

OVERCOMING THE LIMITATIONS OF IQ

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Lynn presents a thorough survey on empirical findings about the IQ of races and draws important conclusions on the races' contributions to civilization and the evolution of *Homo sapiens*. The crucial point is the biological endowment of races. In this respect the question arises whether his assumptions about biological aspects of intelligence have exhausted all possibilities discussed at present. We will concentrate on:

- 1) the concept of biological intelligence,
- 2) its measurement on ratio scale level (prerequisites are a unit of measurement and an absolute zero point), and
- 3) the transformation of the reported IQ-points into the capacity of short-term memory storage which is measured by bits. This is a scientifically very promising measure of mental efficiency.

Biological Intelligence

Eysenck has suggested a guiding model which helps to determine the biological core of general mental efficiency. He distinguishes between biological, psychometric, and social or practical intelligence. For the latter we prefer the term socioecological intelligence. According to Eysenck, biological intelligence is the structure of the nervous system which enables us to behave intelligently – to learn, memorize, solve problems, etc. Psychometric intelligence is measured by traditional IQ tests. Although they usually aim to measure biological intelligence, they fail to do so because performance is – at least to some extent – influenced by social factors such as education, culture, and parental upbringing. He estimates that the percentage of genetic determination of IQ measurement amounts to about 70%.

Socioecological intelligence is the application of IQ in practical situations of everyday life. It is often considered as equivalent with successful adaptation. Confounding variables are health, drinking habits, personality, socioeconomic status, etc. As has been reported in a great number of current medical communications there are various possibilities to increase the actual mental efficiency in cases where the biological intelli-

gence is reduced by hypovitaminosis, hypoglycemia, hypoxia, high blood viscosity, or more generally in multi-infarct dementia, by body immobility, etc.

There are sometimes simple measures of intervention to increase biological intelligence. Various changes in psychometric and socioecological intelligence can be explained by biological impairments. Therefore, not only psychologists and anthropologists are strongly interested in biological intelligence but also medical psychologists and physicians. Possibly some mental insufficiencies of races can be treated by medical methods.

The majority of the tests Lynn refers to are roughly culture fair. That means that the influence of social factors is relatively restricted. Therefore, his results may give a sound estimate of races' biological IQ. However, the application of the IQ is restricted since the level of measurement is on an ordinal or interval level. The latter is questionable because it is based upon a normal distribution of intellectual capability. This is rejected by the findings of Weiss. The reaction times of the races, in particular their decision times which Lynn presents, are convincing magnitudes to support his suggestions that there are differences in biological intelligence because reaction times are assessed as typical indicators of biological intelligence. But the reaction times as they are taken by Lynn present only rank orders of the races.

Ratio Scale

To reveal more information on the real differences in mental endowments one has to overcome the limitations of the IQ-points, since they are based on the distributions of performances in reference groups. Differences in the intelligence of races are presented as IQs or as standard deviations. IQ-points are a measure of relative frequency and therefore we do not know the degree of the differences in mental capacities which are attributed to the individual. We, however, try to measure the mental efficiency on a scale which has an absolute zero point. These results are on a scale level which is familiar to life scientists who are working with the centimeter-gram-second-system. If biological intelligence could be measured on a ratio or even absolute scale level it could be linked directly to the above mentioned biological statements. On this level of measurement arithmetically simple rules or even laws can be found as the discoveries of Weiss have shown. From genetic models on intelligence Weiss derived three types of persons (Caucasoids) who differ in the speed of information processing which is an important component of biological intelligence according to ratios of integers, namely, 2:3:4.

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Searching for pure and undistorted measures of biological intelligence, we found two information psychological components, the capacity of central information processing with the dimension bit/s, and the capacity of keeping bytes of information available for intelligent management (memory span, or immediate memory, or duration of presence). The capacity of bytes seems to be equal to the storage time (in seconds) until the rapid decay starts. The product of speed in information processing (bit/s) and duration of presence (s) equals the short-term memory storage (bit). This is the capacity of the amount of bits that a person can manage immediately. Average German adults achieve 80 bits. The capacities of short-term memory storage vary widely. The standard deviations are 30 bits. But they are not distributed normally outside the range of the mean + 1 sd.

