CHAPTER – I

INTRODUCTION

The era of modern society is the process in which major clusters of old social, economic and psychological commitments are eroded and broken and people become available for new patterns of socialization and behaviour. Today’s world calls for new approaches to experience, both in acquiring it and in using what we already have. Humankind must learn to make new and useful adaptation to the emerging challenges in our global environment. People have realized that innovative learning is a necessary means of preparing individuals and societies to act in relation to new situation especially those that have been, and continue to be, created by humanity itself.

A growing global educational reform movement commonly known as 21st Century Learning aims to promote creativity across the curriculum. Creative people will be a valuable resource in the rapid process of change, especially of technological change, which has gripped our world in recent years. The systems which shape even day to day life are becoming so complex that the presence of highly able thinkers, capable of dealing comfortably both with modern technology and also with breathtakingly complex interactions between natural and manmade systems, is rapidly becoming a prerequisite for the maintenance of a way of life which is fit for human beings.

Most social structures, including political systems have evolved slowly over the centuries, but many of them are no longer appropriate to the modern world. People
will need to be both flexible and resourceful if they are to adjust to the rapid multidimensional transformation of social, political, economic, demographic and cultural aspects of life and increasing globalization. In this view of the future, traditional responses to the demand for education that are essentially quantitative and knowledge based are no longer appropriate. Each individual must be equipped to seize learning opportunities throughout life, both to broaden his or her knowledge, skills and attitudes, and to adapt to a changing, complex and interdependent world. To cope with the demands of the future, people will have to be quick-thinking, flexible and imaginative. They will need to be competent in producing effective solutions to unfamiliar problems in unclear situations. If creativity development were to have the same status in education as it does in the corporate setting, the children would be in a much better position to cope with these kinds of challenges.

Man is a creative being. His creative activity takes many forms. He may develop his ability to make music or to explore mathematics, to decorate his body or to make a home, to dance and mime, to make pottery or to paint a picture.

Whatever form his creative activity takes, he is concerned with making relationships between the elements in the activity, whether they be sounds, movements, shapes, tastes, colours or any other. Because of the relationships he makes between them, something new results. Sounds are put together to make a melody or a rhythm, movements to form a dance, shapes and colors to make a pictures or a pattern. Sometimes these relationships are the result of an inner vision on the part of the creator. He saw them in his mind’s eye before he gave them form. At other times they are the result of a happy accident which has come about through experiment. More usually they are the result of a combination of these. He starts with an inner vision which is incomplete and discovers new possibilities as he works.
However the final result is achieved, it will bear the personal stamp of its creator. It will be something unique, however poorly executed and inadequate it may be. This creative activity is necessary in some form for everyone. It is interesting to note that even under very difficult conditions, most people attempts some form of activity which can be called creative. If education is to be education of the whole man it must include many opportunities for creative work. There are several aspects that need to be cultivated in schools to promote the development and expression of creative abilities. There is a consistent thread running through the suggestions made by most researchers concerning how to assist in the fulfillment of the creative potential in children. They suggest that the school must take the lead in creating total learning environment that combine the promise and the capabilities of all educating and socializing settings.

‘Creativity’ has fascinated scientists, philosophers and laymen alike. One of the major aims of education is to promote creativity in pupils. This is basic for the progress of any society in particular and mankind in general. All cultures have recognized and valued ‘creativity’ highly. It is one of the main aims of education to encourage the development of creative abilities. Therefore educators are forced to concern themselves with the question what are the conditions which can enhance the formation of creative thought?

Several studies made suggest the diversity of its (creativity) origin. However, there is considerable amount of agreement as to some of the conditions enhancing creativity. We would expect educators to use techniques in their intellectual work. Similar to the techniques which are thought to create a fertile soil for the growth of new ideas.
The mental attitude encouraged in our schools is in many respects diametrically opposed to the mental attitude which is thought to stimulate creativity. Though without industry great intellectual work cannot be done, yet more industry may prevent creativity.

The constant activity enforced by many educators does not give pupils the leisure which is an essential prerequisite for intellectual or artistic creation. We teach pupils the important regular study habits. The advantage of regular study habits during the student years is great but optimum point at which the curve of that advantage cuts the curve of the advantage of fresh initiative is different for those whose professional work will be intellectual and for those of different powers and aims. It would never occur to educators that regular study habits could be anything but advantageous. We try to instill critical attitudes and importance of intellectual objectivity. This leads to a spirit of mellow tolerance and scholarly insight resulting in the loss of creativity impulse. The concentration of attention involves setting up of inhibitions and keen observation of something and ignoring of great many things.

Maier and Luchins show that the arriving at solutions is facilitated by loosening instruction as “Do not be a creature of habit and stay in a rat”, “Keep your mind open for new meaning,” “Do not be blind,” “The solution appears suddenly, we cannot force it”, Perhaps it is profitable to cultivate a passive, inattentive attitude not as a permanent condition but as a stimulating technique during certain phases of individual’s intellectual work. Bateson says, “The advances in scientific thought come from a combination of loose and strict thinking, and this combination is the most precious tool of science”. Industry, regular study habits, and a critical controlled attitude are necessary attributes of successful intellectual work. Several of the creative
individuals found that relaxation, irregular habits and temporary abandonment of criticism and control enhance creativity.

Just as we often deceive small children about the nature of birth, we deceive our pupils by pretending that intellectual creation is unemotional. By de-emotionalizing intellectuality we suffocate intellectual creativity.

In the classroom teacher could promote creativity by adopting procedures such as:

**Type I problem:** Situations in which prior learning is applied to a problem set by the teacher and where the solutions procedure is known to the teacher and is presumed to be available to the learner.

**Type II problem:** In which the teacher presents the problem and is aware of how to solve it but no standard method of solving it is presumed to be available to the student.

