CHAPTER THREE

REVIEW OF RELATED LITERATURE
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3.1 INTRODUCTION

Men of eminence have used thought provoking questioning technique to improve our lives by applying 'contrary imaginations' in almost all walks of human endeavour. Renewal in man and society will ultimately depend upon our understanding of the process of innovation and creativity and its application in different areas of human endeavour. The entire gamut of culture, civilization, technology, scientific developments, art and literature is due to the unstinting efforts of creative individuals, although the society, at large, from times immemorial, has been enjoying the fruits of efforts of creative persons. The need for support for creativity research is obvious, since better understanding of the creative process will provide means for an early identification of individuals who are most likely to be creative in science and technology, as well as an insight into how one can best educate, train, stimulate and manage potentially creative persons as individuals or as members of the group (Golovin, 1963).

The topic of creativity has been a major theme of interest in psychology and education for at least four decades. Interest in creativity in the business world has also increased dramatically in the second half of the twentieth century, and has begun to serve as a catalyst for research and development efforts to extend into educational theory and practice as well.
Creativity continuous to be the focus for much discussion among practitioners and to an increasing extent an area of expanding research activity. One more humanitarian reason is that creativity will serve as a focal point for all disciplines concerned with the improvement of man’s health, happiness and social situations. Interest in creativity tends to focus on three principle issues. Understanding the nature of creativity, methods and resources for identifying or programmes for nurturing or developing creativity.

Creativity research has reopened some of the doors that were closed to psychology when it consciously separated itself from philosophy whereas scientific study of creativity is of recent origin. It has now emerged as a field of study with a vengeance. One of the basic factors responsible for the establishment of creativity as a bonafide term in the literature of educational, psychological and sociological research has been broadly indicated by Freeman, Butcher and Christie (1977) as the growing international scope of creativity.

Research in any area is indeed an unending effort to enlarge the vistas of knowledge and to cover the loop holes noticed in various research findings. When a new research is to be undertaken the researcher has to consider the past researches in some details so that she may find for herself, the exact areas which need further research based on the studies already made in the field.

Hence to begin with, a researcher, before dealing with her problem in detail, naturally, commences a survey of the literature.
available on the subjects. In the same manner the present Researcher commenced a survey, in detail, of the available literature. In her survey, she observed that great variety of studies have been designed and carried out in the area of creativity. There has been an enormous increase in creativity research and it is difficult to catalogue the whole literature. There have been attempts by various scientists, including psychologists, educationists and other to understand

1) How creative individuals were viewed.

2) How efforts were made to recognize and identify creative individuals in a given group, much earlier to their contribution to the creative efforts and output and

3) Finally, of late, as to the possibilities of trying to find out, the factors which are likely to facilitate the growth of creativity in individuals so that the society could think of enriching itself by facilitating the emergence of many more creative geniuses who are bound to be the mainsprings of society’s progress.

The available previous work on creativity relates to its multifaceted aspects. In this Chapter a review of the previous research works would be presented under four sections. Viz.,

1) There would be general orientation in the first section, which will deal with an overall picture that one gets regarding the development of creativity.
2) The second section would be primarily devoted to focusing attention on the experimental studies carried out by previous researchers with respect to creativity in its relation to different variables like gender, locale, socio-economic background, personality factors and others are included. It may, however, be mentioned here that, even though a few studies do not fulfill the vigorous, scientific experimental scrutiny, yet such studies can never be overlooked as they contribute crucial insights to the understanding of the role of certain variables and their relations to creativity.

3) The studies related to personality characteristics of creative persons would be discussed in this section.

4) The fourth section deals with the study of programmes and strategies, which can be used, in nurturing creativity.

3.1.1 Studies on Development of Creativity

The topic of creativity has been a major theme of interest in psychology and education for at least four decades. Systematic research in this area is only a few decades old. Taylor (1964) has pointed out that prior to 1950, in about sixty or seventy years merely “a trickle of research articles on creativity appeared in the scientific literature”. After 1950, however, a good deal of work has been done and the first spate of output was in the form of articles in research journals.
Within the twentieth century the first modern era of research and development on creativity can be traced to the early 1950’s, continuing into the 1960’s, and centering around the seminal writing and research of several key people. Guilford’s contributions to stimulating interest in research on creativity are widely recognized. His address on creativity to the American Psychological Association (Guilford 1950) is widely cited as a major event in the era.

Three major research and development efforts in this era give evidence of the importance of divergence; studies attempting to clarify the relationship between creativity and intelligence, studies focusing on the development and validation of creativity tests, and early development of creativity instructional or training programs.

3.1.2. Developmental studies in relation to Creativity and Intelligence

As curiosity increased about creativity and its nature, particularly in relation to Guilford’s hypothesis about a multifaceted conception of intelligence, some researchers began to ask “If traditional conceptions of intelligence focused on information, memory and logical thinking, then surely the new forces on creativity, as divergent thinking, might be expected to be independent of, or uncorrelated with, such traditional measures. Getzels and Jacksons (1962), Wallach and Kogan (1965), Hudson (1966), conducted extensive studies seeking to differentiate creative (or divergent) thinkers from their intelligent (or convergent) peers.
Wallach revised much of the research of this era, seemed to measure something other than, in addition to what is measured by IQ tests, whereas other divergent thinking tests merged more with IQ” (Wallach 1988).

3.1.3 Development and Validation of tests of Creativity

In between 1950’s and 1960’s many pioneering efforts to develop tests to measure creativity were made. The central focus of development and discussion was divergent thinking. The most widely used and researched test batteries were those developed by Torrance (1966) and Guilford (1967) both of which measured several aspects of divergent thinking and by Wallach and Kogan (1965) who focused more specifically on ideational fluency. Measures of divergent thinking have been the focus of considerable discussion and controversy in the literature. Wallach (1970), Ciockcnberg (1972), Tannenbaum (1983), Runco (1990) reviewed and summarized the literature or divergent thinking among children, and concluded that such measures can be useful in studying variables related to creativity, but they should certainly not be considered comprehensive indicators of creative talents.

The research and development efforts of this era made some important contributions to our understanding of creativity and its development. The most important contribution was to begin to call the question of creativity to the attention of educators, psychologists, and researchers. Though Guilford (1950) noted lack of attention that had been given to enquiry into creativity by the end of 1960’s the situation had already changed considerably. The
early efforts in test and program development during this era broke the ground defining many aspects of creativity operationally and creating a foundation for research and development efforts to begin to address one of the most complex and fascinating dimensions of human potential.

