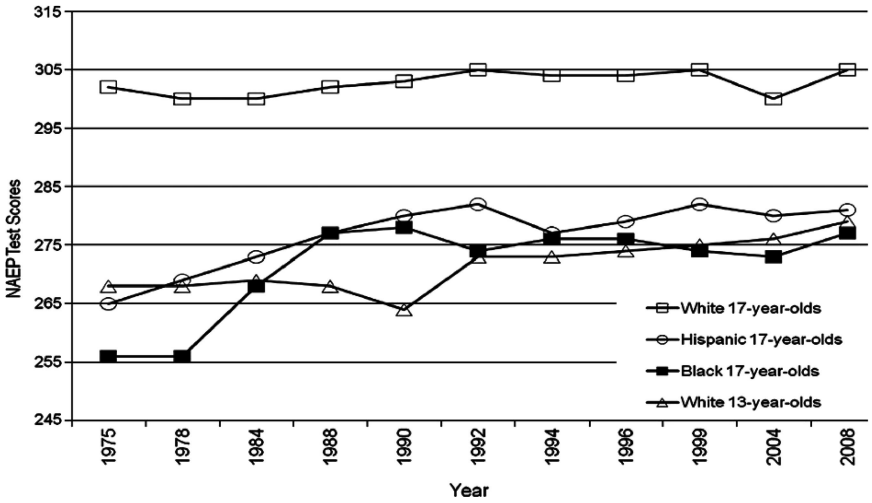
Figure 1
National Assessment of Educational Progress (NAEP) Scores From 1975 to 2008 for White 13-Year-Olds and White, Hispanic, and Black 17-Year-Olds



Note. Data are from Rampey, Dion, and Donahue (2009, pp. 14–17, 34–37, Figures 4, 5, 10, and 11). Reprinted from "Editorial. The Rise and Fall of the Flynn Effect as a Reason to Expect a Narrowing of the Black–White IQ Gap" by J. P. Rushton and A. R. Jensen, 2010a, *Intelligence, 38,* p. 217. Copyright 2010 by Elsevier Inc.

achievement or IQ. Rushton and Jensen (2010b) reported other data which showed that the IQ gap between Blacks and Whites has remained at about 15 to 20 points (1.1 *SD*) since World War I (1917), when mass testing first began.

Nisbett et al. (2012) failed to describe accurately how heritable *g* provides evidence of a significant genetic contribution to Black–White differences. They obscured the topic by invoking alleged age and social class interactions and adoption studies of very young children. Many twin and adoption studies have shown that by adolescence, there are equal heritabilities (about 50%) for Whites, Blacks, and East Asians (Hur, Shin, Jeong, & Han, 2006; Rushton & Jensen, 2010b). There is no evidence of any special cultural influence, such as extreme deprivation or being raised as a visible minority, that operates in one group and not in others.

The hereditarian and culture-only models are most informative when they make alternate predictions, such as whether any gap should be greater on the more heritable or on the more culturally influenced components of tests. Nisbett et al. (2012) cited criticisms of the work on the relation between *g*, secular trends, and Black–White differences that used the method of correlated vectors (p. 150), but they sidestepped the main results. For example, Rushton, Bons, Vernon, and Čvorović (2007) calculated the heritabilities of 58 items from the Raven's Progressive Matrices using the Minnesota Study of Twins Reared Apart. Item heritabilities predicted pass rate differences between Blacks and Whites on the same items ($r = .40$, $p < .05$). The results were corroborated using several procedures and strongly supported the genetic hypothesis.

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Ability Differentials Between Nations Are Unlikely to Disappear

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This comment challenges Nisbett et al.'s (February–March 2012) argument that Flynn effect gains will eliminate cross-national IQ inequalities "by the end of the 21st century and falsify the hypothesis that some nations lack the intelligence to fully industrialize" (p. 140). We find that this optimism is not justified by the evidence. In Europe and the United States, Flynn effects are indeed rare in cohorts born after about 1980. Furthermore, it is necessary to distinguish between accelerated childhood development and higher adult intelligence. For example, the performance of British children on Raven's Progressive Matrices has increased between 1980 and 2008 as reported by Nisbett et al. (2012), but the same study found a *decline* of two points for adolescents aged 14 and 15 (Flynn, 2009).

