Another failure to replicate Lynn's estimate of the average IQ of sub-Saharan Africans

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ARTICLE INFO

ABSTRACT

In his comment on our literature review of data on the performance of sub-Saharan Africans on Raven's Progressive Matrices, Lynn (this issue) criticized our selection of samples of primary and secondary school students. On the basis of the samples he deemed representative, Lynn concluded that the average IQ of sub-Saharan Africans stands at 67 when compared to UK norms after a correction of the Flynn Effect. We criticize his methods for being unsystematic. Here we select only those samples that were based on stratified or clustered random sampling and were deemed representative by the original authors. We again fail to replicate Lynn's low estimate of the average IQ of Africans. We argue that these scores are hard to interpret in terms of latent cognitive variables such as g because of the psychometric incomparability we established and because the Flynn Effect has yet to take hold in sub-Saharan Africa.

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We thank Dr. Lynn (this issue) for commenting on our work (this issue) in which we failed to replicate his low estimate of the average IQ (on the basis of UK norms after correction of the Flynn Effect) of the Black population of sub-Saharan Africa on the basis of their performance on Raven's Progressive Matrices (Lynn, 2006; Lynn & Vanhanen, 2006). We attribute the difference of roughly 10 IQ points between his estimate and ours to (1) our use of systematic methods and a lack thereof in Lynn's work; (2) our use of weighting by sample size to estimate the mean IQ across samples and Lynn's indifference to sample sizes; (3) our decision not to include unhealthy samples, which Lynn admitted; (4) our exclusion of samples in which test administration had met with problems, which Lynn attributes to low cognitive ability of test-takers; (5) our exclusion of data from the Coloured Progressive Matrices (CPM) for ages above 11 because the conversion from CPM scores to adult and adolescent norms for the Standard Progressive Matrices (SPM) artificially lowers the IQ; (6) Lynn's exclusion of a number of high-IQ samples that he deemed unrepresentative; and (7) Lynn's ad hoc downward correction of mean IQs from primary and secondary school students by two and six IQ points, respectively. Below we provide new estimates for these groups on the basis of rigorous stratified random samples. These estimates again fail to support Lynn's assertion that Africans average an IQ below 70.

Lynn points towards additional data from the Raven's tests. Some data were unavailable to us at the time of writing. We could not verify that one sample included only Africans (Linstrom, Raven, & Raven, 2008), and the other sample (Heyneman, 1977) was part of another sample, that we had already considered. Adding the new data has little impact on our mean estimate, which remains well above Lynn's. We have now amassed over a hundred samples ($N > 37,000$) of sub-Saharan Africans who took western IQ tests and found their average performance in terms of UK norms (after a correction of the Flynn Effect) to be around 80 (Wicherts, Dolan, & van der Maas, 2010a, 2010b). Lynn (this issue) and Lynn and Meisenberg (2010) consider the vast majority of these samples as unrepresentative, and unsuitable to estimate the mean IQ of Africans. However, Wicherts et al. (2010b) showed that Lynn and Meisenberg's assessment of the representativeness of 46 samples of African test-takers had no bearing on objective criteria for representativeness (e.g., stratified random sampling, or representativeness as judged by the original authors). The only characteristic of the samples that predicted Lynn and Meisenberg's judgment of insufficient representativeness was average IQ itself: the higher the average IQ the greater the probability that Lynn and Meisenberg deemed the sample unrepresentative.

Lynn's methods in selecting samples remain unsystematic; he is inconsistent in his reasons to exclude samples, and too unspecific to allow replication by independent raters. For instance, Lynn rejected one sample (Raveau, Elster, & Lecoutre, 1976, MIQ = 77) on the grounds that it was comprised of immigrants, but included another sample of immigrants (Kaniel & Fisherman, 1991, MIQ = 68), although it was comprised of illiterate Ethiopian Jews, who are generally considered to be unrepresentative of the Ethiopian population. Lynn excluded adult applicants for unspecified jobs (Taylor, 2008, MIQ = 75), because he judged them to be unrepresentative for reasons not given. Lynn included numerous other samples composed of

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Table 1
Mean IQs on the Raven's tests in terms of UK norms after correction of the Flynn Effect of samples of Africans that were based on stratified or clustered random sampling and were considered representative by the original authors.