Many advances have been made in our understanding of the nature and development of cognitive processes since the topic of creativity began to be explored in 1950's. There have been significant developments in expanding our fundamental conception of intelligence and giftedness (Renzulli, 1978; Gardner 1983, Sternberg 1988b, Amabile 1983, Dunn, Dunn & Treffinger 1992, Feldhusen 1992). These advances challenged the traditional views of intelligence as unidimensional, static and unchanging, emphasized the many and varied nature of human abilities and talents and began to demonstrate that intelligent behaviour and skillful thinking could be influenced or promoted (Costa 1991, Feuerstein 1980, Sternberg, 1988 a,b)

Research and development on the Creative Problem Solving (CPS) process increasingly emphasized the importance of balance between creative and critical thinking and the critical role of variables such as styles and problem ownership at the early stages of problem solving (Isaksen and Treffigen, 1985, Isaksen 1987). Further developments have led to an emphasis on components within the CPS process (Treffingen and Isaksan 1992) and towards more emphasis on linking CPS strategies with peoples natural problem-solving behaviour in real world settings (Isansek Dorval
and Treffinger, 1993). Torrance’s studies of the complex and non-rational dimensions of creativity (e.g. Torrance and Hall, 1980) and the powerful role of techniques such as socio drama (Torrance 1975) led to the development of the incubation model of teaching (Torrance and Safter 1990)

3.1.4 Development of Creativity from early childhood

In creativity as in other aspects of human development, the heredity-environment issue is not yet amenable to fruitful investigation. Studies have instead, revolved around such problems as the influence of age, family background and child rearing practices. Studies of creativity have shown that its development follows a predictable pattern. It appears early in life and is shown first in the child’s play. Gradually, it spreads to other areas of life-schoolwork, recreational activities, and vocations (Laurence, Sutton – Smith and Scheffer, 1975)

Adult creativity tends to mature early and reach their peak during the thirties and forties but there are significant variations by field of endeavour, achievement in mathematics being earlier than in, say, philosophy (Lehman 1963). After that, they either remain a plateau or gradually decline (Dennis, Lehman 1968). Erikson (1967) has called middle age a “crisis age” in which generality (the tendency to create or to bring into existence) or “Stagnation” will dominate. Since no criteria of creative accomplishment for children are available, their creative development has typically been studied through performance on diverging-thinking tests. Observations in the United States have revealed the following: an increase in
divergent – thinking abilities from age 3 to 4½; a drop upon entry to Kindergarten; a rise and then a sharp drop at about the fourth grade, and a relatively steady rise, ability with some gender and test variation, through grade eleven. Lehman explained the early peak in creativity as due to environmental factors, such as poor health, family circumstances, financial pressures, and lack of free time. There is no evidence that the early peak or the subsequent decline is due to hereditary limitations.

Most of the research has focused on family influences and child rearing practices (Getzels and Dillon 1973). Significant birth order effects have appeared with substantial consistency, first born males being more creative than later born siblings. Mothers of more creative children were less restrictive and more self-assured. They preferred change, valued autonomy and were less sociable, conscientious and inhibited. They were less concerned with making a favourable impression and less nurturant or obliging towards others. The mothers of creative children may themselves be more creative than the general population and foster creativity in their children through the force of their own unstereotyped behaviour.

The parent who is introducing babies to the world of inanimate things or failing to do so, shows them what fun can be gained by putting a batch of spoons in saucepan, looking at picture in a book, dancing to the music of phonograph. When the parent teaches them in this positive spirit, it gives them a sense not only that things are to be enjoyed but also that they will be able to manipulate them successfully or if the parent has the opposite
attitude, it may teach them that objects are to be suspiciously avoided because playing with them involves some kind of drugs or parental wrath.

3.1.5 Stages of development of Creative skills:

As with all other skills and abilities, the creative skills and abilities grow and develop through definite stages. Certain basic neural and muscular developmental maturities must be present; certain preliminary stages must be gone through; certain motor; intellectual and imaginative skills must be achieved; certain knowledge and appreciations must be cultivated; certain natural 'bents' 'interests' or in exceptional cases, talents must be present.

Each art goes through certain preliminary, than later stages of development. Lowenfield (1958) traces development of art through such stages as 'disorderly scribbling' around age two, longitudinal or controlled scribbling, naming of scribbling, achievement of form concepts (in the age between 7 to 9 years, the dawning realism in the age between 11 to 13 years) and the period of decision in adolescence. He points out that these are average ages and that, as in all growth, children pass through the or other stages at different ages, depending upon talent and opportunity.

3.1.6 Critical periods in development of Creativity

Arasteh (1968) has reported that the development of creativity may be obstructed at several 'critical periods' during childhood and adolescence.
1) 5 to 6 years – Before children are ready to enter school, they learn that they must accept authority and conform to the rules and regulations of adults in the home and later, in school. The stricter the authority the more it will stifle creativity.

2) 8 to 10 years – The desire to be accepted as a member of a gang reaches its peak at this time. Most children feel that to be accepted, they must confirm as closely as possible to the pattern set by the gang and that any deviation is a threat to acceptance.

3) 13 to 15 years – Striving for peer approval, especially from members of the opposite sex, controls the young adolescents pattern of behaviour. Like the gang-age child, the young adolescent confirms in the hope of winning approval and acceptance.

4) 17 to 19 years – At this age, striving for approval and acceptance as well as training for a chosen vocation may curb creativity. If the vocation necessitates conforming to a standard pattern and following specific orders and rules, as in most routine jobs, it will stifle creativity. Cohen, from his study concluded that some children are subjected to environmental factors that result in a stifling of their creativity at these periods while other children of the same age are not. A child who goes to kindergarten is likely to show greater creativity at that age than is the child who does not attend kindergarten. This is partly because the kindergarten environment promotes creativity and is less
structured and evaluative than the typical home or neighbourhood environment (Cohen 1974)

Although developing creativity has been a goal of interest and concern in education for many years, the subject of creativity continues to be surrounded by uncertainties and widely discrepant viewpoints. Even among those who are avoiding proponents of the importance and plausibility of creative education; the topic is filled with pitfalls. Many of the issues concerning defining, identifying and nurturing creativity have been reviewed extensively in several recent sources. Research in the United States has been reviewed in articles and anthologies by Rothenburg and Itausman (1976), Treffinger (1986a), Isaksen (1987), Sternburg (1988a), Glover, Ronning and Reynolds (1989) and Runco and Albert (1990). From a broader international perspective, Raina (1980) presented research on creativity by 30 authors from 17 countries. Although Raina (1990) has recently argued that creativity research has often been limited in its global perspective, suffering from "Ethnocentric confines" there has been a very active and expanding exchange of ideas and information in recent years, evidenced by many publications and conferences. Several issues and challenges regarding efforts to recognize and develop creativity in a number of specific countries have also been reported recently. These included a South American Perspective (Wechsler 1990), research in India (Khire, 1985, 1990; Nirpharakak, 1981) research in business organizations in Germany (Geschka, 1983, 1990) and The Netherlands (Buij's, 1990) and research and development from an Arab perspective (El-Aasar, 1990).
Other than the above studies Tegane, Deborah. W, and others (1991) suggested many faces by which the development of creativity in children can be enhanced. Russ, Sandra. W (1996) in the Journal, ‘New Directions for Child development’ reviewed the major literature on the development of creative processes in children that should be predictive of adult creativity, focusing on affective processes and children's play describes “Russ model” of affect and creativity and cognitive processes, personality processes, and affective processes important in creativity. Albert, Robert.S (1996) in the Journal, ‘New Direction for Child Development’ questions whether children are creative, and whether creativity can be taught. Fenichel, Emily in the Journal citation: ‘Zero to Three’ explores the development of memory and creativity in very young children. He also describes the developmental stages of children’s story telling (Emily, 1997). A conceptual model of young children’s understanding and use of symbols is presented in “Children’s Memory for Personal Experience”. Individual and cultural variations in development are also described. (Katherine, Nelson and others).

