CHAPTER V

DISCUSSION OF RESULTS

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SECTION - I:

(1) **Bell's Adjustment Inventory**

Bell's Adjustment Inventory provides information about five areas of adjustment as viewed and understood by the subjects. The environmental demands might be quite stressful as evidenced in general in case of neurotics. Roe (1953), Weisberg and Springer (1961) suggested that home and social conditions influenced creativity.

On Bell's Adjustment Inventory the creative subjects were found to be having "good", home, health, and occupational adjustment; and also as having "average" adjustment on emotional and social areas. On home front, they were found to live up to the expectations of others at home, like parents and brothers with whom they exchanged views and opinions without fear or hesitation (Table -I).

With regard to health they appeared to be free from ailments and preoccupations with their body or health problems. It could also be speculated that better mental health seemed to promote healthy body.

Their adjustment with regard to emotions tended to be average. This indicated that they did not suffer from extreme negative feelings about self nor feelings
of either depression or inferiority and also at the same time free from volatile expressions of anger and inadequate feelings of sex.

They also showed "average" social adjustment which meant they were moderately confident in social situations, when they could speak before groups, without being unduly shy or self-conscious.

The neurotic group showed "good" to "average" home adjustment, "unsatisfactory" health and emotional adjustment. Social adjustment also tended to range from "unsatisfactory" to "average".

A consideration of the range of scores on the five scales of adjustment revealed the creative subjects as having "good" home, health, and occupational adjustment, and "average" adjustment in emotional and social areas. This pattern of adjustment was found to be similar to the normal group of subjects to some extent. However, the creative subjects were better adjusted than the normals. An examination of the total scores, as also represented in Table I, indicated that both the creative and normal subjects having average adjustment. But within the average range i.e., between 24-44, the creatives were comparatively better adjusted (score of 28.4) than normals (score of 38.0). The neurotic group tended to be unsatisfactory in their adjustment. (score of 53.9).
Terman (1947) reported that the creatives showed an all-round adjustment, and he also equated this with one's intellectual capacity. He found in his study of the gifted group that success was associated with emotional stability and adjustment. Taylor and Baroon (1963) also found the creatives to be emotionally stable.

Sinha and Sharma (1978) studied creativity and adjustment on a sample of 100 students using creativity tests and Bell's Adjustment Inventory. They found significant relationship between creativity and adjustment in 'home', 'health', and 'emotional' dimensions.

In summary, the creative subjects were found to be better adjusted, so also were the normal subjects. However, the creatives tended towards superior adjustment in comparison with normal subjects. Previous studies have also reported creatives to be having better adjustment.

(ii) Delusions Symptoms States Inventory

Delusions Symptoms States Inventory has been found to be a useful tool in "screening out the psychiatrically disturbed in the general population", and also in evaluating the efficacy of treatments. (Goldberg, 1972; Kapur, Kapur and Carstairs, 1974; Wing, Cooper, and Sartorius, 1974; Gilleard, 1983).

As represented in Tables II (a) and (b), the creative
artists showed indications of anxiety, but comparatively less than neurotics. The normals subjects appeared to be completely free from anxiety.

The same trend was observed with regard to depression also as indicated in Tables II (c) and (d).

Therefore the creative subjects happened to have some degree of anxiety and depression, though less than the neurotics, and slightly more than the normals.

Kubie (1958) was of the view that the preconscious played an important role in all creative activity, and at the same time concluded that neurosis corrupted, distorted, and blocked creativity. Terman's observation could be cited in this context when he noted Lange-Eichbaum emphasizing inner conflicts and tensions as stimulants to great achievement. He believed that without such irritants no one ever put forth the maximum effort. A happily adjusted individual to his "environment and never stirred to action by opposition or frustration" might be "foredoomed to obscurity". (Terman, 1947).

Maslow (1954) noted that the creatives too experience deep sadness like Lincoln who was one of his subjects, and they were "not supermen" to be free from sadness.
Alro, with regard to the presence of mild anxiety and depression in the creative subjects, the remarks made by Wallach and Kogan appear very apt: "Traditional conceptions of mental health place considerable emphasis upon anxiety as a debilitator of cognitive performance and as a signal of inappropriate or ineffective adjustment. This no doubt is true when anxiety reaches quite high levels". Also, they went further by saying "creativity need not be all sweetness and light, therefore, but may well involve a tolerance for an understanding of sadness and pain". (Wallach and Kogan, 1965).

Netsch (1980) subscribed to the similar view in his saying that "...... without conflict, opportunity, and threshold, again creativity starves".

Winnicot (1974) in his discussions on the importance of play in therapy and creativity, wrote that "we are poor indeed if we are only sane".

Jayaswal (1977) studied creativity in relation to anxiety on a sample of 504 teacher trainees, and found that anxiety was negatively correlated with creativity. The trainees were drawn from all the teacher training institutions.

