

CHAPTER

THE CONCEPT OF CREATIVITY

2.1 ON DEFINING CREATIVITY

Creativity, as all other mental concepts, has retained its complexity. What all has been studied and said has made who tried to do so feel that something more remains to be studied and said. What has been given in the form of definition has covered very little portion when compared to what is left outside it. Defining creativity and redefining the words that define creativity have tended to be ever-divergent literary description. This is because one has already a better understanding of it before any thing is said or read about it.

The word creativity is abstract and infers some quality in one's person, tells about 'one being creative'. He who creates is creative and in him vests creativity.

Who is the creator and what is the 'creation'? The word 'creation' gains much weight, when we say 'God created heaven and earth'(277). God is a unique concept which explains the occurrence of such acts which transcend man's reasoning. Did man create himself? Thus creativity is what the creator does. It explains itself. The concept draws equally from the creator, the creation and the created - the person, the process and the product above all man, unlike god, is in an environment.

2.2 DIFFERENT APPROACHES

While venturing to express what is 'creativity', the approaches to description differed from person to person each stressing one aspect or the other. Thus creativity has been doing something unusual and meaningful and thinking something unusual, the consistency of which remained same during relatively long span of time. Creativity has been a quality in a person, by virtue of which one does what has been called to be unusual, unique or novel. Again, thinking something unusual and the quality to do so are relative in their meanings and hence have been functions of time.

To some, in the study of creativity, the decisive part of 'creativity' has been a product, to some a mental process, and to some personal quality and style (103). And to some it is the environmental process that makes one creative. Stresses and view points or approaches being different, the understanding of the phenomenon has been the totality of such descriptions. That is to say that it is involved in coming out of a product which is unique, novel or original and meaningful to some who see it, in thinking or mental process of which the product is the result, in person who involves himself in doing so; and probably in the environment in which the activity took place. Thus, the meaning attributed to the word 'creativity' in the modern psychological world has contributed more to the understanding of the phenomenon than did its etymological derivation from the Latin origin "Creare". "Creare" is 'to create'. For the Websterians, 'to create is to bring into existence something of new form or character as a work of thought or imagination'.(277)

Rhodes (216) has defined the word 'creativity' as a noun naming the phenomenon in which the person communicates a new concept (which is a product). He has condensed the four aspects of creativity as four P's of creativity, viz., person, product, process, and press.

2.3 CREATIVITY: AS DEFINED BY THE PRODUCT

Creativity, for Plato involved in 'bringing into birth some new reality'(13). What is reality? But to a considerable extent the word 'reality' need not be defined as it infers something which occurs naturally. Explaining under what circumstances we think things real, William James writes (155, pp. 288-89):

The sense that anything we think of is unreal can only come, then, when that thing is contradicted by some other thing which we think. Any object which remains uncontradicted is ipso facto believed and posited as absolute reality

A contradiction can be from two sources. It can be self-contradiction or it can be by others. In the psychological dictionary edited by English and English (68), the meaning given to 'creativity' has been extended to its variant 'creativity', and covers a little more distance as it reads -

. bringing into existence a product new to the individual (not necessarily new to others).

Not much importance has been attached to the contradiction by others to the reality of a creative product. The words 'not necessarily new to others', in a way, indicate the subjectivity of 'newness' to time.

Stein (234) swings the balance to the other side. Creativity, for him, is 'that process which results in a

novel work that is accepted as tenable or useful or satisfying by a significant group at some point in time". The stress laid on 'novel', and 'at some point in time' is conducive to the statement that creativity comes into light 'at some point in time' when that act or product of the act is considered to be 'real' or 'tenable or useful or satisfying' by a significant group, or remains 'uncontradicted' to put it in James's terms. That is to say that recognition of the utility of the new act or product may be said to be the practical criterion. In contrast with this, taking the act or product that is new to the creator irrespective of the fact whether others considered it so or not takes us further to argue what is new to the individual may not necessarily be ^e _{nw} at all for men and times to come. Some individuals find new meanings and things very slowly, much slower than the average man of their time had had found them and the joy they derived from this finding may be even greater than that of the individuals who made biggest of the discoveries at times. But on the other hand, the individual may be a little ahead of his time some times. There may not be 'a significant group' which understands the novelty of the creative thought or product at that time. The act which is ahead of time, gets a recognition of its reality by a significant group at some point in time in future and not at the time of ^g _{br}ining it out. Hence, the

recognition of the creative act is dependent upon the relative readiness of the group.

What is new and what is novel? To the question 'What is creativity' hitherto, the utility or meaningfulness of the new product has been taken into consideration, the person who produced it being considered as having creativity. The word 'novel' indicates 'newness' and usefulness of a particular act or product. 'Novel' and 'new' seem to be similar when Oxford Dictionary (208) reads for 'new' -

(i) Not existing before, new made or brought into existence, for the first time,

(ii) Not yet used

and for 'novel' -

(i) New; Young;

(ii) New; of a new kind or nature; strange; hitherto unknown.

Thus we can term a particular product as 'creative' if at the time of its occurrence, there is none second such, in the totality of human understanding. That is to say, it is a fresh entry into the totality, the whole sphere of knowledge. It is unused and unknown until then. Hence many authors and thinkers have discarded other descriptives of the product in preference to 'new' or 'novel'. May (192) has defined creativity as the process of bringing something new into birth. Harman (128) also gives such a definition.

