Comment

Contents

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Race—Social, Biological, or Lemonade?

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On the day that I read Sternberg, Grigorenko, and Kidd's (January 2005) article on race, an article from the *American Journal of Human Genetics* (Tang et al., 2005) also crossed my desk. As part of their research, the latter authors compared the results of a cluster analysis of people using many genetic markers with the respondent's self-identified race/ethnicity: "Of 3,636 subjects of varying race/ethnicity, only 5 (0.14%) showed genetic cluster membership different from their self-identified race/ethnicity" (Tang et al., 2005, p. 268).

I would very much like to hear a response to this finding from Sternberg et al. (2005), who maintained that "race is a socially constructed concept, not a biological one" (p. 49), that reifies those physical correlates of ancient population dispersions "as deriving from some imagined natural grouping of people that does not in fact exist, except in our heads" (p. 51).

My take is that if we psychologists could use genetics (or any other biological variables) to distinguish those with schizophrenia from those with bipolar disorder with an error rate even a hundredfold greater than that of Tang et al. (2005), we would announce—and do it with no small fanfare—that there are valid, biological differences between the two disorders.

I suspect that much of the difficulty in discussing this issue stems from a tendency to treat "social" and "biological" (or "genetic" and "environmental") phenomena as mutually exclusive. Modern molecular genetics and neuroscience are very clear in indicating that mammalian behaviors are intricate symphonies that interweave genetic and nongenetic harmonies. The learning of environmental contingencies and consequences, as well as the long-term memory of such events, is associated with "turning genes on and off" (technically, the regulation of gene expression). Consider a teenager with a major pimple on prom night: One effect of his or her elevated cortisol is to enhance the expression of some genes and inhibit the expression of others. Behavior is "lemonade" (Carey, 2003). It is a solution—an inextricable combination of genes and environments, of the social and the biological. Placing a complicated construct like race into a discrete "social" or "biological" box makes as much sense as asking whether lemonade is (a) lemon juice, (b) water, or (c) sugar.

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Is the Evidence on Ethnicity and Intelligence Conclusive?

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The article by Sternberg, Grigorenko, and Kidd (January 2005) is well written and contains a wealth of valuable information. I do have, however, a couple of concerns. One is that the authors imply that the question of whether the Black–White IQ discrepancy has a genetic component should be a closed issue. They said,

> Thus, the statement that racial differences in IQ or academic achievement are of genetic origin is, when all is said and done, a leap of imagination. The literature on intelligence, race, and genetics constitutes, in large part, leaps of imagination to justify, post hoc, social stratifications. There is nothing wrong, in principle, with people expressing their views on social policy. But they need to recognize these views for what they are: social policy pronouncements, not science. (p. 57)

I maintain that no argument should be regarded as a closed one when there are so many psychologists on both sides of a scientific position. In one study (Snyderman & Rothman, 1988), over a thousand psychologists and other experts in intelligence testing were surveyed regarding the Black–White IQ difference. Fifteen percent said the reasons for the discrepancy were entirely environmental; 46% said they were at least partly genetic; 24% said the evidence was inconclusive; and 14% did not respond. The fact that 24% of the experts surveyed expressed uncertainty means that more research and dialogue rather than a "case closed" orientation is needed.

My second concern is that of the insufficient respect given to the work of Rushton (1995), who contended that greater intelligence evolved in colder climates because of the greater difficulty in obtaining food and protection from the elements. Sternberg et al. (2005) maintained that Rushton's position has no more merit than contending that greater intelligence evolved in tropical climates because of the need to cope with tropical diseases and the violence associated with hot weather. Sternberg et al. (2005) said, "Indeed, post hoc evolutionary arguments made in the absence of fossils at times can have the character of ad hoc 'just so' stories designed to support, in retrospect, whatever point the author wishes to make about present-day peo-

Vol. 61, No. 2, 176–181

ple" (p. 50). Rushton presented a vast array of scientific evidence in his conceptualization, for example, a correlation of .62 between cranial capacity and distance from the equator with 20,000 crania representing 122 ethnically distinguishable populations (Beals, Smith, & Dodd, 1984). Templer and Arikawa (2003) reported a correlation of −.71 between mean IQ and mean high winter temperature and a correlation of −.61 between mean IQ and mean low winter temperature with 129 countries. There are alternative explanations to those of Rushton for such findings. To relegate Rushton's theory to the realm of absurdity, however, would neither constitute optimal scientific reasoning nor represent an ideal spirit of scholarly disagreement.