3.2 STUDIES RELATED TO CREATIVITY AND ITS RELATION TO DIFFERENT VARIABLES

While acquainting oneself with the various studies done previously in the field of creativity in relation to gender, socio-economic status, locale, adjustment and personality, one finds several interesting studies carried out in the past. Herein below an
effort is made to review such research work, as they are relevant to the present Study.

3.2.1 Creativity and Gender

There are quite a few studies relating creativity and gender and their findings are significant too. In the following few pages an attempt is made to review works on the relationship between Creativity and Gender to the extent they are relevant to the present Study. Evidence regarding gender differences is equivocal, some indicating superiority of females and others of males. Girls appear to excel in word association, ideational and expressional fluency, flexibility and originality and autonomy in thinking (R.T. Singh 1978)

Creativity has been studied in relation to gender on various categories such as artists, Mathematicians, Women, adolescents and children. Passi (1972) explored the relationship between Creativity and Gender. The investigator used his own test and the sample consisted of 600 boys and girls of secondary schools of Punjab and Haryana area. On analysis of data the results revealed that girls were superior to boys in non-verbal creativity and boys superior to girls in verbal creativity.

Bedi (1974) studied the relationship between creativity and gender. The sample consisted of 100 boys and 100 girls from standard IX selected randomly from Arts and Science. Torrance Test of Creative Thinking was used to collect data. On analysis of data female were found to be more creative than males.
Pandit (1976) in his study compared the creativity scores of male and female students. The sample consisted of 240 students of class IX studying in secondary schools of Indore city. Analysis of data revealed that females were significantly higher than male students in each of the areas of creativity, that is fluency, flexibility and originality.

Rawat and Saroj (1977) also evaluated the creativity scores with respect to gender. The sample consisted of 300 students of classes VIII and IX in Agra city. The analysis of data in this study revealed that boys significantly out performed girls in creativity.

Sharma (1979) studied the differences in creativity with respect to gender. The sample consisted of students of IX and X classes selected randomly from schools of Indore city. Data were collected using Passi’s test of Creativity. Analysis of data revealed that males obtained significantly higher mean scores on creativity than females.

Other than the above studies, there are a few studies which show no relationship between gender and creativity. Reviewing literature on creativity in relation to gender differences Thorat (1977) concluded that in creativity no gender differences occurred.

Similar result was reported by Lal (1977). Sample for the study included 220 teacher trainees. Male and female teacher trainees are equal in number and were drawn from the colleges of Punjab. Torrence’s Tests of creative thinking were employed for
collecting data. There was no significant difference in the creativity scores of male and female teacher trainees.

Apart from the above studies, there have been studies wherein different aspects of creativity among males and females have been enquired into.

Simpkins and Eisenman (1968), Passi (1971), Hussain (1974), Victor and Anne (1974) reported female superiority on various components of creativity. Jarial, Singh and Sharma (1981) compared creativity scores of male and female students. The sample of the study consisted of 805 students of class IX and Xth of secondary schools of Indore. Passi’s Test of creative thinking was used for collecting data. The findings of the study were that male students scored significantly higher than female students in fluency. In originality female students scored higher than males. In flexibility there were no significant differences between male and female students.

Jacqueline and Murray (1967), Raina (1970), Sharma (1971) found males to be superior than females counterparts in many components of creativity. There was no significant relationship between creativity and gender.

In another study by A.K. Hota (1991) found out that

1) Among urban adolescents, urban girls are found to be significantly more creative than boys in all verbal, figural and composite creativity.
2) Among Rural adolescents, rural boys are found to be significantly more creative than rural girls in verbal and composite creativity. In figural creativity rural girls are equally creative as rural boys.

3) Among the Tribal adolescents, tribal boys are more creative than tribal girls in figural and composite creativity. But in verbal creativity tribal girls are equally creative as tribal boys.

Krishnan (1990) in his study ‘the relationship of creativity with gender, SES and locale of the students argues that these may affect directly or indirectly, highly or lowly and significant or insignificant.

Goutam. S. (1992), Singh. R. (1992) reporting 25 studies have supported the superiority of males over females. On the other hand 14 studies have reported that there exists no significant difference among male and female students with respect to creativity and its components.

Andal .M. and Santhana Krishnan ((1999) studied the interactive effects of gender, locale and SES of the students of class XI on creative thinking ability and concluded that, gender of the students had influence upon the creative thinking ability because there was significant difference between the boys and girls in creative thinking ability.
3.2.2. Creativity and Locale

As early as 1972, a study was conducted by Aaron P.G, Marihal and Malathesha A.N where they explored the differences on creativity among rural and urban students in Indian set up. These investigators conducted a study to investigate the relationship between fluency, flexibility, and components of creativity in relation to urban and rural population. These studies revealed no relationship between creativity and urban or rural locale.

Sehgal (1978) supported the above finding by comparing the creativity scores of students belonging to rural and urban backgrounds. By analysis it was revealed that there was no significant difference in creativity scores of students coming from rural and urban backgrounds.

Singh (1978) compared the student teachers, exhibiting high creative popularity and student teachers exhibiting low creative popularity in relation to their residence (rural-urban). The data were collected using Torrence’s test of creativity. The results revealed that student teachers with high creativity come from urban background and teachers with low creativity are usually from rural background.

In 1988 Gupta, Krishna Kumari in their study found out that girls showed excellence as compared to boys in both urban and rural areas.
In 1990, Reddy and Sudhakar Y, in their study “An investigation into the creativity of adolescent boys and girls” found out that in verbal test urban students are more creative than rural students. In non-verbal test boys are better than girls.

Reddy S.Y (1991), and Singh. R (1992), reported that urban students were more creative than their rural counterparts.

In a recent study Patwardhan (1994) found that women coming from rural and urban areas fell apart on concept formation, reasoning, decision-making and problem solving, but were not different on creative thinking. More than half the studies have reported the superiority of the urban students over the rural students.

From the above reviews it is observed that here in this area there is no definite trend in findings as to the difference in creativity among popularities coming from rural and urban backgrounds. Some studies show creativity being positively related to urban population, some studies show rural population scoring better than their urban counterparts on creativity scores. There are also a few studies relating no relationship between creativity and locale.

