CHAPTER II

THEORETICAL FOUNDATIONS

Before attempting to measure some aspect of creativity, one needs to define the term. Broadly speaking, creativity conveys a general meaning of the antecedent, concurrent and/or consequent characteristics of a process that is used in bringing into existence a form that did not exist before. When creativity is used to denote a specific set of phenomena, many differences of opinion arise. Theoretical orientations in which creativity is viewed as: (i) product, (ii) process, (iii) capacity and (iv) person, have been used to develop the theoretical background of the problem in this study. In the present chapter the first three orientations are included in Part I under "Creativity" and the fourth in Part II under "Creative person".
Part I: Creativity

Creativity can be understood as a process by which an individual can bring a new thing or idea into existence. For an artist, creativity is a process in which a great part of his being is involved; for an educator, it is a process of thinking which can be either nurtured or inhibited during the process of teaching-learning. The industrialist recognizes it as a condition for new productions which have economic value; and for a historian, it is an attribute of greatmen.

Psychologists have also lately joined the group. They regard creativity as a process which takes place during the interaction between an object and mental configuration. For Baker (1962) creativity is, "Bringing about notable changes in things, thoughts, social structures through action; thinking which results in a situation not previously known to us."\(^1\)

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\(^1\) Samm C. Baker, "Your Key to Creative Thinking: How to get more and better ideas", New York: Harper and Row, 1962, Chapter I.
Rhodes (1961) defines the word 'Creativity' as a noun meaning the phenomenon in which a person communicates a new concept - which is the product. C.W. Taylor (1964) while discussing the criteria of creativity, writes, "Products" are not only physical objects but also theories and designs, a product is something that finally exists independent of the person responsible for it. McPherson (1963) and D.W. Taylor (1963) are the two main exponents of the product approach; the latter reports Ghiselin and Lacken for his support. In spite of having objectivity, the product approach fails to distinguish between creativity and non-creative antecedent conditions.


When the quantity of a product is the measure of creativeness, the methods used to assess quality are often unreliable and open to halo-effect. This approach fails to consider variables of psychological interest, particularly related to children, because children, generally, are incapable of producing novel objects of economic value.

Creativity as a process has been characterised by different theories in terms of stages, levels and types of thinking. Wallas (1926)⁶ talks of preparation, incubation, illumination and verification as four stages of the creative process. They form a sound base for Roseman’s (1931)⁷ and Osborn’s (1957)⁸ detailed stages of the creative process. The basic assumption of this scheme is that there is an orderly progression during the creative process from one stage of creation to the next, although creativity can

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enter at any stage of the research process. Crude attempts were made by Patrick (1937)\textsuperscript{9} with artists, (1938)\textsuperscript{10} with scientists, and (1935)\textsuperscript{11} with poets, to validate the hypothesis introduced by Wallas. Regarding the progression of stages during creative performance opposing views have been put forward. For Ghiselin (1955)\textsuperscript{12}, the creative process is a sudden passage from confusion to configuration. Haefele (1962)\textsuperscript{13} quotes Eindhoven and Vinkae, stating that it is blending together and going along concurrently of all the stages of creativity. The main contribution of these analyses is that they provide sufficient ground to think of abilities and personality dimensions that are likely to be involved in producing a novel thought or

\begin{itemize}
\item \textsuperscript{13} J.W. Haefele, 'Creativity and Innovation', New York : Reinhold Publishing Corporation, 1962, p. 17.
\end{itemize}
configuration of Ideas. Creativity has also been used as a type of thinking. For J.E. Arnold (1953), creativity involves the re-arrangement of past experiences, with possibly some change into new patterns, to satisfy some expressed or implied need. Mendlucks (1962) perceives "formation of associative elements into new contributions," as the basis of novel thought.

According to Freud, creativity is the sublimation of libidinal drives which can be viewed as another form of configuration. More recently Kris (1952) and Schafer (1958) described it on the basis of psychoanalysis as a voluntary relaxation of ego-control ("regression in the service of ego") in order that reality-thinking can be expanded by the corporation.

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and integration of previously repressed material. Kubie (1958)\textsuperscript{18} has added a third and intermediate "pre-conscious" level of thinking. Apart from the psycho-analysis point of view, other orientations have analysed the same phenomenon in a different way.

