CHAPTER - II

CREATIVITY - A CONCEPTUAL FRAME-WORK

The phenomenon of creativity falls in the domain of behavioural science. A survey of early literature on the subject would reveal differences in the meaning attached to the term. Rodes (1961), defines "creativity as a noun meaning the phenomena in which a person communicates a new-concept which is the product". Baker (1962) defines "Creativity as bringing about notable changes in things, thoughts, social structures through action and thinking which result in a situation not previously known to us". Gollan (1963) points out the denotative versatality of creativity in the following words. "Creativity is a normally distributed trait, an aptitude trait, an intrapsychic process and a style of life." Torrance (1966) defines "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, formulating hypothesis about the deficiency, testing and retesting the hypothesis and possibly modifying and retesting them; and finally communicating the result." Getzel and Jackson (1969) define creative thought as "a goal-directed, easily flexible manipulation of knowledge in a wide variety of novel ways." Guilford (1950) makes a distinction between two types of thinking abilities; Convergent thinking and Divergent thinking as a kind of mental process that leads away from
the beaten track, in search of new things. Convergent thinking is related with the old, accepted and conventional type of concepts. Guilford explains the primary traits which are related with divergent thinking as sensitivity to problem, flexibility of thinking, fluency of thinking, originality, redefinition and elaboration. Rodes (1961) has attempted to condense the definition into person, process, press and product as embodiment of idea. Hallman (1963) states five major components of definitions of creativity as the act, the object, the process, the person and the environment. Kneller (1965) states that -

1. Creativity through the approaches of person may be considered in terms of physiology, temperament, personal attitudes, habits and values of person who creates.

2. It may be explained by way of mental process, involving motivation, perception, learning, thinking and communicating the way, the act of creativity fall into play.

3. Press implies understanding of creativity by focusing attention on environment and cultural influences.

4. Product creativity include elements such as theories, inventions, paintings, carvings and poems, etc.

Torrance (1965) classified creativity in the following steps:-

(a) Newness as criteria

(b) Creativity versus conformity
(c) Creativity as a process.
(d) Creativity through the approaches of mental abilities
(e) Level of creativity
(f) Approaches through studies of creative persons.

Guilford (1950) Maryfield (1960) Getzels & Jackson (1962) proposed that creativity is a distinct aspect of intellectual functioning which is practically independent of conventional intelligence. According to Guilford (1950) the distinction between creativity and conventional intelligence lies in the fact that creativity implies the capacity to invent and reproduce the learnt material. The internal dynamism of society is inspired by creative persons. Creativity has enabled the society to preserve the results of man's constructive endeavour and to achieve social changes without disrupting social cohesiveness. According to Getzels, Jackson and Torrance (1962) creative ability contributes significantly to the acquisition of the educational skills and information. According to Getzels, Jackson, Flesher (1963) and Torrance (1962), it may be possible to guide the growth of creative thinking among children of different I.Q's and not only among the upper twenty percent.

CREATIVE DEVELOPMENT:

The first research to probe "imagination" was done by Kirkpatric (1900), using ink-spots, who found that children in the first three grades were more imaginative than those
in the fourth, fifth and sixth grade. Colvin and Meyer (1906) evaluated the creative imagination on the strength of written composition and observed a general decline in imagination of the children from grades three through twelve. Lally and La Brant (1951) indicated that interest in art tended to decline at secondary school and intermediate level. Wilt (1959) reported the decline in creativity during the pre-adolescent period. Lehman (1956) stated that creativity generally rises rapidly to its highest point in the thirties and declines slowly thereafter. Lehman (1956) observes that it is not age in itself but the factors that accompany age-change which brings about a reduction in creative production. Torrance and his associates (1962) draw the conclusion that the development in creativity is irregular in the early part of childhood.

McMillan (1924) identified three stages in the development of the imagination. In the first stage the child has the sense of beauty and fantasy. In the second stage the sense of reality develops through which develops the function of cause and effect relationship. In the third stage, the child incorporates the ideal of his first vision of the world of things as they are.

Andrews (1930) indicated that total imaginative scores are highest between four years and four years six months with a sudden drop at about age five. Andrews Grippen (1933) con-
cluded that creative imagination does not function in children below the age of five years. Markey (1935) found that the total amount of imagination behaviour increased with age throughout the pre-school period.

