

THE INTELLIGENCE OF AMERICAN CHILDREN IS STILL RISING

RICHARD LYNN* AND CLAUDIA PAGLIARI†

**University of Ulster, Coleraine, Northern Ireland, and †University of Buckingham, England*

Summary. Children's intelligence increased in the United States by approximately 3 IQ points per decade over the period 1932–78. New evidence shows that these increases have been sustained during the last 20 years. Two recent studies indicate that the rates of increase for 1972–89 and 1978–89 were 3.3 and 3.5 IQ points per decade, respectively.

Introduction

Studies in economically developed nations, including the United States, Britain, Japan, Australia and several countries of Continental Europe, have shown that the intelligence levels of children have increased substantially over the course of the last half century. The rate of IQ gain has typically been of the order of 3 IQ points per decade. Verbal tests show lesser gains of around 1–2 IQ points per decade, while visuospatial tests show larger gains of around 4 IQ points per decade (Flynn, 1984, 1987; Lynn & Hampson, 1986).

Although intelligence has a high heritability, it is unlikely that these IQ gains are due to genetic changes in the populations. Several studies have found that the correlation between IQ and fertility is negative (Van Court & Bean, 1985; Retherford & Sewell, 1988). This should bring about a secular decline in the intelligence of children. The obtained rises in children's intelligence must be due to improvements in the environmental conditions responsible for the development of intelligence, and these must be sufficiently great to mask the genetic decline. These environmental improvements probably arise from improvements in the quality of cognitive stimulation (Retherford & Sewell, 1988) or from better nutrition (Lynn, 1990).

Secular increases in the intelligence of children cannot be expected to continue indefinitely. It is probable that they will be subject to diminishing returns as the environmental conditions responsible for the nurture of intelligence reach their optimum. At some point the increases in intelligence should decelerate, stabilise and eventually start to decline, if the negative association between fertility and intelligence continues.

The data to be presented show whether the anticipated deceleration of the secular rise of intelligence has started to take place among American children during the last

Table 1. Mean IQs and standard deviations on WISC-R and WISC-III and on WAIS-R and WISC-III; IQ differences and IQ increases per year

	WISC-R		WISC-III		IQ difference	IQ increase per year
	Mean	SD	Mean	SD		
Full scale	108.2	15.1	102.9	14.7	5.7	0.33
Verbal	103.9	14.7	101.5	14.5	2.4	0.14
Performance	111.6	15.4	104.2	15.1	7.4	0.43
	WAIS-R		WISC-III		IQ difference	IQ increase per year
	Mean	SD	Mean	SD		
Full scale	105.3	14.9	101.4	15.0	3.9	0.35
Verbal	102.5	13.3	101.0	14.7	1.5	0.14
Performance	107.7	14.3	101.8	15.9	5.9	0.54

two decades. The last major study of the secular increase of intelligence in the United States covered the years from 1932 to 1978, over which the mean IQ of American children calculated from eighteen studies showed an increase of 3.1 IQ points per decade (Flynn, 1984). It is now possible to calculate the increases over the periods 1972–89 and 1978–89.

Method and results

The Wechsler Intelligence Scale for Children—Revised (WISC—R) was standardised in the US in 1972 and a new version of the test, the Wechsler Intelligence Scale for Children—III (WISC—III) was standardised in 1989. The two tests were administered in counterbalanced order to 206 children aged 6–16 years (median=11 years) (Wechsler, 1992). The mean full scale, verbal and performance IQs are shown in Table 1, with the means and standard deviations on the two tests, the IQ difference between the two means, and the difference expressed as IQ gains per year. The results show IQ gains of 0.33, 0.14 and 0.43 for full scale, verbal and performance IQs respectively.

A second estimate of recent IQ gains can be calculated from a comparison of IQs obtained on the Wechsler Adult Intelligence Scale—Revised, which was standardised in 1978, and on the WISC—III (standardised in 1989) (Wechsler, 1992). The two tests were given in counterbalanced order to 189 16-year-olds and the results for the full scale, verbal and performance IQs are also shown in Table 1. The results show increases of 0.35, 0.14 and 0.54 per year for the full scale, verbal and performance IQs, respectively.

Discussion

The results of the two calculations for the periods 1972–89 and 1978–89 are closely similar. Both estimates indicate that the mean IQs of American children are still rising at a rate of approximately 0.3 IQ points per year. The rate of increase for verbal IQ remains considerably less than the rate for performance IQ. Because improvements in nutrition have a greater effect on performance than on verbal IQs (Schoenthaler *et al.*, 1991) the greater increase of the performance IQ as compared with the verbal IQ during the last two decades provides further evidence for the thesis, argued in detail in Lynn (1990), that improvements in nutrition have been the principal factor responsible for the secular increase in intelligence during the last half century.

References

- FLYNN, J. R. (1984) The mean IQ of Americans: massive gains 1932 to 1978. *Psychol. Bull.* **45**, 29.
- FLYNN, J. R. (1987) Massive IQ gains in 14 nations: what IQ tests really measure. *Psychol. Bull.* **101**, 171.
- LYNN, R. (1990) The role of nutrition in secular increases in intelligence. *Personal. individ. Differences*, **11**, 273.
- LYNN, R. & HAMPSON, S. L. (1986) The rise of national intelligence: evidence from Britain, Japan and the United States. *Personal. individ. Differences*, **7**, 23.
- RETFERFORD, R. D. & SEWELL, W. H. (1988) Intelligence and family size reconsidered. *Social Biol.* **35**, 1.
- SCHOENTHALER, S. J., AMOS, S. P., EYSENCK, H. J., PERITZ, E. & YUDKIN, J. (1991) Controlled trial of vitamin–mineral supplementation: effects on intelligence and performance. *Personal. individ. Differences*, **12**, 351.
- VAN COURT, M. & BEAN, F. D. (1985) Intelligence and fertility in the United States, 1912–1982. *Intelligence*, **9**, 23.
- WECHSLER, D. (1992) *Manual for the WISC-III*. Psychological Corporation, New York.

Received 30th July 1992