Apart from the contradictory findings the limited number of students make it further difficult to draw even tentative generalization from them. Further these studies may not include a precise definition for the terms rural and urban, as it is generally difficult to draw a clear line of demarcation between these two.
types of locale, because of the varied level of influence of urbanization on rural areas. Even the access to various media such as newspapers, libraries, movies etc is greater for rural population closer to either than those, which are remote.

3.2.3 Studies related to Creativity and Type of schools

It is a common observation that school environment is propitious for creativity. Torrance (1974) remarks that almost no individual difference in creative thinking ability can be attributed to heredity implies that individuals are not born creative. They become creative if given proper environment and techniques, this potential can be recognized, nurtured and measured.

Heist (1967), Haddon and Lytton (1963), Gupta (1978) have studied creativity in relation to the type of schools. Findings of these studies reveal that creativity in students is directly related to the type of schools.

Maganlal. S. Molia (1999) did a comparative study of Government and Non-government school students of secondary level. The sample was 100 each from Government and Non-government secondary schools. Non-government school students found to be superior to the Government school students.

3.2.4 Creativity and Socio-economic status (SES)

There are a number of studies relating creativity to Socio-economic Status. The findings are however inconsistent.
The following studies report positive and significant relationship between creativity and socio-economic status.

Chadha and Sen (1981) studied the relationship between creativity and socio-economic status among students of grade XII. Sample consisted of 116 school students of Delhi. Torrance test was used to measure creativity and the Kulshreshta’s Socio-economic status scale was used to measure socio-economic status of students. On analyzing the data, employing t-test no significant relationship was found between creativity and socio-economic status.

Subramanya B.R. (1985) made an exhaustive study of “Creativity among adolescents with reference to age, sex, Socio-economic Status, locale and a few personality factors”. In his study he found out that pupils high on creativity tests are socio-economically higher in status than those who are low on creativity tests.

Similarly John C.D (1988) found out that higher the Socio-economic Status, verbal and non-verbal and composite creativity will also be higher.

Gautam S. (1992) reported that there is no significant difference in creativity of students coming from High, average and low Socio-economic Status.

Kumari and Kamalesh (1992) conducted a study to IX grade students in creative ability and concluded that there is positive correlation between Creativity and Socio-economic Status.
M. Andal and Santhana Krishnan (1999) studied the interactive effects of Socio-economic Status of the students of class XI on creative thinking ability. In the light of the results obtained they analyzed that Socio-economic Status of the students has impact upon the creative thinking ability. This aspect was more favourable to the students of high Socio-economic Status than the students of low Socio-economic Status.

Though there seems to be a relationship between creativity and Socio-economic Status, some doubts do arise regarding the reliability and validity of Socio-economic Status scales, changing price index and the types of schools from which sample is chosen and the extent to which students in schools are exposed to situations or environments which exposes them to various sources of information and useful activities. From several studies it may be concluded that the Socio-economic Status as a correlate plays differentiated roles, which are unpredictable due to the presence of uncontrolled and interacting situational variables. The present Investigator is of the opinion that in view of the diversified results obtained by previous studies it is difficult to come to any definite conclusion. On the basis of these studies however significant the said studies cited above.

Children of the higher Socio-economic groups tend to be more creative than those of the lower groups. The former, for the most part, are brought up under democratic child – training methods, while the latter are far more likely to experience authoritarian training. Democratic control fosters creativity by
giving children more opportunities to express their individuality and pursue interests and activities of their own choosing. Even more important, the environment of children of the higher Socio-economic groups provides more opportunities for gaining the knowledge and experience necessary for creativity. For example, young children from deprived homes have very few creative materials to play with and little encouragement to experiment with clay, paints and puppets as compared with those from more favourable Socio-economic environments.

3.2.5 Studies related to Creativity and Academic Achievement

As regards the relationship of creativity with achievement, findings are fairly conclusive. However, the majority of studies indicate high scholastic achievement being associated with high levels of divergent thinking.

Asha (1980a) has reported a significant positive relation between Creativity and Academic Achievement.

Vijayalaxmi (1980) tried to study Academic achievement and Socio-economic Status as the predictions of creative talent. Her findings indicate that there existed a significant difference in the Academic Achievement of high and low creative students, of course favouring the former group.

In the study of the difference in achievement motivation of high and low creative adolescents Hota A.K. (1991) in his study revealed that urban high creative students significantly differed from urban low creative students on achievement motivation.
Kumari and Kamalesh (1992) conducted a study to find out the relationship between Creativity and Academic Achievement and found that Academic Achievement was positively correlated with creativity.

But in a study Kim and Micheal (1995) on the relationship of creativity measures to school achievement and to preferred learning and thinking style have studied 92 male and 101 females eleventh graders. Creativity was measured by the Torrence tests of creativity. The study showed little relationship between creativity and school performance. Females tended to be more creative than males but irrespective of gender, students with right brain associated thinking and learning style earned high creativity scores.

But some studies reveal that creativity and school achievement are not correlated. No significant correlation has been observed between an individual's creative talent and his school performance. One may be creative but score quite low on achievement tests and, similarly, a topper in school or in the Board examination may show little or no creative output. The reason being, in the usual achievement testing, assessment is done in terms of the quality of reproduction of the informational input while the creativity testing requires greater output than the input in terms of formal as well as informal teaching. Many Indian studies have shown that achievement in the Annual Examination was considered as an index of scholastic achievement.
3.2.6 Creativity and Intelligence

In spite of the fact that Intelligence and Creativity may function independently and creativity involves more of divergent thinking as opposed to convergent thinking employed in the demonstration of intelligence, it is not possible to entirely separate creativity from intelligence. This is because thinking is neither purely divergent nor purely convergent and always has elements of both which are simultaneously involved in the creative and intellectual process. It therefore, follows that when a person is considered to be creative, he has to have a minimum level of intelligence certainly above the average.

In recent years many attempts have been made to find out the relationship between creativity and intelligence. Among the studies on the relationship between creativity and intelligence diversified results have been reported.

In 1950, Thurston stated that there was a positive correlation between intelligence and creativity but creative talent was not the same as intelligence.

In 1970, Wallach asked a question saying that why psychologists developed an interest over the last two decades distinguishing between creativity and intelligence. By examining many studies Wallach and many other investigators have concluded that a relationship exists between creativity and intelligence at the lower intellectual levels, but not at the higher levels.
The earliest Indian study about this aspect was the research work by Baqer Mehdi (1977) who studied the relationship between creativity and intelligence. This pioneering effect led to a conclusion that there existed slightly negative relationship between creativity and intelligence. In the urban sample studied by him where as it turned out to be somewhat positive than in the rural sample.

In 1981, Jariat and Gurupal undertook a study of the relationship between creativity and intelligence and arrived at a conclusion that there existed a positively significant relationship between verbal and non-verbal creativity and intelligence of the sample they studied.