CREATIVITY AS PRODUCT:

The creative product includes novelty, freshness and inventiveness which involves the fusion of perception in a different way. Newness of the product also pertains to the newness of form or arrangement of old elements. Guilford (1964) pointed out the usefulness of the products, as the result of creative thinking which, alone may or may not have a value judgement. Uniqueness of the product is more important.

CREATIVITY AS A PROCESS:

Different studies support the viewpoint, that the creativity is mainly a process of seeing or creating relationship, discrimination from many alternate possibilities and synthesizing elements in altogether new and original ways. Simpson (1922) defines creativity as the initiative which breaks away from the usual sequence of thought. Bartlett (1958) expresses it as deviation from the main track into "adventurous thinking". According to Torrance, Creativity is a natural process and is not reserved for a rarely gifted individual. To Harmon (1956) and Mackinnon (1962) creativity is a mental process, which is purposeful and goal-oriented. According to Koestler (1964), the creative act of connecting
previously unrelated dimensions of experience, enables the creator to attain a high level of mental evaluation. According to Freud (1949), creativity originates in a conflict within the unconscious mind (the Id) which sooner or later produces a solution to that conflict. Hebb (1949) considers that conscious mind also contributes to creative thinking and it is a function of relative strength of conscious and unconscious process. Rugg (as quoted by Kneller 1965) suggests that it is more likely that imagination and creativity, though specially strong in the preconscious, are present in some degree at all levels of mental activity.

CREATIVITY THROUGH THE APPROACH OF PERSON:

Creativity viewed as an approach of person bears relevance to cognitive qualities and non-cognitive aspect of personality and so is mainly psychological in nature. Various authors argue that creativity is related to unique cognitive factors. Guilford for example (1950, 1957, 1959) considered creativity as involving the interplay of divergent thinking on one hand and factors of seeing problems and evolution, on the other. To Guilford, creativity is not a unitary trait but it is a collection of different components, abilities and traits. He lists a number of factors of creativity such as word fluency, ideational fluency, semantic spontaneous flexibility, associational fluency, expressional fluency, symbolic adaptive flexibility, originality and elaboration. On the basis of Guilford's factorial studies,
Dettaan and Havighurst (1961) state that creativity includes seven factors viz. sensitivity to problem, associational fluency, ideational fluency, spontaneous flexibility, adaptive flexibility, originality and redefinition. Torrance (1963) suggests sensitivity to problem, ideational fluency, flexibility, originality elaboration and redefinition as factors of creativity. Thus, creativity may be considered as related to unique cognitive factors as also dependent upon certain personality characteristics. It is likely that multiple types of creative talents exist and these intellectual talents are linked to personality.

**CREATIVITY THROUGH THE APPROACH OF PRESS:**

Environmental conditions which influence creative behaviour are psychological safety, psychological freedom, socio-cultural influences from education. According to Hallman (1963) creativity in terms of environment is subject to the condition of openness. The inner conditions of creativity cannot be forced but must be permitted to develop freely. Torrance (1965) emphasizing the need of psychological freedom for creative thinkers considers it as the most important consideration, while admitting the students in different institutions, Covington and Crutchfield (1965) constructed a special curriculum in creative problem solving, using an auto-instructional programme. Torrance (1965) lists factors which facilitate creative behaviour, creative motivation or attitude of the teacher to creative activities and opportunities for
practicing skills in creative thinking. He suggested different rewards for boys and girls for originality, unconventional ideas for rewarding to new and unique ideas.

Koestler (1964) proposed that creativity involves a "bio-sociative process" - the connecting of two previously unrelated "Matrices of thought" to produce a new insight or invention. Few theorists have dealt at length with the role of motivational variables in creativity, but some have suggested the importance of intrinsic motivation. Crutchfield (1962) Osborn (1963) Rogers (1954) suggested freedom from external pressures and control for the development of creativity.