The other theoretical orientation i.e., creativity as capacity, is considered very adequate from assessment point of view. This orientation emphasizes the potential of an individual to perform creativity. Ability factors are the major determinants of creative potentiality. Guilford (1950)\textsuperscript{19} in his first hypothesis included sensitivity to problems, ideational fluency, flexibility of set, ideational novelty, synthesizing ability, span of ideational structure and evaluating ability as major constituents of creative ability. At first, these factors were considered essential to creative production in science, but later on Guilford's group established that the same factors may be operative in the creative production in art and other areas.


R. Wilson (1954)\textsuperscript{20}, J.P. Guilford and his followers discovered word fluency, associational fluency, ideational fluency, closure, originality, redefinition, adaptive flexibility, spontaneous flexibility and sensitivity to problems as specific constituents of creative ability. Getzels and Jackson (1959)\textsuperscript{21} who have somewhat holistic approach to creativity defined creative thought as a "goal directed, easily flexible - manipulation of knowledge in a wide variety of novel or original ways." In this process they note such abilities as adaptive flexibility, associative fluency, and perhaps most important, originality. Still another expert on creativity, belonging to the latter group is Torrance (1966)\textsuperscript{22} who 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

\begin{itemize}
  \item \textsuperscript{20} R. Wilson, et. al, "A factor-analytic study of Creative Thinking Abilities", Psychometrika, 19: 297-311, December, 1954.
  \item \textsuperscript{21} J.W. Getzels and P.W. Jackson, "The Highly Intelligent and the Highly Creative Adolescent", quoted in Education of the Intellectually Gifted, N.J.Gold,Ohio: Charles E.Merrill Books,Inc.1965,p.107
\end{itemize}
solutions, making guesses or formulating hypotheses about the deficiencies, testing and retesting these hypotheses and possibly modifying and retesting them; and finally communicating the results.

A special feature of Torrance's theoretical approach is that it is general and involves both the thinking process and ability. It also defines creativity in measurable terms. Later advancements particularly those by Guilford (1963) provide a more comprehensive basis - the three dimensional model of intellect - to understand not only factors of creative ability but also the intellect as a whole. In this model, creative abilities are classified largely in terms of divergent thinking applied to semantic content, although other categories of thinking, contents and products are also implied.

Creativity when perceived in terms of its constituent ability factors may provide not only the objective basis of assessment but the basis to differentiate

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it from other modes of mental operations — Cognition, memory, convergent thinking and evaluation. The analysis in the proceeding paragraphs reveals that divergent thinking is the only mode of mental operation which distinguishes creative thinking from the other modes. But it would be incorrect to assume that divergent thinking accounts for all the intellectual components of creative production (Guilford). It seems quite correct to assume that the divergent thinking abilities are the major determinants of creative potentiality because no unique contribution can occur in their absence. Lowenfeld’s (1959) distinction between potential creativity and actual creativity becomes more specific if divergent thinking abilities are taken as the major determinants of the creative potentiality. In addition, the divergent thinking abilities can justify the basic assumption that creative ability is


present in all individuals of normal growth though in varying degrees. It is against this background that the divergent thinking abilities are assumed to be the major determinants of potential creativity, particularly at the school stage.

Guilford's S.I. model is of great help in specifying the divergent thinking abilities with respect to content and product. The model is given in figure No. 1 (p. 26). In order to specify a factor of intellect, one element from each of the three dimensions is needed such as divergent production of figural units (ideational fluency). Since, the present investigation is restricted to one mode of mental operation, i.e., divergent thinking only, another model having two dimensions to represent the two varying factors, viz., content and operation, may be visualized. Guilford represented a matrix of the divergent production factors (D) - which is a section of the S.I. model - as shown in Table I.
Figure No. 1