**Type III problem:** The problem situation is set by the teacher but neither he nor the student knows a standard method for solving it.

Learners should identify the difficulty, search for solution, making guesses (formulating hypothesis), testing and restating the hypothesis and finally communicate results.

Different aspects of verbal and creative functioning are, (i) Fluency- the number of different relevant ideas; (ii) Flexibility- the number of shifts in thought or changes in categories of response; (iii) Originality-the number of statistically infrequent responses; (iv) Elaboration-the number of different ideas employed in working out the overall idea.

The above characteristics are derived from Guilford’s Concept of Intelligence (1959) dealing with divergent thinking. Jackson and Messick (1967) have developed predisposing Cognitive styles, personal qualities and the responses:
### Predisposing Aesthetic Cognitive Styles Response

<table>
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<tr>
<th>Tolerance of Incongruity</th>
<th>Analytic and Intuitive Satisfaction</th>
<th>Open-minded Stimulation</th>
<th>Reflective and Spontaneous Savoring</th>
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<td>Inconsistency, etc.</td>
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**Classroom conditions favouring Creativity:**

1. Openness to experience which is the opposite of psychological defensiveness.

2. An internal source of evaluation.

3. A willingness to manipulate ideas and various dimensions of reality.

   Psychological safety and psychological freedom foster the growth of the essential characteristics that promote creativity. First, the pupil must be unconditionally accepted as an individual of worth.

   Second, the pupil’s internal evaluation must be fostered by creating learning situation without threat.
Third, the teacher must empathize.

Appreciating the importance attached to nurture creativity by the societies especially in the modern conditions of rapid technological advances it has become an important goal of the school to foster creativity in the pupils. Creativity is evidenced through flexibility, originality and fluency, which are the distinct aspects of divergent thinking. This can be assessed by using unusual uses tests in the classroom or the laboratory. Originality which is the aspects of uniqueness and fluency are equally characteristic of creative thinking. In teaching for creativity the teacher looks for increase of the responses of the divergent thinking type.

Getzels (1964) distinguished between two kinds of problems -

Problems presented to the pupils and problems which are discovered by the pupils by themselves without teachers help. Creative thinking appears in the situations in which the problem is presented but the method of solution is unknown to the pupils. The pupil has less knowledge of the problem situation therefore he must create the remaining part to complete the picture under such condition the pupils experience and exhibit different levels of difficulty and require considerable assistance from the teacher. This method was first used in the business world and later successfully adopted to the classroom situation.

A problem is presented to the class and the pupils are required to find as many solutions as they think of. This is a form of free orientation technique. The difference is that this technique uses ideas rather than words, groups rather than individuals. Sidney Parnes and Arnold Medow (1962) have found brain-storming a very effective technique. They summarized their results:

2. It produces more problem solutions than by any other method.
3. More good ideas are produced with brainstorming them with conventional procedures.
4. Extended effort to produce ideas leads to a higher proportion of good ideas.
5. Pupils trained on brain-storming obtained better scores on Guilford’s Tests of creative abilities.

Another appropriate approach the teacher may adopt in the classroom to foster creativity is the teaching of basic research skills. The understanding and use of research principles yielded more creative results. What is the role of reward on creative achievement? This aspect of reinforcing creative responses has not received much research attention. However, the teacher can reward pupils for creative achievement by treating unusual questions raised by pupils with great consideration. The same thing could be said of unusual ideas. The teachers should communicate to the pupils through verbal or other expressive modes that the ideas are of value and they deserve respect. The teacher can give credit for self-initiated learning and also provide opportunities for pupils to learn, think, and discover without any fear of evaluation.

It is the main task of education to clear away the obstacles at various levels so that the creative forces can be effective. The schools are often hostile to creativity (Tumin 1962). Torrance (1960) showed that there is often a tendency in schools for children with creative talents to be downgraded, in comparison with children with a high I.Q. Creative thinking children are often more difficult pupils (non-conforming). The other negative factors very often encouraged in schools are- Success orientations and strict avoidance of risk of making mistakes, emphasis on individuality, inhibition of the questioning attitude, dichotomy of work and play. Various studies dealing with
the problem of education for creativity indicate that the development of creative ability can be encouraged by suitable educational learning milieu.

Fostering Creativity in the classroom demands a stimulating climate. The objective of this climate is to enhance creative thinking in children in general and gifted children in particular through enrichment activities running across a wide range of school subjects. We need to satisfy the intellectual curiosity of children which is normally not satisfied within the frame work of regular educational programs. Education in our schools is dominated by examinations which are detrimental for the development of talent, creativity and innovation. The creativity is adversely affected by characteristics of centralization, standardization over emphasize of the written mode, externality of examiners over emphasized traditional concept of objectivity, over emphasis on quantification, and single-examiner based evaluation.

Concepts like co-operative evaluation, peer group evaluation, self-evaluation, participatory evaluation, programmed evaluation, qualitative evaluation, continuous comprehensive evaluation of left-right brain activities, productive evaluation, evaluation through role play, evaluation interviews, observation, and system evaluation are to be developed through research in the Indian education scenario.

In countries like the USA and France, some patent Bureaus exist which provide a new and original way of detecting young technical talent. These patents collaborate with technical magazines, clubs and associations for children. Inventions and designs in technology sent by children are evaluated and accepted if the idea is new. Our National Talent search program launched by the NCERT, the scheme of Novodaya Vidyalayas, activities like children science congress, National Rural Talent search scholarship scheme, etc. must be reviewed and integrated through long-term sponsored research projects.
Education is not a preparation for later life; it is an aspect of life itself. If one of the long-term purposes of education is to prepare children to take their places in our fast-changing society, they will need open, flexibility minds and the ability to combine information in new ways (Iverson, 1982). As Chada (1990) said, “We will certainly need a different kind of thinking process to be able to live in the world with changes at a much faster pace and with more greater complexity.” “The climate of future-focused schooling is especially important because of the need to motivate children to make a sustained effort both to attain a better world of tomorrow and to create a realistic place for themselves in such a world,” (Toffler, 1974).