For him the creative process is any process by which something new is produced, an idea or object, a new form or arrangement of old elements. The essential criterion is it must solve or tend to solve a problem. Thomas (248), after verifying some important definitions, feels that one common aspect of all definitions is that of 'novelty' or originality. For him, creativity means 'novelty' (originality) and nothing more than that.

According to Thurstone (254), the reference frame for a creative product such as social apprehension of its meaningfulness and novelty is not necessary because it does not make any difference whether the society regarded the idea novel or not. Creativity itself is not to be judged according to the usefulness of the product.

According to McFee (194), creativity refers to people's behaviour when they do such things as (i) invent new form or idea; (ii) rearrange already established objects, pattern or ideas; and (iii) integrate a new or borrowed factor into an already established organisation.

Mackinnon (185) gives the idea of novelty being statistically infrequent. This is suggested by the fact unusual things are statistically rare. The idea of creativity, thus, has moved from such description terms as novelty, newness, unusualness, uniqueness, etc., of the product to statistical

infrequency, i.e. in a population of ideas, creative ones occupy extreme end of the probability if arranged in a scale of meaningfulness or tenability or reality. That is to say, unusual ideas, either meaningful or foolish are rare.

Holland (144) defines creative performance as "an unusual accomplishment which requires the solution of an ambiguous problem, which is socially adaptive and which is given public recognition". Thus, basically creative performance should be unusual or statistically rare. As we considered earlier, it should fulfil, as other conditions, three requirements. It should solve a problem, be useful (socially) and earn public recognition.

On the other hand, Margaret Mead's (197) belief that 'the boy who rediscovers a principle by himself is as creative as original discoverer though the boy's contribution to cultural tradition is zero is suggestive of a criterion for judging meaningfulness of the creative product, for, the broad meaning of (social) reference frame' as 'cultural tradition' reduces itself to the content in which the boy became aware of the principle or got insight into.

It is beleived that though the fund of knowledge we have today has been a cumulative heritage or a summation of heirarchy of creative acts, to recognise or identify budding creativity, applying such a broad social reference frame is not warranted.

Kneller (168; p. 4) contradicts Mead's opinion by saying that the boy who rediscovers by himself a principle already known may not be termed as creative as its original discoverer, because he (the boy) has carried with him a cultural environment which is ahead of the principle rediscovered and it did not exist at the time of the original discoverer. But the present writer feels that to what extent environment contributed to the discoverer and rediscoverer (boy) is another question. Keeping this aside we may as well conclude that boy is creative. This conclusion is based on implicit idea that he is capable of contributing to creative process. This is so because what he has done is only rediscovery which has nothing to do with the fund already existent with the society (its cultural tradition).

The creative value that a person gains after such initial recognition solely depends upon his further contribution to the fund or cultural heritage. Thus the initial recognition of the individual by the society is not a permanent yard-stick any way. For, to admit a creative act is a 'matter of life and death' to a society (264).

In judging a boy, our aim is not to see how far his present act contributes to the cultural tradition. We judge only whether he is creative. Thus in no way, we can be ill concerned of the permanent yard-stick of one's contribution to the cultural tradition or the social context existent at 'a point in time'.

For Kneller (168) just as Harman and Holland, the creative act should be relevant and tend to solve a particular problem.

Guilford (122) has extended the problem of creative products by introducing what he terms as 'psychological products', which seems to be very important to a society in search of creative persons. Psychological products are those which have occurred mentally without finding expression. If the product is not expressed in a tangible form, can the society afford to ignore it? It is a serious question to ponder. In an unfavourable society under the hold of limited meaningfulness and immediate utility as criteria, the individual may gulp his 'product of thought' to be 'unseen and uncreated'.

Barron's doubt at the Fifth Utah Conference took the problem of products still further. When 'psychological products' are those which come to the level of awareness and do not find expression, below the level of awareness or at the unconscious, processes which occur and do not come to the level of awareness also are of importance to Barron (241; see discussion). When there is enough evidence that creative processes take place on the area bordering ego or at pre-conscious and that under the action of psychically active drugs such as LSD or Psilocybin, individual can have more creative experience of becoming one with physical environment

due to the broadening of ego boundaries (22), the point is that much creativity can be dugged out to light in an atmosphere of psychological safety if the society can understand to do it.

Chiselin (98) points to the fact that creative product is something new in the sense of 'being unique, without specific precedent'. The question is not of unusualness or statistical rarity but uniqueness. According to him, there are two levels of creativity. First, of the lower sort gives an advance to the 'established body of meaning'; second, of the higher sort alters 'the universe of meaning itself, by introducing new element of meaning or new order.

Taylor (244) suggested five levels of creativity. They are -

1. Expressive Creativity which refers to free independent expression where originality is unimportant.
2. Productive Creativity which refers to production of finished products.
3. Inventive Creativity where ingenuity is displayed.
4. Innovative Creativity which refers to improvement through modification.
5. Emergentive Creativity which refers to emergence of an entirely new principle.

