ARE THE POOR LESS INTELLIGENT? OR MUCH ADO ABOUT NOTHING

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This article critically examines the relationship between poverty and intelligence. Numerous studies conducted in India and abroad yield ambiguous findings. In addition, the intelligence concept is characterized by various theoretical flaws. Further, the poverty-intelligence issue is reevaluated in the context of the nurture-nature controversy. There is evidence that poor children can do as well as middle class children, but the proviso is that they should have a similar experimental background. All human beings have unlimited intellectual capacities and the real task is to develop these.

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> The first human necessity is education. For all that reason learning is fundamental to social life. Man is born knowing nothing but capable of learning everything. He is subject to what he learns.
>
> Luis A. Machado (1980)

Intelligence is a highly valued (and perhaps, highly misunderstood) psychological attribute in modern society. Terms like intelligent, genius, and idiot are not only part of the psychological science, but are also very much part of everyday language. Unfortunately, the more popular the concept becomes and the more it is scientifically investigated, the more the misunderstanding that prevails about it. Intelligence research has been characterized by many debates (Block & Dwarking, 1976). One such debates concerns itself with the relationship between poverty and intelligence (White, 1982). Researchers report inconsistent findings about this relationship. They also disagree about the explanations of the poverty-intelligence relationship. Some psychologists argue that there is no intelligence difference between poor and nonpoor groups, while others contend that they exist and are caused by differential environments. Another group of researchers proposes that intelligence differences are due to genetic factors. In this article, we shall review literature on the relationship between poverty and intelligence, related issues, and the nurture-nature controversy in the context of the poverty-intelligence relationship.

Review of Literature

In the past three decades, several studies conducted in different countries have documented that conditions of poverty are conducive to the decline of intelligence (Jones, 1954). Baker, Shutz, and Hinze (1961) found that socioeconomic status (SES) was very positively associated with intelligence quotient (IQ). In Britain, Douglas, Ross, and Simpson (1968), using National British Survey data, found that middle class children scored higher on intelligence tests than lower class children. In Turkey, Kagitcibasi (1979), who measured the intelligence of rural and urban children of different socioeconomic backgrounds through a Draw-A-Man Test, found that a low SES group scored lower in comparison to a middle SES group. Moreover,

rural subjects of the most remote village had the lowest scores and urban middle class subjects had the highest.

Pinto (1980-81) compared logico-verbal abilities of 5, 9 and 13 year old children from urban and suburban districts of Rome, on intelligence, vocabulary, Byrne's Progressive Picture Composition, and two Piagetian tests. He found that social class did not affect nonverbal intelligence at three age levels but it affected verbal intelligence. Firkowska-Mankiewicz and Czarkowski (1981) examined intelligence of eleven year old children from Warsaw on the Raven Progressive Matrices (RPM) and the Wechsler Intelligence Scale for Children (WISC). They found that subjects of a high social class had higher IQ scores in comparison to children of a lower class. In Argentina, Sans (1982) compared IQ scores, using WISC, of two SES groups. The results showed that a high SES group outperformed a low SES group. In addition, the difference was more salient in the case of verbal subtests.

In New Zealand, Silva, McGee, Thomas, and Williams (1982) studied five year old children of six socioeconomic groups. They collected information on the children about parents' background, family and housing characteristics, child experiences and activities, Stanford-Binet Intelligence Scale, Reynell Development Language Scale, and MacCarthy Scales of Children's Abilities, physical growth, and health problems. The results revealed that SES did not affect physical growth and health problems. But high SES children scored higher on intellectual ability tests than low SES children.

In Hungary, Eotvos (1983) studied nursery school children on the RPM. He observed that SES positively affected intelligence scores. In a longitudinal study conducted at Guatemala city, Bogin and MacVean (1983) examined children of different SES groups on physical and intellectual development. They found that high SES children scored higher in intelligence tests than middle class children, while middle class children scored higher than their lower class counterparts.

In another study conducted in Britain, Mascie-Taylor(1984) studied the relationship of intelligence with 29 biosocial variables. He found that children of higher social class had higher scores than lower class children. This effect remained even if parental, biological, familial, and social factors were controlled. Chalip and Stigler (1986) examined 1st and 5th graders of lower and higher SES in Taiwan on the RPM and on mathematics achievement. They noted that higher SES subjects outperformed their low SES counterparts in both tests.