1.1.0 CONCEPT OF CREATIVITY:

(i) Creativity:

The concept of creativity has been understood differently by different workers. Most of us have been regarded creativity as something mysterious-a rare gift possessed by very few people. We used the term ‘creativity’ in relation to the arts and to those stroke of genius that produce an invention or major scientific discovery, but creativity can be reflected through almost all human activities. Everyone during their daily lives may make changes to things they produce, for example cooks, dress designers, carpenters, goldsmiths, pottery makers etc. All are creating something. Their creative energies are being manifested in different ways and styles. In fact, creativity makes an object or activity better, richer, more productive, fruitful and aesthetically satisfying. Different viewpoints have been put forward to explain the term ‘creativity’. By and large, psychologists seem to agree that; Creativity is a form of directed thinking in which the thinker seeks to discover something new, novel, unusual or tries to invent something unique and desirable. E.P. Torrance defines creativity as a process of becoming sensitive to problems, deficiencies, gaps of
knowledge, missing elements, disharmonies and so on; identifying the difficulties, searching for solutions, making guesses or formulating hypothesis about the deficiencies, testing and retesting them and finally communicating results. A workable definition of creativity could be as, Creativity is the ability or the capacity of a person to discover and explore new areas to create or produce a new idea or theory or object including rearrangement or reshaping of what already exists. Creativity is a very precious and unique quality in an individual that enables him to solve complicated problems, in different walks of life. The progress and prosperity of a nation depends on the development of creative potential of its people. Suppression of creativity of the child, means learning disabilities, behavior problems, dropouts and mental conflicts and above all, a loss to mankind. Guilford in the year 1957 suggested that an individual’s potential for being creative related to his or her readiness to produce novel ideas. This includes the production of old ideas in new forms. The readiness depends upon information in memory and appropriate dispositions to enable him or her to make use of it in new ways. Many writers see creativity as the ability to bring something new into existence (Barron 1969; Stein 1960; May, 1959; Stagner and karwoski, 1973; Dehaan Havinghurst, 1957; Drevdahl, 1956; Maslow, 1959; Johnson-Larid, 1993).

Many researchers have pointed out that creativity has four essential components which are as follows: -

- Fluency - which is the capacity to come up with ideas, possibilities, consequences and objects in a fast and steadily flowing stream.
- Flexibility – which is the ability to approach a problem from several directions and to change approaches readily when shifts seem advisable.
➢ Originality – which is manifested by unique or surprising proposals or responses.

➢ Elaboration – is a facility for expanding and embellishing ideas.

People who think creatively seem to have some personality features in common. Evidence obtained from subjective and objective personality tests indicates that originals or creative people tend to have the following traits.

1. They prefer complexity and some degree of apparent imbalance in phenomena.
2. They are more complex psychologically and have greater personal scope.
3. They are more independent in their judgments.
4. They are more self-assertive and dominant.
5. They reject suppression as a mechanism for the control of impulse.
6. A personality dimension called original has been shown to be related to creativity. A person high on this dimension resists conventional approaches that have been determined by others and would rather do his or her own think even it is unpopular or seems to be rebellious or non-confirming. Such person is more interested in artistic, literary and aesthetic matters that do not have a correct answer agreed upon by consensus and that allow a more individualized and interpretation and expression.

When we think of creativity, we think of Mozart, Picasso, Einstein-people with a seemingly fated convergence of talent and opportunity. It’s too narrow a set of references, because the truth is that all sorts of people possessing various levels of intelligence and natural ability are capable of engaging in fulfilling creative processes. Cognitive scientists Art Markman, Co-editor of the book ‘Tools for Innovation’ says that, “Everyday, we use language to speak sentences that have never been spoken before. We express thoughts that have never been expressed. All of this is so deeply ingrained that we don’t notice how creative it is”.

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The concept of everyday creativity was defined, assessed, and validated in 1988 by Ruth Richards, Dennis Kinney, and Colleagues at Harvard Medical School. They defined it as expression of originality and meaningfulness. Rebecca Whitlinger, the executive director of the Cancer Caring Center in Pittsburgh, tapped both areas when surveying her voluminous and seemingly useless collection of bridesmaid gowns, in all their gold lame and sating peach splendor.

Rupucci (1960) reviewed fifty to sixty definitions and classified them into six major groups or classes. These groups are not mutually exclusive, since each definition may contain elements which fall into different classes. The first class of definition labeled as Gestalt or Perception types, has a major emphasis on the recombination of ideas or restructuring- the result being something new, a product, an idea or an object. The third class is Aesthetic or Expressive-with the emphasis upon self expression the fourth group of definitions is characterized as Psychoanalytical or Dynamic. These define creativity in terms of certain interactional strength ratios of the id, ego, and super ego. A fifth class, called solution thinking, emphasizes the thinking process rather than the actual solution of the problem. The last class is labeled Varia simply because there is no easy way of characterizing these definitions.

Welsch (1980) reviewed 22 definitions of creativity and proposed the following definition:

Creativity is the process of generating unique products by transformation of existing products. These products, tangible and intangible, must be unique only to the creator, and must meet the criteria of purpose and value established by the creator. A widely known and accepted concept of creativity, called the ‘Four P’ model, is based on the assumption that creativity can be defined as a holistic multidimensional concept. Rhodes (1961), developed a frame work for unifying approach to creativity,
he collected 56 different definitions (40 of creativity and 16 of imagination) and observed that these definitions overlapped and intertwined, forming four strands. These strands were the creative person, the creative process, the creative product, and the creative press. Similarly, Mooney (1963) hypothesized a conceptual model for integrating four main approaches in the identification of creative talent: (1) The environment, (2) the person, (3) the process, and (4) the product.

