

## HIGH AND LOW SES (SOCIO ECONOMIC STATUS) GROUPS ACROSS LEVEL-I/II

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The present study dealt with the distribution of level-I and level-II across different SES groups. Jensen postulated that level-I is fairly and evenly distributed across different populations but level-II is distributed about a higher mean among high SES groups i.e., low and high SES groups differ on level-II. Statistical analysis of the data obtained revealed that the two groups differed significantly on level-II but not on level-I.

Jensen (1968, 70) postulated the notion of two-level theory of mental abilities to account for differences in cognitive task performances. He argued for a basic psychological distinction between two levels of mental abilities referred to as Level-I and Level-II. Level-I abilities involve simple registration and Storage of stimuli and later recall of the same with higher degree of fidelity. Measures of Level-I are digit-span, paired- associates, serial learning, free-recall, and trial & error selective learning. Level-II is a conceptual ability wherein original stimulus information for Learning is transformed and elaborated before response can be made. It involves mental manipulation of sensory inputs, generalization, abstraction, reasoning, conceptualization and relating to stored memories.

The level-II is like abilities underlying complex intellectual behavior. It is much like Spearman's 'g' factor. Individual differences in level-II can be measured by standard tests of general intelligence that have a high loading on 'G' and especially those of non-verbal and culture-fair variety.

The essential distinction between level-I and II doesn't involve difficulty of the task but the complexity of the task's cognitive demands. The two levels would also correspond closely to their arrangement along the continuum of test of 'g' loading.

Jensen argues that Level-I abilities appear to be fairly and evenly distributed throughout the all SES groups, whereas Level-II abilities are distributed about a higher mean in middle or high SES groups. That is social classes do not differ, in level-I ability but differ on Level-II ability and that Level-II is positively correlated with socio-economic status. Jensen further hypothesizes that movement from low to high SES within an open society is mainly determined by Level-II than Level-I. It is because Level-II ability is highly correlated with scholastic achievement in the prevailing education system in the society, which puts greater premium on the use of Level-II ability. The regression of level-I upon level-II ability is greater in upper and middle socio-economic status population. This also supports the idea of SES differences in level-II and also the hypothesis that correlation between level-I and level-II is greater in upper and middle socio-economic status populations than in low socio-economic populations (Jensen, 1968, 70, 74). Jensen (1970a) observed that, children with quite low IQ's had average or even superior scores on the Level-I tests, while children poor on the level-I tests never had high IQ i.e., Level-II.

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Jensen's position on the differences on the degree of relationship between level-I and level-II in different populations is also based on a genetic model. The two-level theory holds the view that two abilities have a distinct genetic basis, as well as being functionally interrelated in a hierarchical manner such that, level-II ability has some degree of dependency upon level-I and not vice-versa. Jensen further said that level-I and level-II are hypothesized to be controlled by two different polygenic systems, which may phenotypically appear to be correlated, or relatively uncorrelated depending on a particular group's selection for the trait and degree of assortative mating involved in the trait.

### **Main Objectives of the Study**

To compare low and high SES groups on a variety of mental ability measures

### **Hypothesis**

Low and high SES groups differ in level-II factors.

Low and high SES groups do not differ on level-I ability

### **Methodology**

A sample of 324 subjects, comprising students of IXth and XIIth grades, was taken to fulfill the purpose of the present study. Sample was collected through the procedure of cluster sampling. Sample was drawn from nine schools of three districts of Haryana. The age of the subjects ranged between 14 and 18 years. The subjects were categorized into two groups of low and high SES on the basis of their scores on socio-economic status scale. The subjects scoring below median were put in low SES group and those scoring above median in the high SES group. There were 155 subjects in the low SES group and 169 in the high SES

### **Tests Used**

Following tests were useful for the present study—

1. Hundal's General Mental Ability Test (Hindi Version).
2. Cattell's Culture-Fair Intelligence Test.
3. Paired Associates Learning Tasks—abstract and concrete tasks.
4. Digit Span Tests—Forward and Backward Digit Span.
5. Serial Learning Task.
6. Memory for Design Test—the test was taken from Wechsler Memory Scale.
7. Figure Copying Test—Designs were selected from the test developed at Yale's Gessell Institute of Child Study (Illg & Ames, 1964).
8. Socio-Economic Status Scale (urban).

### **Administration and scoring of Tests**

The texts were administered to the subjects in three sessions. Cattell's CFIT, Hundal's GMAT and SESS-U being group tests were administered in the first session with time gap of 5 minutes between each test and as per the procedure of administration as laid down in their respective manual.

All the individual tests were administered in the second session, which included the tests of Paired-Associates Learning and Digit Span.

The tests of Serial Learning, Memory for Designs and Figure Copying were administered in the third session on the next day.

Scoring of subject's responses on all 10 tests (3 group and 7 individual tests) was performed as per the scoring system and procedure described by the respective authors.

### **Statistical Analysis**

The obtained data were subjected to a number of statistical analyses in order to examine the degree of relationship among the measures used in the study. Pearson's product moment correlation was applied. The inter- correlations among the measures were subjected to principal component analysis followed by varimax-rotation. Apart from these Means, SD, Skewness and Kurtosis of test scores were obtained as well.