Numerous Indian studies have reported mixed findings. Tripathi and Misra (1975) have noted a linear relationship between deprivation and intelligence. Mohanty (1980) observed that socioculturally advantaged children performed better than disadvantaged children on the RPM (Coloured form). Rangari and Palsane (1982) investigated the intelligence of scheduled caste (SO and nonscheduled caste (NSC) male and female students of five SES levels. They found that SC and NSC students of first, second, and fifth SES levels did not differ in their intelligence. It follows that caste difference is more pronounced for the middle class subjects. In contrast, studying the effects of ecological background (better community vs. slum) and poverty levels on IQ scores, Husain and Jehan (1983) found that poverty

did not influence intelligence scores. However, subjects of a better community had higher IQ scores in comparison to slums children.

In another study, Singh and Sinha (1983) investigated the intelligence of Santal and non-Santal students on the Wechsler Adult Intelligence Scale. They found that non-Santal students had higher IQ scores than Santal students. Sinha (1980) tested tribal (Oraons) and non-tribal students on non-verbal intelligence. He found that tribal and non-tribal students did not differ on total intelligence scores and different subscales, i.e., Passalong Test, Block Design Test, and Cube Construction Test. In a study conducted in Orissa, Jachuck (1984) compared disadvantaged and advantaged children on Level I and Level II abilities. She did not find any effects of disadvantage on Level I abilities. However, the advantaged group scored higher on Level II abilities. She explained the findings in terms of environmental factors.

Basvana and Rani (1984) examined the impact of caste and economic deprivation on the Standard Progressive Matrices for junior school boys. The subjects were equally divided in four groups based on caste and economic deprivation. The results revealed that lower caste subjects scored lower on verbal and numerical ability tests as compared to high caste subjects. In a meta-analytical study, White (1982) explored the relationship between SES and academic achievement. He defined the academic achievement in terms of the achievement test, class ranks, grades, and intelligence scores. He found that academic achievement was weakly related with SES. The findings of this study imply a weak relationship between poverty and intelligence.

In summary, the findings reveal that the relationship between poverty and intelligence is inconclusive. The magnitude of correlations varies in different studies. Also, the effect of poverty is more evident in the verbal tests than in non-verbal tests of intelligence.

Critique of Intelligence and Intelligence Tests

Intelligence and intelligence testing have been criticised widely. The two major criticisms are: the lack of validity, and the bias against the disadvantaged community. First, the lack of validity is concerned with two issues. Is there anything like intelligence? If yes, do the IQ tests measure intelligence? Second, if IQ tests measure intelligence, are they fair to different groups?

Many social scientists argue that intelligence is a redundant concept. It says nothing. If somebody does not know some words, is unable to solve some abstract problems or manipulate objects, then he is not cognitively inferior. Barring a few cases when cognitive functioning is disrupted, basic cognitive processes are the same in all human beings. The idea that success in solving abstract problems rapidly reflects high intelligence is an elitist idea to maintain *status quo* in the society.

Ginsberg (1972) is very critical of IQ tests. He argues that they do not measure the intellect. He contends that there are four major myths regarding the intelligence test. These fallacies are: (a) Intelligence tests measure an intelligence which is unitary mental ability, (b) the difference in IQ scores reflects fundamental difference

in intellect, (c) IQ tests measure competence, and (d) they can measure innate intellectual abilities. On the other hand, Ginsberg argues, IQ tests (a) measure multiple abilities, (b) reflect motivational and subcultural differences, (c) measure performance, and (d) indicate experiences.

Another group of theorists argues that even if IQ tests measure a bit of intellectual ability, their validity is doubtful. The criteria against which the intelligence tests are standardized are unsatisfactory. In most cases, school grade and chronological age have been used to validate the intelligence tests. The school grades are not so much related to intelligence as they are related to work habits, home environment, and desire to do better. Regarding chronological age, the higher scores with increasing age reveal greater practice and familiarity. The validity of IQ tests is also plagued by circularity. The elements of intelligence tests are derived from the school related materials and they are, in turn, validated against school performance. The evidence of validity is inferred by high correlations of items with the total scores, which is misleading. Richardson and Bryner (1984) suggest that items which relate closely to the total scores are selected *a priori,* and then they will closely correlate with the total score *a posteriori.* But this does not happen in reality.

Therefore, the validity is a methodological artifact.

The use of intelligence tests turns against the poor because tests are valid and relevant only for the middle class. Montagu (1975) points out that intelligence tests are arbitrarily standardized on the middle class and, therefore, they discriminate against the lower classes. The content of IQ tests is unfamiliar, strange, and irrelevant to low SES children. The intelligence tests are such that the majority of the poor will score lower in them. As IQ tests do not reflect the intellect of individuals, its use for testing is conducive to dangerous social consequences. It rejects the intellect of individuals rather than selecting it. Davis (1960) has pointed out that, "Half of the ability of this country (the United States) goes down the drain because of the failure of intelligence tests to measure the real mental ability of children from the lower socio-economic groups and because of the failure of the schools to recognize and to train this ability." In the same fashion, Codd (1985) questions the use of the Test of Scholastic Abilities (TOSCA). TOSCAs are used to distribute population on the basis of mental ability. It is bound to show that some people are intellectually superior than others, which is unethical.

