

John Horn on the topic of g
(June 1999 listserv post).

Thanks to Dr. Sam Ortiz for preserving this important communication.

As posted by Sam Ortiz to the IAPCHC listserv on 10-28-2005:

Shortly after the advent of this listserv in June of 1999, when posts went to chctheory@listbot.com, John Horn sent in a post in an eloquent response to someone asking about the WJ-R and its low correlations with global composites on other batteries. John took the time to deal with the issue of "g" in that response and outlined issues that I believe have not been addressed or contradicted to the present day. That is, his words, at least to me, carry the same power now as they did before, even in the face of the recent tributes to Jensen and his volume on the existence and supremacy of "g."

In any event, whether you agree or not, I am including John's original post and a follow up one here in their entirety, given their relevance to the present discussions. If you have issues with what he says, please post them as a general question to the listserve as I don't presume to be qualified to clarify or elaborate on John's position or statements. Others will hopefully do so. My intent is just to get people to re-evaluate the way in which "g" is used, given what appears to be rather equivocal, if not extraordinarily weak, evidence to support it.

The following is taken from a post to the CHC Theory of Cognitive Abilities listserv as submitted by John Horn on August 2, 1999. Other than typographical corrections, his remarks are quoted in their entirety here exactly as he wrote them.

The problem is that there is no g --i.e., no single g. Of course this is contrary to existing dogma. But dogma is dogma, not evidence, not something we want much of in science. It is an assumption implicitly accepted, an assertion made so frequently, by so many who are assumed to be (and assume themselves to be) authorities, and made so uncritically that it is widely accepted as true. (How could something said so often, so confidently, so casually, by so many, and so many smart, and informed people, not be true?) But the evidence adds up, as I have said now so many, many times --ad nauseam some may think. Still, for those who care about evidence, there is lots of it. One can examine it, and when one does one finds a drip, drip, drip of results from study after study punching out huge holes in the belief that there is a g (somewhere) and demonstrating that g hasn't been found and that it now seems unlikely that it will be found. In any case, if there is a g, we have yet to find it.

And there is no contrary evidence, no evidence supportive of g. The only thing that gets treated as evidence is positive manifold of the intercorrelations among measures of cognitive abilities and a string of correlations with other variables

that reflect this positive manifold. But this is evidence that Thurstone showed many years ago does not support a structural hypothesis of g, much less a developmental, genetic, neurological, educational, social, anthropological --in general, a construct validity-- hypothesis.

Recently, for example, McArdle has presented no fewer than three studies showing that g does not work structurally, developmentally, and dynamically. Also recently is the evidence of Richard Roberts analyses of the Armed Services Vocational Aptitude Battery (ASVAB) --the battery used in the data analysis parts of the infamous Herrnstein & Murray "Bell Curve" study. In the H&M studies obeisance was given to g when in fact the evidence of H&M's own factoring indicated no g. Roberts' results elegantly demonstrate this. (Here one might want to look at my review of H&M's book, there also pointing out this problem. Also good reading on this point are the Haut et al reports, book and papers).

Just a couple of years back, Schonemann and a whole host of responders to his work, concluded that there is no g. A little further back in history is Carroll's monumental work where, as I point out in several papers (again ad nauseum perhaps), there are no fewer than 8 different general factors, all quite distinct, but still referred to as "the" (singular) general factor or g. Prior to that, reviewing Jensen's "Bias in Mental Testing," Horn & Goldsmith found that what Jensen referred to as "g" in one chapter of his book was most similar to Gc, what he referred to as g in another chapter was similar to Gf and what he accepted as g in still another chapter was essentially Gv. While Jensen's work presents particularly stark examples of this chameleon-like interpretation of ability measurements, in fact he is simply doing what many others do. But if one looks at the evidence, s/he will see Gf, Gc, Gv, etc., have quite distinct construct validities --quite different relationships to neurological, educational, vocational, genetic variables --in general the network of variables that provide a basis for understanding human capabilities. Going back further yet there are the classic studies of El Koussy (1935) and Rimoldi (1948) studies that were steadfastly and beautifully designed to prove the validity of g, but concluding --reluctantly, almost sadly-- that the g hypothesis can not be supported. Then, too, more tangentially, there are the well-designed and well-executed studies of Gustafsson (1984, 85), Undheim (1976) and Undheim & Gustafsson (1987) showing that in batteries of tests designed for children the general factor was identical to the Gf factor. Relatedly, there are the results from our work showing that a battery very carefully designed to provide evidence of one and only one factor corresponding to Spearman's g comes very close to succeeding, as in Thurstone & Thurstone (1941), but the g that is indicated is Gf (and only Gf): as soon as other well-regarded indicators of intelligence, such as those of Gc, Gv, Ga, etc., are considered, that "g" factor (which is Gf) disappears.