LEVELS AND TYPES OF CREATIVITY:

Chiselin (1958) has suggested two levels of creativity, viz.

a) Creative action of higher sort which alters "the universe of meaning by introducing into some new elements of meaning or some new order of significance; and b). Creative action of lower sort "which gives further development to an established body of meaning through initiating some advance into use." Mark Barry (1963) states that "there are continuous gradation of creativity extending from the spontaneous drawing of children to high level type, illustrated in the production of such creation as space satellite" Taylor (1959) states five levels of creativity: a) Expressive creativity
such as spontaneous drawing by children, b) productive creativity for producing finished products. c) Inventive creativity where ingeneous methods are applied in using techniques, materials and methods d) Innovative creativity involving the conceptual skills. e) Emergentive creativity which means an entirely new principle. According to Taylor most of the people have this fifth level in mind when they talk about creativity. This level of creativity is rare. Lehoise (1963) has mentioned macrocosmic creativity in which man is growing and developing as human being and microcosmic creativity in which man is engaged in a particular act of creation such as music. He further states three levels of creativity. a) Spontaneous expressive level which is the initial level, b) technical inventive level which is the intermediate level, and c) integrative emergentive level which is highly original product (widely applicable and useful). Mashlow (1959) identifies three levels: the physical, the mental and the super ordinate culture creations. Dettaan and Havighurst (1961) state three types of creativity a) Affective creativity in which emotions act as a media, b) Functional or problem solving creativity, related to the solution of mechanical and social problems c) Abstract creativity concerning concepts. Guilford (1956) classified divergent thinking into six types, that is a) Units, b) Classes, c) Relations d) Systems e) Transformations f) Implications. Summarizing this aspect it can be stated that creative
process occupies vertical and horizontal dimensions. The vertical dimension indicates the level of creativity while the horizontal dimension indicates the type of creativity.

STAGES OF CREATIVITY:

Helmholtz's (1896) and Poincare (1913) first reported that creative thinking passes through a series of stages. Wollas (1926) has suggested four stages: (a) Preparation (b) Incubation (c) Illumination and (d) Verification.

This has been further verified by Patrice (1935, 1957, and 1938). Generally, in a particular creative situation, there is one temporary period in which all four processes are drawn together in relation to a particular object of creation.

CREATIVITY AND INTELLIGENCE:

Creativity and Intelligence are two different potential inborn in the individual. Guilford (1950) and his associates established for the first time the existence of a set of thinking abilities which they called Divergent thinking abilities and which they found clearly differentiated from another set of thinking abilities called convergent thinking abilities. Later on, divergent thinking abilities was identified with creativity while convergent thinking abilities became synonymous with intelligence. Getzels and
Jackson (1959) planned an elaborate comparative study of giftedness among members of a highly intelligent and highly creative group. Guilford (1950) reports the relationship between creativity and intelligence to be low. Likewise Getzels and Jackson (1962) report positive but low correlation (.132 to .378) between creativity and intelligence. These results show that although slightly related to each other creativity and intelligence constitute separate intellectual functions. Meer and Stein (1955) Phatach (1962), Torrance (1962), Altenhause (1964), Richard, et. al. (1964), Scitz (1964), Wodtike (1964), Casey (1965), Croply (1965), Guilford and Hoepfner (1966), Hudson (1966) and Nadaus (1967) also report low and positive correlations between measures of creativity and intelligence. Foster (1971) emphasised two points; Firstly, that creativity is proposed to be a distinct aspect of intellectual functioning which for all practical purposes is independent of conventional thinking. Secondly, it depends upon unique cognitive factor which functions within the hierarchical structure of intelligence. Guilford identifies the first definition by introducing the concept of "Convergent Thinking" and "Divergent Thinking".

Result of different studies establish that although slightly related to each other, creativity and intelligence constitute separate intellectual function. Dacey and Madus 1971 state the emergence of divergent thinking and intelligence as separate dimensions. This position is also confirmed
by Yamamoto (1964) and Anderson (1965). Anderson (1960) states that correlation between I.Q. and creativity at lower intelligence level is substantial but at higher I.Q. level creativity function independently. Taylor (1964) and Vernon (1964) support this view. Barron (1969) states that a minimum I.Q. is necessary for certain creative activities, beyond this I.Q. creativity has little correlation with intelligence. The critical I.Q. level beyond which creativity and intelligence are independent has been suggested to be between I.Q. of 95 to 120 by Meer and Stein (1955), Barron (1961) Torrance (1962) and Yamamoto (1964). Later on Torrance (1960) confirmed the findings of Getzels and Jackson and also discovered that beyond 120 I.Q. the correlation between intelligence and creativity remained negligible. In general, he found a correlation of -24 between creativity and intelligence.

