

## **The Folly of Writing History without a Cognitive Dimension**

James R. Flynn<sup>1</sup>

*University of Otago, New Zealand*

Oesterdiekhoff believes that there is a largely neglected root cause in the transition to modernity: the rise of science and its causal role has elevated some 30 to 50 per cent of adults in advanced societies to Level B of formal operations. This level refers to Piaget's terminology. It involves breaking free of the concrete world of things and moving into a world of ideas, symbols, abstractions, the hypothetical, and using logic and evidence to systematize these, as a general strategy rather than as something limited to a particular area (perhaps required by the tasks of a modern job).

It is only when this root cause is articulated that we can make sense of the dynamics of five developments in the modern world.

This rise of *science*, particularly as applied to physics and chemistry, promoted the *industrial revolution*, and I would add all of its attendant effects, such as more cognitively demanding work roles, mass education, smaller families, modern parenting, and more cognitively demanding leisure. It also engendered the *enlightenment* in which a secular view of the world banished witches and the demonization of heretics. It also led to respect for the rights of the individual, which underlie *democracy* and *humanism*, or the notion that all humanity should enter the circle of moral concern, something that made the elevation of some to aristocratic privilege and the dehumanization of others through slavery untenable. In other words, cognitive progress was accompanied by political and moral progress, so that the rule of law and diminished violence became the foundations of

---

<sup>1</sup> Address for correspondence: jim.flynn@otago.ac.nz

modern society, the documentation of which Oesterdiekhoff rightly attributes to Stephen Pinker (2011).

I see no serious defect in this framework of analysis. Those familiar with my work know that it had a single objective: to use cognitive progress to illuminate the history of modernized peoples in the 20th century. They will also know that I stumbled on this mission by trying to interpret the so-called Flynn effect, that is, the dramatic increase in IQ performance in developed states ever since IQ tests were invented. I have hitherto emphasized industrialization as the ultimate cause of IQ gains over time, its spinoffs such as mass education as the intermediate causes, and the altered minds of the people taking the tests as the proximate cause.

I have followed Oesterdiekhoff by singling out altered minds as the neglected key concept. The crux of the cognitive history of the 20th century was the moment when we freed our minds from the concrete world with its utilitarian spectacles and donned scientific spectacles. We began to classify the world using abstractions, take the hypothetical seriously as a realm of logical analysis, see relationships between symbols that transcend the literal identity of the symbols, and generalize moral principles rather than treating them as given “objects”. This last is a recent development, that is, only recently have I analyzed cognitive progress and moral progress as mutually reinforcing tendencies in the 20th century – see Flynn, *Intelligence and human progress: The story of what was hidden in our genes* (2013). Roughly Oesterdiekhoff’s five developments fall into primarily conceptual developments (science and industrial invention) or moral developments (democracy and humanism) with the enlightenment (secularization) as a bridge.

His analysis can be summed up in a phrase: modernity has produced a “new man.” No totalitarian regime created a “new man,” but without fanfare impersonal social forces have begun the task. The new man of our day has a mind and

character radically different from the mass of men in 1900. My contribution has been to show that the evolution of the mind and ethics of the new man was by no means complete in 1900. This despite the fact that Britain had enjoyed a century of progress, marked by the retirement of James Watt in 1800 (the year during which his steam engine began to revolutionize production), with Continental Europe following suit soon after, and America industrializing in earnest after the Civil War.

### **The Facts of the Matter**

Psychometricians were reluctant to grant that there has been cognitive progress during the 20th century despite the fact that massive gains on IQ tests gave a clear signal that minds had been altering. They attempted to isolate these gains from the real world as if they were a test-taking phenomenon or too specialized to have general significance (Jensen, 1998). This reluctance is on the wane. Nonetheless a brief comment on two brute facts of recent history may add conviction.

Between 1900 and 2010, America went from 3 percent of its people working as professionals (doctor) or sub-professionals (teacher) to some 35 percent earning their living in cognitively demanding professions of this sort.<sup>2</sup> Of these, 15 percent were in highly paid professional employment and another 20 percent worked as sub-professionals, that is, as lower management or technical staff (Carrie, 2012). The relevance of IQ gains to this astounding social development emerges when we look at IQ thresholds. I refer to the IQ thresholds needed to get the credentials that make elite employment possible.

Cronbach (1960, p. 14) did an excellent job of calculating the mean IQ of those who, circa 1960, qualified for various

---

<sup>2</sup> The 1900 census did not use the same system of classification. However, Carrie put 1920 at 5 percent professionals and 1910 at 4 percent (Durand & Harris, 1999, Table 14). Therefore, I put 1900 at 3 percent.

levels of educational achievement: 110 for high school graduates, 120 for university graduates, 130 for recipients of a Ph.D., and (interpolation) 125 to enter a good graduate school. The IQ thresholds required to produce these means would be 96.8, 111.3, 123.6, and 117.6.

