

calling.” For each of these fields of study, the noëtic dimension is a confounding variable, its variability subsumed into genetic and/or environmental components.

From a clinician’s standpoint, the small arena of choice is likely the most powerful fulcrum available for change. The healer’s role is arguably to transform the client’s sense of agency from “insignificant” into a force capable of harnessing and transcending nature and nurture. With choice come responsibility and the realization of freedom, which cannot occur without meaningful and purposeful options. Indeed, it is through exercising our ability to choose that we become fully human. Galton’s (1869/1892) paradigm ultimately assumes that the person has no true freedom. To rephrase Frankl (1967), nature and nurture represent our fate, whereas the noëtic represents our capacity to take a stand toward that fate.

For decades, Galton’s (1869/1892) nature–nurture paradigm has anchored psychological research and theory. Though renowned, his idea and its derivations were never scientifically validated. Galton’s idea, and all studies based on it, bear reconsideration. Inclusion of the noëtic dimension and its intercourse with genetics and environment allows the researcher to consider *the person* in studies of human development.

It is time for a new paradigm: Nature, Nurture, and the Noëtic.

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Racing Toward the Finish Line

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Carey (2006, this issue) cited in his response to our article (Sternberg, Grigorenko, & Kidd, January 2005) a study by Tang et al. (2005) showing that “of 3,636 subjects of varying race/ethnicity, only 5 (0.14%) showed genetic cluster membership different from their self-identified race/ethnicity” (p. 268). Carey (2006, p. 176) then stated that he

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).

We are glad to provide a response.

Imagine the case of Dr. Smith. Dr. Smith has a hypothesis that the proper basis on which to classify people’s race is not skin color, which has so often been used (mistakenly, he believes), but rather eye color. He discovers some interesting facts. Whereas 0.14% of a sample showed genetic cluster membership different from their self-identified race/ethnicity based on skin color and other such criteria, not even one person misidentified genetic membership on the basis of eye color. He is impressed. He then discovers that race defined by eye color is quite powerful. Blue-eyed races tend to live more in Northern climes, and brown-eyed races, closer to the equator. Blue-eyed people, on average, are more susceptible to sunburn and concomitants of it. Blue-eyed races have health problems, on average, more typical of people in Northern climes, and brown-eyed races, those more typical of equatorial climes. Although the effects are not whopping, they are statistically significant. There are even differences, on average, in the distribution of languages these races speak. Dr. Smith even notes that, in earlier times, eye color actually was used as a basis for classifying people on the basis of race, which gives historical weight to his scientific finding. (As an example, Sternberg’s mother escaped Nazi-occupied Austria only by virtue of her blue eye coloring, which suggested “Aryan” racial membership to police guards on a train.) The point

of the apocryphal story above is that correspondence between self-identification and biological characteristics does not form a suitable basis for assigning people to “races.”

Moreover, it appears that Carey’s (2006) response to our article can be explained, at least partially, by his incomplete understanding of the data, analyses, and results presented in Tang et al. (2005). First, the Tang et al. study was done using samples primarily from the United States, where the primary ethnic groups are derived from very different parts of the globe: European (primarily Western European), African American (of mixed West African and European origin), East Asian (Chinese, Japanese, Vietnamese, and other groups not generally distinguished by U.S. policymakers but genetically distinguishable), and Hispanic Mexican American (of mixed Native American and European origin). Thus, there exist noticeable genetic differences that parallel the origins and culture differences among these groups, specifically, the immigration patterns from different parts of the globe into the United States. Correspondingly, given where these culturally defined groups came from geographically, it is not surprising that they have genetic differences. More relevant to the point that we make—that is, of the continuity of genetic diversity among various ethnic groups and, correspondingly, the artificial nature of the concept of race—is the observation that African Americans can have considerable differences in their ancestral contributions, depending on where, culturally and geographically, their ancestors came from. In the United States, culturally (socially) and historically, anyone with any African ancestry is viewed as or referred to as “African American.” Consider the children of Thomas Jefferson and Sally Hemings. She was already half European (a half sister of Thomas Jefferson’s wife), and their children were therefore three quarters European, yet they were still socially slaves and “African American.” Depending on how such individuals self-identify and how the genetic clusters are derived statistically, they will cluster with “pure” Europeans or a “partially African” cluster and will either fit or be outliers for these clusters.

