of people who hold the sameness principle as a foundational belief.

But a work of synthesis can make a useful contribution. (Ask anyone who has published a literature review or textbook.) The strength of *Human Diversity* is Murray's accessible writing style. Technical ideas and concepts are explained in the simplest language possible without sacrificing important details. An excellent example of this is the treatment of how a series of small univariate group differences can combine to form large multivariate differences (Del

Giudice et al., 2012; Edwards, 2003; Smouse et al., 1982). The small univariate differences on many variables is the foundation for many arguments that sex and racial group differences are trivial, such as Hyde's (2005) gender similarities hypothesis or in Lewontin's (1972) claim that between-group genetic variation among races was minuscule. Murray is skillful in explaining how correlated traits combine to create important multivariate differences among groups and includes a superb explanation of the multivariate effect size Mahalanobis D.

Ten Propositions Undermining the Sameness Principle

Murray could present a variety of research showing how the sameness principle is not tenable. However, across the three areas of gender, race, and class, he has focused on ten propositions that are particularly strong.

Gender

Murray's four statements about gender are:

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 sex differences in the brain are coordinate with sex differences in personality abilities, and social behavior.

Of the three topics in *Human Diversity*'s title, the research on sex differences is the largest body of work. Murray does not explore it all (which, by itself, would require a lengthy book; see

Halpern, 2001, for example). Instead, he focuses on the message that the fundamental belief in the sameness principle, as applied to sex differences, is empirically incorrect. Men and women are different (on average, though with a great deal of univariate overlap on most individual traits), which results in differences in average outcomes that are not easily eradicated. Because orthodox explanations of gender differences are flawed, orthodox prescriptions are too. Murray is not the first to make this argument; Stern (2016), for example, published a compelling insider's perspective about this point regarding gender sociology.

A serious reading of the chapters on gender in *Human Diversity* is a better education about sex differences and their consequences than a library of books written by gender studies professors. Murray is particularly enlightening in the section on sex differences in occupational choice. Contrary to the predictions based on the sameness principle, sex differences in personality traits and cognitive abilities are *larger* in egalitarian countries than in nations where women's rights are less realized (Costa et al., 2001), and this is a partial cause of sex differences in occupational choice. Murray explains the latter finding by arguing that freedom from social constraints allows people to develop their cognitive abilities and personality traits in a way that they prefer. This aligns with other research showing that, when opportunities are not greatly constrained, most people will seek jobs that allow them to tap into their psychological strengths (Webb et al., 2002). While this means that some women enter engineering and some men become kindergarten teachers, a larger percentage of women will prefer to enter occupations that require verbal skills and interpersonal competence, while a larger percentage of men will prefer jobs that require working with objects and the use of spatial or mechanical abilities. The result— in countries where equal opportunity is a societal goal—is a gender imbalance in many occupations. Efforts to force a 50/50 gender split in many occupations will, at best, result in

many unhappy auto mechanics and hair stylists. At worst, it requires a high degree of coercion and oppression. In Saudi Arabia's sex-segregated education system, 50% of elementary school teachers are male, but that does not make the country a feminist paradise.

Lest my readers grow nervous with Murray's adherence to biology, he also recognizes the social science research that shows the ability for culture to create sex differences. This is especially apparent when he discusses the societal changes in the 20th century that were the likely cause of the profound decrease in the male-to-female ratio among the highest echelon of mathematics achievement (Wai et al., 2012) and in the number of women entering occupations that were traditionally dominated by men, such as law and medicine. Additionally, his interpretation of international variation in the magnitude of sex differences in academic achievement is entirely cultural. Throughout *Human Diversity*, Murray is able to recognize the limits of the explanatory power of biology and can give space for culture and social variables to have a causal effect.

Race

Regarding race, Murray states:

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.

While controversial among non-experts, these three precepts are unsurprising to differential psychologists, population geneticists, and behavioral geneticists.

Statement 5 has been validated so many times in the 21st century that exploring the issue in detail would belabor the point. Simply put, using alleles as the traits to classify humans has led to results that classify people into their self-identified racial or ethnic group with over 99% concordance (Tang et al., 2005) and can identify genetically distinct subgroups within an ethnic group (Chiang et al., 2018; Leslie et al., 2015). These facts are the foundation for commercially available ancestry DNA tests. If the sameness principle were correct and race were merely a social construct with no connection to biology, then surely companies that provide these ancestry testing services would have been sued for fraud and false advertising by now.

