Chapter 1

CONCEPTUAL AND THEORETICAL BACKGROUND OF THE STUDY

1.1 Introduction

“Education is the most powerful weapon, which you can use to change the world.”

(Nelson Mandela, 1940)

Education is a powerful instrument that unlocks the door of prosperity to a nation. It is one of the main keys to the development and the improvement of mankind. In the annals of history, education had many features, shades and meanings but it had only one aim, i.e. to “make the recipient learned”. In the general sense, the term education is used as a form of learning, in which the knowledge, skills, values, beliefs, and habits are transformed from one generation to next (Ahmad & Garg, 2007).

According to the Report of Education Commission of 1964-66, “The destiny of India is now being shaped in her classrooms” (Aggarwal, 1966). In this context and in facing up the challenges of new century, a teacher plays a role of a perceiver who recognizes the potential of the individuals and builds up young generation to be ready and capable for rapid global development in different areas. That is why a small word “Teacher” reflects a magnificent mixture of the most precious qualities of excellence in mankind. He serves as showers that transform even a wasteland into a Greenland. Therefore, a teacher along with the expertise of his subject area should be able to understand the needs and qualities of students and should nurture them accordingly.

The continuous researches on education have proved that an effective teacher is the single most important factor of student learning (Darling-Hammond, 2000; Marzano, 2007). In the report of UNESCO on World Education, it was pointed out that ‘Good education requires good teacher’ (UNESCO’s World Education Report 1995). Similarly, Dr. Radhakrishnan (1949) in the report of University Education Commission has aptly observed, that “teacher’s place in the society is of vital importance. He acts as a pivot for the transmission of intellectual traditions and technical skills from generation to generation and helps to keep the lamp of civilization burning. He/she not only guides the individual but also, so to say, the destiny of the nation” (Ministry of Education, Govt. of India, 1962).
A teacher functions within the broader framework of the school education system and helps in determining the goals, curricula, materials, strategies, methods and to achieve determined goals. A teacher prepares a relation between the needs and demands arising in the school context. He supports, observes and records the progress of the class and aims to ensure a healthy culture of learning. The National Curriculum Framework (2005) also places different demands and expectations on the teacher. The importance of competent teachers to the nation’s school system can in no way be overemphasized. It is well known that academic excellence, subject knowledge, repertoire of pedagogical skills, commitment level towards profession, sensitivity, motivation and attitude of teachers influence the achievement and learning of pupils. The teacher must now be equipped not only to teach but also to understand the students and their needs. It stated that a teacher should be a facilitator in children’s learning and in constructing his knowledge. He/she should possess the understanding of subject content, pedagogy and curriculum as well as of community, school structures, students’ needs and interests so that he/she can participate in the construction of syllabus, textbooks and teaching-learning material. He should help in creating an integrated school climate, which will provide equal opportunities to children of special abilities, varied social backgrounds and diverse learning needs. He should adjust the climate of classroom and school for relating teaching process in accordance with special needs of all learners.

Keeping this view in vision, NCTE (2009) pointed out the role, philosophy and purpose of a teacher, which is explained in the following points:

(i) Teacher should care of children with love and be sensitive towards the problems of learners and should be committed to justice and social reconstruction.

(ii) Teachers should encourage children to construct their knowledge by real experiences in spite of rote methods.

(iii) Teacher should explain the theory with field experiences and try to use learner centred methods in teaching-learning process as: play-way method, project, discussion, dialogue, observation, visits and integrated academic learning with productive work.
(iv) Teachers should give their contribution in framing of curriculum, syllabus, and textbooks and also critically examine them.

(v) Teachers should understand the psycho-social attributes, needs of learners, their special abilities, characteristics and motivation level.

(vi) Teachers should be liberal, humanistic and responsive to the demands of learners and the present context.

In this way, teachers are considered to be responsible for the total development of personality of learner (physical, intellectual, social, moral and spiritual). Therefore, they should possess positive attitude, values and outlook as a skilled person. Teacher should engage themselves with children in their context, school curriculum, textbooks, teaching-learning process, knowledge construction, psychological and professional development, understanding of institutional arrangements, policy perspective, pedagogy and curriculum. Teacher should use more child friendly methods to strengthen conceptual learning and understanding of learners. They should influence social attitudes and generate constitutional values in students (National Curriculum Framework for Teacher Education, 2009). The below given figure (1.1) also depicts the role of teacher, which he/she has to play during teaching-learning process:

![Figure 1.1: Role of the Teacher](image)

Figure 1.1: Role of the Teacher
The basic aim of education is to prepare individuals for a productive role in the society. In the hierarchy of education system, secondary education is the backbone of entire educational system. It is an important segment of the total education system that contributes significantly to the development of an individual and the nation. It contributes in two important ways: (i) by providing opportunities to students for vertical mobility in the ladder of formal education and (ii) by enabling them to work according to the needs of self and nation (Zaidi, Biswal & Lal, 2011). Therefore, the role of teachers at secondary stage occupies great significance. He/she helps in overall development of students and nurtures the hidden potentials of students. He/she develops various qualities in the children, which are presented through the below given picture:

![Skills to be developed by the Teacher](image)

**Figure 1.2: Skills to be developed by the Teacher**

Recently, government of India introduced also Rashtriya Madhyamik Shiksha Abhiyan (RMSA, 2009) a comprehensive scheme for universalization of access and enhancement of quality at the secondary school level. The vision of this scheme is to make good quality education available, accessible and affordable to all children in the age group of 14-18 years (RMSA Framework, MHRD, 2009). In the field of education, creativity is basic element and essential for learning. Therefore, educational system must accept the responsibility of developing creative individuals
who can solve the problems of modern society and not become a burden and stigma on the society. Creativity is the rarest of the human qualities. It is an innate genius present in humans as a distinct potential, a unique gift, which is spontaneous but not common in all the individuals. Creativity, with its many definitions has been known for a long time to have its influence on human activity in almost all spheres: scientific, technical, literary, artistic. Basically, ‘it refers to the capacity of a person to produce new compositions, products or novel ideas’ and solutions to complex, ambiguous problems. It is the application of knowledge and skill in new ways sometime going beyond the limits, to achieve valuable outcomes (Husen, & Postlethwaite, 1994; Gandini, 1992).

The present study aims to compare the attitude of secondary school teachers of Science and Arts streams towards nurturing creativity in relation to gender difference, rural-urban location and school climate. The following figure presents the theoretical framework of the research:

**Figure 1.3: Theoretical Framework of the Present Study**

1.1.1 Creativity

All nations whether big or small, rich or poor, developed or developing are convinced today that conservation and proper utilization of creative potential are crucially important for national development. Maximum benefit to the individual and society can be assured only when creativity of the members of society is developed and utilized in constructive ways.
However, for nurturing creative potential, there is a great need to understand the nature of creativity itself and of the factors that influence it. It is a common observation that most of the active time of the students is spent in the classroom where they are under the constant guidance of the teachers. Teacher’s classroom verbal behavior therefore, is likely to have a direct impact upon the development and unfolding of their capabilities, abilities and personalities. Therefore, each school and classroom should have an open access to curiosity, encourage children to go dashing off in new directions and expose them to questioning and explanations so that their creative potential may be unfolded (Sarsani, 2006).

