

For example, narrow nasal passages and a short distance between eye sockets mark a Caucasoid, distinct cheekbones identify a Mongoloid, and nasal openings shaped like an upside down heart typify a Negroid (Ubelaker & Scammel, 1992). The race of a perpetrator is increasingly identifiable from blood, semen, and hair samples. To deny the predictive validity of race at this level is absurd, as was Yee et al.'s (1993) suggestion that "obviousness" (p. 1134) in geographic variation in morphology is not indicative of racial variation.

Biologists use molecular information to work out genetic distances among populations and even to relate these to the times that languages split (Cavalli-Sforza, Menozzi, & Piazza, 1993). On the assumption that mutation rates are constant across time and locale, current estimates are that modern humans evolved in Africa sometime after 200,000 years ago, with an African/non-African split occurring approximately 110,000 years ago and a Mongoloid/Caucasoid split approximately 41,000 years ago. Evolutionary selection pressures are far different in the hot African savanna, where Negroids evolved, from those in the cold Arctic environment, where Mongoloids evolved. Hence, it was predictable that these geographic races would show genetic differences in numerous traits.

The evolutionary sequence explains the how and why of the clustering found on race differences around the world. As I clearly show in my book *Race, Evolution and Behavior: A Life History Perspective* (1995), on more than 60 variables, Mongoloids and Negroids are most dissimilar to each other, with Caucasoids intermediate, albeit with great variability within each broad grouping. This racial matrix includes measures of speed of physical maturation, personality, family stability, law-abidingness, reproductive behavior, sex hormones, twinning rate, brain size, intelligence, and social organization.

I propose that gene-culture coevolution explains these differences better than do 100% environmental or 100% genetic alternatives. No known environmental variable can explain why Mongoloids average larger cranial capacities but produce fewer gametes than do Negroids. Only evolutionary theories based on life-history analyses predict such a trade-off (Rushton, 1991, 1995).

In order to increase scientific understanding of human diversity, it is necessary to rise above both "racist" and "antiracist" ideology and to broaden the focus beyond that of Yee et al. (1993). Their article was limited to the United States, except for passing mention of European imperialism, South

Africa, and World War II genocide. But most Black and Asian people do not live in European-run nations, and the Caucasoid race includes Arabs and East Indians.

With data from around the world, it has been repeatedly found that the races differ not only in cognitive ability (Lynn, 1991) but also in brain size, even after corrections are made for body size. In a stratified random sample of 6,325 U.S. Army personnel measured in 1988 for the fitting of helmets, I found that after adjusting for the effects of body size, sex, and military rank, self-defined Asians, Whites, and Blacks averaged cranial capacities, respectively, of 1,416, 1,380, and 1,359 cubic centimeters (Rushton, 1992). With data from tens of thousands of people from around the world, collated by the International Labour Office in Geneva, Switzerland, in 1990, I found that after adjusting for effects of body size and sex, samples from the Pacific Rim, from Europe, and from Africa averaged cranial capacities, respectively, of 1,308, 1,297, and 1,241 cubic centimeters (Rushton, 1994). Converging modern (post-1980) evidence for this pattern comes from independent methodologies based on wet brain weight from autopsies and endocranial volume from skulls (Rushton, 1995). Even head perimeter measured at birth reveals race differences; and in 19,000 Black and 17,000 White children, head perimeter at birth correlated with IQ at age seven from 0.10 to 0.20 (Broman, Nichols, Shaughnessy, & Kennedy, 1987).

The racial differences, however, should not be overgeneralized, as some of them are quite small. In the U.S. Army data, for example, only a 4% difference separated Asian Americans from African Americans, and Black officers averaged a larger cranial capacity than did White enlisted personnel (Rushton, 1992). It is problematic to generalize from a group average to an individual. Yee et al. (1993) seriously misrepresented my position when they stated that I "interpreted this variation as error" (p. 1134). Rather, it represents natural variation, likely genetically based, that is common to all studied animal populations.

Yee et al.'s (1993) call for official regulation of the scientific concept of race, if taken seriously, constitutes a threat to free inquiry. For too many, work on the genetics of intelligence, and racial differences therein, is a challenge to the enlightenment assumption that knowledge is always better than ignorance. But scholars have accepted that the earth is not the center of the universe and that man's closest living relatives are the chimpanzees. We can yet affirm our common heritage by accepting our differences.