Madhu. V (1987) investigated the possible relationship between different dimensions of creative abilities and intelligence. The results of the investigation are quite interesting and positively related to speech fluency, as also to flexibility and originality of intelligence.

In 1988, Gupta and Krishna Kumari found out low but positive relationship between creativity and intelligence among boys and girls of urban and rural children.

Occasionally there are reports of people with highly creative talents whose intellectual levels are low, and it is well known that not all people with high intelligence are creators.

Whether high intelligence and high creativity go hand in hand depends largely on factors extraneous to both creativity and
intelligence. Factors in the environment or within the person often interfere with the development of creativity. Strict authoritarian child training methods in the home or school during the early, formative years may stifle creativity but not affect a high native intelligence. Under such conditions the correlation between intelligence and creativity will be low.

Creativity cannot function in a vacuum. It makes use of knowledge previously acquired, and this depends upon the intellectual abilities of the person.

In the absence of obstacles that interfere with the development of creativity, it is reasonably safe to say that the more intelligent the child the more creative the child could be. On the other hand, it is questionable whether a child with very low intelligence could ever be more than moderately creative even in the most favourable of environments. In the words of Kitano and Kirby (1986) "an individual can be extremely bright but uncreative, or highly creative but not necessarily intellectually gifted". Therefore no clear relationship has been seen to exist between intelligence & creativity.

3.2.7 Creativity and School Adjustment

All human beings to a certain extent are creative. To quote Andrews (1961) "All individuals are creative in diverse ways and to different degrees. The nature of creativity remains the same whether one is producing a new game or a symphony. Creativity is within the reach of each individual depending upon the area of
expression and capability of the individual”. Maslow (1962) is of the opinion that the creative personality is spontaneous, expressive, effortless, innocent, unfrightened by the unknown or the ambiguous, able to accept tentativeness and uncertainty.

Kneller (1965) believes that the creative person is naturally independent and conventional, but the highly creative is less “adjusted” to his fellows than the average pupil. He seems to be set a little apart, not only from his peers but also from his teachers. Since creativity involves independence of mind, nonconformity to group pressures, or breaking out of the mold, it is inevitable that highly creative individuals experience some unusual problems of adjustment. Thus the highly creative child must either repress his creativity or learn to cope with the tensions that arise from being so frequently.

While reviewing the literature pertaining to the relationship between creativity index and different areas of adjustment Viz., home, school, health, social, emotional etc. one does not find sufficient research evidence regarding the exact nature of the relationship between the two variables. However, there have been some studies in related fields, which lend tacit support to these dimensions under study in the Present Investigation. Drevdahl (1954), Catell (1959), Mackinon (1962), Foster (1968), Mishra (1969), Gupta (1975), Dharmangadan (1976), Nair and Banu (1977), Singh (1980), Ashia (1984) and Sumangala (1988), have studied the relationship between creativity and adjustment. Similarly Roe(1953), Guest(1964), Wallach and Kogan (1965), 157
Pandit (1976), Gupta (1979), and Singh (1980) have found that high creatives are better adjusted than low creatives. On the other hand, Greenacre (1958), Goertzal (1962), Foster (1968), Sharma (1978), Sinha (1979) and Dhar (1988) have found that high creatives are less adjusted in comparison to low creatives.

Reviewing the literature one finds contradictory results, which are most confusing. Kneller (1965) is of the opinion that the highly creative student is less adjusted whereas Gowan & Demos (1967) are of the opinion that the creative child is usually well adjusted.

Pandit (1976) studied creativity in relation to adjustment. The sample consisted of 240 students of standard ninth. The study revealed that creativity was positively and significantly related to the levels of adjustment.

On the other hand Sinha and Sharma (1978) reported no significant relationship between creativity and adjustment. Sample consisted of 100 each of male and female students of higher secondary schools.

But Kaur (1980) studying the relationship between different dimensions of creativity to adjustment reported that in the area of social adjustment, high creatives encountered significantly more problems than low creatives. 200 grade IX boys of Patiala district formed the sample.

Yadav, R.S and Patel, H.L (1992) studied the interactional effect of home environment, school environment and locality on
creativity and found out that the group of high level school environment with low environment of rural areas has the lowest creative abilities.

Added to this Kumari and Kamalesh (1992) in their study revealed that high socio-economic status had better emotional, social, educational and total adjustment.

Zargar A.H and Mohd Iqbal Matto (1992) made a study of adjustment patterns of High and Low creative students. The study was conducted on a sample of 200 students selected randomly from 15 higher secondary schools of Anantanag District. The sample subjects were students of X grade, mean age being 16.5 years. They found out that Highly creative students face many problems with regard to their home, emotional, social and total adjustment. Low creative students do not work under greater nervous tension as is done by the High creative students.

From the above studies it will be seen that social adjustment is linked with some components of creativity positively and with a few components negatively. Added to this, the studies, in this aspect, are few, making it difficult to arrive at any particular conclusion regarding the relationship of creativity and social adjustment.

The fundamental problems of the highly creative individual in maintaining his creativity in learning how to cope with the discomfort which arises from divergency. Among the problems which arise in this process some of the more important ones
include coping with the sanctions of the society against divergency, the alienation of one's friends through the expression of a talent, pressures to be a well rounded personality, divergence from sex-role norms, desires to learn on one's own attempts at tasks which are too difficult, searching for a purpose, having different values, and being motivated by different rewards, and searching for one's uniqueness. Running throughout all of these problems, of course, are factors, which lead to psychological estrangement from others – parents, teachers and peers.

From the review of the previous research works obtained in foregoing pages, it will be seen that there is considerable variation in the outcome of various research studies carried out so far by different researchers. This may be due to adaptation of various definitions by different research workers.

It is to be recognized that each investigator studies quite different aspects of creative behaviour according to his own purpose. The heterogeneity of the sample studied, lack of proper procedure in matching variables operating in experimental and controlled groups of subjects, creativity and personality tests as also different statistical techniques employed in analyzing data etc, may also be the additional possible reasons for such contradicting and diversified findings on the subject.

Comparatively the research work on creativity in Karnataka is lesser than other areas and therefore a field worker finds it extremely difficult to apply the finding of other urban areas and other states to the population of Karnataka particularly to those
areas where rural setting is predominant. The present research worker having confronted with the population drawn from Mangalore city and surrounding rural areas, always found it difficult to carry on her study in the area of creativity with all its ramifications. India is a large country having different culture in different geographical areas and creativity to an extent is culturally determined. In addition to this there are variables studied like personality, adjustment and locale which are to an extent different in different geographical areas.

3.3 STUDIES RELATED TO PERSONALITY CHARACTERISTICS OF CREATIVE PERSONS

Creativity was believed to be a gift of God for a long time and found in highly talented people and geniuses. Creativity was regarded as a rare quality of distinguished individuals. A creative person has an inborn talent. For long time creativity was considered to be associated with artistic individuals who have distinguished themselves in various fields like painting, sculpture, or literature. Creativity is distinguished by novelty, by originality and is usually inventive.