Lidhoo and Zargar (1980) in their study of creativity
and degree of neuroticism on a sample of 150 undergraduate students reported that high level of neuroticism was negatively related with creativity, and low level of neuroticism was positively and significantly related to creativity.

Olson and Bruce Arthur (1981) viewed anxiety and disturbance as a part of creativity. They meant that a shift from the imaginative or psychological realm on to a concrete, physical dimension involved an intense groping, struggle, and perseverance which ultimately resulted in the release and resolution of tension giving rise to creativity.

Status of mental health as such the creative group exhibited minimal disturbance in the form of anxiety and depression. In the control group, the neurotics showed significantly higher levels of anxiety and depression, while the normals revealed neither.

The results of the present study, along with the observations of Wallach and Kogan with regard to creativity and mental health, and the studies reported—all indicated that creativity might function better in the presence of low levels of anxiety, and that creativity might be hampered at higher levels of anxiety.
PERFORMANCE ON TESTS OF PERSONALITY

a) **Objective Test**: 16 P.F. Questionnaire

Sixteen Personality Factor Questionnaire (Cattell, 1965) has been used by several investigators to find out whether creative individuals possessed a cluster of personality traits that might be differentiated from others. (Drevdahl, 1964; Cross et al, 1967; Pearce, 1968; White, 1968; Bhargava, 1979; Goyal, 1975; Pandey, 1980; Didar Singh, 1981 and Joshi, 1982).

In the present study, as represented in Table III, significant differences were noticed on six factors among the groups—the creative group, and the control groups consisting of neurotics and normals. Though the scores on most of the traits for the groups were within the average range, certain relative differences were evident.

The creative group was characterized by G (Expeditious-Conscientious), H (Shy-venturesome), I (Tough minded-tender minded), L (Trustful-suspicious), Q₂ (Group-dependent-self-sufficient) and Q₄ (relaxed-tense) traits.

In other words the creatives were found to be relatively conscientious, persevering, moderately shy, tough-minded, self-sufficient, and relaxed.
Drevdahl (1956) found significant differences between students of high and low creativity. Those with high creativity were found to be reserved, self-sufficient, sober, serious, and radical.

Cross, Cattell, and Butcher (1967) reported that differences existed between artists and scientists. Artists were more imaginative (high $M$); more emotionally sensitive (high $L$); tense and frustrated (high $Q_4$). It looked as if the artists were more immature and unstable but it was mainly due to high 'I' factor (tender-minded). The scientists were found to be 'tempered by a host of brutally unsympathetic and unexorable facts', for their theory had to be always in some sense practical. Whereas for an artist, no such physical or factual restrictions existed.

In contrast to the artists, Cattell (1965) noted that among such occupation holders as pilots and firemen, the scores were generally high bringing to the fore the adventurous and motivational tasks. On the other hand people like clerks working in scored low indicating the dull and artless nature of their jobs.

Drevdahl (1956) reported that low scores on 'H' (shy restrained); and 'A' (reserved, detached) were found in artists. It was also thought to be hereditarily determined. Alcoholics, addicts, and delinquents were seen scoring low on 'C' (ego-strength) factor.
White (1960) examined the relationship between anxiety, extraversion-introversion, and divergent thinking ability on a sample of university students. The study differentiated the personality correlates of creative behaviour as determined by known groups of creative individuals as opposed to creative individuals identified by divergent thinking tests. He found the extraverts as defined by Cattell's 16 P.F., to have high scores on divergent test measures of flexibility, fluency, and originality than the introverts. The neurotic and stable personalities also showed a similar relationship.

In a study conducted by Mallappa and Upadhyaya (1977) PUC students were divided into high and low creatives. The highly creative students were described to be 'not extravertive', 'possessing a high intellectual capacity', 'low in ego-strength', and 'emotionally stable'. The high and low groups differed significantly on 'B' (intelligence); H (shy-venturesome); Q₃ (group dependency-self-sufficiency); and Q₄ (relaxed - tense) factors.

Eiduson (1957) found the creative artists to be more imaginative and capable of relaxing without any personality disorganization in the face of threats.

Patel's (1977) study of highly creative students indicated them to be venturesome (H), placid and
self-confident (0): and emotionally stable (C). The
low creatives were shy.

