Review of: "The Intelligence of Nations. National IQs and Correlates"

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The article "The Intelligence of Nations. National IQs and Correlates" (Henss, 2024) represents an articulated effort to explore intercultural aspects of intelligence, following Lynn's research approach.

The report estimates the "national IQ" of 205 countries, using databases deriving from psychometric intelligence studies and international student assessment data. After a ranking of the average IQ for each nation, these national indices are globally correlated with a wide range of variables from different aspects of life, assessing both linear and non-linear bivariate relationships. The main findings of intercultural intelligence research are confirmed. "National IQs are closely related to a vast array of areas of life and are an excellent predictor of the well-being of nations" (Henss, 2024, p. 1).

But this great effort opens a series of issues regarding methods, sampling, results, and the construct itself of intelligence.

I state that the following considerations are not of an ideological nature or aimed at political correctness – this is how Henss considers many criticisms of Lynn's approach, and argues harshly against them. My notes are based on strictly methodological and theoretical considerations in the field of psychological and psychometric studies.

1. *Culturally biased measures to measure cultural differences?*

Henss (2024, p. 2) acknowledges that "student achievement tests are not the same as psychometric intelligence tests, but of course, student achievement depends to a large extent on intelligence; and intelligence develops in the course of many years of schooling"... so it can be concluded that psychometric intelligence tests and the international student assessment studies essentially measure the same latent variable, namely intelligence" (p. 10).

Student achievement tests, by their very nature, are surely not "culture free," but are, more than psychometric tests of shared use, very differentiated in terms of difficulty, cultural assumptions, specific contents, method of administration, and scoring, according to the educational systems of the various countries. Then there is the risk of comparing nations on the basis of results obtained with tools that are already culturally conditioned and diversified in terms of the type and content of the tasks used for the comparison.

Moreover, using measures derived from multiple sources of information, a doubt remains that heterogeneity does not help the generalizability of the comparisons derived from them.

2. *Sampling issues.*

Quoting the Flynn effect, Henns (2024, p. 4) reports that "IQ in the U.S. has massively increased over decades, but … at the same time performance in the college aptitude test SAT has remained the same or even decreased". This is certainly a paradoxical effect, but whatever the explanation may be, it shows that the IQs of students and the general population are not homogeneous.

Now, let's consider that the percentage of students above primary school level is very different in each national sample, depending on the schooling and educational policies of local governments and general economic conditions (this is discussed by Henns in *The Global Learning Crisis*, paragraph, p. 4; and is confirmed by some of the results).

The same problem occurs for the other specific subsamples that are differentially prevalent in the database of each nation considered: in fact, "the data for the highly developed nations are much more abundant and reliable than for the mid-level countries, and the data for the less developed countries are sparse" (Henns 2024, p. 7). If the subsamples are not homogeneous across nations, it may be questionable whether the overall comparison with the other hypothesized variables affecting the measured intelligence, and the well-being to be predicted through the average intelligence of the population, is reliable. For example, the high correlations between the measures of the database used, summarized in table 2 and the following, refer to the entire set of nations, but the databases of each nation are made up of different samples within them.

3. *Overestimation of correlations.*

The author claims that data strongly correlated "appear to measure identical or closely related constructs" (p. 2). But we know that the covariance of measures on two variables could be determined by superordinate variables - e.g., the strong correlation between height and weight is influenced by a higher level variable that is age, if it is not taken into account as a covariate. In the cases of correlations regarding intelligence, only multivariate methodological research designs can test the hypothesis of latent or superordinate factors determining both the correlated variables (e.g., selection modalities for high school entry? Socio-economic variables? And so on...).

The relations between intelligence and correlated national variables, even where the appreciable method used by Henns is that of non-linear relations, are nonetheless bivariate, and the author declares that he is not interested in causal relations, aware that "correlations, in and of themselves, do not allow for causal inferences" (p. 29).

Causes, however, do exist and influence the overall results and their interpretation.

Some of the variables strongly correlated with the national IQ could be causes of the measured level of intelligence: e.g., mean years of schooling; access to advanced education; nutrition and basic medical care; access to information and communications; free flow of information; and many others. For example, we can add the proportion of migrants from other countries and the consequent "melting pot" in the national culture.

Moreover, these causal variables could be intercorrelated with each other in determining their effect.

4. *Average values without considering the variances?*

Another critical issue regarding the analysis and interpretation of results is the need to consider the averaged values together with their variances.

Henns' study (2024, p. 26) highlights "enormous variability in cognitive capabilities among nations", closely related to ethnic differences, and explained by geographic, historical, cultural, and genetic dimensions.

While the variance *among* nations is widely considered and commented on, the variability *internal* to the national IQs is not taken into account. National groups with internally higher variability of the IQ results could be less comparable with others having lower variability. The relation with general well-being and other variables can be different if most of the members of a group are of average intelligence, while in another group there are very intelligent citizens but also many unintelligent people. The variance of one variable strongly affects the correlations of that variable with the others, and adding the use of non-linear correlations does not solve the problem.