## REFERENCES

- Broman, S. H., Nichols, P. L., Shaughnessy, P., & Kennedy, W. (1987). *Retardation in young children*. Hillsdale, NJ: Erlbaum.
- Cavalli-Sforza, L. L., Menozzi, P., & Piazza, A. (1993). Demic expansions and human evolution. *Science*, 259, 639-646.
- Lynn, R. (1991). Race differences in intelligence: A global perspective. *Mankind Quarterly*, 31, 255-296.
- Rushton, J. P. (1991). Do  $r$ - $K$  strategies underlie human race differences? *Canadian Psychology*, 32, 29-42.
- Rushton, J. P. (1992). Cranial capacity related to sex, rank and race in a stratified random sample of 6,325 U.S. military personnel. *Intelligence*, 16, 401-413.
- Rushton, J. P. (1994). Sex and race differences in cranial capacity from International Labour Office data. *Intelligence*, 19, 281-294.
- Rushton, J. P. (1995). *Race, evolution and behavior: A life history perspective*. New Brunswick, NJ: Transaction.
- Ubelaker, D., & Scammel, H. (1992). *Bones: A forensic detective's casebook*. New York: Harper Collins.
- Yee, A. H., Fairchild, H. H., Weizmann, F., & Wyatt, G. E. (1993). Addressing psychology's problems with race. *American Psychologist*, 48, 1132-1140.

## Psychological Research on Race Differences

Arthur R. Jensen  
School of Education,  
University of California, Berkeley

Because Yee, Fairchild, Weizmann, and Wyatt (November 1993) devoted a third of their article to a section concerning me and my research on racial differences in abilities, I feel obliged to comment. Although they made no pointed or valid criticism of my work, they did not seem to approve it. They urged the American Psychological Association (APA) officially to pronounce "guidelines" for research and publication on this topic. Evaluations by a panel of appropriately selected journal referees, judging each study individually on its scientific merits, was apparently considered inadequate to ensure "disciplinewide consensus and monitoring" of psychological research involving race. Rather than writing a point-by-point critique of Yee et al.'s hodgepodge of muddled complaints, which would be otiose, I will use this limited space to comment on more substantive issues.

My research, like virtually all other psychological (and medical) research on race, is based on samples comprising persons who are self-identified (or parent-identified) as being of a particular racial ances-

try. They are so recognized by others as well. This has been called a social definition of race. When individuals so selected are aggregated into groups, this social definition is in fact highly correlated with many biologic or genetic criteria of race. If an observed behavioral difference between certain racial groups, such as the IQ difference, is attributable only to social-cultural factors, as some theories claim, then the social definition of race should be adequate and, in fact, should be the only appropriate definition. If a critic then complains that two socially defined racial groups that are found to differ in some characteristic are not perfectly correlated with genetic criteria of race and that one or both groups have some genetic admixture of the other, it would mean that the racial genetic aspect of the difference, if such exists, has been underestimated by comparing socially, rather than genetically, specified racial groups. However the groups are defined, competent researchers noting a significant mean difference between two racial groups on some variable also recognize the range of individual differences within the groups and the overlap between their distributions.

Yee et al.'s (1993) references to my work specifically on race differences are quite dated, perhaps leaving a false impression that I had stopped researching on this subject more than a decade ago. Although I have recently conducted studies of the speed and efficiency of information processing in Asian Americans as compared with Whites (Jensen & Whang, 1993, 1994), my major efforts have been the study of Black-White differences in various cognitive abilities. The reason for this focus seems obvious. Not only is the Black population the largest racial minority in the United States, but their average level of scholastic performance (and its many social correlates) is markedly below the general average, a condition not shared by the Asian population, which has been rather contrastingly successful. The educational deficit of the Black population has been recognized for decades as a national concern. Is it improper for an educational psychologist to try to understand the nature of this phenomenon, by empirical research based on the most relevant concepts and methodology of the behavioral sciences?