Flanagan (77) has made an attempt to differentiate creativity from productivity and ingenuity. According to him -

- "1. Productivity is shown by bringing forth many ideas and solutions. It emphasises both quantity and contribution.
2. Creativity is shown by bringing something new into being. The emphasis here is on the newness and lack of previous existence of the idea of product.
3. Ingenuity is shown by inventing or discovering a solution to a problem. The emphasis in this case is on the existence of problem and the demonstration of quality of a genius in solving it in an unusually clever or surprising manner. Ingenuity is more narrowly defined than creativity and productivity".

Probably, as pointed out earlier, novelty or originality seems to be an indispensable character of creativity. Guilford and his associates (286) in a major factor analytic study developed three tenable hypotheses for any solution to be termed as original. A solution can be original if it is either (i) statistically rare, (ii) remote, or (iii) clever. It was once reported that the third of the hypotheses did not find support (123).

Guilford (116, 117, 123), however, views at creativity as a pattern of intellectual factors and not just as one ability. Though 'Originality' is prominent among those factors, there are others: fluency, elaboration and redefinition. Hitherto five fluency factors, four flexibility factors

(apart from originality which is also a flexibility factor), three elaboration factors and three redefinition factors have been recognised. Besides this, there is one factor known as 'sensitivity to problems'.

"In our view", Guilford et al (114) write, "no one of these alone provides an adequate coverage of the broad process called 'creativity'. Individuals may be high on some factors and low on others. Creative person is one of those rare individuals who has high scores on many or all of the various factors." The brief introduction to Guilford's view point is felt necessary here, because of the fact that the factors were arrived at by analysis of products. Further elucidation of his stand point will be made in a detailed manner in the broader context of S-I theory, in the next chapter heading 'Creativity and intelligence'.

2.4 CREATIVITY AS A PROCESS

Mere assessment of the product whether it is creative or not will not give as much idea about the nature of the phenomenon before it finds expression. How does actually production of a new concept, idea or a thing occur? What is the state of mind when human being is involved in such acts? When there is considerable agreement on the assumption that all persons have, to some degree, less or greater, this quality of involving themselves in the production of new things

many believe that it is not yet clearly known whether the same process is responsible for creativity in different fields.

However, there are favourable statements to the standpoint that mental process is same in all, though the ways of expression differ. As Dewey (54; p. 73) points out -

Only the psychology that has separated things which in reality belong together holds that scientists and philosophers think while poets and painters follow their feelings. In both and to the same extent in the degree in which they are of comparable rank, there is no emotionalised thinking, and there are feelings whose substance consists of appreciated meanings or ideas.

The ideational or 'semantic' nature of 'creation' before it materialised has been recognised by Guilford (123; p. 162). As a result of his work extended in the preceding two decades, he has been able to categorise the mental flux into four types. Essentially he attributes origination of new things to 'semantic content'. What is derived from the semantic content will be translated into different individuals, i.e., artists, scientists, mathematicians and poets.....' This calls for an assessment of creative processes in order to determine whether a person is creative or not. This, in contrast with judging creativity by product has an important implication. If a process which is not apparent but takes place without finding expression, can be identified and motivated to express, may be the pace of social progress increases. Further, as pointed out earlier, psychological products and

unconscious process become the focii of research.

For Ghiselin (97), creative product is the result of 'human purposes'. "A creative product is intrinsically a configuration of the mind, a presentation of constellated meaning, which at the time of its appearance in the mind was new in the sense of being unified without specific precedent". In the constellation of elements, it will be new. There may be one or two new elements even.

Fernberger (75) too, gives a similar explanation of the thinking process. He divides thinking into four categories fancy, revery, creative imagination and reasoning.

Golovin (106) has characterised "thought process" by the following features: Thought process appears to involve goals and motives. There seems to be optimum muscular tension for efficient thought. It involves trial and error procedures. It may be conscious as well as unconscious. He agrees with Ghiselin (97) that creative idea is born in a vague context. The transition from vagueness to clarity may be unconscious and automatic. It is specific and opens door to the whole flood of new associations resulting in a nervous excitement and satisfaction.

It is a process, as Ghiselin (98) remarks, of change, development and evolution in the subjective life; it starts

from a feeling of dissatisfaction with the present or established order and attains fulfilment in the new order. Production by a process of purely conscious calculation seems to him as not possible and the individual has to enter the free arena of the unconscious to do a creative production. Any way Whiselin sees no worth in the use of drugs to enhance creativity (96). During the period when the unconscious is active what really takes place is not known though the word incubation is a best fit. He believes that the process starts in a state characterised by confusion and suspense. The realisation of the solution is an affective response to an intellectual order (98). The process is quite uncontrolled and free. Old irrelevant configuration fade by virtue of their failure to provide the order the mind is seeking. The need to transcend the established configuration acts as motivation (98).

Creativity has been seen as the occurrence of perceptual organisations. Arnheim (10) taking abstraction as the primary perceptual phenomenon, conceives further that the act of perception to be grasping structure, at times even beyond the limit of mere grouping and selecting parts. Also, he (9) opines that the realm of the unconscious would never enter our experience without reflection of perceivable things.

Walkup (273) mentions manipulation of data and visualisation as leads to creativity. Creative persons, according to him, appear to have stumbled on to and then developed to a high degree of perfection in the ability to visualise - almost hallucinate - in the area in which they are creative.