Second, we also note that the analysis in Tang et al. used the “no admixture” option; in other words, the analyses did not allow for a careful examination of sources and structure of variability “added” by mixed ethnical marriages, which, clearly, would minimize estimates of within-group variation and maximize estimates of between-groups variation. Third, despite the

relatively close approximation between the social clustering and genetic clustering found in Tang et al., it is on a global scale that we see intermediate populations that do not allow any clear dividing lines between so-called races or genetic/biological clusters of people. In other words, although Tang et al. described a large and diverse sample, the diversity of this sample is extremely far from being representative of the diversity among human populations.

Almost all genetic variation (and its physical manifestations, if any) shows significant variation in quasi-continuous clinal patterns around the world. Almost any set of groups with genetically restricted origins will show genetic differences that allow clustering that would correspond to the social groupings. However, when many neighboring populations are considered, the borders between ethnicities and races dissolve, and categorical thresholds get replaced by continuities. Consider the Mediterranean “races” of times past. They have tended to eat olives and drink wine, compared with the Nordic “races,” who drank aquavit and ate herring; these “races” also showed language differences. We can find biological and genetic traits to distinguish these groups; yet most people today would say it is ridiculous to say these separate peoples belong to separate races socially and culturally. In other words, if we sample only from Mediterranean and Nordic ethnic groups, we will see distinct differences, but if we sample from all intermediate gradations of Europe and consider admixtures that arose as a result of wars (rape) and trade (marriages), a genetic “distinctness” will be replaced by genetic “continuity.”

Carey (2006) suggested that he suspects 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” (p. 176). Not among us: Two of us have our doctorates in genetics and publish widely in genetics journals, and all of us have written extensively about gene–environment covariation and interaction. We do not dismiss but rather study the presence of genetic (see Kidd, Pakstis, Speed, & Kidd, 2004, for a review) and cultural (see Sternberg, 2004, for a review) variation in humans, focusing on our different areas of expertise but never denigrating the others’. We simply reject the notion that any biological difference between people (such as skin color, eye color, weight) that has various physical concomitants forms the basis for a labeling of it as the basis for *race*.

With regard to Templer’s (2006, this issue) response, we do not give much cre-

dence to the Snyderman and Rothman (1988) survey. If the survey were done in 1908, probably there would have been even more emphasis on genes. If scientists in earlier times were surveyed on the causes of fire, they might well *all* have agreed that phlogiston was responsible. In another era, they would have agreed that the Sun revolves around the Earth. Implicit theories are useful ways of ascertaining popular folk beliefs, including those of scientists, but they are not scientifically definitive.

As to Rushton’s (1995) findings, we are not clear on what conclusion is to be drawn from the correlations—that people with larger cranial capacities are more likely to move away from the equator, that moving away from the equator produces greater cranial capacity, or that both larger cranial capacity and distance from the equator are dependent on some unknown third variable. Thus, although we acknowledge the presence of these and other ideas by Rushton, we do not consider the suggested causal explanations as supported by the data. As noted earlier, the evolution of modern human groups has resulted in almost everything being correlated with geographic distance from Africa. Thus, many correlations that are highly significant statistically can be found and replicated, but they reflect nothing about evolutionary history.

Finally, in response to McLafferty (2006, this issue), we agree that the dichotomization of nature and nurture is a somewhat artificial analytical division that has been at times misused. Whereas we might not fully accept the revised classification proposed by McLafferty, we agree that the nature–nurture division has outlived its value. Nor is there a simple continuum between fully nature and fully nurture—the relevance of variation in nurture depends on the mean and range of variation in nature, and vice versa (Lewontin, 1974).

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On the Complexity of Race

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Examining the human genome to gain insight into humanity is at times a bit like examining a telephone directory to understand a city: You might be able to order a pizza, but that is about as far as it will take you. For example, genetic arguments related to the nature and existence of human “races” have been shown to be precarious at best (Ehrlich & Feldman, 2003). Although a variety of studies have indicated that using statistical clustering techniques to examine genetic information may allow for geographically based groupings of individuals that tenuously map onto some conceptions of race (Pääbo, 2001), these studies have also indicated that the amount of genetic variation within these groupings is significantly larger than the variation that exists between them (even after controlling for “unused” portions of the human genetic sequence). However, irrespective of these problems with the concept of race, the study of race holds a prominent place within the social and behavioral sciences.

In their recent article on this topic, Smedley and Smedley (January 2005) acknowledge the problematic position of race at the genetic level. However, Smedley and Smedley do not explicitly relate the nature of the analyses often conducted to discern race on a genetic level (e.g., forms of cluster and profile analysis) to the discussion of race at the social level. Genetically, information exists on