



A negative Flynn Effect in France, 1999 to 2008–9

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ABSTRACT

The results of the French WAIS III (1999) and the French WAIS IV (2008–9) are compared based on a sample of 79 subjects aged between 30 years and 63 years who took both tests in 2008–2009. It is shown that between 1999 and 2008–9 the French Full Scale IQ declined by 3.8 points.

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1. Introduction

Numerous studies have shown that intelligence increased during much of the twentieth century. These IQ increases were first reported in the United States by [Runquist \(1936\)](#) and were confirmed by [Smith \(1942\)](#) and [Tuddenham \(1948\)](#), and were subsequently reported by [Cattell \(1951\)](#) in England and in many other countries summarized in [Lynn \(2013\)](#). The phenomenon has been designated the Flynn Effect after the work documenting it by [Flynn \(1984, 1987, 2012\)](#).

From the mid-1970s there has been conflicting evidence on whether these increases in IQ have been continuing or whether they have gone into reverse. Continuing increases have been reported in the United States and Britain. These can be seen in [Table 1](#).

Contrary to these results, studies finding that IQs have declined in recent decades have been reported in Norway, Denmark, Australia, Britain, the Netherlands, Sweden and Finland. These can be seen in [Table 2](#).

It is evident that there have been conflicting results on the trend of intelligence in recent decades in different countries and even in the same countries, in the case of Britain (we will look, later, at possible reasons for the decline). To provide further evidence on this issue we present data on the trend of the IQ in France from 1999 and 2008–9.

2. Method

The Wechsler Adult Intelligence Scale III (WAIS III) was standardized in France in 1999 ([Wechsler, 2000](#)) and the Wechsler Adult Intelligence

Scale IV (WAIS IV) was standardized in France in 2008–9 ([Wechsler, 2011](#)). The two tests were administered to 79 subjects (a separate sample from the 876 subjects who composed the broader French WAIS IV) who were aged between 30 years and 63 years (mean age 45 years), approximately half of whom took the WAIS IV first and half took the WAIS III first, in order to control for practice effects ([Wechsler, 2011](#)).¹ The time between the administration of the two tests varied from between 6 and 76 days, with an average of 27 days' gap. The manual does not state whether there were significant differences in the test spacing between the two groups. However, the sample of 79 was a means of comparing the norms yielded by the two standardized samples. As such, if there were significant differences in test spacing between the two groups this would substantially undermine the purpose of administering the tests in this way. So, we can reasonably assume that there are not, as no competent administrator would allow this to happen. However, it is appreciated that this problem is a possibility, albeit an unlikely one.

3. Results

[Table 3](#) gives the scaled score means and standard deviations for the seven verbal subtests and five performance subtests in the WAIS III and the WAIS IV (these are the subtests that are in both the tests). The scaled score means are obtained by transforming the raw score means to a scale with a mean of 10 and standard deviation of 3. The column headed

¹ The exact wording in the manual is: 'The WAIS-IV and the WAIS-III were administered in counterbalanced order to 79 subjects aged from 30 to 63 years (mean, 45 years) with a 6 to 76 days interval (mean, 27 days) between the two tests' administration' ([Wechsler, 2011](#), p.62). All translations from French are by the corresponding author.

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Table 1
IQ gains in USA and Britain.

Country	Age	Test	Years	IQ gain per decade	Reference
USA	Children	WISC-III and WISC-IV	1989–2002	3.32	Flynn, 2012, Table Allii, p.238
USA	Adults	WISC-III and WISC-IV	1995–2006	3.06	Flynn, 2012, Table Allii, p.238
Britain	7–11	Mill Hill Vocabulary Scale	1979–2008	1.1	Lynn, 2009, Table 7
Britain	4–11	CPM	1982–2007	3.82	Flynn, 2012, Table A17, p.230
Britain	7–11	SPM	1979–2008	3.20	Flynn, 2012, Table A17, p.230

Table 2
IQ declines in 7 countries.

Country	Age	Test	Years	IQ decline per decade	Reference
Norway	18–19	General Ability	1996–2002	0.38	Sundet, Barlaug and Torjussen
Australia	6–11	CPM	1975–2003	1.07	Cotton et al. (2005)
Denmark	18–19	Borge Priene's Prove	1998–2003/4	2.70	Teasdale and Owen (2008)
Britain	11–12	Piagetian	1975–2003	4.30	Shayer and Ginsburg (2007)
Britain	13–14	Piagetian	1976–2006	2.50	Shayer and Ginsburg (2009)
Britain	14–15	SPM	1979–2008	0.64	Flynn (2012), p.232
Sweden	18–19	General Ability	1992–1993	0.26	Ronnlund, Carlstedt, Blomstedt, Nilsson, and Weinehall (2013)
Netherlands	Adults	GATB	1975–2005	1.35	Woodley and Meisenberg (2013)
Finland	18–19	Peruskoe	1998–2009	2.0	Dutton and Lynn (2013)

d gives the differences between the scores in standard deviation units. Positive *ds* designate lower scaled scores on the WAIS III than on the WAIS IV and therefore higher raw scores. These show that the WAIS III was harder and that therefore the population's IQ must have declined over the past 10 years. Table 4 gives Index score means and standard deviations and Full Scale IQs of the French WAIS III and WAIS IV. Index scores are constructed from combinations of two or three subtests. The column headed IQ decline gives the declines in the Index scores and the Full Scale IQ.