May be it is possible that the mind of the creative person is more active in establishing of better equilibrium of things, ideas or elements of thought in general. Recognising three types of imagination- assimilative, creative and constructive - Bartlett (24) opines a plan or programme which cannot be found by any amount of analysis is at work within the whole imaginative structure. Type of imagination favoured by a creative person is a matter of temperament according to him.

2.5 ASSOCIATIONIST AND GESTALT VIEW POINTS

As we have seen in the description of the creative process given hitherto, use of such words as patterns, structures, configurations, constellations, etc., which are further conceived to be made up of elements, tells us that they stand for some sort of systems wherein elements are bound into, more suitably by associative linkages.

Association theory is very old and cannot be ignored, for it has persistently rivalled other theories for nearly 2000 years and under it we have made tremendous progress in psychology (117; p. 262).

According to Dashiell (50) occurrence of creative solution after unconscious work is related to successful recall in memory experiments. Recall takes place in the absence of interfering associations which are set up due to excessive concentration. Rational processes can go on without awareness.

Woodworth(290; p. 517) makes a similar comment on the nature of unconscious work (incubation). He states that the conclusion that unconscious work goes on in mind during the incubation stage is uncertain. In the preparatory stage the necessary cues might have been mingled with many unnecessary ones which interfere as long as they have recency value. The passage of time co-operates with the recency value. Only relevant cues assemble to give solution.

Invention is considered, by Bischler (31) to be 'the combination of phenomena of grouping, the uncovering of connections between elements (images, ideas, memories) already existing, elements which have been accumulated, in the course of time, but which had remained disconnected'. Following a mechanism which we do not know fully, totally new links will be established between elements.

'Thinking' for Berlyne (28) 'is a process that involves a chain of symbolic responses'. In directed thinking which is responsible for solution to problems, there are two types according to him. S-thinking where response# is transferred

to a different stimulus situation and R-thinking where the response pattern is completely new. He relates all types of discoveries and inventions to R-thinking. Berlyne points that this is a neo-associationist point of view.

The word creativity is commonly applied to R-thinking which is productive. He gives two reasons as to why a particular creative product should be 'improbable'. First, the creative person is such a 'non-conformist' who finds fault with an established response pattern and proposes advantageous innovations. That it should be socially valuable is the second requirement. He also feels 'greater creativity tends to issue from greater conflict which in our view of our identification of degree of conflict with degree of problematicity, fits the fact that greater creativity on the whole, comes from willingness to attack greater or more difficult problems'.

Creative process, according to Mednick, consists in maximising ideational contiguity. Individuals with flat associative hierarchies have not single strong response so dominant in their thinking and they are the more creative persons. There is a drive for associative novelty.

'Creative thinking' as Mednick defines it, 'consists of forming new combinations either meet specified requirements, or in some way useful. The more naturally remote the elements of the new combination, the more creative is the process or solution . . .' (200). The occurrence of a combination is

due to serendipity, similarity and mediation.

Serendipity is a mental mechanism by virtue of which associative elements are evoked by the accidental environmental, contiguous appearance of appropriate stimuli. Similarity refers to association due to some commonality with the stimuli. Mediation refers to association of mutually unrelated elements through a third-element which is related to former two elements. In simpler words, creative process consists in forming remote associations. A review of development of associationist theory points to the fact that Mednick's contribution to it has come as a decisive step stone and that it is capable of engulfing any potential concept like creativity. However, Getzels and Jackson (94) have sounded a note of caution.

According to them conventional associations and the adherence to rules of traditional logic help us to understand the lack or gap. They do not help us make new leaps so as to make a solution creative, for it is precisely the use of recent and frequent concrete experience and connections and fixed and well-worn logical paths that seems to lead to hackneyed and pedestrian responses, rather than that are new . . . Guilford (117) too considers 'association' principle as it stands, is too simple to engulf broad mental operations and products. He suggests different graded types of products and has challenged Mednick if he would explain those by simple

association principle. Guilford has considered himself to be a reformed associationist.

Wertheimer (280) refusing traditional logic and association theory proposes Gestalt point of view. For him, "thinking consists in envisaging, realising structural features and structural requirements" It involves dealing with gaps in the problem. There are two steps in problem-solving - S_1 in which the thought process starts and sets up stresses, strains and tensions. The tendency is to form good Gestalt and S_2 in which there is harmony with the requirements. Adequate view of the situation on the part of the creator is an essential condition for creativity.

Selz (Berlyne: 28) used the terms reproductive thinking and productive thinking. Reproductive thinking refers to replication of previous experience and productive thinking refers to making a new response to a solution.

Westcott (283) considered low information demanders who made successful leap to a solution as true intuitive thinkers. He relates creativity to his theory of intuition and opines that 'leaping' might be a primitive type of behaviour.

Vinacke (272; p.179) apprehending high pedagogic value of Wertheimer's work on productive thinking and of the psychologists of his school, considers 'insight' to be a 'mode of attack'. They have not explored all modes of attack.

They have singled out insight by which we can infer only certain kinds of performance.

According to Hebb (Vernon, 270) whether a newly born child has a tendency to form a good Gestalt is doubtful. It is only the knowledge of physical forms that make one form gestalt of it. Then such a 'tendency' is not innate. On the basis of this it can be further argued that the tendency to form a good gestalt is limited to only those forms which he has come into contact. For Kohler (169) insight is simply restructuring of the problem situation.