My recent efforts in this endeavor, not mentioned by Yee et al. (1993), have focused largely on a seminal idea of Charles Spearman (1927, p. 379), which I have dubbed "Spearman's hypothesis." He suggested that the variable size of the Black-White difference on a wide variety of mental tests is directly predicted by the size of the tests' loadings on *g*, the general factor common to diverse cognitive tests. I have

found in a number of large data sets that Spearman's hypothesis is strongly borne out (Jensen, 1985, 1987a). Differences on other factors independent of *g* are comparatively small or nonexistent, except for spatial visualization ability, on which the Black average is lower, although to a lesser degree than on *g*. Spearman's hypothesis is borne out not only for psychometric tests but also for measures of reaction time (RT) on the simplest elementary cognitive tasks, which are nonverbal and nonsymbolic, intended to reflect mainly the speed and efficiency of information processing (Jensen, 1993). The more *g*-loaded the RT variable, the larger the mean racial difference. The ubiquity of *g* in all forms of cognitive performance and its neutrality to the particular information content and the specific skills involved in diverse mental tests make this an especially important finding. The *g* factor is the chief "active ingredient" in the validity of mental tests in education and personnel selection. It is of considerable theoretical significance that tests' *g* loadings predict the tests' degree of correlation with a number of largely biological variables outside the realm of psychometrics: brain evoked potentials; heritability coefficients determined from twin studies; the degree to which children's test scores are depressed by inbreeding and raised by outbreeding; or heterosis (Jensen, 1987b). Also, the degree to which different tests are correlated with head size (and by inference, brain size) within race and sex groups is related to tests' *g* loadings. These kinds of evidence suggest that *g* has a biological basis. We (Jensen & Johnson, 1994) have found, with large samples, that Blacks and Whites differ in head size (with age and body size controlled) and that head size is significantly correlated with IQ not only within each racial group but within families (i.e., same-sex full siblings, with age partialled out), indicating a functional relation between brain size and IQ.

There is much more to be said on these matters, of course, and I am presently writing a book on the subject. I hope it will be consonant with the guidelines APA may decide to establish at the behest of Yee et al. (1993). Before sending my manuscript off to the publisher, must I submit it for the APA's official stamp of approval?

#### REFERENCES

- Jensen, A. R. (1985). The nature of the Black-White difference on various tests: Spearman's hypothesis. *Behavioral and Brain Sciences*, 8, 193-219.
- Jensen, A. R. (1987a). Further evidence for Spearman's hypothesis concerning Black-White differences on psychometric tests. *Behavioral and Brain Sciences*, 10, 512-519.
- Jensen, A. R. (1987b). The *g* beyond factor anal-

ysis. In J. C. Conoley, J. A. Glover, & R. R. Ronning (Eds.), *The influence of cognitive psychology on testing and measurement* (pp. 87-142). Hillsdale, NJ: Erlbaum.

Jensen, A. R. (1993). Spearman's hypothesis tested with chronometric information-processing tasks. *Intelligence*, 17, 47-77.

Jensen, A. R., & Johnson, F. W. (1994). Race and sex differences in head size and IQ. *Intelligence*, 18, 309-333.

Jensen, A. R., & Whang, P. A. (1993). Reaction times and intelligence: A comparison of Chinese-American and Anglo-American children. *Journal of Biosocial Science*, 25, 397-410.

Jensen, A. R., & Whang, P. A. (1994). Speed of accessing arithmetic facts in long-term memory: A comparison of Chinese-American and Anglo-American children. *Contemporary Educational Psychology*, 19, 1-12.

Spearman, C. (1927). *The abilities of man*. London: Macmillan.

Yee, A. H., Fairchild, H. H., Weizmann, F., & Wyatt, G. E. (1993). Addressing psychology's problems with race. *American Psychologist*, 48, 1132-1140.

## Why Psychologists Should Study Race

Russell Eisenman  
Department of Psychology,  
McNeese State University

There are both (a) useful and (b) potentially harmful aspects of the recent article by Yee, Fairchild, Weizman, and Wyatt (November 1993). The useful features include calling attention to the need for better measurement and better understanding of assumptions. For example, I have long contended that what people think of as an effect due to race is often really due to social class, because so many Blacks come from backgrounds of poverty, relative to Whites or Asians. On the other hand, I fear that the Yee et al. article will be used to justify the view that because it is difficult to define race, we should not investigate it. Many psychologists and others, apparently thinking this is the liberal, humane position to hold, seem to think this way and advocate that researchers not study race. But, as I shall point out, race is important.

If we studied only things we could define with some great degree of precision, much psychology research would have to be discontinued, including most studies of sexual behavior or drug usage, which typically rely on self-report. Yet these studies are valuable and not always misleading despite the subjective nature of self-report. Likewise, race is actually easy to define,