Guilford's S.I. Model of Intellect

**OPERATION:**
- Evaluation
- Convergent production
- Divergent production

**MEMORY**
- Cognition
- Units
- Classes
- Systems
- Transformations
- Implications

**CONTENT:**
- Figural
- Symbolic
- Semantic
- Behavioral
TABLE I*

MATRIX OF DIVERGENT PRODUCTION FACTORS

<table>
<thead>
<tr>
<th>Figural (F)</th>
<th>Symbolic (S)</th>
<th>Semantic (M)</th>
<th>Behavioral (B)</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>N</td>
<td>0</td>
<td>Units (U)</td>
</tr>
<tr>
<td>DFU</td>
<td>14</td>
<td>DSU</td>
<td>13,14</td>
<td>6,10,13,14</td>
</tr>
<tr>
<td>DFC</td>
<td>14</td>
<td>DSC</td>
<td>14</td>
<td>11,12,14</td>
</tr>
<tr>
<td>DFR</td>
<td>14</td>
<td>DSR</td>
<td>14</td>
<td>11,12,14</td>
</tr>
<tr>
<td>DFS</td>
<td>14</td>
<td>DSS</td>
<td>14</td>
<td>6,13,14</td>
</tr>
<tr>
<td>DFT</td>
<td>14</td>
<td>DST</td>
<td>14</td>
<td>11,12,14</td>
</tr>
<tr>
<td>DFI</td>
<td>11,14</td>
<td>DST</td>
<td>14</td>
<td>11,12,14</td>
</tr>
</tbody>
</table>

Each of the cells of such a matrix represents a single factor with minor exceptions in DFC category, where two factors exist. Each factor has a trigram symbol that stands for its unique combination of operation, content and product, symbolized in that order. There is a digit in the upper right corner of each cell which indicates the number of times the factor is obtained at the age/ages given in the second line of the cell.

The two dimensional table has been used as the basis to select divergent thinking abilities for the present study. The number of times a factor appears at a particular age level and the difficulty estimated in devising a factor test have, generally, been the bases to select factors of divergent thinking. Exceptions were made in one or two cases like DFC and DFU simply to include all the factors of divergent thinking (fluency, flexibility, originality, elaboration) pertaining to a content. The factors of divergent thinking abilities that are proposed for the study at the initial stage are fluency - ideational fluency (DFU, DMU), word fluency (DSU), associational fluency (DSR, DMR) and expressional fluency (DMS, DSS), flexibility - spontaneous flexibility (DFC, DMC, etc.), originality
(DFT, DMT) and elaboration (DFI). Adaptive flexibility is not selected for this study, since, first, the factor does not clearly exist and secondly, its measurement is relatively difficult. Less weightage is given to elaboration ability since it is too difficult to devise a test to measure it. Thus, fluencies (word fluency, ideational fluency, associational fluency and expressional fluency), flexibility, originality and elaboration have been taken as the major factors of the divergent thinking abilities for this study.

**DEFINITIONS OF THE ABILITY-FACTORS**

The factors of divergent production specified in terms of content, operation and product are defined as given below. The definitions given by J.P. Guilford in his book "Personality" 1959 (a) are being accepted for this project.

1. **DFU - Figural fluency.** The ability to produce figural units rapidly, given a few elements from which to start or to use in composing those units.

2. **DSU - Word fluency.** The ability to produce words rapidly that conform to simple literal specifications.
(3) DMU - Ideational fluency. The ability to produce a quality of ideas, relevant to given information but not necessarily of high quality, in response to a given idea.

(4) DFC - Figural spontaneous flexibility. The ability to shift readily from one class of figural information to another.

(5) DMC - Semantic Spontaneous flexibility. The ability to shift readily from one class of verbally meaningful information to another.

(6) DSR - Symbolic Associational fluency. The ability to produce a variety of symbolic relations or a variety of symbolic correlates.

(7) DMR - Semantic Associational fluency. The ability to produce a variety of verbally meaningful correlates.

(8) DMS - Semantic Expressional fluency. The ability to construct meaningful patterns of ideas (semantic content).

(9) DSS - Symbolic Expressional fluency. The ability to construct meaningful patterns of ideas (symbolic content).
PART XI : CREATIVE PERSON

The orientation - creativity as a person - rejects the idea that creativity can be studied as a variable or set of variables isolated from the totality of an individual personality. Creativity has been viewed by some theorists as a manifestation of the basic need of every individual to realize his potential. Rogers (1969)\textsuperscript{26} and Maslow (1959)\textsuperscript{27} have


viewed the creative process as "Self-actualization", whereas May (1959) viewed it in the context of existential psychology believing that the meaningful creative act occurs only when the individual makes a total commitment to some course of action.