Creative thinking or imagination, for Vinacke (272) is a broad term which includes all phenomena influenced relatively more by the internal needs than by the external demands. He considers creative activity as a combination of problem solving and autistic thinking. Autistic thinking refers to states of fantasy. He places autistic thinking at one end of the scale where realistic thinking (which includes problem solving) occupies the other end.

2.6 STAGES OF THE CREATIVE PROCESS

Wallas (276) proposed that the creative process takes place in the following steps - preparation, incubation, illumination and verification. The most disputed stage is incubation. Others are clear enough and call for less explanation. Wallas referred to 'incubation' as a mental

state where individual does not make any conscious effort to solve the problem which he persuaded or tried to solve. It is possible, according to him, to attempt many problems one after the other and work on each of them for some time and leave unfinished. Problems which were attempted first get themselves solved unconsciously when we are consciously involved on some other problem.

Hutchinson (148), after making a study of 250 famous contemporary thinkers, differentiates between systematic thinking and 'creative insight'. Systematic thinking is deliberate and objective. It is methodical and within the purview of objective experience. Insight occurs as a baffling solution to the problems after long period of intense frustration. According to him, creative process includes following steps:

1. The stage of preparation
2. The stage of frustration
3. The moment of insight
4. The stage of verification.

Step (2) requires explanation. Frustration arises due to unfulfilment of goal. According to him, frustration is "often characterised by rising emotional tone, restlessness, feelings of inferiority and in last analysis, cessation of effort".

According to him, the creator, during the period of frustration shows signs of abnormality and overcomes it later.

Thus, Hutchinson does not contribute to the psycho-analytic standpoint that creativity starts from a state of abnormality. By referring to abnormality he has simply drawn attention to the state of mind during frustration. Thus during incubation the cessation of effort is due to frustration. For Wallas, it was simply a natural phenomenon and volunary abstraction from work.

Ghiselin (98) does not agree on the point that there are discrete stages in the creative process as proposed by Wallas, for, it is the single action which opens the door to a new universe of meaning and play of entire energy.

Vinacke (272) opines that creative thinking should be conceived in terms of dynamic interplaying activities rather than as more or less discrete stages. He doubts the order in which the stages appear. The stages may at times be repeated.

For Taylor (244) 'incubation' is the period when "experiences mill and flow freely about leading to illumination. He suggests, further that, "creative persons will perceive configuration more quickly than less creative persons". Less creative persons persevere on their first impressions.

Creative process has been viewed by some thinkers as having synonymity with problem solving. We have already quoted some authors in the preceding sections. In evidence

Guilford (123, p.513) cites Dewey's steps of problem solving and compares with those of Wallas and Rossman, Dewey, as early as 1910, had given the following steps:

1. a difficulty felt
2. the difficulty located and defined
3. possible solution suggested
4. consequences considered
5. a solution accepted

D.M.Johnson's steps are more concise: Preparation, production and judgement. Rossman proposed more detailed steps wherein the preparation has been replaced by (i) sensing the need, (ii) defining it, and (iii) surveying the information. The step 'verification' has been elaborated as (i) critical examination, (ii) formation of new ideas, and (iii) testing.

Step 'incubation' does not appear in the above analysis of the process by Dewey, Johnson and Rossman. For Guilford (123) it is more a state of mind than a step that is peculiar to creativity. We have already noted associationist' opinion about incubation.

Kneller (186) considers the first part of preparation as 'first insight' where the sudden occurrence of idea takes place. But the creator may not start to evolve the product at this stage.

According to Zisulescu (295) an examination of the inner process of the creative act reveals the following three steps:

1. Sensation of void which is a tendency towards solution of material.
2. The coming of the dominant idea.
3. The shaping into novel creation.

Vinacke (272) has taken a holistic stand regarding the steps of the creative process similar to Ghiselin. He relates creative situation with the 'matrix of experiences' which plays main role in all kinds of thinking. Creative activity is highly individualised and varied in its patterns.

There is something creative, as Guilford (123; pp.314-15) puts it, in every problem solving and every creative act has some problem solving. After a review of the steps of mental process given by different thinkers, he has proposed an operational model for problem solving, which also "serves for most creative production". The model basically is a communication system with inputs (E) and (S). E is environment and S is soma which refers to behavioural information. Underlying every thing is a memory storage with four types of contents - Figural, Symbolic, Semantic, and Behavioural. After the input of information, at every stage, there is some filtering. The stages are (i) cognition, (ii) memory, (iii) production, and (iv) evaluation. He puts that his model is simply of genetic nature.

Guilford (123; pp. 426-38) has derived his view of the organism from Piaget. Living organism, from its psychological aspects, is an agent that acquires, retains, generates information and evaluation. Information is that which the organism discriminates. Its desire to live is 'built in' and hence the function of the organism is to maintain a certain equilibrium with the environment in the light of new information.

The idea of organisms's transaction with the environment is more general and explicit in Mooney's simple model of the process. Indicating that seemingly different approaches to the study of creativity product, process, person and environment - are antagonistic at a high level of sophistication, Mooney (204) conceives of a model which integrates them. The individual is conceived to be a part of the universal whole with infinite elements and energy forms. There is somewhat a progressive imbalance between the elements within and without. The process is of exchange and or toleration of elements. Not only creativity any process - biological, physical or cultural fits into this model. Finally, he conceives the environment, the person and the product as a special version of such conceptual model.

