

Some Mysteries in the Short-Term Evolution

Of Individual and Collective Intelligence

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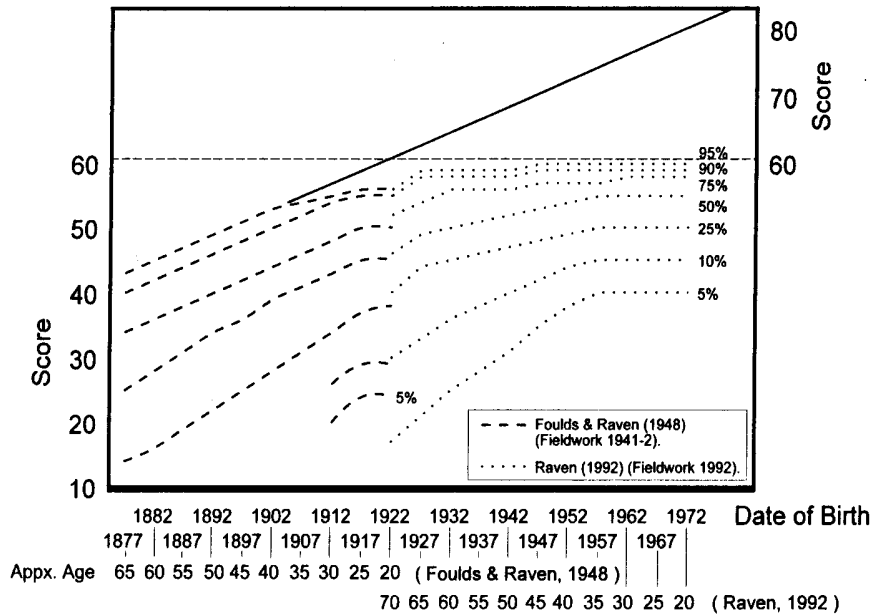
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Abstract: Setting cross-sectional data which had previously been thought to reveal a decline in "intelligence" with increasing age over the life span in the context of more recent data reveals that, instead of declining with age, individual "intelligence", like height, has been increasing dramatically with date of birth. Other data show that most of the usual explanations – like changes in early childhood education – do not hold up. The explanation of the increase remains mysterious. At the same time, it would seem that collective "intelligence" has been declining equally dramatically.

Keywords: Intelligence: Individual vs. Collective. Emergence of Individual Intelligence. Educative Ability. Changes with Date of Birth. Raven Progressive Matrices. Flynn Effect. Age Trends. Decline of Collective Intelligence.

Over the past decade, largely as a result of the work of Flynn (1984, 1987), it has become clear that data which had previously been thought to reveal a "decline" in "intelligence" with increasing chronological age in fact document a dramatic increase in the levels of intelligence people display at maturity with date of birth (birth cohort). The increase is huge, amounting, in the studies I have myself conducted, to 5 Standard Deviations over the past century. 50% of our grandparents would, on the basis of the scores they obtained, be consigned to Special Education classes in America today. The mistake stemmed from an inappropriate interpretation being placed on data collected in the course of cross-sectional studies in which the scores of people of different ages (and thus dates of birth), but tested at a single time, were plotted by, and attributed to, age variation rather than date of birth. As the Figure below reveals, plotting similar data for the same birth cohorts tested 50 years apart makes the mistake transparent: people do *not* lose their abilities as they age. Samples of the 1922 birth cohort tested in 1992 (when they were 70 years old) obtained very similar scores to samples of the same birth cohort tested in 1942 (when they were 20 years of age).

Figure SPM1
Standard Progressive Matrices
Implications of Score Increase for Revised Test Difficulty
 (Base Graphs Reproduced from Graph G2 in General Section)



Needs Revised Heading:

Increase in Raven Standard Progressive Matrices Scores with Date of Birth for studies conducted c. 1942 and 1992^{1,2}.

And two notes below the figure:

Note 1: Reprinted from Raven, Raven and Court (2000).