CREATIVITY AND DOMINANCE:

An evidence in favour of dominance as a correlate of creativity though referred in different situation was also presented by Mackinnon (1962). Tayler and Holland (1964) Barron (1965) Cross et. al. (1967) and Raina (1968). The findings of these studies pointed out that high creatives in different walks of life tended to be more dominant than the less creatives. Capacity for status was found to be significantly negatively correlated with the score of creativity. Mackinnon's (1962) results suggest that to achieve higher in situations which demanded independence in thought
and action is an indication of creativity. The other distinct characteristic observed among creative individuals are feminine interest, and independence in their thinking and action. Windhols (1968) also revealed a higher level of creativity to be related to greater social participation.

CREATIVITY AND NEUROTIC TENDENCY:

Neurotic tendency exhibiting high anxiety, feeling of insecurity and inferiority may inhibit creativity. On the other hand, it may be argued that extremely low anxiety, feeling of excessive security and unwarranted superiority are also not likely to initiate creative thinking. Wallach and Kogan (1966) found that creativity was reduced when anxiety level was too high or too low.

CREATIVITY AND SELF-SUFFICIENCY:

Self-sufficiency was found to be a correlate of originality on total verbal creativity. Similar trend was noted by Gross et. al. (1967) who found creative artists to be highly intellectually self-sufficient.

CREATIVITY AND INTROVERSION AND EXTROVERSION:

Most of the studies conducted to determine relationship between creativity and introversion-extroversion reveal the fact that extroverted girls had a tendency to be more creative. Disciple (1971) came across the results which revealed stable extroverts to be more fluent than stable introverts. A study
by Gakhar (1972-73) show that stable extroverts have been found to be more fluent and more creative.

**CREATIVITY AND CONFIDENCE IN ONE-SELF:**

Barron (1963) found that those high on originality were high on confidence. Cross et. al (1967) found creative scientists to have a high degree of ego strength.

**CREATIVITY AND PERSONALITY:**

Personality traits play a vital role in identifying creative potentials in the individual during pre-adolescent and adolescent periods. The need of finding personality correlates of creativity is important because of consciousness among female students towards unique and rare achievements during the early phase of life. A considerable number of studies have been conducted for finding the relationship between personality and creativity. Prominent contributions in this field were made by Getzels and Jacksons, Torrance, Mac Kinnon, Barron, Cattell, Wallach and Kogan.

The part played by personality in creativity has been recognised by numerous research investigators. Galton (1869 and 1874) was the first investigators who worked on the problem of creativity - personality relationship. Similarly, Terman (1954) experimenting with two groups of men selected as highest and lowest for success in life, found the high group having a well balanced temperament and comparatively
much more free from excessive frustration as different from
the low group. Roe (1946, 1951, 1953) in his experiments
on artists, painters and scientists observed that the crea-
tive artist posses a typical emotional adaptation which is
non-aggressive and passive in nature and somewhat more femi-
nine than masculine. He further noted the cautious and com-
pulsive painters group who did not use colours freely or
brilliantly or for fun. The physicists were found to be very
withdrawn and frequently social, they are isolates, while
the scientists were found to tend strongly to abstractions
and to formalize their objective thinking. Scientist were
also found to be resembling painters in being better adjusted
emotionally. Guilford (1959) confirms Roe's findings by
stating a universal temperamental trait among scientist
showing a willingness to work hard and to work for long hours.

All the studies were conducted upon mature scientists,
Painters and Physicists. Monsterbery and Mussen (1953) stu-
died the personality structure of art students. They reported
that artists had guilt feelings, traits of introversion a
richer inner life and an unwillingness to comply to their
parents in their childhood as compared to non artist group.
The non-artists are not likely to show over-aggressive ten-
dencies. Myden (1959), after evaluating the personality
characteristic of individuals of recognized creative group
of business and professional peoples, found that the creative
artist is a person of superior intellect, with a richer inner
life. He is healthy, non-conforming, interested in achievement and sexually more ambivalent. These findings support Freud (1949) emphasising that creative persons have easier access to primary process and therefore they have less repression and more psychic energy.

Weisberg and Springs (1961), on the basis of test interviews and projective techniques, concluded that the high creative group is rated high than the less creative ones, on the strength of self-image, ease of early recall humour, availability of Oedipal anxiety and uneven ego-development. Cattell (1955 in a study on 144 physicists, biologists and psychologists discovered the main points:-

(1) The personality profile of these persons differ significantly at .01 level from an average man in being more Schizothyme, intelligent, dominant, inhibited, emotionally sensitive and radical, in better control fo their behaviour by an exacting self-concept; their personality profile differ from others of equal general intelligence who are outstanding administrators and teachers to the extent that the former are more schizothyme, less emotionally stable, or radical, and uniformly low on all primary personality factors of extro-
version and introversion.