It is worthwhile to speak of 'progressive balancing' further. Kuhn (173) opines that the ability of supporting a tension that can occasionally become almost unbearable is

one of the prime requisites of creativity. His view is in reference to the fact that scientists adopt any existing theory as a lightly held tentative hypotheses. He abandons it when it leads to a trouble spot and chooses other ways. The tension is between convergent and divergent thinking. For, the experience of a tension has been reported by different creative persons at times. Ghiselin's (99) work on preparing list of words indicating such states of mind before and after creation seems to provide enough empirical support to such considerations as Kuhn has made.

Piagetian (211) consideration though evolved earlier from the point of view of development of intelligence, that 'life is a continuous creation of increasingly complex forms and progressive balancing of those forms with the environment', that the process is of assimilation and accommodation of elements seems to have gone further than other models and provides more basic understanding of intellectual processes.

2.7 THE CREATIVE PERSON: FREUDIAN CONSIDERATIONS

Creativity as Sublimation

Freud's considerations were largely on negative grounds. He conceived creative activity as a by-product of defenses against the direct expression of unacceptable sexual wishes. (Rosenhan and London ; 182). Artist, for example, seeks refuge in fantasies where he gives full play to his erotic and

ambitious wishes (Freud; 84). This leads to instinctual satisfaction. He moulds his fantasies to new reality. Sublimation and diversion of sexual motive powers, according to Freud (82) provides 'the components for all cultural accomplishments'.

Sexual abstinence does not help to shape energetic, self-reliant men of action or original thinkers, pioneers and reformers. More often it produced good weaklings, (Freud; 83).

Bergler (25) considers productivity as arising out of conflict. It is defense against defense against conflict originating historically in an id wish. He (26) calls authors (writers) as the 'most antisocial human beings conceivable'.

For Brill (33) creative poetry is the result of pregenital fixations. Poetry comes out when the creator is in the fit of emotions. It is a sexual sublimation.

Creativity as Restitution for Destructive Impulses

Some psychologists have considered creativity as a restitution for destructive impulses. Fairbairn (71) conceives that art work is meant for release from tension - between impulses and ego, and ego and superego. Grotjahn (108) commenting psychoanalytic approach to creativity also

opines that artistic creativity is a reaction to the destructive trend. Because the artist communicates deeply with his unconscious, the artist suffers intense guilt. Lee (175) has similar thesis when he states that esthetic states occur to relieve acute psychological emergencies due to activation of destructive rage.

Levey (179) opines creation (art) occurs as a supplementary emergency defense and protects ego from 'regression healing mechanism'. Artist, according to him, is an emotionally immature individual.

Sharpe (226) opines in a similar fashion. According to Sharpe an artist externalises hostility in the creative work. In another article the same writer differentiates between scientist and an artist. The former deals his psychological problems and the latter in terms of himself (227).

Creativity as Self-actualisation,
Drive for competence

Self-actualisation, for Goldstein (104) is the only drive, which brings in creative realisations. Creative achievements are not manifestations of the desire to avoid anxiety. Anxiety is the after effect in a creative effort, Creative person subjects himself to such anxieties and bears courageously. This is necessary to actualise himself.

Creativity for Hart (133) is an integrative force. It is based on guilt-free disposal of aggression in socially accepted channels. Creativity occurs in the unconscious self as a synthesis. Conscious and unconscious efforts both are involved in the use of symbols in creativity.

According to Maslow (190) primary creativeness which is a source of new discovery forms out of unconscious. Secondary creativeness is a kind of rational productivity. 'A truly integrated person,' as he puts it, 'can be both primary and secondary both childish and mature.....'. Creative activity has been seen as regression to childhood levels (138).

Graig (46) after an analysis of nearly eighty four personality traits of creativity, lends support to Maslow's holistic schema of self-actualisation. His work integrates much of the trait work. He furthers the idea to a single disposition to a creative stance.

According to Rogers (219), the motive for creativity is man's tendency to actualise himself. He refers to two types of creativity - constructive and destructive. White (284) conceives of a fundamental urge for competence. This is responsible for creative activities of man.

Creativity as Ego Diffusion

Murray (206) believes that transaction at preconscious as the basis of creative functioning. He conceives of mobile or motile entities with mutual affinity as resulting in new compositions. The 'ego' or 'I of conscious presides over the transaction'.

According to Kris (171) recurrence of themes in different conflict patterns leads to generalisation (thematic generalisation). The emotive or esthetic potential is derived from dream work in the form of 'over-determinations'. Then comes a state of mind (inspiration) wherein the field is clear, the individual communicates and feels things, ideas which never occurred to him before. Kris further concedes that during inspiration the barrier between ego and Id becomes permeable. Ego exercises its power which results in expression. The shaping occurs first in preconscious. The second phase is characterised by labour and work. He stresses the importance of conflict which breaks the barrier or at least makes it permeable.