**Concept of Creativity**

Psychologists have never underestimated the importance of ‘creativity’ but the serious attention, which it deserves, has not been paid so far. Guilford (1950) in his presidential address to the American Psychological Association paid attention about the neglected attribute i.e. ‘creativity’. He propounded the idea that creativity is not a God given gift but a cognitive ability possessed by all individuals. He replaced the earlier notion of creativity with the distinct construct of divergent thinking, which implies the ability to produce many novel ideas and emphasized its universal presence. He established creativity as a cognitive activity, which comprises a number of mental abilities and processes such as remembering, imagining, planning, anticipating, judging, organizing, perceiving, comprehending, learning, recognizing, interpreting, redefining and identifying (Martinsen and Kaufmann, 1999; Weisberg, 2006). He also proposed that creativity could be measured via divergent thinking tasks having fluency, flexibility, originality and elaboration. Paul Torrance (1969) a pioneer in the field of creative process also suggested that creativity is the ability to produce something novel and unique while Mackinnon (1970) has pointed out that novelty of a product is not enough to justify it being called creative. Instead, the novel product must solve a problem and fit the needs of a given situation (D’Cruz, 2008).

In the view of Lubart (1994), Ochse (1990) and Sternberg & Lubart (1991, 1995 and 1996) creativity is the ability to produce work that is both novel (i.e. original, unexpected) and appropriate (i.e. useful, adaptive, concerning task constraints). Gandini (1992) identified it as “the production of novel thoughts, solution of problems or products based on previous experience and knowledge”. Gardner (1993)
defined creative individual as “a person who regularly solves problems, fashions products, or defines new question in a domain or in a way that is initially considered novel but that ultimately becomes accepted in a particular cultural setting”. In its broadest sense, creativity includes the idea of invention, discovery and a skill of making (Sternberg, 1999; Woolfolk, 2006).

Khandwalla (2004) explored that creativity is neither just the production of something novel and useful, nor is it a mere mental process that sees linkages between unrelated ideas emerging from imagination and ideation. On the contrary, creativity is the employment of a playfully exploratory rather than a mechanical process of problem solving, to find out the solutions that are novel and yet appropriate to the context (Khandwalla, 2004).

On the basis of these views, it can be concluded that creativity refers to the ability of a person to produce new things, ideas or products, which were not previously known. Basically, it refers to the application of knowledge and skill to solve the problems or to achieve new outcomes. At an individual level, creativity is relevant to solve the problems related to job and daily life. At a societal level, creativity can lead to new scientific findings, new movements in art, new inventions, and new social programs.

**Historical Development of Creativity**

The concept of creativity can be easily understood by the historical changes in creativity. Creativity came into existence with the discussion and argument regarding the basic nature of man. In the initial days, creativity was a neglected topic of research. Only a few articles and books were specifically devoted to creativity (Guilford, 1950; Albert, 1969; Fiest & Runco, 1993).

In the pre-Christian view, creativity was the concept related to genius, which was originally associated with mystical powers of protection and fortune. By the efforts of Greeks on an individual’s guardian spirit, the creative abilities began to be considered as individual’s abilities and appetites while some of them were destructive as well as constructive. By the time of Aristotle, the creative abilities became the subject of social value. In the earliest Western view, creativity was considered as biblical story of Genesis, according to which creativity was possessed by few individuals who came on the earth for doing God’s work (Boorstin, 1992; Nahn, 1956; Sternberg, 1999).
For the Hindus (1500-900 B.C.), Confucius (551-479 B.C.), (Taoists and Buddhists), creation was a kind of discovery or mimicry. The early Taoists and Buddhists emphasized on natural cycles, harmony, regularity and balance, therefore “the idea of the creation of something ex nihilo (from nothing) had no place in the universe” (Boorstin, 1992). Plato felt that nothing new was possible and art in his time was an effort to match or mimic ideal forms (Rothenberg & Hausman, 1976). Originality, what has become a contemporary marker of creativity was not an early attribute of creativity during early history (Child, 1972; Dudek in press). This view was not challenged till 1200 years. During the middle age, the idea emerged that special talent or unusual ability of an individual (almost always a male) was the manifestation of an outside spirit for which the individual was a medium. Early in renaissance, a change came in this view and the divine attributes of artists were recognized as their own in spite of divine origin. From 1500-1700, this view remained unchanged. The most significant distinctions made in the mid of 1700s were between the idea of creativity and those of genius originality and talent. By the end of eighteenth century, it was concluded that when a person has one sort of talent or more talents, this would be responsive to education while original genius was truly exceptional and beyond the rules and regulations imposed by society but that were applied to the talented (Sternberg, 1999).

Hobbes (1588-1679) was the pioneer to recognize the importance of imagination in human thought and planning (Braun, 1991; Singer, 1982). The discussion of imagination was converted to the phrase “the creative imagination” in 1730s and imagination was accepted as governing the artistic creativity. In the late 18th century four fundamental distinctions came into existence, which became the basis of the present day ideas about creativity: (a) genius was separated from the supernatural; (b) genius, although exceptional, was a potential in every individual; (c) talent and genius were to be distinguished from one another and (d) their potential and exercise depend on the political atmosphere of the time (Albert, 1980; Baer, 1995; Bloom, 1985; Runco, 1986).

Creativity in the beginning had been enclosed in abstract questions and connected to the issues larger than itself (e.g. what is individual and why is the need of individual freedom?) but after the work of Darwin (1859) on the process of natural selection, the value of creativity was emphasized in adaptation and problem solving. After Darwin,
Chapter 1  Conceptual and Theoretical Background of the Study

Galton (1874, 1883) contributed directly to psychological research and indirectly to creativity by explaining diversity in terms of individual differences that could be measured (Sternberg, 1999). After his efforts in applying empirical methods in the measurement of individual differences, many researchers concentrated on the subject of creativity. There were five basic questions at that time: what is creativity? Who has creativity? What are the characteristics of creative people? Who should benefit from creativity? Can creativity be increased through conscious effort? These were the important questions for understanding creativity but at that time only Galton (1869, 1874) suggested that how they could be answered (Sternberg, 1999).

In 1879, Galton tried to find out the association of sensory discrimination (individual differences) and intelligence. He concluded that “creative products” came largely from “general ability”, which was one of the essential capacities for genius (Albert, 1975; Cropley, 1966). After this, much emphasis was given to intelligence with reference to other variables and but after World War II, the focus of research was again centered on the personalities, values, talents and IQs of exceptionally creative men and women, as well as compare genius or extra ordinary individuals with their average counterparts (Barron, 1955; Helson, 1971; MacKinnon, 1992; Roe, 1952). Helson (1996) reviewed the decade of the 1950s and reported that during the 1950s and 1960s, the creative personality was the hot and new topic and creative people of all types became our culture’s heroes. Over the past 50 years, research on creativity has merged an interest in creative persons with empirical methods and a feeling for the humanity and dignity of subjects and to the next step, research on creativity is able to progress as science (Sternberg, 1999).