So, old friends of NASP -- and Jensen, Bouchard, Eysenck, Carroll, etc. (the list is long) be aware that no battery of ability tests provides a measure of g, because there is no g, only conglomerate, composites. One good reason why the composite

score on the WJR may correlate at a lower level with this or that composite or other variable is because the WJR is well designed to provide measures of the different concepts of human cognitive capabilities --what in the vernacular is referred to as intelligence-- that, so far, have been indicated by research. It provides measures of Gv, Ga, Gs, SAR, TSR, Gq, as well as Gf and Gc, whereas the Wechsler scales provide only Gc, a Gf-Gv mixture, and a very weak SAR and Gs. The composite of the WJR is thus a broad mixture relative to the composites of other, more narrow, batteries. But even when the same elements of a composite appears in other batteries, the elements enter in different proportions to the whole: the composites of different published tests differ not only in breadth, but also in the proportions of different abilities that contribute to the composite measure. A broad composite relative to a narrow one needn't necessarily correlate at a lower (or higher) level with other variables, but it may. It depends on breadth of the variable with which the composites are correlated and on how well the components of a predictor composite match the components of the predicted variable. In prediction of job performance on many jobs, for example, as in much of the research reviewed by Schmidt & Hunter (1992), the broad composite of the ASVAB (and it's descendents) predicts better than most narrower composites.

Enough said. These points are not highly debatable. One can have a quibble here and there, but basically the evidence at this point in history doesn't permit much deviation from the conclusion that there is no g; the emperor is naked.

Sincerely,

John Horn

On August 17, 1999, Horn added the following comments in response to the fact that Horn's model has no "g" and Carroll's Three Stratum does:

It's not an argument between Horn and Carroll; it's simply a matter of whether one does or does not look at the evidence. Carrol Evans is quite correct in observing that Carroll in his book repeatedly presents a single, general factor at the top in his Schmid-Leiman transformations and interprets this in ways that suggest "...that he tends to support the presence of "g." I simply point out that these single, general factors are not the same from one analysis to another. "Not the same" means that the factors have notably different patterns of relationship with other variables. Patterns of relationship are what give constructs their meaning --their construct validity. One of these "single, general" factors correlates near unity with Gf and has the pattern of relationships (negative correlations with age in adulthood, positive correlations with evidence of irreversable brain damage, relatively low correlations with social class, etc.) that point to a construct of fluid reasoning. Another of these "single, general" factors has high relationship to Gc and has the pattern of relationships that point to this construct. Still another of these "single,

general" factors is mainly indicative of Gv, and yet others are mixtures of these and other constructs for which there is evidence.

Carroll's book is important. Don't get me wrong. It provides structural evidence of constructs across a very wide array of studies. I was an enthusiastic supporter of his research. But structural evidence is not all there is to construct validation, as L.L. Thurstone emphasized as early as 1937. Also important is developmental evidence, evidence of associations with neural variables, behavioral genetic evidence, evidence of relationships with a variety of educational variables, etc. It is this kind of other evidence, more than it is structural evidence, that adds up to indicate that a general principle uniting cognitive abilities has yet to be found. That's not to say that such evidence never will be found. But it is to say that we have yet to find the evidence for such a unity --and thus the basis for understanding it (if it exists).

This is not an argument. It is a challenge to any who (for whatever reason) feel that there is a g to demonstrate the evidence that indicates the functional unity of such a construct. As I have said before, the evidence that beyond about age 3 years all cognitive abilities correlate positively is not sufficient, though it is relevant --prima facia, as they might say in legal circles. But if there is a core g embedded in this positive manifold, what is it in terms of it's relationships with other variables? Describe this and you will make the case for g. And you should probably get the APA Gold Medal for contributions to scientific psychology.

John Horn