Further, Isaksen (1987) extended Rhodes’s approach when he introduced the concept of the “4 Ps” (Creative person, creative process, creative product and creative press (environment) of creativity as an overlapping Venn diagram (Fig: 1)

Firestien, (1993) argues that when investigating the creative product, it is important to understand that the creative product, the artifact, the outcome of a creative endeavor, does not occur in a vacuum. Researchers artificially insolate the creative product to study it. But people work with processes and in environments that can either be supportive or non-supportive of their creative endeavors. The results of their work- the products-are introduced to environments (press) and subsequently change those environments.

![Fig: 1. ‘4p’ (Person, Process, Product and Press)](image-url)
1.1.1 Creative Person:

Some personality-oriented psychologists conceive creativity in terms of the person. Considerations of the creative person typically fall into three general categories:

(a) Cognitive characteristics (b) personality and motivational qualities and (c) Special events or experiences during one's development (Tardif and Sternberg, 1988). It is generally acknowledged that people are creative within particular domains of endeavor, even though those who are creative in different domains may share common traits. Thus, one may be creative biologist but a very uncreative novelist, or vice-versa. Domain specificity is a major consideration when describing creative persons (Sternberg, 1988; Walberg, 1988). It relates to other characteristics such as using ones existing knowledge in the domain as a base to create new ideas, being alert to novelty, and finding gaps in domain knowledge. Although it is generally agreed that creative individuals are creative within limited domains, various explanations have been offered for why individuals differ in their propensities toward and abilities in their domains of specialty.

(a) The Cognitive characteristics that are shared by creative people, regardless of domain, can be grouped into three sets; the traits, abilities, and processing styles that creative individuals use and possess (Tardif and Sternberg, 1988) (i) Traits that are commonly said to be associated with creative individuals include relatively high intelligence, originality, articulateness and verbal fluency and a good imagination. (ii) Cognitive ability include the ability to think metaphorically, flexibility and skill in making decisions, independence of judgment, coping well with novelty, logical thinking skills, internal visualization, the ability to escape perceptual sets and entrenchment in particular ways of thinking, and finding order in chaos. (iii) The
approach to problem includes using wide categories and images, a preference for non-verbal communication, building new structures, questioning norms and assumption in the domain, being alert to novelty and gaps in knowledge, and using existing knowledge as a base for new ideas.

(b) The Personality characteristics are a willingness to confront hostility and take intellectual risks, being open to new experiences, curiosity and growth, discipline and commitment to one's work, high intrinsic motivation, being task-focused, a high degree of self-organization and competence in meeting optimal challenges.

Some other characteristics mentioned less often include tolerance for ambiguity, a tendency to play with ideas, valuing originality and creativity, unconventionality in behavior, experiencing deep emotions, intuitiveness, seeking interesting situation and some degree of conflict between self-criticism and self-confidence (Barron, 1988).

Aspects of characteristics of a creative person can have an impact on others in their immediate surroundings. However, Feldman and Gardner (1988) both suggest that what distinguishes creative individuals is their lack of fit to their environment. They are often also seen to be withdrawn, reflective and preoccupied, avoiding interpersonal contact and social demands.

(c) The creative individuals have features of their development history in common. Creative children tend to be happier with books than with people, like school, do well, and learn outside of class for a large part of their education (Walberg, 1988).

1.1.2. Creative Product:

Product oriented psychologists give primary importance to the product. If the product is considered creative, then the person who made it may be considered creative. The products of creativity can include behaviors, performances, ideas, things
and other kinds of output, through any channel or type of expression. Creative products can be solutions to problems, responses to creativity tests, or explanations for phenomena. The products are novel- they are not imitations nor are they mass-produced. A creative act is one in which, ‘something new is produced—an idea or an object including a new form of arrangement of old elements. The new creation must contribute to the solution of some problem (Wilson, Guilford and Christenson, 1974).

1.1.2.1 Criteria for establishing creativity:

Where an end product is concerned, for instance how will teacher judge whether or not it is creative? There are two opposing schools of thought. One says that if it is new to the person who has produced it, it is creative, that in spite of the fact that the product has existed before, having been created by someone else or by numerous others. It is new to this individual at this time in his or her life and therefore is a creative product. The opposing school maintains that in order for an end product to be considered creative, it must not have existed before and it must meet particular criteria that will set it apart from anything that has been produced previously. These criteria include novelty or unusualness, appropriateness to the context in which it is placed, and transformation of materials or ideas that overcome conventional constraints.

According to Johnson-Laird (1993) creative thinking must not be produced by recall from memory, rote computation or any other simple deterministic process. Torrance in the year 1965 outlines criteria indicating a lack of novelty or a lack of invention: 1. changes requiring only mechanical skills; 2. change in size; 3. duplication of parts of a device; 4. omission of an element of a device or step of a method; 5. reversal of parts; 6. change of materials; 7. use of an old process or method
to a different but analogous object or material; 8. making a device adjustable; 9.
change in an element of an old combination; 10. Aggregation of elements.

Gowan, Demos and Torrance (1967) define human problem-solving as
creative to the extent that one or more of the following conditions are satisfied: first, if
the product of the thinking has novelty and value either for the thinker or for his
society; second, if the thinking is unconventional, in the sense that it requires
modification or rejection of previously accepted ideas. Third, we call thinking
creative if it requires high motivation and persistence, taking place either over a
considerable span of time or at a high intensity. Lastly we tend to call thinking
creative if it deals with or solves a problem which, initially, as it was posed, was
vague and ill-defined, so that part of the task of the creative thinker was to formulate
the problem itself, to give it structure.

