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* CHAPTER ONE *
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role. The list of abilities which he presents along with Kettner and Chriteson (1959) includes the ability to see problems, fluency and flexibility of thinking, originality, redefinition and elaboration. Wallach and Kogan (1965) defined creativity as "a bifurcate associational construct in terms of associational fluency and response uniqueness". Accordingly, creativity refers to an individual's ability to produce a large number of unique cognitive associations in both verbal and non-verbal situations. Torrance (1974) described creativity "as a process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies and so on; identifying the difficulty; searching for solutions, making guesses, or formulating hypotheses about the deficiencies; testing and retesting these hypotheses and possibly modifying and retesting them; and finally communicating the results". Creative potential, it appears from the above view-points, is a composite ability having several aspects as well as directions.

Since creative potential belongs to the cognitive domain, the question of the relation between creativity and intelligence has been very pertinently raised, and research is still going on to find out the exact relationship between intelligence and creativity. High IQ, it seems, is a favourable but not a sufficient condition for creative performance. Different studies (Taylor, 1960; Mackinnon, 1961; Ripple and May, 1962; Torrance, 1962; Razik, 1963; Yamamoto, 1964; Guilford and Hoepfner, 1966) reveal that correlations between scores on traditional tests of intelligence and assessments of creative potential vary from $-.07$ to $+.32$.

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Getzels and Jackson (1962) in their well-known study compared two groups of adolescent boys - one group was very high on intelligence but low on creativity measures; the other group was high on creativity but relatively low on intelligence. Results showed that subjects (Ss) of the two groups were equally good in academic attainment, but creative Ss were less popular with their teachers, and also differed on several personality measures. Owing to a positive correlation observed between intelligence and creativity, the investigators contended that "certain amount of intelligence is required for creativity but that intelligence and creativity are by no means the same". The conclusions of Getzels and Jackson have been, however, called in question by Burt (1962), De Mille & Merrifield (1962) and Marsh (1964).

A study* conducted by the present investigator with 50 undergraduate students produced a correlation of 0.21 between intelligence (Otis Self-Administering Tests of Mental Ability) and creativity (Torrance Tests of Creative Thinking, Verbal, Form A). The coefficient, however, was not significant at .05 level. Some other authors (Taylor, 1964; Vernon, 1964; Yamamoto, 1965) suggested, like Getzels and Jackson (1962), that creativity and intelligence might be independent only after some critical IQ level. Torrance (1962) appears to be more categorical in this respect, and holds that creativity and intelligence become independent of each other only above an IQ level

* This study was undertaken in order to ensure that the test of creativity was not measuring intelligence in a disguised form. Notwithstanding the small size of the sample used and the nature of the test employed, it was noted with satisfaction that the result of this study was in tune with the general trend of findings in this area of research.

of about 120. Results of these studies lead one to believe that there is no linear relationship between intelligence and creativity, and that all intelligent persons are not necessarily creative.

The existing disagreement regarding the precise relationship between intelligence and creativity, does not, however, preclude the assumption, as Thomson points out (1971), that 'creative thinking is conditioned by many hundred factors'. For the creative mind to work, proper training and assistance are necessary. The creative individual must receive 'stimulation and assistance' in order to develop his potentialities to the fullest extent and to translate them into action.

It may, therefore, be surmised that potentially creative persons, when placed in an adverse socio-economic (SE) setting may not show the full fledgling of their creative abilities owing to lack of nurturing, motivation and interest; they may even differ on many personality characteristics from their opposite numbers who are placed in a more favourable social situation. If the above surmise is correct, efforts should be made to remove, as far as possible, all the barriers that prevent the full development of a creative mind so that society may not lose the valuable contribution of the potentially creative persons.

Statement and Delimitation of the Problem

The present study is an attempt to compare several non-cognitive characteristics of creative college students belonging to the high and the low socio-economic groups. Stated otherwise, the

objective of the study was to examine whether and how far the discrepancy in socio-economic status (SES) contributed to differences in certain non-cognitive characteristics among highly creative college students. The importance of the study lies in examining whether equally creative individuals, because of SE differences, may develop certain adverse characteristics that may prevent the full manifestation of their creative potentiality.

For the purpose of the present investigation, the term 'creative students' was used to denote those Ss who obtained high scores on the Verbal Form A of Torrance Tests of Creative Thinking. The non-cognitive characteristics considered in this study were altogether forty-five in number and were selected from the following five areas :

- i) interest
- ii) achievement-motivation
- iii) value-systems
- iv) adjustment
- v) temperamental traits

The sample of Ss included both boys and girls, and was drawn from the Humanities, Science and Engineering students of eight undergraduate colleges of Calcutta, Kharagpur and Midnapur (all located in the State of West Bengal).