Approaches for the Study of Creativity

Creation of man is the culmination of God’s creative pursuit. The hidden and expressive endowment of this creativity in man reflects the creative endeavor of the Almighty creator. The nature of creativity is so complex that it is still a point of discussion and further research. Therefore, it is necessary to examine the conceptual development of creativity. The following paragraphs are describing the approaches of studying creativity in chronological way:
Figure 1.4: Approaches of Studying Creativity

- **Mystical Approach to the Study of Creativity**

According to Sternberg (1999), this was the earliest approach of studying creativity, which regarded creativity as a divine intervention. In this time, it was assumed that a creative person is like a vessel full of divine inspiration and he would create worthy products by using his inspirable ideas for worldly use. Plato was also a supporter of this approach who stated that a poet is able to create only that music or composition that Muse dictates. Later on, according to mystical approach, the study of creativity became harder and it became a subject of criticism for scientific psychologist. According to the exponents of this approach creativity is assumed as a spiritual process and is not a subject for scientific study (Sternberg, 1999).

- **Pragmatic Approach**

After criticizing the mystical approach, a new approach came into existence that was pragmatic approach for studying creativity. The foremost proponent of this approach was Edward De Bono (1971, 1985, & 1992) who emphasized on lateral thinking and
other aspects of creativity. Osborn (1953) and Gordon (1961) were also among the supporters of this approach. Osborn (1953) developed the technique of brainstorming to encourage people to solve problems creatively. In brainstorming, people try to seek many possible solutions in an atmosphere full of motivation, freedom, inspiration, support, rather than critical. Gordon (1961) also attempted to stimulate creative thinking by a method ‘synectics’, which involves analogies. In this approach, primary focus was on how to develop and create understanding of creativity among individuals (Sternberg, 1999). This approach was criticized on two grounds: it lacked psychological basis and no serious empirical attempts were made to validate it.

❖ Psychodynamic Approach

According to Sternberg (1999), the psychodynamic approach can be considered the first major twentieth century theoretical approach to the study of creativity. It is based on the idea that creativity is the result of conscious reality and unconsciousness derives. Freud (1908, 1961) and Vernon (1970) also proposed creative work as a way to express unconscious wishes in a publicly acceptable form. Later on Kris (1952) introduced the concepts of adaptive regression and elaboration for the study of creativity. Adaptive regression refers to the sudden occurrence of unmodulated thoughts in consciousness while elaboration refers to the reworking and transformation of those thoughts through reality-oriented, ego-controlled thinking (Sternberg, 1999). This approach and other early work on creativity relied mostly on case studies of eminent creators and became the cause of criticism because its theoretical constructs were difficult to measure in this way (Weisberg, 1993).

❖ Psychometric Approach

Guilford (1950) proposed that creativity could be studied in everyday subjects and with a psychometric approach, using paper and pencil tasks. Many researchers adopted Guilford’s suggestions and tried to measure creativity by using divergent thinking tasks. Torrance (1974) also developed the ‘Torrance Tests of Creative Thinking’, which consisted of several verbal and figural tasks that involve divergent thinking and problem solving skills (D’Cruz, 2008).
The psychometric revolution of measuring creativity had both positive and negative merits. On the positive side, tests facilitated the researchers as they were easy to administer and were considered an objective device but on negative side some researchers criticized brief paper-pencil tests (Sternberg, 1986) and other critics pointed out that the score on different dimensions of the test failed to measure the concept of creativity (Amabile, 1983).

- **Cognitive Approach**

In cognitive approach of creativity, attempts were made to understand the mental representations and processes underlying creative thought. Creativity as a cognitive activity emerges from two processes, viz., problem redefinition and ideation. Redefining the problem provides the opportunity to look at the situation from different viewpoints and perspectives and finally results in the generation of solution by providing different approaches to the problem. Ideation allows the use of imagination, association and other generative processes in the generation of alternatives (Koestler, 1964; Rothenberg, 1990; Ward, Smith & Finke, 1999). Wallas (1926) gave the model of creativity as cognitive process (described in the section entitled ‘Models of creativity). Finke & his colleagues (1992) also proposed a model that was called ‘Geneplore model’. According to this model, in a creative thought, two main processes are involved: (i) a generative phase and (ii) an exploratory phase. In generative phase, an individual constructs mental representations as pre-inventive structures, which have properties of promoting creative discoveries. In the exploratory phase, these properties are used to come up with creative ideas. A number of mental processes may enter into these phases of creative invention including the processes of association, synthesis, transformation, analogical transfer and retrieval etc. Weisberg (1986, 1993) defined that creativity involves ordinary cognitive processes and yields in extraordinary products. He attempted to show that the insights depend on subjects using conventional cognitive processes (i.e. analogical transfer) and knowledge already stored in memory (Sternberg, 1999).
Social-Personality Approach

This approach has focused on personality variables, motivational variables and the socio-cultural environment as the sources of creativity. For example, Amabile (1983), Barron (1969), Eysenck (1993), Gough (1979) and Mackinnon (1965) have noticed that certain personality traits often characterize creative people. Through correlational studies and researches on contrasting the high and low creative samples, some personality traits have been identified by Barron & Harrington (1981) i.e. independence of judgment, self-confidence, attraction to complexity, aesthetic orientation and risk taking (Sternberg, 1999). Maslow (1968) also found that boldness, courage, freedom, spontaneity and self-acceptance help an individual to realize his/her full potential while Amabile (1983), Crutchfield (1962) and Golann (1962) emphasized on the importance of intrinsic motivation.

At the societal level, Simonton (1984, 1988 & 1994) explored that the levels of creativity in diverse cultures are linked or associated with environmental variables such as cultural diversity, war, availability of role models and resources (financial support) (Sternberg, 1999). This approach was criticized on the ground that through this unidisciplinary approach, only a part of creativity can be explained therefore, a multidisciplinary approach is required for the understanding of complete concept of creativity.

Confluence Approach

This approach advocates that creativity is not a single phenomenon rather it is a combination of various inter-related resources, especially intellectual ability, level of knowledge, style of thinking, personality traits, motivation level and surrounding environment. Stenberg is the chief exponent of this point of view (Gardner, 1993; Sternberg & Lubart, 1995; Sternberg, 1999).

Models for the Development of Creativity

Guilford (1950) stated that every human being has the ability to be creative but the manifestation of creative ability depends on many variables (D’Cruz, 2008). For nurturing creative potential of individuals, the understanding of these variables is utmost important and in this case the models given by various psychologists provide a helping hand. Models explain the theory of the emergence of creativity i.e. how
creative thinking proceeds and how creative ideas emerge over time. Some of the models of creativity have been described in the following paragraphs:

- **Wallas’s Model: ‘Creativity as a Cognitive Activity’**

One of the earliest models of creativity is given by Graham Wallas (1926) who stated that creativity is a cognitive activity based on problem redefinition and ideation. It is characterized by the four stages i.e. preparation, incubation, illumination and revision or verification. A detailed description of these stages is given below:

1. **Preparation:** During this stage, conscious work on the problem is initiated and continued as long as possible. Initially, the problem is defined or analyzed and the stage is set for its solution. The facts and material relevant to the solution are then collected and examined and plan of action is formulated. Accordingly the work is started on it. In between, if essential, the plan of action can be modified or another method can be adopted.