In summary, intelligence testing has been criticized on many grounds. Some social scientists have contended that intelligence is a myth. It is a way to justify inequalities in society. Moreover, intelligence tests are inadequately validated. The IQ tests favour middle class individuals. Lastly, the social consequences of intelligence testing are threatening to the poor.

Nature-nurture controversy in Intelligence Research

The Nature-nurture controversy has important implications for the poverty-intelligence relationship (Schiff & Lewontin, 1986). The nature thesis proposes that intelligence differences across different social classes and racial groups are due to genetic factors; therefore, there is bleak hope of boosting intelligence. On the

other hand, the nurture thesis holds that the poor have less intelligence due to impoverished environment; thus, intelligence can be boosted by enriching environment. In the following section, we shall critically examine the genetic perspective with special reference to the poverty-intelligence issue.

The Genetic Theory of Intelligence and its Critique

The roots of genetic theory of intelligence can be found in the philosophical work of Herbert Spencer, the bio-physiological approach of Francis Galton, and the psychological studies of Cyril Burt. Jensen is a modern proponent of the genetic theory of intelligence. Jensen (1981) states that there is a general factor of intelligence which is abstract, universal, and unaffected by Socio-cultural factors. Some intelligence tests, particularly non-verbal ones, can measure the general factor. The intelligence is determined by polygenetic inheritance. According to him, although factors like associative mating, dominance and inbreeding, epistasis, and genotypes-environment interaction contaminate the effect of heredity on intelligence, they have little actual effect. Jensen (1969) proposes that there are two intellectual abilities: Level I and Level II. Level I abilities refer to associate type learning, while Level II abilities are complex intellectual processes. The former are registration, storage, and recall while the latter are transfer, generalization, abstraction, conceptualization, reasoning, and problem solving. Both abilities are inheritable. He advances the hypothesis that the intelligence of the blacks is inferior to that the white counterparts in the United States. In addition, there are social class differences in intelligence which are also inheritable.

Critics of the genetic theory of intelligence have questioned this position on several theoretical, conceptual, methodological, and statistical grounds. For example, Kamin (1974) has re-examined the original genetic research on intelligence conducted by Cyril Burt in England. He notes a variety of methodological and statistical flaws. He concludes that there is no substantial evidence to show that intelligence is inheritable. We shall critically focus here on some of the issues which question the validity of the genetic theory.

Role of situational factors: Situational factors, such as testee's motivation, prior testing experience, test anxiety, test administrator's language, race, and social class, substantially affect test scores. The test items have little significance for poor children. Therefore, they are not motivated to perform well in the test. There is evidence to suggest that test difference between a lower and a higher SES group disappears when the test situation is made less threatening to the former. In a recent study, Miller and Eller (1985) have examined the effects of money and praise rewards on the intelligence of middle school black-white and lower-middle class subjects. They found that lower class blacks showed an increase in intelligence scores when motivated by the condition of monetary reward, while middle class whites scored higher in the praise reward condition. The sequencing of money first and praise second was conducive to higher IQ scores in lower and middle class white females and middle class males. Overall, the findings showed that motivation of the testees significantly contributes to increasing the intelligence scores.

Conception of environment: The genetic theorists conceptualize environment narrowly and heredity broadly. Sometimes, they equate socioeconomic status and

home with the environment. Thus, heredity is everything except social class and home conditions. The genetic theorists bypass the cultural, historical, and inter-generational aspects of environment. The rich and poor have different histories of experiences. The cultural dimension of environment helps one to understand that different cultural groups value different elements of intelligence, and they may score low on those elements of intelligence which are not valued in a given culture. Lastly, the intergenerational aspect refers to the phenomenon that social conditions of the parents set limits for the intellectual achievement of a child. There exists social inheritance besides genetic inheritance.

Culture, environment and intelligence: Cross-cultural psychologists point out that the intelligence tests, conceptualized and developed in the Western cultures, cannot be used in the other cultures. The people of one culture should be judged intelligent on the elements that they consider to be intelligence and not on what Westerners think. Berry (1976) observes that people of a culture develop specific abilities to adapt to their environment, and if they are successful in their environment, they are intelligent. Cultural groups differ in their meaning systems, and they value different aspects of cognitive skills, and they are exposed to differences in technologies, social systems, the physical world, and ways of living. Accordingly, they emphasize different facets of the cognitive processes. The scores, thus, show qualitative differences rather than quantitative deficits.