The most important feature of recent research is that creativity is not an extraordinary gift, but a basic ability of all human beings. Helvetius (1758) was perhaps the first to recognize creativity not as a divine gift but as a human quality.

Lombroso considered genius and madness to be closely related. According to him creative persons are unusual and were
subject to illness. The process of creativity has been elusive. In the words of Nicholas, “we can neither assume that any personal characteristic has the same psychological significance in eminent and ordinary men not arbitrarily select one of the distinguishing characteristics of eminent creatives as the index of creativity in all men” (Nicholas 1972, p. 718)

Psychologists have attempted to list specific abilities that may go into the creative process. In describing creativity, Ausubel (1964) included intellectual problem-solving traits, sensitivity to the existence of problems, capacity in formulating and facility in testing different hypothesis, skill in improvising, openness to new experience, spontaneity and flexibility in approach to problems. Creativity and personality bear more complex rather than simpler stimuli. He is more comfortable with and tends to prefer cognitive complexities. Regarding motivation, which is a core element of personality, we are familiar with Carl Rogers explanation of self actualization. White (1959) finds the need for competence as the single most important factor in creativity. Matty (1965) suggests that there are two needs involved in all creative activities. 1) A need for novelty, 2) A need for quality. Creativity is born out of the tension that results when both these needs are strong.

Dellas and Gaier (1970) list other characteristics associated with creativity. Independence, manifested not only in attitudes but also in social behaviour, dominance, Introversion, openness to stimuli and wide interests. Self acceptance, intutiveness and flexibility appear to characterize the creatives. Regarding creative
process Mednick (1962) suggests different cognitive styles may be optimal for different areas of creativity. Campbell (1960) found out the difference between creatives and non-creatives saying that creative workers produce a larger number of traits that vary over a wider range than the non-creatives.

Mednick (1962) sees the creative process as essentially the forming of new combinations or associative bonds out of the thought elements available to the individual. A creative is capable of holding a large array of thoughts, ideas and perceptions in his mind from which he constructs his creative products. Creative writer displayed a similar complex of traits, although they showed greater originality and an emphasis on fantasy (Barron, 1963).

Another personality variable that distinguishes creative individual is that females show an acceptance of masculine traits in their personality. According to the research of Ravenna Helson (1967) on creative women mathematicians, these women differ from the less creative in that they retain their femininity despite admission of masculine traits and are often less “masculine” rather than more so. Perhaps certain characteristics traditionally identified as “masculine” inhibit creativity rather than promote it. The extent to which there is a real sex difference in the creative process can only be elucidated by much more research.

The creativity aspect can also be discussed on the basis of those personality characteristics of the creatives, which distinguish them from the non-creatives. Different researchers have presented different lists of personality traits attributed to the creative persons.
Studies conducted by Cattel (1968), Torrance (1962), Mackinnon (1978) and Foster (1971) etc. These studies along with personality studies brought out nearly 30 behaviour characteristics or personality traits of a potentially creative individual.

3.4. STUDIES RELATED TO TRAINING PROGRAMS FOR NURTURING CREATIVITY

The art and science of nurturing creativity in the individual person is in its initial stages and much has not been accomplished. “I think we must be candid to this matter and admit that all of us, concerned with this problem have so far only been able to come up with rudimentary and tentative notions. There is still a great discrepancy between what we know about creative process and our ability to use knowledge for the purpose of promoting creativity. Our modesty in admitting our results however should not eclipse our pride in participating in a pioneer work, with the hope that new advances soon will become apparent” (Arieti, 1976). One can cite numerous studies in the professional literature on the effects of various training programmes, which have attempted to increase productive performance under different environmental conditions of children, adolescents and adults.

A comprehensive summary of the results of 142 studies that have used Torrance’s tests of creative thinking as a criterion measure was reported by Torrance (1972). The paper classified ways of teaching children to think creatively as:
Training programmes emphasizing the Osborn Parnes Problem Solving Procedures or a modification of it.

Other disciplined approaches such as training in general semantics, creativity research and the like.

Complex programmes involving packages of materials such as the Perdue Creativity Programs, the Covington, Crutchfield and Davis Productive Thinking Programmes and the Myers and Torrance Ideabooks. Using Creative arts as vehicles for teaching and practicing creative thinking.

Curricular and administrative arrangements designed to create favourable conditions for learning and practicing creative thinking. Changes in teacher-classroom variables, indirect and direct control of classroom climate, and the like.

Providing testing conditions designed to facilitate higher levels of creative functioning or more valid and reliable test performance.

The initial development of training materials in the 1960's paved the way for the development of other more complex modes and programs in the 1970s and 1980s. The Creative Problem Solving (CPS) framework expanded into a five-step model, involving a variety of specific strategies and drawing on both creative and critical thinking (eg. Noller, Parnes and Biondi, 1976, Parnes, Noller and Biondi, 1977). The Productive Thinking Programme (Covington, Crutchfield, 1972) incorporated principles of programmed instruction to guide students in learning and
practicing creative thinking and problem-solving strategies. Torrance’s classroom studies gave increasing emphasis to context and environment or the conditions for “Creative teaching and learning” (Torrance & Myers 1970).

A number of additional programmes for nurturing or developing creative thinking (Davis & Scott 1971, Williams, 1972) critical thinking (Harnadek 1976, Black & black, 1984, Paul, Binker, Martin and Adamson, 1989) Problem Solving (Kepner and Tregoe 1981), Philosophical reasoning (Lipman Sharp and Ocanyan 1980). Decision making (Feeher and adams 1986) also had their origin in the same era.

Research with the Purdue Creative Thinking Program also increased considerably during this era (Feldhusen, Treffinger and Bahlke, 1970)

A number of well known educational programs for stimulating creativity, including Odyssey of the Mind (Micklus, 1984) Feuersteins (1980), Instrumental enrichment program was originally developed and tested in Israel, but has also been applied successfully in other countries including both the United States and Canada. Impressive gains in skillful thinking and educational achievement were reported for many students who had previously encountered great frustration and failure in cognitive and academic tasks (Link 1991). The tactics for thinking program (Marzano and Arendondo 1986) was developed in an educational research laboratory and field tested in school settings.
3.4.1 Different Approaches For Training In Creativity

Researches conducted during the past four decades have shown that creativity can be fostered. The earlier approaches were focused on conceptualization, identification and assessment of creative talent; the emphasis has gradually shifted to curricular approaches.

Rationale for curricular approaches

Different studies (Osborn, 1957, Parnes and Meadow, 1959, 1969, Sullivan and Taylor 1967, Multzman et al, 1958, 1960) have shown that creative abilities of the individuals can be enhanced. Davis (1973) in his book reminded that “problems in the real world are not neatly or clearly defined and presented to the individual as these are in the experimental laboratory nor is the point of solution always clear. Lazarowitz and Huppert (1980) in their study aimed at developing creative thinking in the Secondary school biology students.