(2) Their profiles compared to those who are eminent in literature and decorative arts and were found to be more schizothyme, intelligent, radical and self-sufficient.

In a study conducted by Drevdah (1956) on two groups of creative and non-creative students in Science and Art Subjects, the creative group were found to be higher than the non-creatives on the factors of radicallism versus conservatism and self-sufficiency versus lack of resolution and lower on factors of cyclothymia versus schizothymia andurgency versus desurgency. It suggests that the creative persons in the above study are more withdrawn and quiescent. In another study by the same author (1964) the creative group of psychologists was found to be more interested in scientific investigations than in social activities. The creative group was further characterized by a relative unconcern of other people, authority, rules, regulations, restrictions, etc. suggesting a marked degree of independence. Their personal, social and emotional adjustment is superior. They are usually self oriented with little concern to social and sexual relationship and public and professional criticism. They accept moral and social responsibility without over concern. These findings indicate that a creative person is introvert and anxious and possesses a high degree of ego-
strength. Mackinnon (1962) in his sample of creative architects finds that they are socially at ease, genuinely dependable and responsible. These creative architects were found to be critical, skeptical, not easily impressed, and concerned with their adequacy as a person. They exhibit the highest value in aesthetics and on theoretical values. Mackinnon and Barron (1965) conducted investigation upon mathematicians and writers and found them as individualistic, preoccupied, artistic, complicated, courageous, emotional, imaginative and self-centred. The creative writers are found to possess a high degree of intellectual ability, verbal fluency and aesthetically reacting tendency. Taylor and Halland (1964) summarize the personality characteristics of creative persons as autonomous, self-sufficient, independent in judgement, more open to the irrational, more stable, more feminine, dominant, self-assertive, complex, more self-accepting more resourceful and adventurous, more bohemian, self-controlled emotionally sensitive, introverted and bold. Creative group has been found to possess wide ranging interests, sense of humour and emotional stability.

Taylor (1962) has given a picture of the creative individual as "Unconventional and as resisting the drives towards conformity and the conventional thinking often found in the schools."

Cattell (1963) whose professional work has been mostly
in the field of personality, analysed the biographies of known scientists and inventors and constructed picture of creative personality. He administered his 16 personality questionnaire (16 PF) on creative persons. The findings show creative individuals to be more emotionally stable, (Scale C) more self-assertive (Scale E) more schizothymic (Scale A) more retained (Scale F) more self-sufficient (Scale Q2) and more radically inclined (Scale Q1). These findings were confirmed by Drevdahl (1956).

Cashden and Welsh (1966), in their study of personality correlates of creative potential among talented high school students, found that the high creative adolescent flourished as an independent non-conforming individual who introduce change in their environment and they possess harmonious and open interpersonal relationship.

Halpin and Torrance (1974) found that creative persons tend to be more adventurous, industrious, intuitive, non-conforming, versatile, curious, self-confident, imaginative and willing to take risks.

In the light of above studies we have to investigate the relationship between creativity and personality among specific samples of students. Few studies have been conducted upon female students. The present study of personality correlates of creativity was mainly conducted upon adolescent girl students who as a distinct group have generally been side lined.
The first Indian study in the area of correlates of creativity was conducted by Bhattacharya (1956). The variables have been clustered into three groups: In the first group fall all the studies related to age, birthorder, sex, locality and socio-economic status, named as demographic. The second group is cognitive which includes variables like academic subjects intelligence, and scholastic achievement. The third group is termed as affective which includes variables related to values and personality.

Raina (1968) reported significant differences between the high creative and the low creative on socio-economic status. Mehdi and Goyal (1969) found that the creative pupils at the middle school stage possessed a higher level of energy were more introvert and independent in thought and action. The high creatives possess open mind, can tolerate ambiguity and welcome opposing values.

The above studies indicate that personality correlates can aid much in identifying creative children as distinct from the non-creative ones. The generally noted characteristics among the middle and high school students are: emotionally stable, sociable, humourous, less anxious, assertive, possessing high level of energy, introvert, independent in thought and action, determined, unconventional, more ambitious, rebellious against rules, adventurous and willing to take risks. These characteristics are observed in both sexes.
The preceding account of studies on various aspects of creativity brings out the importance of the problem in psychological research and providing context, helps in fixing our priorities and avenues for the present investigation.

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