Kubie (172) affirms the opinion that creativity is a product of preconscious activity. Conscious processes are reality bound and unconscious processes which contain impaired, distorted or repressed symbols. Unexpected and new combinations take place whenever there is a free play between conscious and unconscious. When conscious becomes dominant the

individual becomes almost dominant. According to Kubie this does not mean that conscious makes one creative.

Deviating from the current psycho-analytic theory which contends that a controlled regression in the service of the ego occurs during the inspirational phase of creativity. Thus combined use of dissociative and integrative ego functions result in creativity. The dissociative function has been defined as a capacity to temporarily disrupt the established organisation of psychic structures so that ordinarily unavailable drive content and memory traces now become able under a modified superego. The synthetic function participates in the creative activity by reorganising newly available id content into original solutions. He further lays stress on non-regressive ego functioning in creativity.

Turner (269) has developed a theory of creative process which points a progression in the thought processes from concrete experience to what is less known in reality but imaginatively feasible.

There seems to be substantial consistency about the assumption made by the psycho-analytic thinkers. According to Guilford (116) disregarding minor differences, little doubt prevails about the involvement of the unconscious in creative activity. Another development of importance is

about mounting experimental evidence on 'ego-diffusion', to put it in Barron's terminology (22). Under the action of psychically active drug psilocybin, his Ss experiences were creative. One point of importance is that they could not differentiate their body from their being. This evidently suggests that during creative act, individual's ego permeated into unconscious (id) which is biological. According to Barron (22) creative process embodiment. The sequence of related acts which taken together as a process result in the creation of some thing new; there seems to occur alteration and occasionally a synthesis of certain antinomies. One of the most common antinomies is the distinction between the self and the not self. Creative experience marks 'the loss of the ego' or 'ego-diffusion'.

Rose (220) gives a similar explanation calling the phenomenon to be ego-core broadening. Ego-core, for him, consists of body ego and ego-identity - the former the biological dimension and the latter the social dimension. Giovacchini (101) has tried to show 'the positive aspects of ego functioning' in an analysis of dreams of a scientist.

Krippner (170) seems to support when he says that the origin of creativity is preverbal and unconscious. Harman (126) reports a similar finding. Rosenhan and London (182) have preferred to treat creativity as a positive abnormality.

Apart from the broader psychoanalytic approaches, there are a host of motivational factors regarded as a characteristic of creative individual (Stein and Heinze; 233). For Adler, it is compensation for inferiority, for Jones parturition of wishes; for Rank desire to immortalise oneself (Stein and Heinze; 233).

Creativity as Personality Style

Most often creativity has been regarded as a personality style and disposition. A variety of personality factors have been found to be characteristic of creative individuals. A few important among them are mentioned in the following paragraphs.

Based on different combinations of two tendencies of introversion and extroversion with four functions of mind, viz., thinking, feeling, sensation, and intuition, Jung (161) gives eight types of creative personalities or Archetypes. Archetypes are dispositional tendencies from previous generations. Consideration to hereditary factors was also given by Jung.

Cattell's studies of personality profiles of eminent scientists and fiction writers, which showed no differences among the men from two fields suggests that personality characteristics are more basic than differences in the fields of eminence (152). No matter what the field of

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eminence would be, creative men are alike in their personality characteristics. There is enough practical consistency in this conclusion.

In most general terms the creative person is a self-sufficient introvert, as shown by his significantly higher scores on the 16 PF Factors A - (Reserve), F - (desurgency) and Q₂ + (self-sufficiency) (Cattell, 38). They are "withdrawn and quiescent, more concerned with ideas and things than people" (Drevdahl; 57). They are further described as having a multiplicity of identifications and ability as to communicate feelings and experiences (Biduson; 63). A study of inventive industrial scientists by Jones (160) showed characteristics similar to ones found by Cattell. Higher levels of creativity, as Windholz (287) found, are related to higher levels of interpersonal relationships. Another well-demonstrated personality characteristic is their preference for complexity (Barron; 15-18). Even creative women do not seem to differ from men (Eisenman, et al; 64). Strong symbolic interest, need for autonomy and high level of aspirations characterise creative women (Helson; 137).

There is a mounting belief with substantial evidence that creative individuals are non-conformists and independent thinkers (Crutchfield; 49). The creative persons are independent, self-assertive and dominant (Barron; 21). They are regarded as having passive emotional adaptations, self-discipline and retarded psycho-sexual development (Roe; 218).

Creative individuals have field independent cognitive styles (Spotts and Mackler; 230), less attitudinal rigidity (Galanter; 39); prefer unconventional careers (Dauw; 52) and professional careers (Yamamoto; 292); show greater striving for excellence (Torrance and Dauw; 258) and preference for super ordination (Babarik; 11); and are autonomous striving and devoted (Blatt and Stein; 32).

Jackson and Messick (154) tackling conceptual problems in the 'assessment of creativity have given personality styles and qualities as related to creative response properties.' Personality styles corresponding to creativity are; tolerance for ambiguity, analytic and intuitive, open-minded, and reflective and spontaneous. Personal qualities related to creativity are: original, sensitive, flexible and poetic.

Alamshah (3) lists the following four conditions as necessary for creativity: (i) Motivation which includes inherent needs, acquired traits and attitudes, (ii) self limitation which meets the demands of environment, (iii) receptivity which accepts changes conducive to originality, (iv) competence which involves mastery of creative tools.