In summary, several of the above researches pointed
to a certain extent the following traits in the creative
individuals; such as being 'reserved', 'shy',
'imagination', 'intelligent', 'emotionally stable',
and possessing good 'ego-strength'. However, there are
also a few studies which failed to replicate the
findings as the creatives showed more of tension, and
low intelligence. Despite the presence of tension
they were able to counter it because of good ego-strength
(Cattell, 1970). Low scores on B i.e., intelligence by
creatives may be due to the nature of items that formed
the scale. Usually B referred to social intelligence
rather than abstract intelligence, and also one might
be skeptic in assessing so vast an entity like intelli-
gence by a mere eight items of the scale.

b) Projective tests:

i) Rorschach Test:

Klopfer (1956) described creativity in terms of
'personality processes rather than output', with 'a
capacity to integrate archaic impulses, or drives
within the organization of self and conscious values
and to integrate inner experience with external reality
and its demands'. 'Since a fully developed creativity..
represents an ideal to be realized, evaluation concerns itself with questions of more or less closely approxi-
mat ing the ideal rather than with presence or absence of creativity'. (Klopfer, 1954). A consideration of location, determinants, and content would help to understand such a process. Specifically, the following were given more importance to evaluate the creative process - integrated W responses, good quality and number of M responses, Fc and CF responses indicating an orientation towards the emotional environment, shading responses and a good number of original responses. These categories of responses both independently and in combination reflected the creative process in an individual. Discussion of results has been limited to important parameters that were proposed by Klopfer.

1) Reaction Time:

As represented in Table IV (a) the creative group has given relatively more responses than the control groups which is within the average production level. The group has taken an average reaction time of 24.5 seconds per response indicating a hurried nature. There was no significant difference in reaction time between the chromatic and achromatic cards. Percentage of responses to cards VIII, IX, and X for all the groups was more than 30% which suggested a moderate degree of emotional responsiveness.
11) Location:

A consideration of the location of responses as represented in Table IV (b) showed that the creative group preferred a lesser number of D responses, and showed a tendency for more W responses. This suggested a capacity to view things with attention to details and also to view them in the larger context. Greater number of W responses also suggest organizational ability and interest, which might be present in persons of superior intellectual ability. The neurotic group preferred Dd responses which indicated a greater concern with minute details to the extent of being meticulous and obsessional besides having a capacity to view things globally. Space responses were mostly observed in creatives which meant the presence of oppositional tendencies at the intellectual level. Such space responses indicated a tendency to do things differently, to assert oneself competitively, and an ability to use the location 'constructively'. It was also considered as a sign of ego-strength.

iii) Determinants:

**Movement Responses:**

Human movement responses were considered by Klopfer as an essential but not a sufficient condition in the creative process. However, M denoted signs of high intellectual capacity enabling a higher level of
As in Table IV (e) that the creatives had less achromatic colour responses i.e., C' responses, than the control groups. C' responses were believed to be indicators of a withdrawing tendency due to traumatic experiences only in the absence of chromatic responses. The theory behind this category has not been well established.

**Colour Responses:**

FC responses indicate a 'control over emotional impact without loss of responsiveness', in the form of being pleasant, and getting along smoothly with others. Greater number of FC responses suggest more dependence on other people in a socialized manner. FC has also been considered a good sign of adjustment.

Production of CF responses has been considered as indicators of uncontrolled reactivity to environmental impact. However, such responses were found to be having either positive or negative implications. Positively it represented spontaneity of action and emotional expression, and negatively it indicated inadequate control over emotions. Though CF by itself might reflect poor control, can become a healthy sign in the presence of M, FK, and FC responses.

Table IV (e) represented both creative and control groups showing almost equal proportions of FC responses.
thereby both the groups reacting to emotional situations in a like manner. The higher number of CF responses in the creative group as against the control groups, would make the creatives emotionally more sensitive. Added to it, the mean scores for C (C symbolism) are higher for the creative group, which in turn is indicative of an 'intellectual and theoretical flavour to control' intense emotional impact. In case of neurotics it was more of colour description rather than colour symbolism suggesting a difficulty in the control of emotions, though a false but calm exterior was put on by them.

Pine (1962) found that actors produced more primary processes responses significantly with less variance. The percentage of well controlled responses was significantly low. Because of more evidence for primary process, the author concluded that the actors had a weak control over the emotions.

No other reported studies deal with other important determinants such as FK and FC'.

iv) Popular and Original Responses:

Popular responses were accounted to indicate that the person tended to view the world as others did. Table IV (f) represented that the creative group did not differ from the control groups in viewing the world in a conventional way.
Original responses were noted in superior persons which reflected a keen perception. As represented in Table IV (f) the creative group has given more of such responses. Klopfer opined that artists tended to give more original responses.

v) Content:

Content categories were meant to know what was seen and how it was seen. The results indicated that most often seen categories belonged to A and Ad, H and Hd, and objects. The creative group did not show significant differences in the variety of contents excepting on three categories viz., 'anatomy', 'plant' and 'abstractions'. This lack of significant variation on the part of the creatives might indicate that they too depended on the same or similar raw material or source material to give shape to their perceptions. The higher number of original responses of the creative group to the usual content material that was given to other groups as well were mainly attributable to their artistic ingenuity.