Regarding Statement 6, Murray is—again—merely following in the footsteps of experts and previous authors (e.g., Cochran & Harpending, 2009; Wade, 2014; Winegard et al., 2017). Evolution did not magically stop when humans started walking upright. Nor did evolution operate only "below the neck" and leave the brain untouched after branches of humanity began to leave Africa (Beals et al., 1984; Chiao & Blizinsky, 2010; Woodley of Menie et al., 2017). Instead, natural selection is occurring within contemporary human populations (e.g., Beauchamp, 2016; Jin et al., 2012; Kong et al., 2017; Lynch, 2016). Evolutionary theory predicts that subpopulations of a species who live in very different environments *should* exhibit differentiation in physical and psychological traits that are important for survival. The absence of such differences would severely undermine evolutionary theory to the point of practically falsifying it. Statement 7 is merely the consequence of the previous two statements. Murray explores biological phenotypes that are likely the consequence of continent-level genetic differences among populations and is satisfied to imply that the genetic differences can also have an impact on psychological and social phenotypes.

Class

Murray's three axioms on class can be summarized as, "Class is a function of the genetic lottery plus character, determination, hard work, and idiosyncratic circumstances" (Murray, 2020, p. 204). Specifically, his claims are:

8. The shared environment usually plays a minor role in explaining personality, abilities, and social behavior.

9. Class structure is importantly based on differences 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.

This is not to say that racism and sexism have vanished from American society. Murray (2020, pp. 204-207) acknowledges the headwinds that members of some demographic groups still face, but his data-based argument is that bigotry is usually not a dominant cause of class differences. Murray states that biological differences—many of them rooted in genetics—are a more important cause for socioeconomic inequality. Conversely, the orthodox assumption that socioeconomic status is a causal variable—and not an outcome—is so widespread in at least one branch of the social sciences that it has been christened the "sociologist's fallacy" (e.g., Jensen, 1998, p. 491).

The mainstay of this section of *Human Diversity* is the heritability statistic, which is defined as the proportion of phenotype variance that is explained by genetic variance. As a proportion, heritability always ranges between 0 and 1, with zero indicating that a trait's variance is fully explained by environmental variance and 1 indicating that phenotype variance is completely genetic in origin. Among experts, "All psychological traits show significant and substantial genetic influence" (Plomin et al., 2016, p. 4). That includes the traits that contribute

to socioeconomic success: intelligence, educational achievement, prosocial personality traits, good mental health, and more. Indeed, for decades, studies have shown that the heritability of income and socioeconomic are in the .40s or .50s (e.g., Rowe, 1997), making both (partly) the product of genetic influences. Like the sections on gender and race, the section on class in *Human Diversity* is old news for experts.

One way that the biological data and conventional wisdom depart is in the influence of shared environment—i.e., the portions of the environment that siblings experience in common. Parenting experts and many developmental psychologists operate under the assumption that correlations between parental behaviors and child outcomes are causal in nature. However, when children are raised by one or both biological parents, then this correlation is confounded by the shared genes between parent and child (Plomin, 2018). Controlling for the common genetic influence on parental and child behavior (e.g., by studying only adoptees who are raised by nonbiological relatives) greatly reduces the correlation between parental and child behavior. The influence of environment that siblings share tends to be small and for some variables—such as IQ—the shared environment influence evaporates completely in some samples. This is not to say that environment is irrelevant; rather, the most important environmental impacts on many life outcomes are the events, experiences, and influences that are not shared among siblings (Plomin, 2018). This makes these causal variables much harder to identify, and efforts so far have had little success (e.g., Asbury et al., 2016).

Even if an environmental variable or intervention can have a causal impact on a variable important for socioeconomic success, genetic influences are still relevant. Given the range of environments under study, a trait's heritability is also measure of how resistant to change a trait could be under typical environmental conditions. This leads to an implication that is problematic

for the sameness principle: when heritability is high, changes in the environment are likely to have weak effects on traits. (Rare exceptions can occur, such as an environmental change that is outside of the range of studied environments.) As a result, traits with heritability greater than .50—such as internal motivation, higher cognitive functions, and recurrent depression (Polderman et al., 2015)—are probably not easily malleable. When nonshared environment statistically explains the bulk of the remaining nongenetic variance, social scientists should be doubly skeptical about the prospect of changing the trait under typical environmental conditions.

In a way, this should not be surprising to psychologists. Almost any clinician acknowledges that permanent changes to behavior are hard to achieve. Moreover, the replication crisis has not been kind to subtle interventions to change human behavior noticeably, including social priming (e.g., Rohrer et al., 2019), mindset theory (e.g., Li & Bates, 2019), and stereotype threat (e.g., Flore et al., 2018). In psychology, there seems to be a perpetual cycle of hope, hype, and heartbreak in the research on interventions for changing human behavior, including preschool (e.g., Lipsey et al., 2018), working memory training programs (Redick, 2019; Sala & Gobet, 2019), and more. Yet, the appeal of the orthodoxy is strong, and many psychologists are eager to push the next intervention, which inevitably produces weak or zero effects in rigorous studies. Lather, rinse, and repeat.