1.1.3 Creative Process:

Rogers (1954-1959) defined the creative process as “the emergence in action
of novel relational product, growing out of the uniqueness of the individual on the one
hand, and the materials, events, people or circumstances of his life on the other.”
According to Ghiselin (1952), Creativity is a process of change and development in
the psychic life of an individual leading to invention.

A number of authors outline steps in creative thinking. For instance, Graham
Walls (1962) proposes four steps: Perception (gathering information), incubation
(allows solutions, ideas to mature), illumination (emerging of solutions, ideas, etc.),
and verification (testing the solutions, ideas etc.) and adopting them to other
situations.

Osborn (1948) proposes five stages which are similar to those of values. 1.
Rossman (1931) proposes seven steps in creative activity. 1. A need or difficulty is observed 2. The problem is formulated 3. Available information is surveyed 4. Solutions are formulated 5. Solutions are critically examined 6. New ideas are formulated and 7. The new ideas are tested.

1.1.4 Creative Press:

Press may be considered as the interaction between persons and their environment. Creative places or environments include domain, fields and contents. These can be seen to affect creativity through the general contributions and resources available to the individuals, special effects and the nature of creative expression within a domain. These either promote or inhibit creativity. Further, fields provide peers who evaluate and confirm creativity in their domains while also protecting and freeing the developmental creative products and individuals from the less congenial evaluations that may come from members of the general public. Fields also affect the motivation of individuals working within them. Creative acts cannot be understood from a psychological perspective alone. The unit of analysis must be the individuals as part of his/her cultural environments. According to the logic of part-whole structure, the primary focus must be on the cultural-historical context that makes the creative act possible and meaningful. Particular social and historical contexts are seen by some to be influential. Creativity can be viewed as an outcome of these. Alternatively, creativity can be seen as independent of any context beyond that with which it is immediately associated (Weisberg, 1988).

1.1.5 Levels of Creativity:

Ghiselin (1963) divides creativity into two broad levels: 1. Primary and 2. Secondary. Primary creativity includes altering the universe of meaning itself, by introducing in it some new element of meaning or some new order of significance, or
more commonly both (e.g. Einstein’s theory of relatively, Freud’s psychoanalytical theory, Piaget’s theory of child development, Binet’s intelligence tests). Creativity at the secondary level “gives further development to an established body of meaning through initiating some advance in its use” (E.G. Terman who refined the Binet intelligence test).

Taylor (1959) has also sought to reconcile some of the apparent differences in opinion concerning creativity by suggesting that creativity operates in terms of various levels. He suggests five levels: 1. Expressive creativity: involving independent expression where skills, originality, and the quality of the product are unimportant. The spontaneous drawings of children are examples of expressive creativity. 2. Productive creativity: artistic or scientific products where there is a tendency to restrict and control free play and to develop techniques for producing finished works or products. 3. Inventive creativity: this is the creative world of inventors, explorers and discoverers, those who seek new ways of using old things, where ingenuity is displayed with materials, methods and technique. 4. Innovation creativity: improvement through modification with a great deal of an abstract conceptualizing skill. 5. Emerge native creativity: in rare instances an entirely new principle or assumption, around which new schools flourish, emerges at a most fundamental and abstract level.

Taylor pointed out that many people have the fifth level in mind when they talk about creativity. Because this fifth level is so rare, the lower level is usually involved in most investigation of creative behavior. The discussion of levels is helpful in explaining that though all can be creative, they will not be at the same level of creativity. The majority will be creative at the lower levels and only a few people will reach the higher levels (Gulati, 1995).
1.2 ASSOCIATIVE THEORY REGARDING CREATIVITY:

Mednick in 1962 developed the Associative theory which defined the creative thinking process as “forming new combinations of associative elements which either meet specified requirements or are in some way useful”. He described three ways (serendipity, similarity and mediation) in which “mutually remote” ideas could be brought together to obtain a creative solution. Mednick’s ideas gained some empirical support from the apparent validity of the Remote Associates Test (RAT), which was constructed on the basis of the theory.

However, perhaps because of a general disenchantment with associative theories of thinking, this approach has not been further developed. Koestler’s (1966) bisociative theory allows more complexity to mental organization than Mednick’s associative theory. He claims that a creative act involves linking together two previously unconnected “frames of reference” or “two separate entities”. He proposes that creativeness is simply a process of arranging well known facts into new relationships so that results may be achieved more effectively. The connection nearly always occurs as a flash of insight and is the result of subconscious thought process.

1.3 PSYCHOANALYTIC THEORY REGARDING CREATIVITY:

According to psychoanalytic theorists a creative person is viewed as someone who has had a traumatic experience which he or she dealt with by allowing conscious and unconscious ideas to mingle into an innovative resolution of the trauma. Creativity is the result of overcoming problems, usually those that begin in childhood.

Freud (1906, 1958) argues that the creative process depends mainly on defence mechanisms, which are unconscious attempts to prevent the awareness of unpleasant or unacceptable ideas. Because defense mechanisms prevent an accurate perception of the world and because they use up psychic energy, they usually interfere
with creative productivity. He believed that although most defense mechanisms interfere with the creative act, the mechanism he called sublimation is usually the primary cause of creativity. He strongly believed that “people are only motivated to be creative when they cannot directly fulfill their sexual needs”. According to Freud creative activity is a form of daydreaming.

Jung (1928), a close associate of Freud for a while also believed that the unconscious plays a vital role in high level creativity but in contrast creativity is seen as emanating from the collective unconscious of the individual and it is this linking in with the racial memory which gives masterpieces their universal significance. It is from this collective unconscious that the greatest inventions, theories, art and other new achievements are drawn. This process is what lends continuity to human existence.