### **Results**

A careful study of the results clearly reveals that high SES subjects scored significantly high on culture fair tests (CFIT) and general ability test (GMAT) relative to low SES subjects. On CFIT low SES and high SES groups scored 22.08 and 25.74 on the average respectively. The t-ratio of mean differences on CFIT equals to 5.16 which is significant at  $P < .001$  level. Similarly, high SES subjects outscored their low SES counterparts on GMAT. High SES subjects scored

51.11 on this verbal measure of intelligence on the average, whereas low SES subjects obtained a mean score of 44.72. The t-ratio of mean differences on GMAT equals to 5.03 which is significant at  $P < .001$  level. It is, not only, the total scores on these two tests in which low and high SES groups differ significantly, they differ on majority of the individual sub-tests of these measures of level-II. High SES and low SES subjects scored 6.22 and 5.57 respectively on series, a sub- test of CFIT ( $t = 4.09$ ,  $P > .001$ ). Similarly high SES subjects scored higher than low SES on classification. Their respective means are 6.39 and 5.64,  $I = 3.51$  and  $P < .001$ ). However, two of the sub-tests of CFIT, matrices and topology did not

yield SES differences, t-ratios for these sub-tests being 1.48 and 0.41 respectively. Interestingly enough high SES subjects scored significantly higher on all the sub-tests of GMAT but one.

Mean scores of high SES and low SES subjects on number series of GMAT are 6.65 and 5.53 respectively ( $t = 3.08$ ,  $P < .001$ ); on analogies 11.22 and 8.93 ( $t = 3.52$ ,  $P < .001$ ); on classification 8.02 and 7.54 ( $I = 2.75$ ,  $P < .001$ ); on inferences 5.66 and 5.07 ( $t = 2.37$ ,  $P < .05$ ); following direction 6.06 and 5.96 ( $t = 1.29$ , which is not significant); on opposites 6.88 and 5.96 ( $t = 4.55$ ,  $P < .001$ ); and on synonyms 7.22 and 6.12 ( $t = 5.22$ ,  $P < .001$ ). These results of significant differences on culture fair and verbal measures of intelligence, both representing level-II, substantiate Jensen's hypothesis of SES differences in level-II abilities in favor of high SES groups.

The analysis for significance of mean differences has also yielded significant SES differences on the measures of memory for designs (MD) and figure copying (FC). In general, high SES subjects obtained score of 9.79 on MD where as low SES subjects scored 9.32 on this test on average. The t-ratio of mean differences equals to 2.19 which is significant at  $P < .05$ . Similarly on figure copying (FC) also high SES subjects scored significantly higher (mean = 5.03) than low SES subjects (mean = 4.86). The t-ratio of mean differences is 2.02 which is significant on  $P < .05$  level. As was hypothesized, SES groups do not differ on the measure of rote memory /level-I. Forward digit span (FDS) and Serial Learning (SL) both have been considered as fair measures of level-I ability by Jensen. So, it is a point of interest to compare low and high SES subjects on these marker measures of level-I ability. On FDS, both low and high SES, have been found to score about the same. Their respective means are 5.82 and 5.89, t-being .77 is non-significant. Similarly on SL, low and high SES subjects scored 6.87 and 7.09 respectively ( $t = 1.32, P < .05$ ). Low and high SES subjects did not differ in their performance on another measure of digit span i.e., BDS. The mean score of low and high SES subjects equal to 4.45 and 4.41 respectively ( $t = .66, P > 0.05$ ). On Paired Associate (concrete) low and high SES subjects scored 5.55 and 5.49 on the average ( $t = -.53, P > .05$ ). On another measure of Paired Associate i.e., abstract words, however, low and high SES subjects differ significantly. It can be noted from these results SES groups do not differ markedly on measures of level-I ability i.e., FDS, SL and PA-C. With these results the hypothesis of more or less equal distribution of level-I ability among SES groups has borne out clearly

## **Discussion**

In accordance with the findings of the previous studies and a prediction from the two-level theory, high and low SES groups differed significantly on the measures of level-II ability. High SES group scored higher than low SES group on both the measures of level-II ability i.e., GMAT and CFIT. However, the exact size of the difference cannot be predicted from the theory precisely because it depends upon the particular populations being studied. The reason for SES differences in level-II ability, according to two-level theory is that social mobility is more dependent upon level-II than upon level-I. This finding of differences in level-II is in agreement with the number of earlier studies (Kaur and Darolia, 1989; MacKanzie, 1981; Singh, 1986)

The hypothesis of no significance difference in level-I ability has also borne out clearly in the present study, the prediction of equal distribution of level-I across different SES groups is based on the fact that social mobility is not related with level-I ability. The present study employed ODS, Paired Associate Task, and Serial Learning Test, which are considered as fair measures of level-I. On all the three measures both high and low SES groups scored about the same. The assertion of no SES differences in level-I ability has been supported by earlier studies other than Jensen (Vernon, 1981). Only few studies failed to support this prediction from two-level theory.

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