Today we know that students with an SAT-Verbal score of 440 are viable at many good universities such as Michigan State, Louisiana Tech, U. Nevada-Las Vegas, Fairleigh Dickson, and Corcoran Art and Design. By that I mean they would be above the bottom 20 per cent of the first year class. That SAT score equates with an IQ of 100 (Flynn, 2013). No university flunks as many as 20 per cent, although some students drop out because of financial problems, lack of motivation, or ill health. Therefore, an IQ of 100 means you can graduate from a good university and even those below that will survive if they work hard. Let us say that the IQ threshold for graduates is 95. This would generate a mean IQ of the average graduate of 109. Assuming universities are as selective today as in the past, the mean for those doing higher degrees would be about 114 and the threshold for that mean is 103.

To enter the professions or sub-professions you usually need a higher degree. This tells us something of supreme significance about the reality of IQ gains over time. Over 50 years, between 1960 and 2010, the threshold for acceptance for higher degrees fell from 117.6 to 103 or a difference of 14.6 IQ points. What were the IQ gains over that period? WAIS gains were 16 points from 1953-54 to 2006 (Flynn, 2009, Table 2). Reduce those 52.5 years to 50 years and you get 15.2 IQ points. The two are almost identical. IQ gains over time reduced the threshold for those qualifying for elite jobs by almost 15 points. The gains paid off in the real world of occupational performance. Doctors and managers and bankers and lecturers and technicians can spot the people who did those jobs 50 years ago 15 IQ points and still do the

jobs.

One possible rebuttal is that the jobs are less cognitively demanding today. However, medical colleagues tell me that doctors have to know more science today, commerce colleagues tell me managers have to plan with a wider range of knowledge, and economics colleagues tell me that merchant bankers today are virtuosos of cognitive complexity. University academics today sometimes give coherent lectures and do research; university technicians are infinitely more knowledgeable than in the past.

The other relevant fact is the massive IQ gains by American adults on the WAIS Vocabulary subtest: these total 3.4 Standard Score points or the equivalent of 17 IQ points between 1953-54 and 2006 (Flynn, 2012a, Table AII2). This should settle a long-standing debate. Jensen (1998) and others have denied that gains on an individual subtest have significance unless they occur in the context of gains on the whole test battery that mimic *g*-loadings. It is very difficult to deny the social significance of American adults who can communicate at levels not existent in the past. These gains are, of course, due to the fact that during this period, the percentage of American adults who had at least some tertiary education rose from 12 percent to 52 percent (Flynn, 2012a, Figure 2).

There is an anomaly here. Between 1978 and 2006, when the WAIS showed a gain of 8 points, the General Social Survey vocabulary test, administered to a good sample of English-speaking adults, showed only 1.88 points or, if you allow for an item that might have become more difficult over those years, 2.25 points. The WAIS tests active vocabulary (words you can use) and the GSS tests passive vocabulary (words you can recognize). Flynn (2012a, pp. 103-105) discusses the implications of this but on the face of it, the ability of adult Americans to converse seems to have progressed faster than their ability to read.

### **Why Cognitive Gains Registered on IQ Tests**

Where have the Wechsler gains been the largest? First on the Similarities subtest that forces you to classify. Second, on the analytic subtests that force you to devise how blocks or objects can make certain designs. Third, on the pictorial subtests which ask you to find the missing piece of a picture or use pictures to tell a story. Fourth on the Vocabulary subtest where adults made large gains thanks to more and more education. Note that Raven's gains are at least as huge as the most prominent Wechsler subtests. The Raven test asks you to perceive logical sequences in highly abstract symbols (Fox and Mitchum, in press). In sum, the profiles match. Modernity means advancing beyond manipulating the concrete world for use. It means classifying, using logic on the abstract, pictorial reasoning, and more vocabulary. The IQ test items that have risen over time make the same cognitive demands.

### **The Moral Dimension**

In the 20th century, cognitive progress had subtle effects on moral progress. Nationalism and racism peaked during World War II. But after that, among those whose minds altered as the century progressed, these idols have been on the defensive. The same is true of cruel moral maxims that treat individuals as if they deserved to suffer without fault. How did altered habits of mind take moral reasoning away from the stone age of simply accepting the bias and cruelty of the past?

First, there is taking the hypothetical seriously. When combating racism, this "habit" is the foundation of mature moral argument. In 1955, when Martin Luther King began the Montgomery bus boycott, young men of my acquaintance, home from college at 21, had dialogues with their parents or grandparents. Question: "What if you woke up tomorrow and had turned black?" Reply: "That is the dumbest thing you have ever said, who do you know that turned black overnight?" Our parents simply were not willing to take the

hypothetical seriously. One of Luria's subjects in his classical study about the thinking of illiterate peasants in Central Asia (Luria, 1976) said to him: How can you expect us to try to solve problems that are not real problems?