The individual capacity determines or, more precisely, constitutes psychometric and socioecological IQ. According to empirical standardizations, IQ can be matched with the capacity of short-term memory storage.

Transformation of IQs into Bits

We determined the capacities of short term memory for the means of general IQ which Lynn reported about the races. This way, we get the following rank order:

Mongoloids:	IQ 105.5 -> 90 bit (= 100 %),
Caucasoids:	IQ 99.4 -> 79 bit (= 88 %),
SE Asians:	IQ 90.7 -> 64 bit (= 71 %),
Amerindians:	IQ 87.4 -> 58 bit (= 64 %),
Negroid-Caucasoid Hybrids	IQ 82.1 -> 48 bit (= 53 %),
Negroids:	IQ 74.4 -> 30 bit (= 33 %).

It is striking that the capacity of short-term memory storage of the leaders (Mongoloids) amounts to exactly the triple value of that of the Negroids who are found at the other extreme. That means that – compared with Negroids – Mongoloids are capable of handling triple the amount of information consciously. Therefore, Mongoloids are able to solve far more complex problems rationally or to develop a more profound knowledge about reality. Amerindians and South East Asians lie in the middle with about 60 bit each. The Negroid-Caucasoid-Hybrids and Caucasoids are somewhere in between. Possibly a biologist would get far more information out of these data. Referring to these data it must be kept in mind, however, that these are only approximations because the transformations are based on psychometric IQ-tests in which not all biases can be

excluded. Nevertheless, an important result of our transformations of IQ into bits is that the races' differences in mental efficiency are greater than the IQ suggests, e.g., 90:30 (bit) instead of 106:74 (IQ-points). These findings are a challenge to the ethical responsibility of the scientists working in these fields.

The information psychological transformation of Lynn's data does not give a reason to change his conclusions but it opens ways to refine the knowledge on the mental efficiency of races.

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HAS THE STUDY OF RACIAL DIFFERENCES IN INTELLIGENCE OVERCOME ITS RACIST ORIGINS?

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It seems that Professor Lynn's target article shows proof that differential psychology's haunting ghosts have appeared once again, at the risk of justifying some racist conceptions as well as discrediting our science which still has to often convince people of its methodological relevance and theoretical interest. Can such a famous psychologist and competent scholar accept scientifically studying the relationship between racial differences and intelligence without realizing the ethical and social implications of the thesis he will defend? We have seen in the past the disastrous influence of hierarchically oriented racial theories and we cannot believe that Richard Lynn is unaware of the consequences. Lynn's choice of propounding a speculative and unverifiable evolutionary theory of racial differences in intelligence shows us that he is not afraid that certain social Darwinist extremist followers could find in his assumptions a theoretical justification of what they would feel to be a political society's necessary adaptation to this differential statement.

Does one have to recall again how the 19th century construct of races based on phenotypes is exceedingly dubious? Are people such as Melanesians, Ceylonese or South-Saharan Africans who live in equatorial countries to be classified in the same racial category because of their skin colour? We still know that race taxonomy for Mongoloids, Caucasoids, Australoids and Negroids, actually appears to be biologically questionable. Who can now admit not knowing the large inconsistencies revealed by genetic studies on population distinctions? These findings have given proof that every population is *genetically polymorphous* (Lewontin, 1974) and that, according to the genetic characters under consideration, human populations present different genetic relationships. When, for instance, a comparison based upon HLA-A and HLA-B groups of tissue frequency shows a short genetic distance between Indo-Europeans and African-Negroids, one must however take into account that these latter populations are genetically very distant from Asiatics, Amerindians and Oceanians. On the other hand, when immunoglobulin molecular structures (Gm groups) are compared, European and Oriental populations look genetically similar

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