Cohen (1961) found greater number of primary process responses in arts students based on ratings by their professors as highly creative. Dudek (1971) found similar results as that of Cohen. There were more primary process responses in Rorschach protocols of successful sculptors, painters, and writers.
other determinants. Therefore an evaluation based on a combination of categories would be more meaningful.

However, the results of Schachtel, Cohen, Dudek, Pine, Hersch, and Raychaudhuri conform with the present findings, though the range of studies reported appear narrow.

The results obtained by Anne Roe were inconclusive, though more M's were related with originality. Dude's findings contradict the present findings in that Dude found the responses of the artists to be bizarre. But the author has not indicated the mental health status of the subjects that were studied.

Lane (1948) administered Rorschach to a subject during hypnosis, and found a marked increase of M responses and also a shift of the experience balance in an introversive direction.

Sarbin (1939) found that the personality structure on Rorschach remained the same during the administration in hypnosis. The change that was observed was more superficial which reflected only in content changes.

In summary, the performance of creative subjects on Rorschach test was evidenced by an average number of responses. Reaction time to responses was quick. They were capable of having lively emotional relationship
with others. The responses also suggested an active and healthy interplay of conscious and unconscious forces with good ego-strength. They had the ability to view their problems objectively and incisively. The quality of responses suggested a keen perception and disposition to do things differently.

11) **Sentence Completion Test**

Sentence completion test being a partly projective test would provide information about the individual and his reactions pertaining to the conscious and unconscious processes. Subjects' responses were examined both for the overt content and the formal aspects. Nystedt, Magnusson, and Aronowitz (1975) reviewed the contribution of Rorschach, TAT, and SCT, and found that these had low levels of convergent validity, each therefore adding different information to the clinician's understanding.

As represented in Table V the creative subjects indicated similar views towards family and sex which meant that their understanding of parents, family unit, women, and heterosexual relationships was similar to that of the neurotic and normal groups. However, the creatives differed from the normals and neurotics in certain respects. They were found to be withdrawing, neither having a desire to interfere with others, nor tolerating others' interference with them. They showed strong and positive self-concept. They indicated self-confidence
in achieving their goals and were optimistic about future.

Self-concept was comparatively low in the normal group than among the creatives. The neurotic subjects revealed negative self-concept and goals in the form of guilt feelings, uncertainties, worry about the past as well as future, and poor interpersonal relationship.

In summary, the creative artists were found to be moderately reserved, self-confident, capable of achieving their goals, and generally optimistic.

**SECTION – II : CREATIVITY AND INTELLIGENCE**

Relationship between creativity and intelligence has been a matter of interest. Guilford (1950) argued that intelligence was not the same as creativity. However, views and findings have been diverse. (Thorndike, 1963; Cicirelli, 1964; Yamamoto, 1965; Perry, 1966; Khire, 1971; Paramesh, 1972; Goyal, 1974; Gakhar, 1977; Srivasthava and Jha, 1977; Gupta, 1979; Sathyanarayana, 1979).

The present investigation examined the relationship between creativity as assessed by Wallach-Kogan tests, and intellectual functioning as assessed by Raven's Progressive Matrices. The coefficients of correlation between intelligence scores; and verbal, nonverbal, and
According to the correlation between intelligence and verbal measures of creativity was .34; between intelligence and total scores of creativity measures it was .39. The results thus showed a positive but low correlation between intelligence and creativity. Refer Table VI(c).

Cicerelli (1964) reported a correlation of 0.30 between Torrance Tests of creativity and California Mental Maturity Test.

Perry (1950) found the correlation of 0.50 between Torrance Tests of creativity and Mental ability Tests.

Raina (1968) reported a positive but not significant correlation between creativity and intelligence in a group of 500 students.

Cakhar (1976) found in his study of creativity-intelligence relationship that the two were only distinguishable but not independent of each other. Instead, a little overlap was observed between the two.

Goyal (1974) reported in his investigations on teachers that "intelligence was the only factor which had consistently been found as the personality correlate of creativity".
Khire (1971) administered Wallach-Kogan Tests of creativity and Raven's Progressive Matrices to 1054 students and reported that poor quality of academic performance was directly related to low intelligence, and high quality with high creativity.

Mehdi (1973) found significant but low correlations between Mehdi's battery of creativity tests and Raven's Progressive Matrices in a rural sample. It was .194 with verbal measures and .181 with non-verbal measures. It was .176 and .139 respectively for the verbal and non-verbal creativity tests and Mohsin's group test of intelligence.

Trivedi (1969) found a low positive correlation between total creativity scores and intelligence.

Patel and Joshi (1978) administered Torrance Tests of creative thinking and Desai-Bhatt group test of intelligence to 1050 high school students. The coefficients of correlation between intelligence and creativity was found to be positive.

The consensus of the studies reported uphold a similar finding of positive relationship between creativity and intelligence with marginal variations. The results of the present study also conformed with the same trend.
turned out to be superior when compared with the control groups. The neurotic and normal groups did not differ much within themselves.