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Examining Unproven Assumptions of Galton's Nature–Nurture Paradigm

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Sir Francis Galton's (1869/1892) notion of nature versus nurture is a cornerstone of psychology: It was recently featured in two issues of the *Monitor* (March and April 2004) and was infused throughout the January 2005 issue of the *American Psychologist*. Sternberg, Grigorenko, and Kidd (January 2005) offered keen insights into the pitfalls in the study of intelligence and race, discerning between folklore and science. Similar scrutiny is needed of the premise underlying these articles: that the nature–nurture paradigm is a scientific fact. Ultimately, the validity of statistical formulae derived from Galton's thesis depends on unproven assumptions. Further, a dimensional ontology allows expansion of the theoretical perspective.

The idea that nature and nurture make us who we are is easily distilled into a statistical formula: In terms of variance, "heritability and environmentality add to unity" (Sternberg et al., 2005, p. 53). The first assumption, termed *exclusivity*, stems directly from that idea: *Only* nature and nurture make us who we are. This leads to a paradigmatic requirement: No influences exist other than genetics and environment. The second assumption implicit in the body of nature–nurture research, termed *universality,* is that the paradigm is valid for every human trait studied. An example will illuminate both assumptions.

A century ago, phenylketonuria (PKU) was purely heritable in terms of variability: The inability to metabolize phenylalanine resulted from a genetic deficiency. Fifty years ago, a scientist discovered its mechanism and prescribed a palliative diet deficient in phenylalanine. Today, PKU is cited as exemplary of nature–nurture interaction (e.g., Sternberg et al., 2005). However, a crack has appeared: Science has given each person the freedom to be tested and to follow the diet. Even for a physiological disorder such as PKU, nature and nurture do not account for all influences; the ability to choose likely accounts for most of the variability today, thus violating the exclusivity assumption. If one extends this example, on that theoretical day when human DNA is completely understood, Galton's (1869/1892) paradigm will be refuted definitively: Scientists will have maximized human choice while minimizing adverse aspects of genetic inheritance.

If a physiological disorder might result from more than nature and nurture, then what about psychological traits, in which the effects of human abilities such as choice, free will, responsibility, meaning, purpose, and spirituality may be magnified? If PKU provides even a single exception to the universality assumption, then Galton's paradigm must be validated for each trait studied.

A third assumption, *complementarity*, must also be addressed: Nature and nurture constitute a linear dichotomy, even in interaction. Note the wording of Sternberg et al.'s (2005) translation of Galton's paradigm quoted earlier: Nature and nurture "add to" one. As Sternberg et al. (2005) noted, "Heritability has a complementary concept, that of environmentality" (p. 53). This dichotomous structure requires that variation from any other source automatically be included under heritability, environmentality, and/or their interaction, thus precluding its consideration outside of the paradigm (Biddell & Fischer, 1997). In the example of PKU, if heritability is minimized, is environmentality correspondingly increased? However, as mentioned earlier, the *ability to choose* likely has become the greatest source of variability.

A dimensional ontology allows a more parsimonious inclusion of these factors. Viktor Frankl (1967) noted that the person lives in three interpenetrating dimensions: *soma* (the physical body), *psyche* (the emotions and intellect), and the *noëtic* (the soul). The noëtic dimension includes free will, responsibility, choice, spirituality, and the unique meaning capacity of *Homo sapiens*. Although animals share soma and psyche with humans, the noëtic is defined as that which differentiates us from animals (Frankl, 1967). In this ontology, genetic expression is somatic in origin—genes synthesize amino acids, pure and simple; nurture occurs in both soma and psyche. From this perspective, nature and nurture are *dimensionally different* rather than complementary.

The existence of dimensional causes other than heritability and environmentality violates all three assumptions. Theorists have proposed factors that operate in conjunction with genetics and environment, such as symbol systems (language, science, math, musical notation; Gardner, Hatch, & Torff, 1997) and human agency (choice, free will; Biddell & Fischer, 1997; Frankl, 1967). Assuming that animals do not have language, science, and math, nor the choice and free will needed for agency, these distinctly human variables are noëtic (Frankl, 1967). How do they affect nature–nurture research?

Studies of twins with regard to language development and IQ invariably involve the measure of noëtic symbol systems, using the manipulation of language and/or representations of math or logic. Similar studies of substance abuse ignore the noëtic dimension: The most successful treatment involves 12-step programs that invoke a "Higher Power" to strengthen the ability to choose. Twin studies of career selection paradoxically assume that only nature and nurture determine choice, precluding the Jungian sense of "finding one's