As for nationalism, my *Beyond patriotism* (2012b) diagnoses the retreat from patriotism by some of the American public between World War II and today. Try this question: "What if your home was hit by a drone because someone nearby was sheltering a Taliban?" Or better: "If a war killed so many foreigners to save 3,000 Americans, where would you fall off the boat: at 10,000 or 100,000 or one million?" The answer tends to divide the youth from the aged (the latter: "their government protects them and our government protects us").

Second, today we use logic to analyze abstract concepts. This is a powerful weapon against local norms that incorporate the cruelty of the past as a residue. Islamic fathers shock the world when they kill a daughter because she has been raped. We would ask: "What if you had been knocked unconscious and sodomized?" He is unmoved. He sees moral maxims as concrete things, no more subject to logic than any other concrete thing like a stone or a tree. He does not see them as universals to be generalized by logic. Today the tendency is to express moral maxims as generalizations and try to make them logically consistent with one another. Question for one of my students: You say we should never judge the customs of another culture; yet you are also an advocate of women's rights. What do you say about the practice of female circumcision? Whatever the conclusion, this is a far cry from primitive moral reasoning.

The new habits of mind did not merely help us to adapt to modernity. They taught us to stride toward freedom with Martin Luther King and take seriously the "collateral damage" of killing foreigners in Vietnam and Iraq and Afghanistan. No general today would talk about "bombing the Vietnamese back to the stone age." I am aware that everyone has not taken

the first steps away from racism or nationalism or cruelty, and that many factors have diluted prejudice. However, as someone who has spent his entire life as a scholar and lecturer doing moral philosophy, and began that task in the South in 1957, I know that reason is not insignificant.

I should stress that the above analysis has to do with the basic moral principles that people in developed nations tend to hold. Cognitive advance encourages a wider inclusion of humanity in the circle of moral concern and less personal violence. For example, the UN Office of Drugs and Crime (2012) collects data about homicide rates in most countries of the world. When these homicide rates are related to various development indicators including average intelligence in the country (measured as a composite of school achievement and IQ, see Meisenberg & Lynn, 2011), it turns out that the negative correlation of homicide is stronger with intelligence than with GDP, freedom/democracy, freedom from corruption, and average years of schooling.

I should add that humane moral principles do not always translate into social reform (Flynn, 2008). The fact that the middle class outnumber the poor (Aristotle), the vision of what is possible (economists dictating the common good), confusion generated by the information age, and paralysis in the face of climate change, contribute to a politics of apathy and pessimism about the future (Flynn, 2013).

### **History and Cognitive History**

We have to get into the minds of the people who do the jobs that are the essence of the modern world, we have to get into the minds of the people who today communicate on a higher level, we have to get into the minds of people who use reason to second-guess their moral principles. Oesterdiekhoff is correct. It is folly to write the history of modernity without taking into account that many of us have reached the Piagetian level of formal operations.



## References

- Carrie, A.  
(2012). Occupation change: 1920-2010. Weldon Cooper Center for Public Service: <http://statchatva.org/2012/04/06/occupation-change-1920-2010/>
- Cronbach, L.J.  
(1960). *Essentials of Psychological Testing*, 2nd ed. New York: Harper.
- Durand, E.D. & Harris, W.J.  
(1999). *Population 1910: Occupational Statistics* (United States Bureau of the Census). New York: Norman Ross.
- Flynn, J.R.  
(2008). *Where Have All the Liberals Gone? Race, Class, and Ideals in America*. Cambridge University Press.
- Flynn, J.R.  
(2009). The WAIS-III and WAIS-IV: Daubert motions favor the certainly false over the approximately true. *Applied Neuropsychology* 16: 1–7.
- Flynn, J.R.  
(2012a). *Are We Getting Smarter: Rising IQ in the Twenty-First Century*. Cambridge: Cambridge University Press.
- Flynn, J.R.  
(2012b). *Beyond Patriotism: From Truman to Obama*. Exeter UK: Imprint Academic.
- Flynn, J.R.  
(2013). *Intelligence and Human Progress: The Story of What Was Hidden in Our Genes*. London: Elsevier.
- Fox, M.C. & Mitchum, A.L.  
(in press). A knowledge based theory of rising scores on “culture-free” tests. *Journal of Experimental Psychology: General*.  
Doi:10.1037/a0030155.
- Jensen, A.R.  
(1998). *The g Factor: The Science of Mental Ability*. New York: Praeger.
- Luria, A.R.  
(1976). *Cognitive Development. Its Cultural and Social Functions*. Cambridge (MA): Harvard University Press.
- Meisenberg, G. & Lynn, R.  
(2011). Intelligence: a measure of human capital in nations. *Journal of Social Political and Economic Studies* 36: 421-454.
- Pinker, S.  
(2011). *The Better Angels of Our Nature: The Decline of Violence in History and Its Causes*. London: Penguin.
- UN Office of Drugs and Crime  
(2012). *Homicide Statistics 2012*. <http://www.unodc/en/data-and-analysis/homicide.html>.