2. **Incubation:** This stage is characterized by absence of activity, or in many instances, even of thinking about the problem. Sometime it also appears that the solution of the problem cannot be attained then frustration leads the individual to set the problem aside for the time being. This type of deliberate or voluntary turning away from the problem is the beginning of this stage.

3. **Inspiration:** During this stage, the thinker is often presented with a sudden appearance of the solution of his problem. Such illumination may occur at anytime even in dreaming. This stage has three salient qualities: it is typically sudden, it is accompanied by an emotional feeling of elation and it seems to come from some mysterious source external to the thinker.

4. **Verification:** During this stage, the illumination or inspiration is checked to determine whether the solution or idea, which appeared through insight is correct or not. Accordingly, desired modification or change is made to solve the problem.
On the basis of this model, it can be concluded that creativity begins with purposeful preparation followed by incubation, sudden illumination and then ends with critical verification. The quality of output is judged from the perspectives of Guilford’s principles (1950) of fluency, flexibility, originality and elaboration. Fluency is the ability to generate a number of ideas for a given task. If a person produces more ideas, he possesses higher fluency while flexibility shows a person’s movement from one level of thinking to another level or shift in thinking process. In simple terms, it indicates variety in thinking. Originality is the ability to create unusual, rare ideas or associations in a given situation or subject while elaboration is the ability to use number of details to extend a response or idea. Torrance (1988) also said that Wallas’ model is the basis for most of the creative thinking training programs.
Amabile’s Componential Model (1983)

The componential model given by Teresa Amabile (1983) proposes that creativity includes three important components i.e. (i) domain-relevant skills, (ii) creativity-relevant skills and (iii) task motivation. The model emphasizes that creativity requires a confluence of all components and if a person possesses all these components, his creative ability will be the highest. Apart from these components, the surrounding of an individual or social environment of individual also has influence on creativity. The assumptions of the model are as follows:

Assumptions of the model: There are two basic assumptions behind this model and these are as follows:

1. Creativity is assumed to find on a continuum or in a continuous sequence from ordinary level (in daily life) to highest level (historical inventions, scientific discoveries and work of art).

2. Individual’s creative work consists of different degrees. The level of creative products depends on the functioning of creativity related components within and around a person at that particular time.

(Amabile, 1988)

A detailed description of the desirable components of creative thought is given below:

Domain-relevant skills: These skills include knowledge proficiency, technical skills, talent, positive attitude, expertise in the particular area or domain in which the individual is working. These skills are the basis upon which, the whole creative process is preceded. These abilities help in synthesizing the responses for a given task or problem and to judge the appropriateness of given response.

Creative-relevant skills: These skills include cognitive style, ability to use wide information and personality characteristics (independence in ideas, self-discipline, orientation towards risk-taking, tolerance for ambiguity), which are favorable to take new perspectives on problems rather than depending on existing mental sets and techniques. These skills help in understanding complexities, breaking prevailed mental set and in exploring new pathway to generate novel ideas.
**Intrinsic Motivation:** Amabile (1983) stated that along with the above mentioned two components, third component i.e. ‘intrinsic motivation’ also has significant impact on person’s creation. Individual’s perceptions towards the task, his/her motivation level for understanding the task are accountable for successful and unsuccessful creative pursuits. If a person is curious about the task or takes interest in the problem, the chances to produce creative response are increased. In other words, individual’s performance or possibility of doing any work depends on domain relevant and creative-relevant skills but it is ‘motivation’ that determines the appropriate engagement of these skills in the service of creative-performance.

All the steps of Amabile’s Model (1983) are explained through graphically through below given picture (1.6):

![Amabile’s Model of Creativity](image.png)


**Figure 1.6: Amabile’s Model of Creativity**

* Torrance’s Incubation Model

Torrance’s incubation model (Torrance, 1979; Torrance & Safter, 1990) of teaching and learning is the most pertinent model that deals with creative learning and teaching. Torrance proposed this model for teachers to be more creative and effective
in teaching process of any subject, at any age level with any method of instruction. In the view of Torrance, creative thinking skills can be practiced and taught just like other skills. It is based on the theory that creative outcomes occur by the interaction of an individual’s creative skills, abilities and motivational level (Torrance & Safter, 1999). The model consists of three stages, which are as follows:

**Stage One: ‘Heightening Anticipation’**: It is based on the principle of using incomplete knowledge to make children or individuals more curious and exited about learning. In this phase, a teacher or facilitator’s aim is to create desire for learning, discovering new facts, to stimulate imagination power and to motivate students to achieve their goals. The major goals of the teacher or facilitator in this phase are:

i. create the desire to know  
ii. heighten anticipation  
iii. get attention  
iv. arouse curiosity  
v. tickle the imagination  
vi. give purpose and motivation  

(Torrance & Safter, 1990)

**Stage Two: ‘Deepening Expectations’**: In this stage, intrinsic motivation to learn, which is developed in first stage is accompanied by various cognitive and emotional experiences. Learner is allowed to go further for deep thinking and analyzing the content or information again for discovering and exploring the information or content more intensively. The learner tries to understand the problem in depth and broad sense and attempts to find out its practical solution, which can be generalized in social conditions. In this stage, Torrance & Safter (1990) have used some metaphors to explain the way in which a learner should be taught like:

i. **Digging Deeper**: It refers the diagnosing process of difficulties. A learner should collect the known and unknown information, facts from various sources and on various aspects of problem and then integrate and elaborate them accordingly.
ii. **Looking Twice**: It indicates the evaluation and re-evaluation of collected information.

iii. **Listening for Smells**: It implies that an appropriate sense or all senses should be used to find out the solution of the problem.

iv. **Crossing out Mistakes/ Listening/Talking to a Cat**: It refers to the process of guessing and checking them. In other words, it includes the act of correcting, refining and modifying the guesses and thus, attempts to make the obtained solution better.

v. **Cutting Holes to See Through**: In this step, summarization of novel informations or solutions is being done and unworthy ideas or things are discarded.

vi. **Cutting Corners**: It emphasizes the negligence of useless informations and stimulate mental leap to new insights.

vii. **Getting into Deep Water**: It focuses on the complexity of problems and try to search the other unanswered or questionable things related to the problem.

viii. **Getting out of Locked Doors**: It shows the attempts to solve the unsolved, complicated or mysterious things and search of new possibilities.

(Torrance & Safter, 1990; Nitkowski, 2004)

An individual may select and use suitable process (one/many metaphors) among above mentioned processes to reveal new ideas, make new connections and explore new opportunities. It is quite noteworthy that the learning within this stage is leaded or guided by experience and motivation.

