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"The Bell Curve": Descriptive Data, Ideology Interpretations and Political Conclusions"

The Bell Curve by Herrenstein and Murray (1994) has promoted an important public debate, not only in USA but also in other countries (see, Jacoby and Glauberman, 1995). This debate concerns: psychological concepts (such as intelligence and mental aptitudes), the validity of psychological instruments (such as IQ and mental abilities testing), as well as psycho-educational training programs (such as those developed for improving cognitive abilities). Therefore, if these are not enough reasons to go into the debate, a more important reason arises from the fact that (both in the book and inside this public discussion) descriptive psychological data are taken in an explanatory fashion, disseminating misconception about intelligence, and not only discouraging current minority training programs but, probably, building new political decisions.

It seems that this socio-political debate is recurrent and emerges in cycles linked with ideological landscapes and social events (see, for example, Cronbach, 1975). It occurs mainly in USA, but it is also in other multiracial countries around the world in which liberal and social values combat into the political arena as well as on social networks and citizens' minds. Both the Bell Curve and its public discussion cannot be understood without taking into

consideration the Protestant ethic values embedded into North American society. In spite of the fact that it is not our purpose here to make a socio-political comment, it is necessary to emphasize the importance of the ideological ideas supporting data interpretation. Let us start by giving some examples.

Success or achievements (as an outcome or product) is one of the fundamental values of Western societies. The idea that success is primarily due to individual characteristics is an intrinsic part of the liberalism belief system. The link between success and only one personal trait has been promoted since Aristotle. In the same line, it seems that intelligence (as a mainly cognitive human characteristics) arises linked to the rational values from the Jewish-Christian heritage. Finally, the genetic bases of intelligence, success, and other human virtues have been a matter not only of public discussion, but has also had political and military consequences in this century.

The controversy about the relationship between race and psychological characteristics is not restricted to a social and political debate; it is an extremely important topic in Psychology (see, for example, the debate between Eysenck and Kamin, 1981). Psychologists have dealt with this condition as one of the independent variables for individual differences. But, race is not only a physical condition; across the history of the humanity it has had an ideological imprinting. In psychology, during this century, race has been a key concept (as age, gender, etc.) in the study of individual differences. But, because it has been ideologically loaded, at the end of this century, psychologists are suggesting to drop it (see, for example, Dole, 1995 and following comments in the American Psychologists) which is like throwing out the child with the dirty water. In summary, both intelligence and race are not only technical concepts, instead they are emotionally, ideologically, and politically loaded. It is not surprising that the Bell Curve has had so many impressive repercussions: if you rub two flints, there will be a fire for sure! This is briefly the context in which Herrenstein and Murray's book should be understood.

The book has 845 pages; therefore, it would be pretentious if we try to comment on it in the short space devoted to this topic in this journal. Our purpose is to review those aspects of the book that have been considered most relevant: the concept of intelligence and its measure, psychometric intelligence as a predictor of success in life, the methodological mistake of extracting explanatory conclusions from descriptive data, and finally, the fact that intelligence can be taught.

1. The concept of intelligence and its measure.

Long time ago, Hebb (1949) conceptualize intelligence using two main types: A and B. While he defined A intelligence as a natural (biological) or "innate potential", B intelligence was conceptualized as the "average level of

performance and comprehension" (p. 295) and can be estimated by psychometric intelligence tests and express the life span interaction between intelligence A and cultural and environmental factors. These concepts have been extensively developed across this century (see, for example, Cattell, 1987; Yela, 1987).

Other authors, such a Gardner (1983) and Sternberg (1985), have emphasized other types of intelligence than those assessed psychometric tests: bodily-kinestesic, practical, creative, social, among others. Also, emotional factors of intelligence have been underlined by others (Damasio, 1994; Goleman, 1995). The most important point that should be accentuated is that the majority of the data supporting Herrenstein and Murray's assumptions and statements arise from psychometric intelligence; that is, from the differences between groups in psychometric test scores. Herrenstein and Murray do not deal with intelligence but with a specific type of intelligence.

Nevertheless, Herrenstein and Murray's book has not been publically discussed because it deals with intelligence, but because race differences on intelligence are the main subject of the book. Beyond bias on mental tests, not one psychologist would doubt on the consistent fact that in the USA, in similar psychometric tests conditions, American Chinese individuals yield higher scores than Caucasians and Black and Hispanic Americans yielded lower scores than Caucasians. With the nuance emphasized by Flynn (1980)(these differences have been reduced in the last decades), these are available descriptive data. But, these data cannot explain the genetic bases of intelligence, even if they are submitted to statistical analysis.

Therefore, the problem is not the description of these research results but the inference that psychometric data are the expression of differences in type A intelligence and, even worse, that race differences in psychometric intelligence (type B intelligence) support its genetic origin as well as the genetic differences in intelligence between races. In fact, we are not able to assess Type A intelligence and we still do not know the relationships between intelligence B and A. Psychologists know very well that between group heritability, calculations cannot be taken as a proof of the origin for individual differences. even the dictum of Quantitative Theory of Genetics is that none of the differences among groups (in intelligence) can be attributed either to genetic or environmental factors (Plomin and DeFries, 1980).