Tables VII (d) and (e) indicated the frequency responses on visual procedures - pattern meanings and line meanings. The results showed that the creative group differed from the control groups significantly. There was no significant difference between the control groups. However, mean scores for the neurotic group were comparatively higher than the normal group which suggested a trend towards better performance.

Tables VII (f), (g) and (h) represented the unique scores for verbal tests, wherein the creative subjects performed significantly better than the control groups. The neurotic and normal subjects were significantly poor as regards unusual or uncommon responses.

Tables VII (i) and (j) also confirmed the superior performance by the creative group on visual tests regarding unique responses. This indicated that the creatives were better able to comprehend meanings from designs both simple and complex. Between the control groups, neurotics showed a trend towards better performance than normals.

The results as a whole favoured clearly the creative group both in terms of frequency and unique responses.
They were found to be more creative both on verbal and visual procedures. However some of the observations made appeared pertinent. Scores on the verbal instruments i.e., instances, alternate uses, and similarities, were found to be progressively getting lowered and this pattern was uniformly noticed for all the three groups. Most number of responses were given for 'instances', comparatively less for 'alternate uses', and it was least for 'similarities' test.

Subjects in all the three groups, irrespective of which group they belonged showed eagerness while going through 'instances' test probably due to the ease with which they could summon the responses. This continued to some extent with regard to 'alternate uses' test also. On coming to 'similarities' test they were certainly not having the same tempo of getting ideas easily, and were quite often coming out with differences rather than similarities, and this part of the test seemed not easy going for all the three groups.

On visual instruments, i.e., pattern meanings and line meanings the creative group tended to give responses more often by way of attributing cognitive aspects, symbolic meanings, and an element of perceiving movement as well. Figure and ground reversal phenomenon was also evident. In the control groups these aspects were considerably lacking.
Design 4 of Line Meanings has been represented by a straight line, and this probably formed the most simple design of all the designs in visual procedures. This design often induced a sigh of relief in most of the subjects while going through the test. But it had a special attraction for many creatives. This card acted almost similar to card 16 of Murray's Thematic Apperception Test which happens to be a blank card.

Jha (1978) in his review of literature remarked that a "large bulk of published literature" however dealt with "theoretical formulations" and also that most of the empirical studies were all "done by the R-Technique". He also observed that in terms of age levels most studies were "confined to children and adolescents". He found that the work of Raychauduri was more "concerned with the study of creativity at the adult level", though more have come up recently. Raychaudhuri was interested in the personality structure of musicians, and he employed projective techniques to study the creatives.

Empirical studies having the creatives as criterion group are lacking. Studies are often made on children taking into consideration the talent aspect, and frequently administered in group form.

Paramesh (1973) employed Wallach and Kogan tests of creativity on a sample of 155 male students to study the
relationship between creativity and achievement. Achievement referred to annual examination marks of the students. Results indicated no significant relationship between the two.

Paramesh and Narayanan (1974) compared vocational interests of high and low creative college students using Wallach and Kogan tests of creativity. Results indicated that high creatives were significantly higher than the low creatives with respect to their interest in linguistic, artistic, and musical areas.

Paramesh and Narayanan (1976) investigated the personality characteristics of high and low creative graduate students. Tests used were those of Wallach and Kogan creativity tests, and Raven's Progressive Matrices. The high creatives were found to be less sociable, experienced difficulty in making friends and less sympathetic.

Sehgal (1978) compared creativity scores of students belonging to private, government, and so called model schools; and also of students belonging to rural and urban backgrounds. Sample size of the study was 42 students. Wallach and Kogan tests of creativity were used. Results indicated that students belonging to model schools were more creative.
Seetharam and Vedenayagam (1979) examined creativity and socio-economic status on a sample of 147 students, using Wallach and Kogan creativity tests. There was no relationship between creativity scores and socio-economic status.

Sinha and Sharma (1978) studied the relationship between creativity and adjustment. Wallach and Kogan tests of creativity and an adapted version of Bell's Adjustment Inventory were used on a sample of 200 students. Results indicated no consistent relationship, though in males creativity was more related to adjustment in the areas of home, health, and emotions.

Asha (1980) investigated the relationship between creativity and academic achievement in secondary school children. Sample size was 800. Scores on Wallach and Kogan Tests of creativity and annual examination marks were compared. Relationship between the two was positive and significant.

Mackinnon (1962) noted that creatives showed a clear preference for complex and asymmetrical figures on Barron-Welsh Art Scale containing 62 abstract line drawings which ranged from simple to complex asymmetrical ones. The more creative a person was, greater was the preference for complex and asymmetrical ones. Also, he claimed perceptual complexity to be significantly
The inventory is not commercially available.

**Demographic and Biographic Variables**

The variables examined were sex, age, family background, leisure-time activities, day-dreaming and visions.