It will be too high an expectation that every potentially creative person will generate novel ideas and objects. For full functioning of creative abilities of a person, presence of their personality concomitants is essential. Rogers (1959) while analysing the conditions of constructive creativity, emphasizes 'openness to experience; extensionality,' 'internal locus of evaluation', and 'an ability to toy with elements and concepts'. He believes that psychological safety and psychological freedom are two very essential conditions to foster constructive creativity. Maslow, Fromm and Kube emphasize mental health for creativity which means sensing the problems of individual's inner and external worlds, objectively.


29 C.R. Rogers, op. - cit, pp. 75 - 80.
It seems essential at this stage, to recall the psychodynamics of the creative process, simply to understand the role of feelings, attitudes and personal beliefs of the person in his creative action. When a person interacts with his inner and outer experiences, he forms certain configurations or patterns by perceptual as well as imaginative images, symbols, feelings and attitudes.

These patterns tend to be traced on the nervous system (Rugg). The configuration can be brought to the preconscious region whenever a part of the configuration is stimulated. The stuff - perceptual experiences, motor adjustment, imagery, old concepts (Rugg); forgotten ideas, primitive sub-system of beliefs (Freud) - that reside on the nervous system as electro-chemical changes (Rugg), acquire kinetic energy to move from unconscious region to pre-conscious region. This stuff is transformed into symbols and metaphors in the process of passing from the unconscious domain to the

31 Ibid. p. 62.
32 Harold Rugg, op. Cit., p. 34 and p. 293.
preconscious. In the case of the creative person, the metaphor and the symbols move freely because of the variety of all levels of censor. The healthy person tends to modify even the primitive sub-system of beliefs (Allport, Maslow) and becomes open-minded. He extends his inner life over a wider region, meaning thereby that he internalizes wider generalizations and laws governing other human beings externally.

Keeping in mind the stages of creativity it can be said that the inflow of the new ideas and elements to the pre-conscious region continues during the incubation period. A creative person tends to hold this state of confusion and ambiguity until the insight occurs (Maslow). Often occurrence of a creative flash encourages the creative person to


35 Ibid. p. 130.
tolerate ambiguity simply to check closure of immature ideas. He tends to become autonomous in thinking and independent in judgment — Maslow, Fromm, Rugg and Koestler.

The personality traits so far discussed and similar others, provide conducive environment for the occurrence of the creative flash. In creative action, two or more configurations combine, intersect, juxtapose or compound, resulting in a new configuration. The interaction of two different matrices of thought may release emotions — eureka feelings, laughter. Appreciation of this feeling tends to convert a creative person to a humourist, caricaturist and satirist (Koestler). In the creative person the occurrence of creative action very often and the joy felt out of it, tend to induce the strength to stand against the external pressure — group norms, irrational authority — which

38 Rugg, op. cit. p. 297.
40 Koestler, op. cit. pp. 91, 187.
suppress his creative potentialities. The creative person seeks social recognition through his creative products instead of automatic compliance of the role of authority. He tends to develop a productive character (Fromm)\(^{41}\) and gradually becomes non-conformist (Maslow)\(^{42}\), 'Rugg', Fromm)\(^{43}\) and introvert. He may develop qualities of leadership in his personality through his unique production.

As a creative person is intrinsically motivated in his growth and uses the external world instrumentally, he accepts his weaknesses as well as the strength of others and tends to utilize them for his benefit. He learns the good points of others and tries to remove his short-comings. Thus he tends to become open-minded (Maslow, Allport)\(^{45}\) - and democratic (Allport)\(^{47}\).