Adler, disagreeing with Freud and Jung, developed the compensatory theory of creativity. He considered that creative power was necessary in each individual as the third power, in addition to heredity and environment, which combines the innate potentialities and environmental influences into a movement toward overcoming obstacles in one’s life path.

Psychoanalytic theorists have emphasized the unconscious rather than the conscious. They suggest that creative people tend to suffer from emotional disturbances and are prone to be mentally ill. An extreme position argues that “ Creativity is next to madness”.

1.4 HUMANISTIC APPROACH TOWARDS CREATIVITY:

According to Humanists creative person gives more credit to positive, self-fulfilling tendencies and gives less importance to unconscious drives and compensation for deficits in the personality. Creative person equate creativity with
mental health and they are emotionally healthy and sensitive to their needs and capabilities.

Maslow (1957) believed that human beings have six basic instincts, which manifest themselves as needs. The first four are “deficiency” needs, because it is possible to satisfy them to the point that we are no longer deficient. When we feel hungry, it is possible to eat enough so that the need is fulfilled. At the highest level, the process of self-actualization is closely analogous to creativity. Self actualization is seen as a manifestation of the life forces, which govern the creative process of nature. Personality itself is regarded as an emerging creative product. Free of neurosis, self-actualization people are more likely to be creative. They are likely to achieve peak experiences, moments of unselfish ecstasy.

A creative act was seen by Rogers (1954, 59) as motivated by the individual’s desire to expand and grow and hence ‘form new relationships to the environment’. Therefore the creative individual needs to fulfill three inner conditions (1959). Fromm (1955, 59) described creativity as largely a matter of having the right set of attitudes. He suggested five relevant attitudes that can be fostered at any point in life. In this view creativity stems from the basic human need to rise above one’s instinctive nature. This need in turn orients the individual toward productivity and away from self-cent redness. In this act of creation humans transcend themselves as creatures; raise themselves beyond the passivity and accidentalness of their existence into the realm of purposefulness and freedom.

Humanistic theorists believe that humans, not divine, cosmic, or other forces determine their own fate. This is not to say that humanism is atheistic, but self reliance is a natural human trait. Rogers and Maslow take a holistic approach since they see the creative product as the result of an interaction between the creative
person and his/ her situation. “They see creativity as more conscious, cognitive and intentional than do the psychoanalysts”. The humanistic concept is that creativity is born through a striving for the highest possibilities in life, rather than as a defense against neurosis.

1.5. GRUBER'S PIAGETIAN APPROACH:

Gruber (1980) has analyzed Darwin’s evolutionary theory from a Piagetian point of view. Gruber points to the long time periods involved in developing significant new ideas. Gruber emphasizes the slowness of changes according to Darwin’s system of ideas, and interprets the process of the changes in terms of Piagetian notions such as assimilation (incorporation of new information into existing conceptual structures) and accommodation (changes in conceptual structure brought about by new information). Gruber argues that what appear to be dramatic breaks with the past, can be seen as the culmination of numerous small changes. This approach places “moments of insight” within their long term context and would suggest that little understanding of high order creativity will result from laboratory studies of small-scale problem-solving. “If this approach is accepted, laboratory analysis of high level creativity would seem to be ruled out in favor of meticulous case studies”.

1.6. BODEN'S IMPOSSIBILITY THEORY:

Boden (1990) distinguishes two senses of creativity. One is psychological (P-Creativity), the other historical (H-creativity). A valuable idea is P-creative if the person in whose mind it arises could not have had it before; it does not matter how many times other people have already had the same idea. By contrast, a valuable idea is H-creative if it is P-creative and no one else, in all human history, has ever had it before.
1.7. CONVERGENT – DIVERGENT THINKING AND CREATIVE THINKING:

In convergent thinking the person follows the prevailing mode of thought, information and action to arrive at one right answer, which could be attained by other individuals also. Divergent thinking enables the individual to be more flexible and fluent, involving a richer flow of ideas and resulting in some novel or creative solution.

Divergent thinking abilities can be defined as the means the individual has for expressing whatever creativity he possesses. Guilford (1950, 1962) maintains that these abilities are somewhat general and can be applied to a variety of tasks. They are not associated with particular subject matter or disciplines.

Creativity is not seen as a unitary trait, but rather a collection of interacting and complementary, component abilities, all of which may enter into creative thinking. All genuine problem solving is creative and most, if not all, creative thinking is problem solving. Both problem and creativity are productive thinking, which includes both convergent and divergent abilities.

1.8. OPERATIONAL DEFINITION OF THE TERMS:

Scholastic conditions and Practices:

Scholastic condition implies all the facilities and requirement of teaching and learning. Generally it includes the material condition of classroom teaching, laboratory facilities, library facilities, computer facilities, art and craft museum, science and mathematics club, nature club, school magazines, play ground, initiative taken by the school authorities including teachers support service etc. The scholastic condition entails the environment required for personality development along with academic progress, which includes physical, emotional, social, cultural, aesthetic and moral development. It deals with the atmosphere required for generating high morals
and aesthetic sense for an academic achiever so that he can be socially adjusted and cope up with the growing world.

The term practices, implies the strategies and programmes adopted by the teachers and school authorities for the achievement of pre-determined objectives. So practices for the development of creativity mean strategies and programmes adopted for the development of creative talent among students. Generally different practices adopted by the school in this connection includes, activities related to expression and exploration of student’s ideas, art and related activities, handicraft and related activities, competitive and voluntary activities, decorative and artistic activities, outing and trips related activities, etc.