Since the independent variable (SES) was of type - S (Diamato, 1970), there was no scope for direct manipulation of this variable, and the investigation was evidently ex post facto in nature. A separate groups design (with the subject-related relevant variables

controlled by matching) was followed.

The assumptions regarding the group differences presented in the form of null hypotheses were as follows :

1. On each of the variables selected, there is no difference between the creative boys belonging to the high and the low socio-economic strata.

2. On each of the variables selected, there is no difference between the creative girls belonging to the high and the low socio-economic strata.

For testing the null hypotheses as stated under 1 and 2, 't' tests were applied. Since sex was held constant, the hypotheses were tested separately for boys and girls. The age and educational level of the Ss under the two sex groups were controlled, as mentioned earlier, by matching. Consequently, only one independent variable (varied in two ways - HSES and LSES) was considered throughout the investigation. Since there were 45 variables and 2 sex groups, the number of null hypotheses proposed to be tested was ninety (45×2).

To make the comparison more comprehensive it was decided that for the two groups, inter-variable distances within each broad area would be compared by the generalised distance formula as suggested by Osgood and others (1957). While the earlier tests of the null hypotheses were supposed to reveal the similarity or difference between the ~~two~~ groups on each of the forty five variables in a discrete way, application of the distance formula was supposed to

HSES = High Socio-economic Status
LSES = Low Socio-economic Status

provide useful information for comparing the two groups in terms of inter-variable difference patterns (or profiles) worked out separately for each of the five broad non-cognitive areas.

The hypotheses set up for the purpose were :

(a) The profiles resulting from the sum of possible distances between the ten areas of interest will not be different for the creative students belonging to the two socio-economic groups.

(b) The profile resulting from the sum of all possible distances between the nine areas of achievement-motivation will not be different for the creative students belonging to the two socio-economic groups.

(c) The profile resulting from the sum of all possible distances between the six value areas will not be different for the creative students belonging to the two socio-economic groups.

(d) The profile resulting from the sum of all possible distances between the four areas of adjustment will not be different for the creative students belonging to the two socio-economic groups.

(e) The profile resulting from the sum of all possible distances between the sixteen temperamental factors will not be different for the creative students belonging to the two socio-economic groups.

To test the statistical significance of the differences between the profiles (or patterns) obtained for the two groups in

five broad areas, a non-parametric test (Mann-Whitney U-Test) was proposed to be employed in all the five cases (Osgood et al., 1957).

Scope of the Work

(1) The present study, unlike its predecessors, has been carried out on a wider canvas, and the number of non-cognitive variables included here is sufficiently large. So, a definite association between the SE status discrepancy among creative students and some of their non-cognitive characteristics is likely to emerge from the present study.

(2) Unlike the previous studies, the present investigation has tried to control some important relevant variables (like sex, age and educational level of the Ss). Consequently, the results obtained in this study are expected to be sufficiently dependable.

(3) Since this study is based on creative students dichotomised on the basis of socio-economic status, any difference observed between the groups may be supposed to have significant social implications.

To be elaborate, if the results of the present study indicate that socio-economically disadvantaged students acquire 'certain' undesirable characteristics that come in the way of development and actualization of their creative potentialities, efforts should be made to help them to attain their ability to the full extent and to utilize their potentialities as far as possible. Both the individuals and the society are likely to benefit from such an approach.

(4) In this study the selection of non-cognitive variables has a rational basis. Therefore, it may be said to be an improvement upon the earlier investigations where selection of variables was hardly systematic.

(5) As far as the present investigator is informed, this kind of study in India has not been done before. Consequently, this investigation has a special significance for researchers of this country.

Limitation of the Work

(1) In this study the high scores on the tests of creativity were identified as creative individuals. Use of a critical score for identifying the creative Ss would have been a better approach. But this kind of score for the Indian population was not available. Nor were there any Indian norms for interpreting the raw scores on the test of creativity. These factors served as the constraints under which the investigation had to be carried out.

(2) Ss belonging to different academic courses were not treated separately. So, any possible interaction between the course of study and the independent variable remained uncontrolled.

(3) For measuring some of the psychological characteristics foreign tests (in English language) in their original forms were administered. This was done owing to the absence of indigenous tests for the measurement of these variables. Adaptation and standardization of the tests in the mother tongue of the Ss being a very time-consuming and laborious job was deliberately avoided. So, the influence of cultural differences, if any, on the test performance of the Ss had to be left uncontrolled under this restricting condition.