3.4.2 Earlier approaches for the conceptualization and measurement of creativity

Davis (1973) has identified approaches, which had a focus on training for creativity education. It included Dewey’s reflective thinking approach (1933), Suchman and Bruner (1966) on creativity as inquiry learning, Osborne (1963) on brainstorming, Stimulating Creative Solutions namely, Attribute Listing, Crawford (1954), Idea Check List by Davis and Houtman (1968) in their Creative Problem Solving program, using Synectics, Gorden
(1961) used different types of analogies for fostering creativity among the learners.

Another approach namely Bionic principles was given by Papanek, (1969) where children may be encouraged to take up small project where they are asked to describe the improved designs of toys that interest them the most.

Oxman – Michelli, Wendy (1991) in the book “Critical Thinking as Creativity” suggest that fostering creativity as critical thinking in school settings include having students collaborate on group projects, incorporating metaphors into the educational process, and using students curiosity as a starting point for projects and tasks. Teachers can model the creative process themselves in addition to encouraging it in students. Shaughnessy, Micheal F (1991) in the book “The Supportive Educational Environment for Creativity” cites that in most schools in America, little attention is paid to the nurturance of students creative potential, with emphasis too often placed instead on rote, repetitive learning. The literature contains many suggestions for enhancing creativity in the classroom setting, such as refraining from discounting odd or unusual questions from students, finding something positive in all ideas, systematically rewarding creativity of students, giving credit for creativity in grading, and modeling creative behaviours. Teachers can do much to nurture creativity in the classroom, but they need guidance, training in behavioural management, and institutional support as well.
3.4.3 Specific Programmes

In Canada, Alberta's education services developed a programme in 1966 for the use by the teachers in the education of gifted and talented children. Learning resource centre of Alberta's Education Department is the contact point for the dissemination of these materials. Many more such methods, materials and techniques have been developed for the development of creativity among different target groups for the schools.

Carol Fineberg (1991) “open and exploratory nature of the arts lessons in New York City’s “Arts Partner’s” program allowed students to explore their “regular” subject areas more actively. The students drew upon their learning from the “core” discipline for much of the content for their art works, thus reinforcing academic achievement.

Pamela Aschbacher and Joan Herman (1991) in their “Humanities Program Evaluation” revealed that the arts can transform the classroom environment making learning a lively, invigorating experience with their emphasis on creative discovery and their ability to stimulate a variety of learning styles, the arts engender enthusiasm and motivation for learning.

3.4.4 Methods and Techniques Devised Through Inter-disciplinary Research

Several new methods and techniques, developed in other disciplines, have implications for teaching. Michalko (1998) has provided insight into the thinking strategies of about 390 creative
giants from the fields of science, arts and industry. Among others he included Einstein, Darwin, Picasso, Aristotle, Disney, Eliot, Newton, Russel and others. For years, the scholars and researchers have tried to draw lessons and generalizations from the vital statistics, as if piles of data (i.e. age of the creative persons, childhood experiences, IQ level, achievement level etc) would somehow provide a link between these factors and creative genius. No firm research conclusions could be drawn with regard to the childhood background of the creative thinkers. There were more contradictions than agreements. There were two types of persons, one category who think reproductively and depend upon recall, and in the second category are the creative persons, who think productively. According to Michalko (1998) they tend to think productively depending upon their past experiences.

Michalko identified nine categories in all, divided in two main parts, on the basis of his own analysis of the creative persons. The first part deals with seeing what no one else is seeing. This part consists of two strategies 1) knowing how to see and 2) making your thought visible. The creative geniuses do not approach problems reproductively on the basis of past experiences but they re-conceptualize the problem. Michalko’s theme in second part is “thinking what no one else is thinking” In this part, he has suggested seven strategies

i) Thinking fluently

ii) Making novel combinations
iii) Connecting the unconnected
iv) Looking in the other world
v) Finding what you are not looking for
vi) Awakening the collaborate spirit

Michalko concluded that creative geniuses are genius because they know “how” to think instead of “what” to think. Creativity materials have been developed mostly for use in business and industry. Application of thinking strategies has to form a part of teachers initial training and subsequent in service programs. With the availability of media and a large number of teaching-learning materials, it is possible for the teachers to use the best ideas for the promotion of creative talent of the learners.

The fact that creativity can be nurtured has been expressed and supported by many experts in the field of creativity.

Gardner (1968) states that creativeness is not limited to geniuses. Early nurture and stimulation pave the way for creativeness.

“Every individual is creative. There are several methods to develop creativity”. Passi.B.K. and Martis Anandi (1989).

According to De Buno (1990) “Creativity is a magic gift and everyone can develop some skill in lateral thinking”.

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Suchetha (1996) stresses development of creativity as essential component of child education.

From the above facts it is evident that creativity can be nurtured. Research in the field of creativity have also proved that there are well developed training programmes to develop creativity among individuals. Suchetha (1996) states that these methods can be classified as 1) Intuitive techniques 2) Structural techniques 3) Imaginative techniques.

3.4.5 Use of technology in stimulating Creativity

The potential power of the computer and related modern technology for stimulating creativity is an important emerging issue (Sylvester 1990, chung, Leu & Chen, 1992). There is already software available to guide individuals or groups in “brainstorming” or idea generation tasks. Recent developments in information storage, retrieval and display technologies (such as compact discs or CD-ROM resources) and interactive video programmes will soon extend our ability to introduce more complex techniques (such as visual connections or forced relationship strategies) to an individual or groups at an individual computer or work station. Complex computer design and modeling systems, continuing advances in interactive technology and artificial intelligence, and the possibilities created by “Virtual
reality” technology will certainly open a variety of new opportunities for stimulating creativity.

3.4.6 Studies on Mentoring Opportunities for fostering Creativity

Noller and Frey (1983) and Frey and Noller (1991) conducted extensive reviews of the literature on mentoring and concurring with Torrance (1984), argued that mentoring is often important consideration in fostering creativity. Mentoring has also been described as an important aspect of gifted programming (e.g. Halger and Feldhusen, 1989).

There is a need for research clarifying the nature and dynamics of the relationships among creativity, giftedness, and mentoring and exploring ways to optimize the selection and training of mentor, the process by which they are matched with students, and the factors that sustain or discourage mentor relationships overtime.

Expanding efforts in education to recognize and nurture creativity challenges researches and practitioners emphasized the possibility and importance of recognizing talents in many students (e.g. Feldhusen 1992); enriching education on a school wide basis (Renzulli Reis, 1985) or bringing out the giftedness in all students (Dunn, Dunn & Treffinger 1992).