Scholastic practices have been given different definitions by different researches. Shahatak (1992) defined them as Practices that affects the student’s mental, kinetic, psychological and social performances. This practices has various fields and satisfies the student’s physical, psychological and social needs. Johnson (1964) defined them as the activities originated in the student’s spontaneous interests and practice beyond the school day without retribution. According to Al Reshidi (1997) these activities mean the programs that address the learner and the mental and physical effort he/she exerts in the activities that suit his/her abilities, inclinator and interest both inside and outside school. This according to Al Reshide, helps student’s to enrich their experience and acquire desired skills and attitudes which develop their personalities and satisfy the growth requirements of the country’s progress. These activities develop inclination, talents and the ability to adopt. They constitute a motive for learning and develop self-confidence. The activities help the student’s to establish intimate relationship with others and inculcate in them the values of responsibility,
cooperation respect for other’s opinions it remedies many psychological disorders such as introversion shyness, speech disorders etc.

Thus the scholastic practices teach the students the fundamentals of leadership, obedience, cooperation and the spirit of teamwork.

1.9. STATEMENT OF THE PROBLEM:

Secondary stage is the most significant stage in the educational system. It can provide ample opportunities to the children to give full expression of their creative talents and capacity. Indian researchers have shown interest in the area of creativity in education, but we have yet to undertake significant educational problems. The research climate in India is improving marginally. The depressing environment continues to coexist due to a number of factors, i.e. a long period of de-empowering of teachers, increasing rigidity of teaching-learning situations, the intense standardization of educational substance, ongoing concentration of resources, increasing centralization of the decision making process, frequent interference of politicians, overcrowding student population, increasing proportion of first generation learners, and declining financial resources available for school systems. At the school level, the administration, that is the head teacher, who is the head of the institution should first of all understand what is creativity. He should acquaint himself with the techniques of creativity. He himself should know whether creativity is a process or a product. Then we can achieve good results. The people, who is sitting at the higher levels, if they provide an opportunity or freedom for teachers then teachers can express themselves freely and openly; if they perceive things in the right spirit the same can be inculcated in the students. Government policies are one of the reasons for keeping down creativity at the school level. For example, pressurizing the teachers for completion of the syllabus and other work which detracts from teaching, etc. specially
the secondary school years are not properly utilized for the development of creativity in children in these days. It is due to the fact that creativity has not been recognized as an important objective of secondary education student’s view education primarily as the imposition of already established truths, with little or no concern paid to the personal needs or desires of the youngster himself. School tends to isolate youngsters from the real world at a time when the energies and idealism of these youngsters can best be incorporated into society.

The development of creative education of our pupils is an objective of new scheme of education. A beginning has been made in this direction by including creative education in our school curriculum. But much of the activities are haphazard and not properly planned. Now-a-days researchers have recognized the importance of creativity and its relations to the creative growth of children in their creative talent, mental hygiene, educational achievement, vocational success and fully functioning personality and social welfare. Though the psychologists, educationists, curriculum planners and school authorities have seem to be realized the importance of creative education and some initiative have been taken so far in this regard but more attention is still required from school authorities and teachers so that over all environment of the schools for organizing the activities related to the creative development among the students can be promoted. The investigator has viewed it as a problem to be studied and the present problem has been stated “Scholastic conditions and Practices available in secondary schools for developing creativity among students.”

1.10. NEED OF THE STUDY:

Creativity is very necessary to students in everyday life. It is also necessary in future life, so the development of creativity is needed from a young age. It is important, hidden talent like diamonds among the stones can be polished and made to
shine brightly. If students creativity is channeled properly, tomorrow the same students may go on to give new ideas to the world. They may bring changes in existing system or in the unit. If this creativity is properly nurtured at school level then they will develop throughout same attitude and develop a scientific temper. This will be useful for him not only as a person but also it is useful for society. Fostering creativity in the classroom demands a special climate. The objective of this climate is to enhance creative thinking in children in general and gifted children through enrichment activities running across a wide range of school subjects. We need to satisfy the intellectual curiosity of children which is normally not satisfied within the framework of regular educational programmes. The school curriculum has a central place in the process of schooling. It is necessary to emphasize that a school curriculum is not just a syllabus where the contents are fitted into a timetable for the purpose of teaching and learning. The school curriculum should be seen as a series of planned activities, which result in learning, and in which the teacher plays crucial role. The learning activities take place mainly in school but can often be extended to home and community.

In view of the importance of creativity in all walks of life including educational settings, there is a need to explore the field scientifically and with greatest rigor. Despite the increase of research on creativity in recent years, much is not known and still requires investigation. The issues of the development of creativity among school children is challenging to teachers, schools and educational administrators as well as for researchers in the field of education and psychology. Often in many cases teachers have been criticized and schools blamed for not providing the necessary environment for nurturing creativity among students. In our country many educational researchers, Education Commissions and Committees have
criticized the educational practices in secondary schools which have failed to foster creativity among students and ignored the development of imagination and independent thinking. As long as 1952-53, the Secondary Education Commission in India commented, “This education was too bookish and mechanical, stereotyped and rigidly uniform and did not cater to the different aptitudes of pupil or to pupils of different aptitudes. Nor did it develop those basic qualities of discipline, co-operation and leadership which were calculated to make them function as useful citizen. The stress of examination, the overcrowded syllabus, the methods of teaching and the lack of proper material amenities tended to make education a burden rather than a joyous experience to the youthful mind.”

Later, the Indian Education Commission (1964-66) reported:

“A dearth of component and trained manpower is now felt in nearly every branch of national life, and is probably one of the biggest bottlenecks to progress.”

Further, the commission recommended that ‘sustained and energetic’ research is needed in recognition of talent and its development. Because “talent is the most valuable asset a country can have,” the search for talent must be a continuous process and has to be taken up at all stages, particularly at the secondary stage which is the most crucial.