As a summary of their findings, the participants of first, second and third University of Utah Conferences mention high degree of autonomy, self-sufficiency, ego-strength, tolerance for ambiguity, less gregariousness as characteristics of creative individual (237).

2.8 THE CREATIVE ENVIRONMENT

In a brief survey of problem-solving and creative process models, we have noted the position given to environment around the individual. Individual has not been viewed separately. Instead, he has been viewed as 'an agent' acquiring, retaining, generating and evaluating information and thus maintaining some sort of equilibrium with environment in the light of such information. Information has not been regarded as some thing existing inside or outside the individual, but some thing that forms out discrimination by him in the environmental context. At this juncture, the author would like to draw attention, further, to the definition of reality (given by James) as the one that remains 'uncontradicted' in the world of individual's experience in the environment.

Life has been viewed as a 'progressive balance' with the environment. Environmental stresses (E) and behavioural needs (S) thus form a dialogue in maintaining some sort of progressive equilibrium. For this purpose, Mooney's model which is more general in nature has been cited, which tells us what an exchange takes place 'fitting' new bits of information into individual's fields of experience. Due to entry of new information, there is always an imbalance in the individual. There is a tendency to establish equilibrium resulting in new wholes of information which have been

variously termed as products, configurations, structures, patterns, systems, combinations, etc., An over-view of different terms used in order to express what happens within the individual during creative process indicates some unity of concepts in the core.

Bringing in environmental factors as playing an important role in providing clues to the creative thinkers, Mednick's (200) mention serendipity as one of the ways by which 'creativity' would take place. Serendipity, as already mentioned, refers to a mental mechanism by virtue of which associative elements are evoked by 'the accidental, environmental, contiguous appearance of appropriate stimuli'. Newton's apple or Archimedes tub are famous examples. When the presence of environmental stimuli as the cause of sudden illumination is indisputable, it is true as Pasteur (210) once said, that 'chance favours the minds which are prepared'.

Unfortunately, few decisive studies have been made in the recent years on the subject. "We are perhaps more in the dark" as Utah Conference participants (237) put it, "about the environmental conditions which facilitate creativity than we are about any other aspect of the problem. Beyond obvious conditions, such as the need for ample time in which to work freely on problems of ones own choice, little is known". Agreeing that the existing expertise is insufficient to give any specific idea regarding the nature of 'General environmental

conditions' that are conducive to creativity, they have suggested three possible divisions for purposes of study, viz., cultural, professional and institutional.

Holland (144) has presented a relationship model. He gives three environmental influences - (i) parental attitudes and attributes, (ii) special recognition (academic), and (iii) work environment (vocational). Six kinds of accomplishments were - academic, persuasive, scientific, artistic, literary and musical (58).

Drevdahl (58), summarising implications of a pilot study suggested 'laissez faire' type of graduate training as favourable to developing creativity. It should be nondirective and relatively unstructured.

Taking the environment into account, Stein (234) defines creativity as the resultant of process of social interaction. He has regarded child as well as adult environments as having encouraging or inhibiting effects on creativity.

Hyman's (150) findings that a group motivated to think critically towards a problem and some suggested solutions proved more creative would suggest the type of the environment favourable to creativity.

Hinton (139) has showed that environmental frustration significantly reduces creative problem - solving performance. The hypothesis that a relationship exists between different levels of stress and originality did not find support (Suefeld; 236). Similarly, experimental evidence failed to confirm the hypothesis that creative individuals respond differentially in a threat situation (Eisenstadt: 66); Dreyer (59) reports significant differences in the degree of autonomy granted by the parents of high and low creative children. Helson (136) found that fathers of creative women were intellectually oriented and placed value on integrity. In one study by Datta and Parloff (51), creative young scientists described their parents as moderately affectionate, non-rejecting and high in encouraging intellectual independence.

Straus (235) made a comparison of differences in problem solving ability and of working and middle-class families of three societies, namely, Bombay, Minneapolis, and San Juan. Despite vast differences in culture differences between working and middle-class families were similar in three cultures. The more urbanised the city the less was the difference between the social classes.

The studies mentioned above are simply vaguely suggestive of the environmental conditions conducive to creativity though any clear-cut conclusion would be premature. An overview of creative personality styles and environmental studies

indicates the complimentary nature of the two types of variables. Holland (144) mentions such a relationship in a report of his studies on the creative performance of high aptitude youth. Artistic achievement occurred more frequently when the student attended a college whose environment was congenial with his personality type.

2.9 WHAT IS CREATIVITY

Referring to different approaches to the study of creativity, Torrance (257) opines that for a thorough understanding all approaches are necessary. Golann (103) suggests a reorganisation of concepts of creativity and intelligence as a first step towards a unified theory.

To conclude this chapter, it would be apt if the interesting experiment conducted by Mednick (200) at the Fifth Utah Creativity Research Conference is cited to show how diversified is the understanding of 'creativity' among the psychologists who devoted to study it. To the stimulus word creativity, there were a total of 395 different words as responses, an average of sixteen words given by each person in two minutes. Though Mednick concluded that there were many people who took creativity as originality, newness, unusualness or novelty, it is a beautiful demonstration of our understanding of creativity! The question 'what is creativity' remains yet to be answered in definitive terms!