\(^{41}\) Fromm, op. cit. pp. 30-31
\(^{42}\) Maslow, Loc. Cit. pp. 32-33.
\(^{43}\) Rugg, op. cit. p. 299 and p. 309.
\(^{44}\) Fromm, op. cit. p. 285
\(^{45}\) Maslow, op. cit. p. 129
\(^{46}\) Allport, op. cit. pp. 283 - 285.
\(^{47}\) Allport, op. cit. p. 286
He maintains growth by forming an ideal self depending on real self (Maslow). He attempts to actualize the ideal self. It is this trend of growth which enables him to internalize universal laws in his personality. He tends to sacrifice minor interests for the sake of bigger ones. He tends to develop universal outlook towards the day to day problems (Allport, Koestler). Thus he tends to iron-out dichotomies from his behaviour and develop an integrated personality (Fromm, Maslow). The development of universal outlook induces strength in his will and he tends to develop a strong ego and emotional stability. He feels himself capable of controlling his behaviour (Allport). He maintains flexibility in thinking and action. He tends to bring spontaneity in his reactions since the frequent occurrence of creative flash induces this trait in the creative person. He develops confidence in himself.

48 Maslow, op. cit. p. 23.
49 Allport, op. cit. p. 283
50 Koestler, op. cit. p. 344
52 Maslow, op. cit. p. 136
53 Allport, op. cit. p. 228
rather than in irrational authority. The personality traits of a creative person may be summed up as open-mindedness, tolerance of ambiguity, independence of judgment, autonomy in thought and action, non-conformity, universal outlook, democratic attitude, emotional stability, strong ego and the like.

The development of neurotic and non-creative behaviour in individuals is mainly due to lack of inherent potentialities for growth and a rigid and closed social environment. In such an environment even the potentially creatives change to non-creatives and neurotics. In a closed and rigid environment, even a potentially creative child feels socially insecure in expressing his silly and immature but unique ideas. He may face aloofness in base he wishes to maintain the productions of such ideas. This fear of aloofness compels him to escape from freedom (Fromm), and to submit to the irrational authority. He internalizes the irrational authority and gradually alienates himself from his inner world (Fromm). He loses confidence in himself and therefore tends to

54 Fromm, op. cit. p. 36
55 Ibid. p. 152, p. 185.
become obedient and submissive to secure social recognition. He tends to develop anxiety as a sign of neuratic behaviour. Such persons develop hatred and aggressiveness in their behaviour towards the irrational authority but do not manifest the traits. He tends to become extroverts since he realizes the need to exhibit his compliance to group norms. He adjusts well in his group and thus becomes a conformist (Fromm). He can never gain social recognition by productive work and therefore tends to develop hoarding, exploitative, marketing and receptive character (Fromm). The non-creative person lacks in objective perception of external realities and therefore tends to project his weakness upon external objects. His ideal-self never depends upon real self and therefore dichotomies are found in his behaviour. He internalizes them by projecting on Idealized Authority. The non-creatives are undemocratic since they never expose their weakness to others because of fear of criticism. The primitive sub-system of beliefs stand unmodified and therefore he tends to

56 Fromm, op. cit. p. 250
57 Ibid. op. cit. p. 350
become a close-minded personality. He tends to become narrow-minded, rigid and develops a stereotype behaviour. The main reason of all such occurrences is his alienation from his inner world. He never tolerates ambiguity since he cannot stand in a situation of indetermination and confusion. He tends to use rules of the external world to understand a problem. He never takes judgment independently and develops a weak ego. Since many of the contents of the unconscious mind do not get opportunity to cross its border, they tend to come out in slips of tongue, day-dreaming, reading fiction, imaginary plays and stories. Many a time, he tends to indulge in austere thinking. Similar other personality traits can be expected to grow in a non-creative person. We may briefly recall the personality dimensions of a non-creative person as close-mindedness, intolerance of ambiguity, dependence, submissiveness and obedience, conformity, aggressiveness, rigidity, alienation, extroversion, non-productivity, undemocratic, ego-centricism, day-dreaming and the like.

The personality dimensions that are considered most suitable for maintaining the growth of the divergent thinking abilities and activating the abilities to evolve in the form of creative performance, are open
mindedness, ego-strength, autonomy and non-conformity. The ego-strength was considered suitable since it will enable the divergent thinking person to maintain autonomy of his judgment and action. It can also enable the creative person to resist social pressures for accepting external authority instead of his own. The open-mindedness will strengthen his tendency to maintain growth in his personality, accepting his weaknesses, eradicating them and accepting good ideas and actions of others. These dimensions will enhance the growth of his abilities in case he does not yield to social pressures and fights against the authorities encroaching upon his independence. The potential creative ability may evolve as full-fledged creativity.

