

Intelligence testing

Bryter still and bryter?

Chris Brand

PSYCHOLOGISTS are having to pay a heavy price these days for preferring the abstractions of 'cognition' to the mundanities of IQ. In France, a nuclear physicist has turned his hand to demonstrating that social class of rearing has an effect — albeit a modest one — on child IQ (*Nature* 325, 767; 1987). Now, a political scientist at the University of Otago, New Zealand, Professor James Flynn, has brought to fulfilment a most scrupulous programme of international scholarship through the mails by demonstrating "massive" increases in raw scores on intelligence tests in 14 economically advanced nations over recent decades (*Psychological Bulletin* 101, 171–191; 1987).

On culture-fair tests of fluid intelligence, Flynn's remarkable data — deriving especially from the testing of hundreds of thousands of military conscripts in western Europe — show gains in scores equivalent to 18 IQ points (one standard deviation) per generation in countries and locales where trustworthy and comparable data are available as far back as 1950. The table provides an illustration: for Dutch draftees, mean IQs increased by 20 points over a 30-year period. Altogether, Flynn's work substantiates the observation of "accelerative secular development of psychological characteristics" that was first made by Liv Karen Koppen-Thulesius and Helfried Teichman (*Br. J. soc. clin. Psychol.* 11, 284–294; 1972), and that was first documented in the case of Japan by Richard Lynn (*Nature* 297, 222–223; 1982).

Flynn draws two main conclusions. First, he observes that massive IQ-type gains are possible without psychologists having the foggiest idea as to their cause: he estimates that only 3 of the 20 IQ points gained in Holland can be attributed to rising socio-economic levels, for example, so what Americans now call 'poor demographics' were not our ancestors' primary problem. Second, Flynn urges that IQ is a trivial variable in human terms, for these large IQ gains have not been accompanied conspicuously by recorded improvements in educational attainments or other intellectual advance: from 1960 to 1980 the number of patents granted in Holland fell by a third. By implication, the IQs of western minority groups (notably those of Afro-Americans) might easily be increased, but without doing much real good; and present ethnic differences on the tests should invite fresh suspicion that they are cultural in origin.

Whether the secular changes have been anything more than 'what the tests test' now requires urgent consideration. On

the usual psychometric assumptions, such changes in mean scores should have had quite enormous, visible effects at the tails of the normal distribution of IQ. As Arthur Jensen remarks (in Modgil, S. & Modgil, C. *Arthur Jensen: Consensus and Controversy* 379–381; Falmer, Brighton, 1987), the Dutch IQ gain implies that there would have been approximately 11 times as many retarded persons (with IQs below 70) in the Netherlands in 1952 as there were in 1982. Similarly, Dutch university entrants (assuming they are the top 10 per cent of the population) should now have an average IQ of 140 by the standards of 1952.

Yet it is precisely Flynn's point that, because IQ might be trivial (measuring mere problem-solving ability), Dutch professors cannot be expected to be found rejoicing in the streets. It scarcely matters,

Intelligence levels (on a 40-item version of Raven's Progressive Matrices) among all tested* 18-year-old draftees in the Netherlands at points over 30 years.

Year	Per cent passing more than 24 items	Mean IQ (using 1952 as baseline)
1952	31	100
1962	46	106
1972	63	112
1981/2	82	121

*According to Flynn, "...the percentage who fail the medical exam and escape testing has remained constant [at about 20%] from 1952 to 1981/2 and should not be a significant source of error".

according to Flynn, that IQ scores may have increased thanks to test-sophistication gamesmanship, superior skills and sensitivities on the part of testers, tester laxity, improved nutrition, increased outbreeding, increased assortative mating by people of higher IQ, urbanization, health care, 'teaching the tests', increased opportunities for young people in advanced countries to select and create their own appropriate experiences and environments, declining family sizes, declining use of lead plumbing, or whatever. The fact is that IQ itself just does not seem to matter very much.

For better or worse, this second conclusion of Flynn's cannot possibly survive the wider series of empirical tests to which it can be subjected. J.E. and R.F. Hunter (*Psychol. Bull.* 96, 72–98; 1984), for example, have reported IQ to be the major predictor of occupational success in the United States, despite occupational psychologists having laboured for decades to stress the importance of other factors in the testing of which they could have found gainful, more congenial employment.

So why, then, do IQ scores increase across generations? One answer may be

found in the increasing permissiveness, liberalism and extraversion of the 'advanced' economics which may have given their progeny a special boost on culture-fair IQ tests. Such tests are often given under time limits that hardly encourage reflection; and, of course, they were not designed to credit the assiduous application, accuracy, attention to detail, organization and feats of memory that might once have favoured the educated classes. IQ tests were designed to penetrate such artificialities: so it is perhaps not surprising if they now record gains as education takes a less meticulous form in which speed and intelligent guessing receive encouragement in the classroom. Comparison of secular trends on different types of intelligence tests would allow evaluation of this possibility.

Yet what if the IQ rise is entirely genuine? And what if Flynn's sober view of modern educational achievements can be substantiated in times when students must, after all, be admitted to micro-compute, hang-glide, speak psychobabble and smash guitars aesthetically as never before? Even this would strictly say nothing about within-generation differences — including group differences. By way of example, infants suffering hypothyroidism are readily boosted in IQ by medical endeavour; yet perfectly real IQ differences are well preserved among such children, after the treatment (Fishler, K., Graliker, B.V. & Koch, R. *Am. J. Mental Defic.* 69, 515–525; 1965). Flynn's 'unknown' intergenerational change, factor X, like an increased educational stress on quick, intuitive, rough, uncritical, poorly articulated and mis-spelled answers to questions, may have dashed the larger aspirations of testers towards culture-free (and generation-free) measurement of intelligence without making the tests any the less appropriate for comparing one victim of educational liberalism with another. Flynn has located what could be the Achilles heel of mental testing; but it remains to be seen whether the final identification of factor X will give this heel more than a scratch. □

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100 Years ago

ON the matter of dispersion equivalents, Dr J.H. Gladstone holds that the following conclusions are warranted by the accumulated data: (1) That dispersion, like refraction, is primarily a question of the atomic constitution of the body: the general rule being that the dispersion equivalent of a compound is the sum of the dispersion equivalents of its constituents. (2) That dispersion, like refraction, is modified by profound differences of constitution, such as changes of atomicity. (3) That the dispersion frequency reveals differences of constituents at present unrecognized by chemists, and not expressed by our formulae.

From *Nature* 36, 239; 7 July 1887.