**Stage Three: ‘Extending the Learning’**: In this stage, other creative strategies are added to increase learner’s involvement in the study and to motivate them for continuing their study. The purpose of this stage is to encourage the individual for using creative thinking in daily life. According to Nitkowski (2004) “the bulk of the instruction is a means to sparking incubation by setting up learning experiences that lay the foundation for intrinsically-inspired further exploration”. Torrance (1979)
again used metaphors to explain the way in which the learner carries out the information like:

i. **Having a Ball**: It emphasizes on having interest and fun in problem-solving process.

ii. **Singing in One’s Own Key**: It refers to the collection of information, usage of schema to relate the content and then make connections.

iii. **Building Sandcastles**: It allows the using of imagination and fantasy to find out ideal solutions.

iv. **Plugging in the Sum**: It implies the identification of all available resources and their utilization.

v. **Shake Hands with Tomorrow**: It means the relating of new ideas with future vision.

All the steps of Torrance Model (Torrance, 1979; Torrance & Safter, 1990) are explained through graphically through below given picture (1.7):


**Figure 1.7: Incubation Model of Creativity (Torrance, 1979)**
To sum up, Incubation Model proposed by Torrance (1979, 1990) emphasizes the use of content knowledge, various skills and creative thinking in the learning process as well as in daily social life.

Sternberg and Lubart’s ‘Investment Model’ (2012)

According to Sternberg and Lubart (1991, 1995) the confluence of six distinct but interrelated resources i.e. intellectual abilities, knowledge, thinking style, personality, motivation and environment is responsible for creative work. If an individual possesses all these resources and uses them appropriately in the task, he can create or innovate something valuable. According to this theory, ‘creative people are those who are willing and able to buy low and sell high in the realm of ideas’. Here the author by the term ‘buying low’ means to carry out and pursue unknown ideas but having the potentiality and ‘sell high’ indicates the socially accepted outputs (Sternberg, 2006, 2012). A detailed description of these six resources is given in the following paragraphs:

**Intellectual Skills:** According to Sternberg (2012), three intellectual skills i.e. (i) synthetic ability to define and represent problems in new ways; (ii) analytical ability to recognize the ideas, which are worthy to pursue; (iii) the practical ability to convince others about the value of new idea are considered important skills. It can be concluded that to be creative, an individual should have the ability to critically analyze, synthesize and represent the ideas.

**Knowledge:** Besides intellectual skills, one should possess ample knowledge of a field to move it forward. One cannot move beyond if he does not know anything about the working areas. On the other hand, knowledge about a field may also cause hindrance as a person does not move towards the way in which he/she has already seen problems (Adelson, 1984; Frensch & Sternberg, 1989; Sternberg, 2006).

**Thinking Style:** Thinking styles are also associated with creativity (Sternberg, 2012). Thinking style, which encompasses a preference for thinking in novel way, depends on one’s own choice, also known as legislative style is suitable for creativity (Sternberg, 1997; Zhang & Sternberg, 2006).

**Personality:** Various investigators have proved the importance of certain personality traits for creative functioning (Feist, 2010). These traits include self-efficacy,
perseverance, individuality, willingness to take risks, openness to new experiences, ability to challenge conventions and prejudices and ability to tolerate ambiguity. These traits are flexible and can go beyond the mentioned ones to overcome the obstacle.

**Motivation:** Many researchers (Amabile, 1999; Hennesey, 2010) have shown the importance of motivation for creative results. Motivation either intrinsic or extrinsic energizes the person and allows him/her to focus on the task.

**Environment:** Finally, an environment that facilitates novel or innovative ideas is considered as highly essential resource for creativity. A person having all internal resources may not be able to display or create any valuable thing if the environment is not supportive.

All the steps of investment model proposed by Sternberg (1991, 1995 & 2012) are explained graphically through the below given figure (1.8):

![Figure 1.8: Investment Model of Creativity (Sternberg, 2012)](image)

To sum up, it can be concluded after a thorough analysis of all above given models of creativity that creative process involves purposeful analysis or preparation of imaginative idea generation and critical evaluation. The whole process of creativity is
a balance of imagination and analysis. Modern models (Plsek, 1996) focus that creative ideas result from purposeful preparation and under the direct control of the thinker. The whole creative process depends upon a drive to action and then implementation of ideas to make them concrete realities. It requires mental balance of thinking skills to support the generation of novel insights and ideas.

On the basis of various models (described above and which are not described here due to few limitations), creative thinking combines four main stages, which are shown through below given model:

![Confluence Model of Creativity](image-url)


**Figure 1.9: Confluence Model of Creativity**

1.1.2 School Climate

Schools are social institutions and work as agents for socialization of adolescents (Getzels and Guba, 1970). They provide a source of values, a set of rules for regulating behaviors, a place for acquiring knowledge and participating in various activities, a sense of goal and belongingness and a ground for peer interactions (Cheng & Chan, 2003; Schneider & Duran, 2010 & Thapa & Others, 2012). In other words, schools provide a structure and environment to students for developing themselves physically, emotionally, mentally and socially etc. Climate is particularly
defined as a set of characteristics that describe a group and distinguishes one group from another group. At present, school climate has a variety of meanings, including the social system of shared norms and expectations (Brookover et al., 1978), the set of norms and expectations that others have for students (West, 1985), teachers’ morale (Brown & Henry, 1992), level of teachers’ empowerment (Short & Rinehart, 1992), students’ perceptions of the personality of a school (Johnson, Johnson & Zimmerman, 1996), and the environment for students, which is depicted by the behaviour of student in the school (Bernstein, 1992). In general, school climate refers to the quality and character of school life. It is based on experiences of students, parents and school personnel about school life and reflects the interpersonal relationships, physical facilities, norms, values, goals, organizational environment and academic activities taking place in the school.

**School Climate: Origin & Components**

The concept of school climate has its origins in the late 1950s when the researchers in social sciences studied variations in work environments. Johnson & Stevens (2006) mentioned that ‘the climate is the personality of an organization and that the organization climate is similar to the individual personality’. Tagiuri (1968) defined climate and atmosphere as summary concepts dealing with the total environmental quality within an organization. Nwankwo (1979) also described climate as the interactive life or general relationships of the school (Anderson, 1982). Moos (1979) defined school climate as the social atmosphere of a setting or “learning environment” in which students have different experiences, depending upon the protocols set up by the teachers and administrators. Moos (1979) divided the social environments into three categories:

- **Relationship**, which includes involvement, affiliation with others in the classroom and teacher support.

- **Personal growth or goal orientation**, which includes the personal development and self enhancement of all members of the environment.

- **System maintenance and system change**, which includes the orderliness of the environment, the clarity of the rules and the strictness of the teacher in enforcing the rules.
Christopher (1988) concluded that human nature makes people feel better about themselves when their surroundings are pleasant. School climate is evident in the feelings and attitudes about a school expressed by students, teachers, staff and parents— the way students and staff “feel” about being at school each day (Gonder & Hymes, 1994). Freiberg (1998) claims that the climate of the school is the “heart and soul” of a school, which includes the factor that motivates students, teachers and makes them to be there every day. Various researchers and educational reformers identified school climate in different ways, but it seems that there is a consensus on what constitutes the school climate. The term refers to learning environment created through the interaction of human relationships, physical setting and psychological atmosphere.