1) **SEX**: Considering the male female ratio of creatives there are no studies excepting the one by Havelock Ellis (1904). He selected 1030 names from the Dictionary of National Biography, on whom 975 were men and 55 women. In the present study also there were more of male than female subjects though the difference was not statistically significant. Osborn (1960) noted that it was "only during the last few minutes of history that women have had a chance to spread their creative wings". He also noted that the psychological differences between sexes were "acquired rather than inborn", and were visibly diminishing as woman passed to a wider life. Terman (1941) also observed that in every woman there was a potential poet, novelist .... but the exclusive devotion to domestic pursuits robbed the arts and sciences that was in them.

Raina (1970) found no significant differences in comparing age and sex among teachers as related to creativity. However, he found females scoring higher than males on "factor of originality".
11) AGE: With regard to age, the results indicated significant differences. Median age for the groups was 35 years, and the age for the creative group was comparatively higher than that of neurotic and normal groups. The topic has been dealt with before under the heading "A note on creative artists with a reference to the question of age" (p. 69). Figures 1, 2, 3, 4, and 5 show the distribution of age and scores on creativity measures. Distribution of creativity scores did not show any relationship with age. The neurotic subjects invariably seek treatment at an early age and this was evident considering the lower age of the neurotic group.

Rothenberg (1983) in his study of psychopathology and creative cognition had a similar age distribution. Median age for his creative subjects was 63 years, for the psychiatric patients it was 23 years, and the third group of students had the median around 19 years.

Rossman (1935), Lehman (1953), and Brozek (1951) cited highest creativity at a comparatively younger age between 30 and 40 years. Studies of Raina (1970), Bhargava (1979), and Akinboye (1982) failed to find a relationship between age and creativity. Also as opposed to this, instances of young prodigies weaken the view if one demarcates the age at any particular level. In the present study the age of the creatives ranged from 26 years to 64 years, and their creativity scores did
v) **LEISURE TIME ACTIVITIES:** All the three groups showed uniform behaviour with regard to 'visiting temples' and 'reading fictions'. As for 'serious reading' and 'listening to music', the creatives and normals showed a common interest. A general indifference to films and indoor as well as outdoor games was shown by creatives and neurotics.

vi) **DAY-DREAMING AND 'VISIONS':** Day-dreaming was found to be more often present in the creative and neurotic groups than the normals. 'Visions' appeared to have a special place in the creatives. The results showed that the experience of visions was almost a monopoly of the creatives. Very little of it was noticed in the neurotic group and completely absent in the normal group. 'Visions', many creatives described as an experience with an 'intense degree of concentration', 'as if taken away from the concrete world', 'with a feeling of floating', and 'a desire to be in that state for long'. (Table IX).

Maslow found that without exception creativity was more prominent in self-actualizers than others. He found them to have 'peak experiences' or 'Oceanic feeling'. It referred to moments of intense excitement and high tension as well. He also found "that persons undergoing peak experiences feel more in harmony with the world, lose their self-awareness or transcend it, feel simultaneously more powerful and also more helpless than
before, and become less conscious of time and space". (Hjelle and Ziegler, 1976).

Gilchrist (1982) in her study of high creatives noted them as having manifest anxiety, and getting absorbed in emotional experiences such as those aroused by art or music. The incidence of getting absorbed in 'unusual states of consciousness such as dissociated or peak experiences' was greater in them.

The creative individuals as a whole were older in age, had aspirations to be artists and more often their parents were creative. Their leisure-time activities were more often similar to those of the normal subjects. They were more inclined to day-dreaming, and the experiencing of 'visions' was their exclusive feature.

**Hypotheses and results:**

The investigation was carried out to find out the type of relationship that exists between creativity and mental health. Suitable tools were employed to assess the performance of the creative group in comparison to two control groups viz., neurotic and normal on several variables. It was hypothesized as indicated in Chapter III, Section 1 that — (1) creativity has a positive relationship with positive mental health, and (2) creativity has negative relationship with mental illhealth. The results indicated that the creative group possessed positive
SECTION V: IMPLICATIONS OF THE PRESENT STUDY

(1) Psychodiagnostic implications:

Considering the projective tests, particularly on Rorschach test the creatives indicated significantly more number of Human Movement responses, Shading and Depth Perception, Colour-Form and Colour Symbolism responses, Space responses, and Original responses. An examination of the different combinations of these responses indicated the following aspects: the presence of Colour Form responses denoting spontaneity of action, Colour Symbolism responses and three-dimensional vista responses denoting an ability to control one's emotions and view the problems objectively, Original responses denoting a unique impression of the individual, along with more of Human Movement responses denoting the individual as bright and having rich imagination. These might be conceived as good indicators of sublimatory activity in the creatives.