It would not be out of place to discuss the definitions of those personality dimensions which are selected for this study.

1. Open-mindedness

Good has defined this personality dimension as "a characteristic willingness to think through a situation without prejudice." 58

There may be other ways of defining open-mindedness but the investigator used the Rokeach's concept of the term because (i) it was most comprehensive, and (ii) the test was available to measure the continuum in accordance with the definition.

(Rokeach open-mindedness and closedness of belief systems has been viewed in terms of three major dimensions): a belief - disbelief continuum, a central - peripheral continuum, and a time - perspective continuum. First, a belief-disbelief system is open to the extent, with respect to its organisation along the belief - disbelief continuum; (a) the magnitude of rejection of disbelief sub-system is relatively low at each point of its spread; (b) there is communication of parts within and between belief and disbelief systems; (c) there is relatively little discrepancy in the degree of differentiation between belief and disbelief systems; and (d) there is relatively high differentiation with the disbelief system. The closedness can be defined on the above basis.

Secondly, a belief-disbelief system is open to the extent that, with respect to the organisation along the central - peripheral continuum, (a) the specific content of primitive beliefs (Central region) is to the effect that the world - one lives in, or the situation one is in at a particular moment, is a friendly one; (b) the formal content of beliefs about authority and about people who hold to systems of authority (immediate region) is to the effect that authority is not absolute and the people are not to be evaluated according to the requirement or disagreement with such authority; and (c) the structure of beliefs and disbeliefs perceived to emanate from authority is such that its sub-structure are in relative communication with each other. The closed (and) can well be perceived on the basis of open one. Thirdly, a belief-disbelief system is open to the extent that, with respect to time perspective continuum, there is relatively broad time perspective. The system is closed to the extent that, along the same continuum, there is relatively narrow, future oriented time perspective.

The analysis of this continuum has been summarized by L. Sills (which) has become the basis to measure closed - open mindedness. For Sills, "... the open mind
is considered to represent a structural organisation generally having greater differentiation within its disbelief system and greater communication within and between belief and disbelief systems (interdependence), while the closed mind is characterized by less differentiation within its disbelief system and greater isolation within and between belief and disbelief system."

2. **Non-Conformity**

Good has defined the personality dimension as a behaviour of a nonconformist. For him, a nonconformist is (1) one who refrains from following or refuses to follow a pattern of behavior which is generally accepted, advocated, or used by his associates; (2) one who shows extreme individuality; (3) one who is unbound by convention and tradition, or who defies authority; (4) one who challenges accepted beliefs or principles...

The other end of the continuum is defined by him as well. By conformity he means, "... (1) essential adjustment to the social environment over which one has no control; (2) submission to explicit or implicit

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61 Good, op. cit. p. 365.
coercion; (3) acceptance, ordinarily without awareness, of prevailing customs and usages;
(4) agreement in form or behaviour with a standard type."  

The definition of conformity - non conformity continuum that has been accepted for this project reads as follows:

Conformity is the dependence upon public opinion, social norms, conventions, mores, superstitions prevalent in society, and yielding to group pressures and techniques of social control.

Whereas the non-conformity end of the continuum represents the activation by internalized values, the independence from public opinion and conventions, if need arises, their yielding nature to group pressures and technique of social control.

3. **Ego Strength**

Good defines the personality dimension as, "ability of the ego to withstand stress without personality dis-organisation".  

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62 Good, op. cit. p. 121
63 Ibid. p. 196.
The definition that has been accepted as the basis for this personality dimension reads as follows:

It is the ability to build up a consistent and enduring set of moral values within the personality. The weak-strong continuum of ego will represent from complete inability to strong ability to build up a suitable set of moral values. It is the weakness of ego, apparently, that makes it necessary for the individual to seek some organising and coordinating agency outside of himself for moral decisions.

4. Autonomy:

Good defines autonomy as, "...(2) the relative independence of an individual in guiding or regulating his own conflict; (3) freedom to act without external control, ...." 64

The basic definition for this project is given below:

Autonomy is a desire to get free, shake off restraints, breakout of confinement. It is a desire to resist coercion and restrictions. It is tendency to be free and independent, to act according to impulse.

64 Good, op. cit. p. 51