**Components of School Climate**

Loukas (2007) states that ‘climate is a multidimensional construct and influences many individuals including students, parents, school personnel and the community’. It includes physical, social and academic dimensions, which are as follows:

![Figure 1.10: Dimensions of School Climate](image-url)
Physical Dimension

It includes:

- Presentation of the school building and classrooms;
- The size of the school and the students/teachers ratio in the classroom;
- The organization of classes in the school;
- The effectiveness of the tools and teaching resources;
- Security and safety.

Social Dimension

It includes:

- The quality of interpersonal relationships of all members of staff (teacher-leader; teacher-teacher; teacher-student; student-student; teacher-parents);
- A fair and equal treatment of students by teachers and other staff members;
- The degree of competition and social comparison among students;
- The extent of the contribution of students, teachers and school staff in decision-making process.

Academic Dimension

It includes:

- The quality of teaching;
- Teachers’ expectations for students’ achievement.

School climate has been researched for many years and continues to be examined due to its importance for educational outcome. The elements that comprise a school’s climate are extensive and complex. On the basis of various researches, in the present study the following dimensions have been employed:

- Interpersonal relationships (Number and quality of interactions between adults and students, Social support from teachers and peers) (Kuperminc, Leadbeater & Blatt, 2001)
- Student’s and teacher’s perception of their school environment or the school’s personality (Johnson, Johnson & Zimmerman, 1996).

- Environmental factors (such as the physical building, classrooms and material used for instructions)

- Academic performance (Johnson & Johnson, 1993)

- Feeling of safety and school size (Freiberg, 1998)

- Feeling of trust and respect for students and teachers (Manning and Saddlemire, 1996).

**Importance of School Climate**

School climate may be defined as a combination of those qualities that affect attitudes, behaviors and achievement of the people involved in its operation. They may be staff, parents or community members (National Association of Elementary School Principals, 1990). School climate has been identified as an important component of the school system. It influences teachers’ morale and students’ achievement. Positive school climate benefits students, teachers and staff as in positive school climate teachers are motivated to teach; students are motivated to learn (Bulach& Malone 1994).

National Association of Elementary School Principals (1990) listed some areas as the essential ingredients of an effective school climate:

(i) A caring atmosphere permeates the school. Feelings, concerns and conflicts receive fair and consistent attention.

(ii) Respect for individual differences among staff, students, parents and administrators are demonstrated.

(iii) The trust level is high. The principal respects the judgement of teachers and includes them in school based decisions. The teachers are given appropriate classroom autonomy.

(iv) The moral in the schools is high. The students are enthusiastic about learning and the teachers are excited about teaching. Achievement and contribution by everyone in the school is acknowledged and celebrated.
Regarding the roles of teachers and administrators, Taylor and Tashakkori (1995) found that a positive climate is associated with increased job satisfaction for school personnel. It has been found that a positive school climate can yield positive educational and psychological outcomes for students and school personnel. Similarly, a negative climate can prevent optimal learning and development (Freigberg, 1998; Johnson & Johnson, 1993; Kupermine et al., 1997; Kupermine, Leadbeater & Blat 2001, Manning & Saddlemire, 1996). School climate, if positive, can provide enriching environment, both for personal growth and academic success. Hoy and Forsyth (1986) referred to climate as school’s health. They described a healthy school as one in which harmony pervades relationships among students, teachers and administrators.

School climate can affect many areas and people within schools. For example, a positive school climate has been associated with fewer behavioral, emotional and mental health problems of students (Kupermine et al., 1997, Thapa et al., 2012). Specifically, schools having positive climate tend to have less student discipline problems (Cohen & Geier, 2010) and aggressive and violent behavior (Gregory et al., 2010), and fewer suspensions (Lee et al., 2011). Various theories of management suggest that a democratic environment in a school context not only benefits the academic and socialization experiences of students, but also affects the work productivity and well being of teachers. Teachers are the ones who are most directly involved in educating students. Through an appropriate school climate is essential if teachers are to maximize their skills, which in turn maximize the learning experiences of all students (Ruus et al., 2007; Shochet et al., 2006). To sum up it can be said that positive school climate is essential for all round development of students.

1.1.3 Attitude

The concept of attitude has been and remains central and fundamental to social psychology. It was first introduced by Thomas and Znaniecki (1918) in their monumental study on Polish peasants (people in transition between two cultures). They regard attitude as internalized counterpart of an object representing the individual’s subjective tendencies to act towards that object. It is individual’s mental process, which determines both the actual and potential responses of each person in the social world (Fishbein, 1967; Ebel, 1969). The term attitude is frequently used in
Educational and Psychological researches. It is an important aspect of descriptive researches. It has gained importance due to the work of Thurstone. According to Thurstone (1946), an attitude is the degree of positive or negative effect associated with some psychological object. Newcomb’s (1950) defined an attitude as a ‘learned predisposition to respond in a consistently favorable or unfavorable manner with respect to an object clearly related attitudes to behaviour- which is problematic. He also assumed that attitudes are learned and that people strive to achieve consistency. In the view of Campbell (1963) an attitude is a hypothetical construct that represents “consistency in response to social objects”. It represents an individual’s degree of response (like or dislike) for an object. Attitudes are latent, they are modifiable. Zimbardo et al. (1999) defined attitudes as a positive or negative evaluation of people, objects, events, activities, ideas or just about anything in the environment. Attitudes are generally positive and negative views regarding person, place or event. On the basis of above given discussion, attitude can be described as positive and negative or favorable and unfavorable inclination towards abstract ideas and events, which influence the person to respond in a particular manner. It always implies a relationship between the person and object.

**Approaches of Attitude**

Generally an attitude being a psychological construct used to refer to certain mental processes of a person. It is used to represent and summarize a collection of psychological phenomena. In simple words, it is a shorthand way of summarizing simply that is complex. So it cannot be directly observed or measured. There are two approaches to understand the term ‘attitude’ i.e. (i) functional approach (ii) structural approach. The below given picture (1.11) clearly presents both of the approaches of attitude and their functions:
Figure 1.11: Approaches of Attitude

Functional Approach

Traditionally, the functional approach (McGuire, 1969; Katz, 1960; Smith et al., 1956) suggests that attitude promotes the well-being of an individual by serving essentially four functions. These are adaptive function, self-expressive function, ego-defensive function, and knowledge function. The basic idea is that attitude helps a person to mediate between the inner demands of the self and the outside world (especially material, social and informational aspects).

**Adaptive function:** It concerns of the extent to which attitude enables a person to achieve a desired goal and avoid what is distasteful. A person develops positive attitude to those people whom he/she likes and seeks out as friends those are perceived to have similar attitudes. In short, this function serves the purpose of increasing satisfaction or pleasure and avoiding punishment or pain.

**Self-expressive function:** It acknowledges a need to tell others about oneself and to know one’s own mind i.e. be conscious of what one feels, believes and values. One aspect of this is identification of well-being of a person.