On Sentence Completion Test, the creatives were found to be similar to control groups in certain respects, and dissimilar in other respects. Their views were similar to those of control groups regarding the family unit, women, and hetero-sexual relationships. The creatives differed from them as they possessed positive self-concept, self-confidence, a tendency not to interfere with others and also not letting others to interfere with
them, and optimistic about future.

Objective tests of Bell's Adjustment Inventory and Sixteen Personality Factor Questionnaire showed them to be having good day to day adjustment. They were seen as conscientious, moderately shy, persevering, and self-sufficient. Also, they were found to be tough-minded and relaxed at the same time. Often the creatives have been described to possess the opposite characteristics simultaneously. M. C. Mullan (1976) noted similar abilities in the highly creative individual and narrated as "relaxed yet attending", "both mindless and with purposeful awareness", "selfishness disinterested", "detached from tasks he is so intimately involved", and yet his "widely divergent manner of thought" converging "precisely upon his object of interest". In spite of a certain degree of disturbance as found in Delusions Symptoms States Inventory, the creatives were found to have a capacity for good adjustment.

Also they were found to be having a greater capacity for abstract reasoning as indicated by Raven's Progressive Matrices. This was supplemented by significantly more number of 'I' responses on Rorschach suggestive of a creative potential along with Original and Space responses. However, on Sixteen Personality Factor Questionnaire the creatives' score was low on B scale indicating low
intelligence. This was probably due to the fact that this scale measures 'social intelligence' and therefore it is not surprising for the creatives who are moderately shy to score low on this scale. Also, with the help of a limited number of items, it might be a difficult task to assess intelligence which is so vast an entity

ii) **Methodological Implications:**

Methodological procedures also seemed to have a bearing on the type of conclusions one arrived at.

**Sample:** Literature shows that most studies limit themselves to children and students. Age being naturally younger in such studies, creativity studies would be more often tapping the talent aspect rather than creativity manifested.

**Nature of Tests:** Often creativity has been operationally defined as the performance on creativity tests. However, Forteza (1974) noted that an accepted theory of creativity was lacking. Creativity based on test performance would be related to the content and nature of the test such as verbal component, or non-verbal component in the form of visual or auditory stimuli. The length of the test, as well as the extent of appeal or interest the items have on the subject also influence the performance.

**Type of Administration:** Several tests of creativity have
the advantage of being administered in groups. Some could be individually administered, and some investigators may even send the test and obtain information by mail. In all these, the extent of examiner-subject cooperation is bound to vary reflecting test performance.

Richards (1981) in a survey of seven studies reported that only two studies had direct interviews with the subjects and this survey is a good pointer to test differences based on different modes of test administration. Also, tests with time limitation or no time limitation influence one's performance. Time of administration too would be important as creativity may not be present in the form of a stream. Instead, it may show up in sudden, unexpected surges depending on the possible genetic or personality characteristics as well as environmental influences peculiar to the individual. Upholding genetic influences Bernard Malamud declared that "creativity is a complex thing.... Maybe sometime in the future they actually will find the genetic tissue that makes it what it is. I don't want to be around when that happens. I want artistic creativity to remain forever a mystery." (Bill Moyers, 1982).

Scoring and Interpretation: Rigid criteria for scoring are lacking, and different tests have different procedures. These in turn pose difficulties in either
verification or replication of different studies.

**Age and Intelligence:** A majority of the studies are about children, and also one's creative ability is assessed in terms of performance on creativity tests. This results in a cleavage between the concept of creativity as understood by society (manifest creativity) and as measured by tests of creativity.

In the present investigation the creative subjects were already known for their manifest creativity. In spite of their age being older, their scores on creativity tests were superior to that of the control groups whose age was not so advanced. If one accepted the view that age brings down creativity, then the creative subjects might have excelled their own performance when they were younger.

(iii) **Theoretical Implications:**

Attempts to explain creativity have been many. Freud (Anthony Storr 1976) viewed it as an act of sublimation in the presence of neurosis. Kubie (1958) noted it as antithetical to neurosis and suggested it was more due to positive adjustment and mental health. Adler (Raychaudhuri, 1966) felt inferiority feelings propelled an individual to the shores of creativity. In spite of different explanations given by the pioneers of psychoanalytical movement there seems to be a common ground
on which all the views are centred and that being the importance of the unconscious playing a key role in the production of creativity.

However, some of the theories put forth by Osborn (Daniel, 1976) and Maharishi are juxtaposed to the above view as they attached more importance to the conscious aspect as a determining factor. For eg., Osborn believed that creativity was a teachable and learnable art in which a deliberate and conscious striving held a prominent place. Maharishi tried to demonstrate that creativity was facilitated by similar processes. (Aron, 1983). Aron observed that Maharishi's theory seemed to imply that conscious rather than unconscious might be "the most important concept for future theories of creativity". His theory claimed that Transcendental Meditation courses were able to develop the full potential of individuals, including "mastery" of the creative processes.

