

Theoretical and Technical Issues in Identifying a Factor of General Intelligence

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A main thrust of Herrnstein and Murray's *The Bell Curve*¹ was to describe the role of intelligence in American society, or, in particular, the role of the famous *g* factor originally postulated by Spearman.^{2,3} Early on in their book, they made several assertions about *g* that they believed were "by now beyond significant technical dispute" (p. 22), including the proposition that "[t]here is such a thing as a general factor of cognitive ability on which human beings differ." It is understandable that they felt able to make such an assertion, in that at least some of the more prominent current experts in psychometrics were on record as holding the view that *g* exists.⁴⁻¹³ Moreover, they mentioned, or could have mentioned, various social scientists who assume the existence of *g*.¹⁴⁻¹⁶ In citing Snyderman and Rothman's (1988) survey of opinions in a large sample of educational psychologists and other scholars, they were correct in inferring that most of the respondents in that survey believed that a general factor of intelligence can be identified.¹⁷

Nevertheless, as Sternberg has pointed out, psychologists who have considered the matter are not unanimous in the opinion that there exists a general factor of intelligence.¹⁸ For example, the late J.P. Guilford explicitly rejected this idea, preferring a so-called structure of intellect model whereby intelligence is composed of many separate components.^{19,20} Horn has claimed that a

general factor of intelligence cannot presently be supported by evidence, even though certain broad factors of ability (G_f , fluid intelligence, and G_c , crystallized intelligence) have a resemblance to a general factor.^{21–23} Other critics of the notion of general intelligence include Ceci²⁴ and Gardner.²⁵

There was thus some warrant for Gould's complaint that Herrnstein and Murray gave little attention to justifying the notion of g and spelling out its support in theoretical and empirical writings on the subject.²⁶ However, Gould is hardly to be trusted to provide an appropriate comment. Long before the publication of *The Bell Curve*, Gould put forth his opinion in his book *The Mismeasure of Man*, that there is no such thing as *general intelligence* or g and implied that "experts" in psychometric research were guilty of false or unscientific thinking.²⁷ Though he did not explicitly criticize psychological testing, many of his readers took him to intend such a criticism. In a paper published elsewhere, I have pointed out that an entire generation of readers (or "public intellectuals") seems to have been persuaded to adopt Gould's negative, arguably incorrect views.²⁸

There have been two recent attempts by psychologists to issue balanced statements about the nature of intelligence and the existence of g . One of these was published in the *Wall Street Journal* and included the assertion that "[i]ntelligence is a very general mental capability that, among other things, involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience."²⁹ Another was a report by a task force of psychologists appointed by the American Psychological Association,³⁰ intended to communicate to the public what is known and not known about intelligence and its many aspects and components. It states (p. 81) that

[w]hile some psychologists today still regard g as the most fundamental measure of intelligence [e.g., Ref. 13], others prefer to emphasize the distinctive profile of strengths and weaknesses present in each person's performance. A recently published review identifies over 70 different abilities that can be distinguished by currently available tests [Ref. 4]. One way to represent this structure is in terms of a hierarchical arrangement with a general intelligence factor at the apex and various more specialized abilities arrayed below it. Such a summary merely acknowledges that performance levels on different tests are correlated; it is consistent with, but does not prove, the hypothesis that a common factor such as g underlies those correlations. Different specialized abilities might also be correlated for other reasons, such as the effects of education. Thus while the g -based factor hierarchy is the most widely accepted current view of the structure of abilities, some theorists regard it as misleading [see Ref. 24].

Even the latter report, however, does not contain the details needed to judge the acceptability of a g -based hierarchy. My intention here is to discuss