Different interpretation of H^2: The genetic theorists argue that heritability quotient, H^2, reflects the contribution of heredity for the trait in question. H^2 is a main statistical tool to show the importance of heredity. But it is a weak statistical tool. Fisher (1951) called it an "unfortunate shortcut". It does not reveal the relative contribution of nature as the genetic theorists claim. H^2 is also methodological artifact because it is higher when environment is homogenous and lower when the environment is heterogenous. The genetic studies often select a homogenous environment and, in turn, obtain higher H^2.

Another issue concerns the different H^2 for different elements of intelligence and socially desirable and socially neutral attributes. The socially desirable and cultural specific attributes reveal more heritabilities. Gottesman (1966) found higher heritability for dominance (.49) and sociability (.49) than for flexibility (.15) and self-control (.27). He also observed differential H^2s for verbal (.52) and non-verbal (.25) tests of intelligence. Bronfenbrenner (1975) noted that H^2 is the lowest for the lower class and the highest for the middle and upper classes. Thus, H^2 reveals something more that heredity. He suggests that H^2 is, "an index of the capacity of a given environment to evoke and nurture the development of that ability or trait" (Bronfenbrenner, 1975: 140).

Relative contribution of environment and heredity: The genetic theorists propose that heredity contributes to 70 to 80 per cent of variance in intelligence. It is impossible to fix figures for the relative contributions of heredity and environ-ment, for they are correlated. Although heredity is determined at birth, it unfolds itself only through a complex transaction with the environmental factors. As we have discussed earlier, H^2 is not just a measure of inheritance, it also represents environmental facilitation to develop potential abilities.

Besides the criticisms of the genetic theory outlined earlier in the paper, several other arguments are advanced against this position. Some theorists propose that heritability does not mean that intelligence is not malleable. They propose that in a better environment, phonotype may change drastically. Other theorists contend that it is necessary to distinguish between broad and narrow heritabilities. They contend that broad heritability, which is often used in genetic studies, reveals little about the contribution of heredity. Finally, many social scientists criticize the pessimistic tone and the racism of the genetic theory.

To summarize, the genetic theory of intelligence has been questioned on several grounds. Firstly, genetic theorists ignore the situational factors. Secondly, the environment is very narrowly conceptualized in the genetic studies. Thirdly, heritability reflects much more than the relative contribution of genetic factors. It represents the capacity of a given environment to stimulate and nurture the trait. Lastly, it is impossible to arrive at exact figures for the relative contributions of environment and heredity.

CONCLUSIONS

How does poverty affect intelligence? We began by this question and examined numerous studies conducted in India and abroad. On the basis of a close perusal of literature, we conclude that the findings in this area are inconclusive, ambiguous, and non-supportive. Further, the concept of intelligence is polemical. Different theorists define intelligence in different ways. Several researchers define intelligence in terms of how they measure it. Thus, intelligence is what intelligence tests measure. Evans and Waites (1981) have pointed out that, "operational definitions of intelligence are unsatisfactory because scientific measurement must be embedded within scientific theories" (p. 118). On the contrary, measurement leads to conceptual development in intelligence research.

Cross-cultural research has documented that the concept of intelligence varies from culture to culture and from one subculture to another. The non-western cultures emphasize more social elements in defining intelligence. Because values and conceptions of intelligence vary qualitatively across cultures and subcultures, differences in IQ scores show qualitative differences and not quantitative deficits. There is no culture fair test because, to be culture fair, the test requires that people of different cultures should score equally in it. However, no test has ever shown this quality.

One should distinguish between statistical and meaningful differences in order to understand the intelligence gap between poor and non-poor persons. A statistical difference is not necessarily a meaningful difference. Sometimes, interpreting statistical difference as meaningful difference may be a great fallacy. A closer scrutiny of lower and middle class children shows that they exhibit equal verbal, reasoning, and problem solving skills in their respective environments. The problem arises when the lower class children are tested on middle class norms. If poor children have a middle class environment, they will show similar skills. Thus, even if intelligence is determined by genetic factors, there are chances of great improvement. A difference of 10 to 15 points on an intelligence test does not show a fundamental difference in competence. It is more important to maximize potential and put it into

performance for better results than to statistically demonstrate surface differences. Our contention is that all human beings have incredible capacities, and we need to understand them, maximize them, and use them.

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