**Ego-defensive function:** It suggests that attitudes can serve to protect people from themselves and other people. Katz (1960) used a psychoanalytic perspective
employing the Freudian concept of defense mechanisms. With respect to self-protection, attitudes may serve to maintain self image, for example, often there are times when one finds it painful to think about how he has behaved. Attitude may help a person not to think about the embarrassing episode or dismiss it as unrepresentative. In short, through ego-defensive function one tries to maintain a positive self-image and self esteem, deals with threats of ego and projects own conflicts into other people.

**Knowledge-function:** It concerns how a person organizes, structures and processes information about his social world. This function allows to simplify the world and to see the world as a more familiar, predictable and less uncertain place.

The functional approach also has implication for changing attitude as to change attitude, two things should be known: (a) the attitude held; and (b) the function that attitude serves for the person. To achieve change in attitude, the approach should be match with the function. For example, an attitude serving a knowledge function is most likely to be changed by exposing the person to new information. On the other hand, an attitude serving an ego-defensive function is unlikely to be changed by the presentation of new information, but may be changed by appealing to a person’s self-image.

**Structural Approach**

The structural approach regards attitude as an evaluation, positive or negative, of an object (person or animate). This reflects a traditional model of three components relating cognition, affect and behaviour (Katz, 1960). Eagly and Chaiken (1993) defined attitude as ‘a psychological tendency that is expressed by evaluating a particular entity with same degree of favor or disfavor’. In this definition, the evaluation includes both overt and covert cognition, affective and behavioral aspects.

![Figure 1.12: Relationship between Object, Attitude and Three Aspects](image-url)
The cognitive component refers to beliefs, opinions and ideas about the object, while the affective component refers to the evaluation (good or bad, liking or disliking) of the attitude object and often reflects a person’s values and the conative or behavioral component refers to behavioral intentions and actual behaviour associated with the attitude object. This model assumes that there is a high degree of consistency between beliefs, affect and behaviour.

**Importance of Attitude**

Allport (1954) viewed attitude as ‘the most distinctive and indispensable concept in social psychology’. In all aspects of social life, a person is continually seeking to discover other people’s attitudes, telling others of his views, and trying to change someone else’s opinions. Attitude plays an important role to understand stereotype behaviour, prejudices, voting intentions, consumer behaviour and interpersonal attraction. Attitude is important because it determines the behaviour of people towards any object, person and society. Parents, peers, powerful others, media and cultural norms all play an important role in determining the attitude, which a person holds. Social norms (implicit or explicit rules of behaviour in one’s peer group, social class difference etc.) as well as cultural norms (more general codes of conduct and ethical standards of a society) are responsible for a certain degree of uniformity but an individual’s direct experience produces a diverse range of attitude and opinion. For example, early childhood experiences, family values, level of educational attainment and sub-culture ethos all contribute to create differences among people.

**1.2 Statement of the Problem**

Keeping in view the conceptual and theoretical background of the study, the present researcher proposes to conduct a study entitled: “A comparative study of attitude of secondary school teachers of Science and Arts streams towards nurturing creativity in relation to rural-urban location, gender difference and school climate”.

**1.3 Rationale of the Study**

Modern civilization has become more complex in nature. Teacher is like an agent and catalyst to bring out social and cultural transformation. Everything depends upon teacher and his attitude towards profession. The present research is aimed at to measure attitudes of male and female, rural and urban secondary school teachers
towards nurturing creativity. The study will help not only in understanding the attitude of teachers belonging to different areas towards nurturing creativity but also help in presenting some concrete suggestions for the development of positive attitudes towards it.

In the present time, the nature of teaching-learning has changed. Now the task of a teacher is like a facilitator who helps a learner to enable him to construct his knowledge. Today's students need to develop creative skills by learning and only a creative teacher and proper environment can help him to execute his duties. In today's rapidly-changing society, 'creativity'—with the ability to adapt quickly to the changes and changing needs has become essential in the daily life. Bill Clinton, former president of the United States, once said 'in the era of knowledge economy, we should use technology as our fuel and take innovation, creativity as our power'. Maddock (2007) also pointed out that in the era of knowledge explosion, the new focus of education should be on developing effective innovative, creative abilities, as well as abilities in question-solving, judgment, and information/technology application; these abilities are all fundamental for the success of the next generation. Since creativity is the fountain head of innovation, the nurturing and promotion of creativity should be regarded as a crucial element of future education. For this reason, cultivation of creative talents has become an important goal of educational reform worldwide. Innovation is must for enhancing one's competitive edge facing the challenges of globalization. However, innovation can only be created through education that focuses on cultivating creativity for both teachers and students. Therefore, to equip students with creativity, teachers must use innovative and creative teaching methods. They must help the learners to enhance their innovative abilities, and in this, their attitude towards nurturing creativity highly matters. The goal of teachers is to increase students' knowledge and wisdom, which means to impart knowledge in students, nurture their potentials and cultivate a flexible, intelligent, and high-quality learning environment. Hence, there is a need to know the attitude of teachers towards nurturing creativity, the role school climate in determining the attitude and also various factors that may affect the attitude of teachers towards cultivating creativity.

1.4 Importance of the Study

The present research would be useful in the following manner:
The study will help the teachers to assess their attitude towards nurturing creativity.

The study will be helpful for the teachers to know about different kinds of factors, which have great impact on the enhancement of creativity like socio-economic status of family, anxiety of individual, restricted environment, poor inter-personal relationship etc. They would be able to know the factors, which create hindrance in the innovativeness.

The study will be beneficial for teachers and administrators as they will get research based knowledge about how to enhance creativity among students.

The study will create awareness among teachers and students about the misconceptions related to creativity (like it is only an inborn gift, or it is reserved for certain kind of people or it can be nurtured through training etc.), which are prevailing among them.

The study will provide a helping hand to teachers in identifying the creative individuals. They will be aware of the personality traits and behavioural pattern and cognitive styles of creative individuals.

The teachers will be able to know the role of school climate in nurturing creativity and what kind of facilities should be available in schools to promote it.

The teachers will be able to understand the importance of freedom, motivation, different teaching strategies, co-curricular activities etc. in cultivating creativity of students.

The study will provide a helping hand to administrators by making them aware about the attitude of secondary school teachers towards nurturing creativity among students.

Administrators will also get benefit from the research through the knowledge of relationships among teachers, teachers and students and parents etc.

As it is well known fact that a safe and supportive environment nurtures social and emotional, ethical and academic skills so the study may be helpful to teachers to know the psychological environment of secondary schools.
The research will help those people who are interested in the studies related to creativity, social sciences, specially education and psychology.

The results and recommendations of the study will help in developing the educational atmosphere in secondary schools.

1.5 Operational Definition of Terms

Definition in general can be classified into two types; ‘conceptual’ and ‘operational’. In ‘conceptual definition’ the variable is theoretically conceptualized, which has great academic significance while ‘operational definition’ tells us how a variable can be measured. The process of defining the terms is very essential because it allows specific content to be described and explained in the manner that pertains to study. Conceptual definitions of the key variables used in the study have been described previously however, the following paragraphs present the operational definition of key terms used in the present study.