Type	Source	Country	N	Mean IQ
Adults				
	(Boissiere et al., 1985)	Kenya	205	>85
	(Boissiere et al., 1985)	Tanzania	179	>85
Primary school children				
	(Costenbader & Ngari, 2001)	Kenya	1222	79
	(Heady, 2003)	Ghana	589	71
	(Heyneman & Jamison, 1980)	Uganda	1907	81[*]
	(Ijarotimi & Ijadunola, 2007)	Nigeria	402	69
	(Jinabhai et al., 2004)	South Africa	806	68
	(Kashala, Elgen, Sommerfeldt, Tylleskar, & Lundervold, 2005)[**]	Dem. Rep. Congo	183	74
Secondary school children				
	(MacArthur, Irvine, & Brimble, 1964)	Zambia	1408	79
	(Jedege & Bamgboye, 1981)	Nigeria	755	77

Notes.
Full sample descriptions of all samples in our review are available upon request.
  [*] Two IQ points added because the data were collected 8 years prior to UK standardization of the SPM.
 [**] This sample was drawn on the basis of a cluster sampling procedure (Kashala, Elgen, Sommerfeldt, & Tylleskar, 2005).

professional workers (e.g., Berlioz, 1955, MIQ=64). Lynn excluded some samples (Pons, 1974, MIQ=84) because of coaching, but admitted other samples which were also coached (Knoetze, Bass, & Steele, 2005, MIQ=71). Also, Lynn considered two samples to be unrepresentative simply because of a high average IQ (Daley, Whaley, Sigman, Espinosa, & Neumann, 2003; Okunrotifa, 1976).

Lynn asserts that his conversion method from CPM scores to SPM norms is unproblematic, because ceiling effects are absent. This assertion is untenable. In several of their representative samples of normal adults from Italy and San Marino, Measso et al. (1993) found no ceiling effects on the CPM, but on the basis of Lynn's conversion method the average IQs center around 75 (which is 27 IQ points below Lynn and Vanhanen's national IQ estimate of Italy). When compared to these European adults, most African adults (bar some small, uneducated samples) scored quite well on the CPM. The rigorous samples of wage laborers (Boissiere, Knight, & Sabot, 1985) from Nairobi ($M=26.4$) and Dar es Salaam ($M=27.8$) averaged scores that were *less than a standard deviation below* the average performance ($M=30.0$, $SD=5$) of 541 European adults aged 20–49. Lynn attributes an average IQs of 60–65 to these African samples, but we estimate the mean IQ above 85 on the basis of the above comparison.

If we accept only samples that were drawn according to stratified or clustered random sampling and were deemed representative by the original authors, we are left with two samples of adults, six samples of primary school children, and two samples of secondary school students (Table 1). By using only these samples, we find mean IQs of >85 (adults), 76 (primary school children), and 78 (secondary school children), i.e., means well above Lynn's estimates for these groups.

Lynn did not address two more fundamental issues. First, given that the Flynn Effect on the Raven's tests has been massive in the west, the current level of performance on the Raven's tests in Africa should be considered in the light of past and present socio-economic circumstances in this part of the world. Second, our psychometric results cast serious doubt on the comparability of Raven's test scores between westerners and Africans in terms of cognitive ability constructs like g. The psychometric meaning of national IQ is unclear; differences in national IQ cannot simply be taken as indicators of differences in populations' level of g. In light of our psychometric findings and the well-known secular increases on tests like the Raven's, we contend that national IQs reflect in no small part the socio-economic development of countries (Wicherts, Borsboom, & Dolan, 2010).

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