A document “challenge of education-a policy perspective” (The Government of India, 1985) stated:

“It has been noticed that the vast majority of students are not exposed to challenges which would develop their potential for creativity and innovation because the whole system of education is characterized by class work and examinations which emphasize rote learning and repetitive exercises. Undoubtedly, this will require the overhaul of pedagogic methodology as well as the curricula and textual materials.
Something will have to be done to change the orientation, work-ethic, knowledge and skills of teacher, who will have to function much more creatively in learning rather than a teaching environment, in which they will have to struggle continuously with new ideas as well as new technologies”.

The Review Committee of NPE’86, expresses dissatisfaction with the present education system in India; it said,

“Our formal system remains confined to the four walls of a school or college. It is tied down to textbooks and examinations. Even then the books are unreadable and the examinations totally unreliable. The courses of study are so framed that the student’s are not equipped with any productive skills. Whatever education they receive cuts them off from their natural and social environment. They become aliens to their own community. They lose faith in life itself.”

Addressing an international Conference at Delhi (India) in January, 1986 (cited in Hussain, 1988), Dr. Raja Ramanna, Chairman of the Atomic Energy Commission, cast doubt on the contribution of formal education to creative development in children. He rightly posed the question: Are children being exposed to too much knowledge in the rapid advancing world today at the cost of stunting their creativity? Education must not only aim at intellectual development but also at creative expression.

Similar views were expressed by the vice-chancellor of Bombay University, an eminent sociologist (Gore, 1985 cited in Raina, 1993) while addressing the 60th Annual Meeting of the Association of Indian Universities. “It is my submission that for the vast majority of the students and teachers involved in it, our education system does not provide a creative experience.” He further elaborates:
“Much of education at school and college level has tended to emphasize the printed word and has failed to provide for the interaction between the student and different aspects of his environment which would make those words meaningful. Children learn poetry and memories the words without the imagery communication itself to them. A boy studying even in a rural school will learn about the major crops of the state from his geography book, but will not relate the names of the crops to what he sees around him. For some reason the link between the printed word and one’s own experience is not established so that there is neither a sense of discovery and affirmation or questioning of what has been said in the book. Our education has tended to emphasize examinations rather than learning or teaching.”

Now-a-days the ‘privatization’ of schooling encourages and gives license to the privileged classes. This is not a problem only in India. It is becoming a worldwide issue and challenge for government or community schools everywhere. Poor people cannot afford to go to private schools. Nevertheless they are entitled to quality education.

The observations of the Indian Education Commission (1964-66) are in this context. At the secondary stage, a large proportion of the good schools are private but many of them also charge high fees which are normally beyond the means of any but the top 10% of the people, though some of the middle class parents make great sacrifices to send their children to them. There is thus segregation in education itself-the minority of private, fee-charging, better schools meeting the needs of the upper classes and the vast bulk of free, publicly maintained, but poor schools being utilized by the rest. What is worse, this segregation is increasing and tending to widen the gulf between the classes and the masses.
Further, the commission suggested that “if these evils are to be eliminated and the educational system is to become a powerful instrument of national development in general, and social and national integration in particular, we must move towards the goal of a common school system of public education”.

In addition, in India, Research has mainly focused on the construction of tests of creativity and co-relational studies of creativity with self concept, intelligence, personality and achievement motivation. There have been less in-depth studies considering the effects of schooling on creativity or of principals/teachers perceptions of creativity or how to promote it. A study of secondary school principals/teachers involvement and their views and attitude towards promotion of creativity is important to provide evidence to assist in promoting change.

A number of comparative studies of Govt. and private schools have reported the performance of private schools students as higher than government school students in creative thinking ability. However less has been reported about the responsible factors/condition of under achievement of students of Govt. school. It has been noticed that in the provincialized schools of Assam the vast majority of students are not exposed to challenges which would develop their potential for creativity and innovation because the whole system of education is characterized by class work and examinations which emphasize rote learning and repetitive exercises. Undoubtedly, this will require the overhaul of pedagogic methodology as well as the curricular and textual materials. These, however, will not be enough. Education must not only aim at intellectual development but also at creative expression. Initiatives are required to change the orientation, work ethics, knowledge and skills of principals/teachers who will have to function much more creatively in learning rather than a teaching environment, in which they will have to struggle continuously with new ideas as well.
as new technologies. The present research will contribute to our understanding of creativity in secondary school students. The findings may be useful in suggesting desirable changes which may be brought about in learning environment to create conducive climate in classrooms, organizing active education programmes and developing positive attitudes among the teachers and suggest remedies for the present problems.

1.11. OBJECTIVES OF THE STUDY:

1. To study the scholastic conditions and practices available in schools for the development of creativity among students.

2. To study the involvement of the teachers in using different methods for developing creativity among students.

3. To study the involvement of the teachers in using different assessment criteria for identifying creativity among students.

4. To study the difference of involvement between the rural and urban school teachers in using different methods for developing creativity among students.

5. To study the difference of involvement between the rural and urban school teachers in using different assessment criteria for identifying creativity among students.

1.12 HYPOTHESES:

1. The scholastic conditions and practices available in schools for the development of creativity among the students are encouraging.

2. The involvement of the teachers in using different methods for developing creativity among students is encouraging.

3. The involvement of the teachers in using different assessment criteria for identifying creativity among students is encouraging.
4. There is no significant difference of involvement between the rural and urban school teachers in using different methods for developing creativity among students.

5. There is no significant difference of involvement between the rural and urban school teachers in using different assessment criteria for identifying creativity among students.

**1.13 DELIMITATION OF THE STUDY:**

The present study is delimited to the following extent-

1. The Provincialised secondary High schools of Kamrup district are included in the present study, and rests of the schools are not included.

2. The students of junior secondary High schools section that class IX and X have been included in the present study.

3. The curricular and co–curricular activities organized by the school authorities are included in the present study.