Note 2: Although the increase among the more able seems to taper off from about 1930, this is due to a ceiling effect on the test, which has only 60 items. Data collected with a more difficult test – the *Advanced* Progressive Matrices – show that the straight line extrapolation shown in the figure is entirely justified.

The increase is not only dramatic, it has occurred at all levels of ability and in all cultures. Across cultures, it has occurred more or less equally despite huge differences in such things as per capita income and food intake, age of entry to education, duration of education, type of educational programmes, access to television, family size, and other similar variables of the kind on which sociologists tend to focus. (This is not to say that "intelligence" is not affected by such things; it is. But not to anything like the extent that would be required to explain the inter-generational increase – which has occurred more or less equally in such countries as China, Russia, Brazil, Italy, Slovakia, Belgium, the USA, and the UK.)

Not all components of "general cognitive ability" have been affected to the same extent. For example, we do not *know* any more than our grandparents did. They knew different things, but the total quantity of knowledge they retained was much the same.

"Reasoning" or, more correctly, "meaning making" ability, has increased most.

Physical characteristics such as height and athletic ability have also increased. We stand head and shoulders above our great grandparents. And it is not just the bottom of the distribution that has been affected: tall people have got still taller.

Of the reductionist explanations available only the hypothesis that trace elements in diet and improvements in public hygiene have been responsible has not been discredited by the available data. However, an explanation in these terms is not intellectually satisfying.

Social changes – like the worldwide individualisation of life styles and decision taking – may also be posited to have some effect.

But, in reality, the causes remain mysterious.

But what is still more intriguing is that this dramatic increase in individual intelligence has been accompanied by an equally dramatic *decline* in *collective* intelligence, that is to say, in the ability to act in such a way that our species (genes) is (are) likely to survive.

Thus we are treated to the spectre of a headlong and seemingly unstoppable plunge toward our self-annihilation.

The ecological footprint of what is presented as the most efficient economy in the world is greater than that of China, Russia, and India combined. Put another way, the people of the USA consume all the agricultural produce from an area of land area 14 times its size. In that same country, the largest single expenditure is on tranquillisers to ameliorate the psychologically destructive effects of its patterns of work organisation and the associated family and community breakdown. There are more murderers in prison than there are law enforcement officers on the streets.

It follows from these observations that any carefully compiled index of collective intelligence would reveal a dramatic decline in our ability to adapt our behaviour to our longer-term interest.

What is driving this process? It is as mysterious and unstoppable as the much better documented increase in individual intelligence.

Yet the two are not unconnected.

The quest for a single, unarguable, criterion of merit or ability – which has killed all attempts to cater for diversity in schools – is directly linked to our societal need to have some means of legitimising a deeply divided society in which those social divisions force us all to commit 100 unethical – unintelligent – acts every day – to drive cars, to eat bananas, to produce, market or sell junk foods, junk toys, junk insurance, to wear fashion clothes sporting designer labels which drip with blood, and so on.

Shiva (1998) has nicely shown how the collective drive toward the emergent societal properties which are heading our species toward its self-destruction carrying Gaia with it – worldwide destruction of cultural diversity, the creation of monocultures in agriculture and so on – are directly linked to the quest for monocultures of mind in science and education, the destruction of enquiry, and enthrallment with reductionist (as distinct from what might be termed ecological) science. The quest for reductionist science legitimises unethical and incompetent science.

The image of controlling evolution through the creation of social and agricultural monocultures and the destruction of diversity (that crucial source of experimentation) and natural growth wields terrifying and inexplicable power over us.

In the end, then, it looks as if the quest to understand the mysterious processes of intellectual individuation (the development of individual intelligence *greater* than the collective intelligence of the group) should be directed to the same quarter as the attempt to understand the (rarely discussed) evolution of (destructive as well as beneficial) emergent properties of groups (collective intelligence that could never possibly be equalled by the actions of an individual).

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