The same distinction must be made in developing countries. A recent study of 8–18-year-olds in Saudi Arabia found that gains on the Standard Progressive Matrices between 1977 and 2010 were largest in the

9–13 years age group but were virtually zero at age 18 for females and at ages 14–18 for males. Most ominously, even children enrolled in a selective private school achieved an average IQ of no more than 93 (Batterjee, 2011). Only two studies in developing countries found Flynn effects of five or more points per decade: those of Daley, Whaley, Sigman, Espinosa, and Neumann (2003) in Kenya and of Meisenberg, Lawless, Lambert, and Newton (2005) in Dominica. In the first case, the study was limited to a small number of Kenyan villages, and the authors provided little information about environmental changes that might explain the gains. In the second case, the study site was a small Caribbean island nation that had seen a massive expansion of its school system. Studies in larger countries, including Brazil (Colom, Flores-Mendoza, & Abad, 2006) and Sudan (Khaleefa, Sulman, & Lynn, 2009), showed modest gains of approximately two IQ points per decade. In the Brazilian study, rural children in 2004 scored substantially *lower* than urban children in 1930.

One reason to expect incomplete convergence between high-IQ and low-IQ countries is the likely existence of cultural amplifier effects, which imply that even small genetic IQ differences translate into large phenotypic differences at the country level because populations with slightly lower "genotypic IQ" provide cognitively less challenging environments for their children.

Another problem for the prediction is that the Flynn effect is most pronounced on less heritable abilities exhibiting lower *g* loadings (te Nijenhuis, 2012). Given that *g* is likely to account for a substantial fraction of the IQ variation between countries, these findings indicate that the basic *pattern* of differences between countries is likely to be robust to the passage of time although the *magnitude* of the differences is likely to decline.

It also needs to be noted that *g* is not fixed in time. Differential fertility favoring those with lower IQ and/or education has been observed in Western cohorts dating back to the end of the 19th century, with inferred reductions of "genotypic IQ" of up to one point per generation. This "dysgenic" differential fertility pattern is now global in extent, existing both in fertility differentials between countries and within them. Unlike the Flynn effect, dysgenesis is most pronounced on subtests exhibiting higher *g* loadings (Woodley & Meisenberg, 2012). This trend suggests that what has been termed "genetic *g*" has been and will likely continue to decline globally *despite* the possibility of continuing secular gains on less heritable and less *g*-saturated "narrow" abilities (Woodley & Meisenberg, 2012).

In conclusion, we argue that these empirical observations must inform any statements on the future of human intelligence differentials.

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The Growing Significance of Hot Intelligences

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In the recent review of what is known about intelligence, Nisbett and colleagues (February–March 2012) summarized advances in the field with a focus on the 15 years since an earlier such examination (Neisser et al., 1996). Both Nisbett et al.'s review and the one before focused on measures of general intelligence and the closely related concept of IQ. The reviews examined the verbal-comprehension and perceptual-organizational intelligences that make up large portions of general intelligence and that are measured by the widely used series of Wechsler intelligence scales. The investigators also considered distinctions between crystallized and fluid portions of intelligence and suggested the importance of spatial intelligence as a partially discrete area of ability. All of these intelligences have been focal topics of research through the 20th century. Since then, however, attention to a new group of intelligences that we refer to as "hot intelligences" has been growing (Mayer, Salovey, & Caruso, 2004). Although Nisbett et al. (2012) mentioned potential newcomers to the group of intelligences, such as practical intelligence, we feel that future reviews should consider the burgeoning research in new conceptions of intelligence. Here we express a rationale for including a consideration of these newly described intelligences.

Since the 1980s, an increasing research effort has been focused on these "hot intelligences," including the emotional, personal, and social intelligences (e.g., Gardner, 1983). Traditional intelligences can be thought of as "cool" in the sense that they concern information in the abstract and rules of symbol manipulation for information that can in principle possess relatively little direct personal impact, such as word meanings, pattern comprehension, and spatial locations. In contrast, hot intelligences concern information that has more direct personal relevance, potentially impacting one's emotions, self-assessment, personal intentions, and self-esteem and those with whom one interacts within a social context. This is information that one can warm up to or that might make one's blood boil—hence "hot."

We believe the group of hot intelligences are increasingly important to understanding human cognition and human relationships. Emotional intelligence is a case in point, but so are personal and social intelli-