2. Psychometric intelligence and success in life

As has been said above, from the value system in which socio-economic success is the goal in life, Herrenstein and Murray try to explain this achievement (as complex as all human outcome) by psychometric intelligence. This is a new misconception. There is strong support for the conclusion that school, professional, and social success can only be explained by multidimensional/multilevel factors.

That is, motivational, emotional and cognitive characteristics, as well as physical (nutrition), social (family practice, socio-economic status), and environmental conditions (teaching style, socio-economic macrofactors) have synergetic relationships in explaining success in life (e.g. Scarr, 1992). In summary, psychometric intelligence does not account for more than a 25% of the variance of success criteria (school grades, social and job achievement, etc.).

Intelligence or ability testing have been developed with different objectives: description, classification, personnel or academic selection, counseling, etc. Any conclusion from intelligence test results should be addressed to the test purposes, taking into consideration their psychometric properties in the context the test was developed or adapted (validity concept is always related with the inferences that are going to be taken from test scores in a given setting). Moreover, academic achievement, job performance, or social success should be predicted by several personal characteristics in interaction with social conditions, as well as all of these factors should be assessed by multiple measurement devices. Therefore the Bell Curve authors are out of line in their attempt to explain success in life, only, by psychometric tests scores.

3. Descriptive data in support of causal relationships

Even a lay person knows that the association of two events does not mean that one of them is caused by the other. All data taken by Herrenstein and Murray in support of their thesis are correlational. They analyze associations between psychometric tests scores and other variables (success outcomes, socioeconomic status, etc.) concluding - without any other support - that intelligence is (the "mother of all wars") the winner of all predictors. None of these predictors can be the true explanatory variable of success in life and this conclusion cannot be supported by any data.

They, for sure, know that descriptive data cannot be taken in an explanatory fashion, but they do. They, for sure, know that in order to test a theory, it is important to design a model, but they do not. They, for sure, know that Path and LISREL analysis are the tools to test theories, but their explanatory inferences have been supported in very naive and inappropriate statistical tests (Chi-square, some times regression analysis). Herrenstein and Murray make the mistake which was identified long time ago by Wallis and Roberts (1956); that is: we can jump into the conclusion that children are brought by a stork because birthrates are associated with stork rate.

4. Cognitive abilities training programs

There are hundred of papers about how intelligence can be taught. Even in the last century authors developed procedures in order to teach intelligence (e.g. Ballesteros, 1899). Since the early sixties, psycho-educational training

programs have been developed around the world, in order to improve cognitive and academic functioning. These programs arise from an environmental or interactional position about intelligence and mental abilities. All of these training programs are based on the assumption that whatever the biological bases of intelligence could be, since a portion of intelligence variance is accounted for external factors, intelligence can be taught. Also, this assumption has support from several research programs, for example: the effects of rear practice in cognitive development (e.g. Scarr, 1992), cohort changes in mental aptitudes (e.g. Schai, 1990), continuing gains IQ scores through time (e.g. Flynn, 1987), among others.

If it is possible to accept that intelligence can be taught, the problem is to know by what procedures, how much, and for how long intelligence can be improved. Preventive stimulatory programs for population at risk (prenatal and perinatal risk conditions), compensatory programs, special education programs, etc., have been implemented even within standard curricula. All of these programs have different characteristics and they have been implemented in different ways. Evaluation research of these programs said that size effects depend upon programs and subjects characteristics but, in average, they yielded mild or moderate positive effects (e.g., Campbell & Ramey, 1994; Darlington, 1986). Also, we can state that, obviously, these positive effects cannot compensate for other strong external influences, such as malnutrition, poverty, child abuse, etc.

These results, for sure, were known by Herrenstein and Murray, not only because they are current scientific literature, but because Herrenstein was one of the developers of "Intelligence Project", a very successful program implemented in Venezuela (from 1980 through 1983) which was evaluated by the UNESCO with excellent results (Fernandez-Ballesteros, 1984). Herrenstein (Herrenstein, Nickerson, de Sanchez, and Swets, 1986) wrote about this program: "standard and special objective test and various subjective tests indicate consistently that the course (the program "Intelligence Project") had sizable beneficial effects on its students. Our results show that cognitive skills can be enhanced by direct instruction" (pp. 1279 and 1289). How could Herrenstein and Murray state that sociopolitical decisions supporting training programs to improve intelligence have been a failure? Is this a malicious or a cynical statement?

In conclusion, from an ethical point of view, Herrenstein and Murray promote false ideas about intelligence. The descriptive data are correct, their interpretations are wrong, and some inference from partial data might be malicious. In other words, Herrenstein and Murray's book has: something true (descriptive data), something wrong (some simplistic inferences), something malicious (misinterpretations), and something (perhaps) harmful (political consequences).

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