For Netsch (1980) ego played a central role in creativity. For him ego was "a tyrant and a crutch and a godsend — all not at once". The roles played by the ego would be dependent on the times, and situations.

Attribution of creativity either to unconscious processes, or conscious processes might be only partially correct. A more meaningful understanding of creativity
might be attributed to the involvement of unconscious resources expressed beneficially with the help of conscious processes. Koestler happened to link the seemingly two opposite views of creativity regarding the role played by either conscious or unconscious in his bissociation theory wherein the preconscious was the fertile ground through which creativity germinated. For Jung (1966) creativity was an act brought out by individuals with a strong ego-strength capable of withstanding the unconscious material.

Silvano Arieti (1980) also was of the same view that creativity was due to "a combination of the secondary and primary processes."

Kris (1953) concept of "regression in the service of the ego" also pointed to the same view.

Maslow (Mc Mullan, 1976) described picturesquely that creativity needed not only the flash, the inspiration, the peak experience; it also needed hard work, long training, unrelenting criticism, and perfectionistic standards. In other words, "succeeding upon the spontaneous was the deliberate, ..... succeeding upon daring comes caution, succeeding upon fantasy and imagination comes reality testing." Maslow (1971) observed this transformation of the spontaneous inspiration to the secondary phase of creativity as "plain
John Curtis Gowan (1975) represented succinctly in the following diagram about the relationship between conscious and 'numinous' elements in 3 modes of experience as follows:

<table>
<thead>
<tr>
<th>Prototaxic</th>
<th>Parataxic</th>
<th>Syntaxic</th>
</tr>
</thead>
<tbody>
<tr>
<td>ego absent</td>
<td>(images)</td>
<td>ego present</td>
</tr>
</tbody>
</table>

- Prototaxic: Schizophrenia, Trance, Hypnosis, Proactive drugs, Automatic writing
- Parataxic: Archetypes, Dreams, Ritual, Myth, Art
- Syntaxic: Creativity, Ortho-cognition, Alpha Bio-feedback, Meditation, Peak experiences, Samadhi

In summary, majority of theories seem to recognize the importance of both unconscious and conscious influences in the manifestation of creativity. The present study also has revealed similar findings.

(iv) Critique of the Present Study:

The study was a many pronged approach to examine the relationship between creativity and mental health. Due recognition was given to creativity in its manifest aspect in the present study which many studies have not
done. The criterion group in the present study consisted of creative individuals with manifest creative endowment.

However, it may be highlighted that the creative individuals were directly interviewed for the study. Richards (1981) evaluated seven studies about creativity and psychopathology relationship, and observed that the criterion of creativity was the most common problem. Out of these seven studies, only two studies employed direct subject interviews.

In addition, the creative individuals were further assessed on objective and projective tests of personality, tests of adjustment and also on tests of creativity. Mental health status of creative individuals was examined and only few studies are reported in this regard. The relationship between creativity and intelligence was also examined.

Different tests were employed to shed more light on several facets which might otherwise have been missed if one limited the study to one or two aspects of creativity only, like process, personality, or product. Adherence to any one explanation or theory, no doubt, enhances one's knowledge of creativity; but any theory as a matter of fact tends to be narrow ignoring the possible truths in other theories. Richards (1981) was quite aware of this fact and stated that "research
provided little basis for opting between theories". The task of striking uniformity in the midst of diverse creative persons or the creative process might need multiple explanations or theories as the findings suggested "a rich and complex picture particularly for eminent adults".

Also, their performance was constantly examined in comparison with the two control groups consisting of neurotics and normals to assess their relative standing with respect to the variables considered. A comparative study like this has not often been reported.

LIMITATIONS OF THE PRESENT STUDY

i) The present study was with reference to manifest creativity in artists belonging to fields like music, dance, and literature. The results might have varied if the study was conducted on a homogeneous group like musicians, or writers. In each of these groups the manifestation of creativity on tests, or mental health status may differ.

ii) Larger sample of creatives might have represented the results better.

iii) Multiple variables such as personality, mental health, adjustment, and intelligence were studied in relation to creativity as recommended by Guilford (1971).
However, multiple prediction analysis was not carried out. Considering the sample limitations mentioned above, it was thought that multiple prediction could be attempted at a subsequent phase of this work with more sophisticated methodology.

iv) The study was carried out on the background of different theoretical formulations. But as quoted earlier, one tends to agree with Richards (1981) that "in the past research has provided little basis for opting between theories". The present study concurs with this.

v) Possible familial transmission of personality patterns have not been considered in the study as Shields (1962), and Buss et al., (1973) have noted. This would require a sophisticated methodology by assessing biogenic substrata.

In spite of the above mentioned limitations the study throws light on several important aspects on nature of creativity in relation to mental health and intelligence.