Generalisability, Groups, and Genetics

J. PHILIPPE RUSHTON
Department of Psychology, University of Western Ontario, Canada
Rushton@uwo.ca

Abstract

Rindermann shows that g is highly generalisable. We can add: (a) predictive validities generalise across cultures; (b) g-loaded items found relatively difficult by the Roma (Gypsies) in Serbia are found relatively difficult by East Asians, Whites, South Asians, Coloreds and Blacks in South Africa and (c) group differences are more pronounced on more heritable items, indicating they are partly genetic. Copyright © 2007 John Wiley & Sons, Ltd.

Rindermann (this issue) has provided a compelling integration of data. His results join those from industrial/organisational psychology, cross-cultural psychology, evolutionary psychology and behavioural genetics to show that GMA is a human universal. As he rightly says, there is no need for conceptual differences among so many sub-disciplines.

The evidence for generalisability is even stronger than Rindermann describes. For example, predictive validity is high across diverse cultural groups. Sternberg et al. (2001) found that GMA in Kenyan 12- to 15-year-olds predicted school grades at the same levels they do in the West (mean $r = .40$). Rushton, Skuy, and Bons (2004) found that GMA predicted university performance equally well in African and non-African engineering students ($r \sim .30$). Salgado et al. (2003) demonstrated the international generalisability of GMA across 10 member countries of the European Community, thus contradicting the view that criterion-related validity is moderated by differences in a nation's culture, religion, language, socio-economic level or employment legislation. They found scores predicted job performance ratings .62 and training success .54. The validities were the same, or even higher, than those reported in the US, where there is again a quite different corporate culture, mix of populations and legislative history.

As the trend towards a more global economy continues, population differences in mean GMA are likely to become more salient, both within and across countries. To examine the validity of Lynn's (2006; Lynn & Vanhanen, 2006) IQ map of the world (see also Rindermann's Figure 2c), I travelled to Serbia and South Africa to meet new colleagues and collect more data. In South Africa, we tested several hundred Black university students and found an average IQ of 85 (Rushton et al., 2004). This confirmed Lynn's estimate of an average IQ of 70 for sub-Saharan Africa when it is assumed that Black undergraduates average 15 points higher than the general population, as their counterparts do in the West. In Serbia, we tested several hundred adult Roma (Gypsies), a diverse population of South Asian stock, and found an average IQ of 70 (Rushton, Cvorovic, & Bons, 2007). This confirmed Lynn's estimate of an average IQ of below 90 for the South Asian population, although our scores were much lower than expected. The data also showed the African/non-African and Roma/non-Roma differences were more pronounced on *g*; there was no evidence of any idiosyncratic cultural effect.

Group differences in GMA are also heritable. Rushton and Jensen (2005) examined 10 categories of technical research to conclude that in the US, East Asian–White–Black IQ

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differences were from 50 to 80% heritable, just as individual differences are within a group (Bouchard & McGue, 2003; Jensen, 1998). The evidence included: (1) the IQ distribution around the world is consistent across time and place; (2) the race-IQ difference is more pronounced on the more *g*-loaded subtests; (3) the race-IQ difference is more pronounced on the more heritable subtests; (4) the race-IQ difference is paralleled by brain size differences; as well corroborating studies of (5) racial admixture; (6) trans-racial adoption; (7) regression to the mean; (8) 60 related *r-K* life-history traits; (9) human origins research and (10) the inadequacy of culture-only explanations (see also Rushton, 2005).

Most recently, Rushton, Bons, Vernon, and Cvorovic (2007) examined two independent twin studies to further test the hypothesis that genes influence group differences in about the same proportion as they do individual differences within a group (i.e. about 50%). We estimated the heritability of scores on the diagrammatic puzzles of the Raven's Progressive Matrices, a well-known, culture-reduced test of GMA. In Study 1, the heritabilities were calculated from 199 pairs of 5- to 7-year-old monozygotic (MZ) and dizygotic (DZ) twins reared together from the Western Ontario Twin Project. In Study 2, the heritabilities were calculated from 152 pairs of adult MZ and DZ twins reared apart from the Minnesota Study of Twins Reared Apart. In both studies, the group differences were more pronounced on the more heritable items. In Study 1, the comparison was between the 5- to 7-year-old twins and 94 adult Roma in Serbia ($r = .32$; $N = 36$, $p < .05$). In Study 2, there were 11 diverse groups: the twins reared apart; another sample of Serbian Roma and East Asian, White, South Asian, Coloured and Black high school and university students in South Africa. In 55 comparisons, the heritabilities correlated with the magnitude of the group differences on the same items (mean $r = .40$; Ns $= 58$, ps $< .05$), indicating the differences are partly genetic.

In conclusion, the results show that both individual and group differences are part of the normal variation to be expected within a universal human cognition, located on *g*, and caused by genetic as well as environmental influences.

Profiting From Controversy

MANFRED SCHMITT

Department of Psychology, University of Koblenz-Landau, Germany
schmittm@uni-landau.de

Abstract

My comment will address the scientific value of Rindermann's contribution, wrong conclusions that might be drawn from it, and his quest for interdisciplinary co-operation.

Scientific value. Rindermann's analysis is valuable for several reasons. He offers a large-scale cross-national analysis of cognitive achievement data. Altogether, this analysis includes more countries, constructs, age groups, grade levels, assessment paradigms and participants than has any previous analysis. Such a comprehensive review is, in itself, a valuable contribution to the literature.

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