4. Discussion

The results have three points of interest. Firstly, the decline of 3.8 IQ points on the WAIS Full Scale IQ in France represents a decline of general intelligence defined as the average of a number of abilities. This decline is consistent with those reported in recent years in Norway, Denmark, Australia, Britain, the Netherlands, Sweden and Finland (see Table 2) but inconsistent with the increases in recent years in the United States and in younger children in Britain summarized in Table 1. It might behoove us to be more cautious in reaching conclusions based on these results than based on the other studies cited for two reasons: the sample ($N = 79$) is a relatively small and the WAIS IV manual does not tell us the degree to which it is representative of the French population in terms of variables such as education or geographic region. Clearly, it cuts out those who are under the age of 30 years or over the age of

Table 3
Scaled score means and standard deviations for the subtests in the French WAIS III and WAIS IV.

Subtests	WAIS III Score (SD)	WAIS IV Score (SD)	<i>d</i>
Vocabulary	8.8 (2.7)	10.0 (2.9)	.43
Arithmetic	10.0 (2.7)	10.1 (3.0)	.02
Similarities	9.9 (2.9)	10.1 (3.0)	.07
Digit Span	10.2 (3.1)	10.2 (2.5)	.00
Comprehension	8.7 (3.0)	9.8 (2.8)	.32
Information	8.7 (3.2)	9.8 (3.0)	.34
Letter–number sequencing	10.1 (3.1)	10.2 (2.9)	.03
Matrix Reasoning	9.6 (3.4)	10.1 (3.0)	.16
Symbol Search	10.5 (4.3)	10.3 (3.7)	–.05
Digit symbol-coding	9.4 (3.4)	9.6 (3.1)	.06
Picture completion	9.9 (3.5)	10.3 (3.1)	.12
Block design	9.9 (3.2)	10.6 (3.1)	.22

63 years, but its average age (45 years) is approximately similar to the median age of the French population, which is 42.4 years as of 2014 (Central Intelligence Agency, 2015). In addition, the Full Scale IQ on the WAIS IV sample of 79 subjects was calculated based on a comparison with the WAIS IV sample of 876 subjects, which was representative of the French population on key variables such as education and region. The scores of this sample of 876 subjects were set at 100 and a comparison made with the sample of 79 subjects. As can be seen in Table 4, on this basis the IQ of the sample of 79 subjects was 101.1 with an SD of 14.7, where the French norm would be 100 and the SD 15. As such, the smaller sample can be regarded as representative of the French population in terms of intelligence.

Secondly, the results for France, for the subtests given in Table 3, show substantial differences in the rates of the decline of different abilities. The largest declines were in Vocabulary (.43*d*), Comprehension (.32*d*) and Information (.34*d*) and the results in Table 4 confirm these by showing the largest decline of 4 IQ points in the Verbal Comprehension Index. Table 3 also shows that Symbol Search was the only subtest that did not show a decline but registered a small increase (.05*d*). In the Symbol Search test the examinee visually scans two groups of symbols, a target group (composed of two symbols) and a search group (composed of five symbols), and indicates whether any of the target symbols match any of the symbols in the search group. The score is the number of correct responses obtained in 2 min.

Thirdly, the results show no change in the Digit Span subtest. This confirms the conclusion of Gignac (2015) that there was no change in forward or backward digit span in the United States over the 85 years from 1923 to 2008. The present results also show that there was no change in the Working Memory Index of which digit span is a component. These are remarkable results because of the conclusion that memory span and working memory are closely associated with fluid intelligence (Chuderski, 2013; Colom, Abad, Quiroga, Shih, &

Table 4
Index IQs and standard deviations and Full Scale IQs in the French WAIS III and WAIS IV.

Index IQs	WAIS III (S.D)	WAIS IV (S.D)	IQ decline
Verbal Comprehension	95.1 (13.9)	99.1 (14.9)	4.0
Perceptual reasoning index	98.9 (16.4)	102.0 (16.0)	3.1
Working Memory Index	100.7 (14.8)	100.7 (13.2)	0
Processing speed index	99.2 (18.6)	99.9 (17.1)	0.7
Perceptual organization index	96.0 (13.7)	99.9 (14.9)	3.9
Full Scale IQ	97.3 (14.9)	101.1 (14.7)	3.8

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