1.5.1 Attitude

Operational Definition

The term ‘attitude’ has been used by the investigator in the research as a predisposition to respond to a particular object (here towards nurturing creativity) generally in favorable or unfavorable way derived from a subject’s responses to a number of statements about it. In the present study, attitude of sample teachers will be measured in terms of scores obtained through a scale constructed by the investigator.

1.5.2 Attitude towards Nurturing Creativity

Attitude towards Nurturing Creativity can be considered as a preference along a dimension of favorableness or unfavorableness to various aspects related to Creativity.

Operational Definition

In this study, attitude towards nurturing creativity infers to the knowledge related creativity, awareness about the factors affecting creativity, enhancing creativity among students, misconceptions related to creativity and knowledge about the indicators of creativity. It will be measured by using attitude scale (Likert-type)
developed by the investigator. The score of the sample on the tool ‘attitude towards nurturing creativity’ will be the attitude towards nurturing creativity.

1.5.3 School Climate

Operational Definition

School climate used in the present research refers to the climate prevailing in an average secondary school and which can be measured through the scale prepared by the investigator, consisting of four dimensions namely: ‘the relationship among teachers, students, administrators, parents, and society’, ‘physical facilities available in the school’, ‘psychological environment of the school’ and ‘academic activities’. The score obtained through the scale may determine the climate of secondary schools.

1.5.4 Other Variables

In the present study the investigator proposes to employ the following demographic and biographical variables:

Secondary School: The schools consisting of the grade 9th and 10th have been considered as secondary level schools.

Stream of Teaching: Teachers teaching the Science subjects and Arts subjects at secondary level have been considered teachers belonging to Science and Arts streams.

Gender: Any significant difference in mental, physical, social and emotional traits that depends only on the sex of individuals is called as gender difference. In this study, gender is the term used for male and female teachers.

Place of Living: In place of living, rural and urban areas have been taken into consideration. Rural areas are settled places (villages) outside towns and cities, while urban areas have been used for cities and towns.

1.6 Research Questions

Briefly, the present research tries to answer the following questions:

1. What is the attitude of secondary school teachers towards nurturing creativity?
2. What is the attitude of secondary school teachers belonging to science stream towards nurturing creativity?

3. What is the attitude of secondary school teachers belonging to arts stream towards nurturing creativity?

4. Is there any statistical difference between secondary school teachers belonging to science and arts streams in attitude towards nurturing creativity (Total and dimension-wise)?

5. Is there any statistical difference among secondary school teachers belonging to science stream in attitude towards nurturing creativity (Total and dimension-wise) according to location (rural/urban) and gender (male/female)?

6. Is there any statistical difference among secondary school teachers belonging to arts stream in attitude towards nurturing creativity (total and dimension-wise) according to location (rural/urban) and gender (male/female)?

7. What is the quality level of school climate in secondary schools from the point view of teachers?

8. What is the quality level of school climate in secondary schools from the point view of teachers belonging to science stream?

9. What is the quality level of school climate in secondary schools from the point view of teachers belonging to arts stream?

10. Is there any effect of school climate on attitude of secondary school teachers towards nurturing creativity (Total & Science &Arts teachers)?

11. Is there any effect of school climate on attitude of secondary school teachers towards nurturing creativity according to stream of teaching (Science &Arts teachers)?

12. Is the data of the study fit to construct structure equation model to represent the mathematical relationship between the components of attitude of secondary school teachers towards nurturing creativity and school climate?
1.7 Objectives of the Study

The present study aims to achieve the following objectives:

1. To assess the attitude of secondary school teachers towards nurturing creativity (Total & Dimension-wise)

2. To assess the attitude of secondary school teachers belonging to Science Stream towards nurturing creativity (Total & Dimension-wise)

3. To assess the attitude of secondary school teachers belonging to Arts Stream towards nurturing creativity (Total & Dimension-wise)

4. To know the difference between secondary school teachers belonging to Science and Arts Streams in the attitude towards nurturing creativity (Total & Dimension-wise)

5. To know the difference in the attitude of secondary school teachers belonging to Science Stream towards nurturing creativity in relation to location (rural/urban) and gender (male/female) (Total & Dimension-wise)

6. To know the difference in the attitude of secondary school teachers belonging to Arts Stream towards nurturing creativity in relation to location (rural/urban) and gender (male/female) (Total & Dimension-wise)

7. To assess the quality level of secondary school climate from the point of view of teachers (Total & Dimension-wise)

8. To assess the quality level of secondary school climate from the point of view of teachers belonging to Science Stream (Total & Dimension-wise)

9. To assess the quality level of secondary school climate from the point of view of teachers belonging to Arts Stream (Total & Dimension-wise)

10. To know the effect of school climate on attitude of secondary school teachers towards nurturing creativity

11. To know the effect of school climate on attitude of secondary school teachers towards nurturing creativity according to stream of teaching (Science & Arts)
12. To construct structure equation model to represent the mathematical relationship between the components of attitude of secondary school teachers towards nurturing creativity and school climate

1.8 Hypotheses of the Study

1. There is no significant difference between real mean and assumed mean of secondary school teachers in ‘attitude towards nurturing creativity’. (Total & Dimension-wise).

2. There is no significant difference between real mean and assumed mean of secondary school teachers belonging to Science Stream in attitude towards nurturing creativity. (Total & Dimension-wise).

3. There is no significant difference between real mean and assumed mean of secondary school teachers belonging to Arts stream in attitude towards nurturing creativity (Total & Dimension-wise).

4. There is no significant difference between secondary school teachers belonging to Science and Arts Streams in the attitude of towards nurturing creativity. (Total & Dimension-wise).

5. There is no significant difference in the attitude of secondary school teachers belonging to Science Stream towards nurturing creativity according to location (rural/urban) and gender (male/female). (Total & Dimension-wise).

6. There is no significant difference in the attitude of secondary school teachers belonging to Arts Stream towards nurturing creativity according to location (rural/urban) and gender (male/female). (Total & Dimension-wise).

7. There is no significant difference between real mean and assumed mean of secondary school teachers regarding their perception of secondary school climate (Total & Dimension-wise).

8. There is no significant difference between real mean and assumed mean of secondary school teachers belonging to Science stream regarding their perception of secondary school climate (Total & Dimension-wise).
9. There is no significant difference between real mean and assumed mean of secondary school teachers belonging to Arts stream regarding their perception of secondary school climate (Total & Dimension-wise).

10. There is no effect of school climate on the attitude of secondary school teachers towards nurturing creativity.

11. There is no effect of school climate on the attitude of secondary school teachers towards nurturing creativity according to stream of teaching (Science & Arts).

1.9 Delimitations of the Study

Delimitations are four walls around the study. Outside these walls the study cannot prove itself. The delimitations of the present study are as follows:

1. The study is confined to secondary school teachers of Science and Arts streams only.

2. The study is confined to Western Uttar Pradesh only.

3. The study is confined to only a few variables i.e. attitude towards nurturing creativity, school climate and demographic variables i.e. gender, location.