5. *Issues regarding the general construct*

Beyond methodological, epistemological issues are relevant.

To know how much the level of intelligence predicts well-being, we need to know what intelligence is. In this regard, there are many questions that psychological research has been asking for over a century. Can we speak of general intelligence, i.e., does there really exist a unitary entity, the famous *g-factor*, that can be represented by a single quantitative datum, such as IQ or the like? Or are there many specific intellectual functions - i.e., *aptitudes* - of which one can draw a profile, perhaps very uneven and articulated, that makes a person more intelligent in certain areas and less so in others? This topic is mentioned in Henns' article, but not explored in depth, since the *g-factor* hypothesis is taken for granted.

Moreover, should "general" intelligence not include also non-cognitive factors such as emotional and motivational ones, which can act as mediators between different intelligences, or aptitudes, in the development of the person and of social groups?

This is certainly not the place to go over the countless definitions that have been given of intelligence in the scientific field. For example, there is the problem of the breadth of the construct: does it concern the capacity for reasoning that assembles cognitive functions (Terman, 1916), or something broader, involving adaptation to the environment, with all its complex variables (Thurstone, 1938)?

Welsh's (1975) distinction between *Intellectence* and *Origence*, as a preference for rational and realistic rather than affective and emotional modes of functioning, is well known. Recent studies on meta-cognition have confirmed that the perception of one's own intellectual efficiency affects self-esteem and self-efficacy, and these variables in turn determine the "intelligent" performance.

Butler and Fiske (1955) and then Ackerman (1994) have emphasized that intelligence can be contextualized as *typical* rather than *maximal* performance, i.e., used to assess in tests and learning trials. The *typical* intellectual performance has a higher predictivity of school or everyday life performances, which are influenced by motivation and emotions, commitment, and involvement contingent on the context. In any case, the emotional and motivational aspects that

influence intellectual performance should be taken into account, so it is utopian to think of a 'pure' measurement of intelligence (all the more so when using tests linked to learning, e.g., Reading, Mathematics, and Sciences).

When assessing general intelligence, both cognitive 'maximum performance' and intelligence normally used in everyday life should be assessed, including factors like motivation, meta-cognition, understanding and expression of emotions, open-mindedness, cognitive styles, and interpersonal relationships (Sternberg, Kaufman, & Grigorenko, 2008). These are the main predictors of the well-being of individuals, social groups, and the nations they comprise.

From this point of view, it appears reductive to generalize the construct of "general intelligence" by deriving it from learning variables, or even from psychometric tests, that only assess cognitive intelligence - as Wechsler himself stated in his test manual: general intelligence cannot be equated only with intellectual ability measured by the test, but must be regarded as a manifestation of the personality as a whole (Wechsler, 1958).

Finally, in measuring the 'intelligence' of a national group, we should take into account essential aspects of social dynamics, quantities and types of economic investments in welfare - which we could define as 'social intelligence', i.e., the smart organization of each nation's institutions – to have a reliable assessment of the degree of intelligence as "an excellent predictor of the well-being of nations" (among the highlights of the Henns' article).

However, limitations regarding the type of intelligence measured should be expressed in a study that aims to correlate intelligence with several other variables.

6. *Some suggestions*

Assessing intelligence, especially of entire nations, is not a simple task, because not simple but rather extremely complex are the definition of the construct of intelligence itself, and the methods to assess it. The task is quite different from calculating the 'Gross Domestic Product' with objective parameters that are the same for all nations.

Henns (2024, p. 6) says that the study "is concerned only with demonstrating substantial correlations of national IQs with a wide variety of variables. It is not concerned with questions of cause and effect; these are outside our scope". But when concluding that intelligence is a *predictor* of well-being (and not vice versa), are we not talking about specific cause-and-effect relationships?

Moreover, the author admits that "usually national intelligence is embedded in a more or less complex network of variables", but "analyzing such networks is beyond the scope of this paper" (p. 29). I think that this scope should be included in the research, for its complexity of involved variables, in order to make more sense of the results obtained so far; otherwise the deductions may contain artifacts and remain provisional and partial.

Studying these complex and dynamic issues without looking for the relationships among the many factors considered, and between these and the context, can lead to conclusions of the "pars pro toto" type. Piecing together the many elements that make up social intelligence is like putting together the pieces of a puzzle: an operation for which the overall figure to reproduce must be clear, but also the individual pieces and the relationships among them should be well understood.

Henns (2024, p. 33) states that his paper is only a preliminary version of a more complete text entitled "The Intelligence of Nations. Historical Roots and Current Correlates". I hope that this extended and ambitious project would consider the suggestions exposed here.

In any case, I reiterate that my concerns are foremost methodological and epistemological: quantitative measurements about complex issues are useful if framed in a hermeneutic work of understanding, in which all the relevant elements of structure and context are taken into account in a coherent framework.

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