Murray's Global Interpretation

Human Diversity concludes with two chapters where Murray interprets the totality of the scientific evidence, emphasizing the foreseeable consequences for the social sciences and for society at large. Unlike the concluding chapters of Murray's *Coming Apart* and *Human Accomplishment*, the end of *Human Diversity* is remarkably upbeat.

Murray sees the encroachment of the genomics into the social sciences as the beginning of an exciting new revolution—a statement that I have made elsewhere (Warne et al., 2018, p. 44). Where he and I diverge is the timetable. Murray (2020, pp. 273, 286, 287) believes that by 2030, research that incorporates biological data and theory will be mainstream in the social sciences. To me, that is too optimistic of a timeline for two reasons. First, massive shifts in the social sciences take time. The cognitive revolution took about 30 years to sweep through psychology. Removing psychoanalysis from the mainstream of clinical and counseling psychology took even longer. It has been nearly a decade since the beginning of psychology's replication crisis, and—despite improvement—most studies are still not pre-registered, replications remain somewhat rare, and many data sets are not widely available accessible. How the social sciences will embrace genetically informed methodologies so quickly is unclear.

Second, Murray's prediction downplays the strength of the orthodoxy—which has resisted research on the reality, biology, and consequences of gender, race, and class differences for decades. Entire disciplines within the social sciences have been co-opted by fervent adherents to the sameness principle, and they will not give up their power without a fight. In one survey, many social and personality psychologists expressed a willingness to discriminate against advocates of politically conservative ideas (Inbar & Lammers, 2012). In the same survey, the self-reported leftist respondents were most willing to discriminate against opinions they disagreed with. (Apparently, tolerance is a one-way street for them.) Moreover, the willingness to discriminate increases as the stakes are raised; only 14.0% of psychologists said they would discriminate in a symposium invitation; 37.5% would do so for a hiring decision. History has shown that when a methodology or finding would seem to legitimize beliefs that threaten leftist

sacred values, often the knives come out (see Carl & Woodley of Menie, 2019, for a catalog of examples).

I cannot explain why the co-author of *The Bell Curve* (of all people!) would be such a Pollyanna about the willingness for the orthodoxy to embrace the science that it has worked so hard to ignore, defund, discredit, and suppress. Murray's (2020, pp. 300) optimism is grounded in the ability of polygenic scores (which are based on subtle genetic variations among people) to make predictions of social outcomes. This is a central weakness of the sameness principle; if people are fundamentally similar and environmental differences have a powerful causal impact on social outcomes, then DNA should have a zero or trivial correlation with social outcomes. Murray believes that the predictive power of genetic data will cause most social scientists to admit the powerful influences of biology on behavior. We will see in ten years whether his timetable for this change is realistic.

Where I agree with Murray's analysis is the huge potential for biologically informed research. Medical researchers are at the forefront of incorporating genomic data into their research, but they will not be alone. For receptive scientists, the inclusion of biology (especially genetics) is an exciting development that could overturn or strongly alter the methodology, theories, and interventions in every branch of the social sciences. Among the questions I can see being answered with the aid of genetic data are:

- Why are some pairs of psychological disorders more frequently comorbid with one another than other pairs?
- Why do some people respond better to interventions than others—and can genetic data help professionals predict which intervention will be most effective for a particular individual?

- Can genomic data identify vulnerable people *before* behavioral problems or unfavorable social outcomes develop—and are interventions before those problems emerge effective?

Nearly every human trait is susceptible to some degree of heritability (Plomin et al., 2016), so the potential list of genetically informed research questions in the social sciences is lengthy.

That is why Murray's book is relevant in 2020. Most social scientists have little training in biology. *Human Diversity* is a cogent introduction to the research base, implications, and controversies about these issues. It will not make readers into experts on the topics the book covers. But readers will finish the book with a strong grasp of the fundamental concepts and be able to recognize problems in theories of human behavior that ignore biology. Incorporating biological data (such as polygenic scores) into a social science research program will take training and experience, but becoming acquainted with the ideas in *Human Diversity* is a start.

Unfortunately, the people who most need to read *Human Diversity* are the ones least likely to do so. Murray's name is anathema in some circles, and his message is ideologically dangerous to people who believe fervently in the sameness principle. The guardians of orthodoxy, though, have reason to be afraid. A proverbial Rubicon divides biology and the social sciences, and Murray is an excellent guide for helping his readers find their way across. And when that happens, the sameness principle—like the ancient Roman Republic—is poorly equipped to handle the changes and reality that are unleashed upon it.

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