Rather than seeking to select a “chosen few” to be singled out for special programs, we are challenged to create instructional programs that develop the special qualities, the talents, strengths,
and sustained interests among all students. At least some students will use those opportunities to fullest advantage for outstanding achievement though not all.

3.4.7 Studies on Nurturing Creativity through Arts

Every child has the innate urge and capacity to be artistically expressive. Arts education requires students to draw upon their creative abilities and to deeper them, as well it was found out in two Ohio school Districts that total creativity measures were four times higher for elementary students in an arts curriculum than for the Control Groups (Richard. L. Luftig 1994)

Originality and imagination scores were significantly higher for pre school children with disabilities after participation in a dance program than for those participating in the adapted physical education program (Daniel Tay 1991)

James. S. Catterall (1995) found out that classes were more interactive, there were more student-initiated topics and discussions, more time was devoted to literacy activities and problem-solving activities in schools using the arts based “Different ways of knowing “ program.

3.4.8 Studies on nurturing Creative thinking abilities of the pupils of secondary schools

Whitson, Alex (1994) in Article titled “The Creative Minority” in our schools, emphasized that today’s economic, social and scientific problems require creative solutions, points out the
need for creative talent and discussed how current thinking and educational practices do little to encourage the development of creative individuals and suggests that concentrating on developing the potential of each individual would interfere the worth of society as a whole.

Israel, Elfie (1995) has designed a practicum to help High School students become more creative by encouraging being audacious divergent thinkers capable of entertaining several contradictory ideas simultaneously and tolerating paradox and ambiguity. The goals were achieved by developing, nurturing, caring, accepting atmosphere in the classroom by celebrating differences by encouraging eccentricity and diversity by brain storming and by the teaching of peer evaluations. Student’s work was evaluated in non-traditional way of portfolio assessment stressing processes as well as products, evaluation and access and response/reaction. As a result, student’s perception and definition of creativity deepened and expanded to include all human pursuits, not simply the arts.

Dorf Sudden Fletcher and Cleaire (1997) in the research report titled “Theory of Mind and the origin of Divergent Thinking” had false belief and creativity tasks to forty New Zealand children (age 3 to 4) to investigate whether those with a Theory of Mind Outlook are better at searching their own minds for creative answers. The number of appropriate and original responses in the creativity test correlated positively with performance on false belief tasks.
Myers, Robert E (1998) in the book “Mind Sparklers Fireworks for Igniting creativity in young Minds-Book 2” for Grades presents activities call for all 18 of E. Paul Torrance’s creative thinking abilities. The material based on the assumptions that classroom as an ideal setting for encouraging young people to develop creative thinking abilities and the importance of a sensitive alert teacher who is supportive and non-judgmental as students are trying out ideas and combining different elements during the early stages of the creative process. The activities begin with warm up exercises, followed by a problem of series of questions. The third stage has the students producing some ideas on their own and the final stage involves students in evaluating their own ideas by determining how successful or effective they are. The table of contents lists curricular tie-ups in language, arts, social studies, science, mathematics, health, music and arts.

Carson, Paula Philips, Carson, Kerry (1993) in their book “Managing Creativity enhancement through Goal-setting and Feedback” found out the effects of goal setting and feedback on creative productivity of 54 subjects. It was found out that feedback improved creativity performance of subjects with Creativity goals, Creativity feedback was more valued than feedback relating to quantity goals, goal commitment was increased by feedback, and quantity and Creativity were positively related.

Mellou, Eleni (1996) in their article “Can Creativity Be Nurtured in Young Children?” claims that creativity can be nurtured in young children using the appropriate creative
environment, such as schools with creative programs, continuous enrichment of the environment and creative teachers and creative ways of teaching. She concludes that the most powerful possibility of nurturing creativity in an individual lies in interaction with the everyday creative environment.

Harkow, Rosa M (1996) in their article “Increasing Creative Thinking Skills in Second and third grade gifted students using Imagery, Computers, and Creative Problem Solving” illustrates this in the project used a combination of strategies to improve creative thinking skills in second and third-grade gifted students. Sixteen students were participated in 90-minute interventions twice weekly. There were four objectives to the intervention

1. Increasing verbal and figural Creativity
2. Increasing figural and verbal fluency
3. Increasing figural and verbal originality and
4. Increasing verbal flexibility

Torren’s Test of Creative Thinking, figural and verbal models and the Inventory of creative behaviors were used to assess the impact of the intervention. Findings indicated that the proposed number of students meet the projected percentage of increase of 80 percent or above in overall figural and Verbal Creativity, verbal Originality and Verbal Flexibility. All students showed significant increase in these areas.
Sternburg, Robert J, Williams, Werdy M (1996) in their book “How to Develop Student Creativity” described 25 strategies which can be used to develop personal Creativity, student Creativity and Creativity in colleagues and staff members. The strategies are based on investment theory, a psychological theory of creativity, but any one strategy is consistent with many other theories. The investment theory of Creativity asserts that Creative thinkers are like good investors. They buy low and sell high. Whereas investors do so in the world of finance, creative people do so in the world of ideas by taking a unique, typically undervalued idea and convincing other people of its worth.

Abdullah, Adam (1996) in the article “Fostering Creativity in Student Teachers” discusses creativity and its importance to society, providing a rationale for including creativity and problem solving training in teacher education programs.

McCormick, Debroah J, Plugge, Carole ID (1997) in “Rediscovering your Creativity in a Grown-up world” state that “All persons are born and blessed with a creative nature and are all artists of their our lives. By the time individuals reach adulthood, however, most of them have lost touch with their creativity, believing only “Others” are “Artists”. Awareness of and regular use of the creative aspect of their being makes substantial contributions to establishing a healthy balance in their lives, learning more about themselves, provides options for action, and enriching the quality of their lives on a daily basis”. The eight characteristics of enjoyment, which are characteristic of creative activities as well, remove blocks to creativity and allow people to
oncc again experience the joy of creation. Creative play helps individuals meet the needs that they have ignored as adults, and offers opportunities to heal and live happier, healthier, and more productive lines.

Annarella, Lorie. A (1999) in her book entitled “Using Creative Drama in the Multicultural Classroom” states that the use of creative drama in a multicultural classroom can allow a teacher to establish a student-focused base for experimental learning and can allow students from various cultures to use drama as a way of expressing their individual cultural differences. The practice of creative drama can help to cultivate creativity and inventiveness. In another book entitled “Encouraging Creativity and Imagination in the Classroom” the author describes how to elicit creativity in every student in the classroom. Spontaneous art can be used to activate the imagination. Risk taking is a very important factor in order to develop cognitive skills. Visualizing and imaging are used almost simultaneously while various exercises are used.

CONCLUSION

1. Attempts have been made to nurture creative thinking abilities through different methods.
2. It was not possible to form a final opinion regarding the adaptability or usability of a particular procedure to nurture creativity especially in the Indian culture.
3. Like other cultures in Indian culture too it is possible to nurture pupils creative thinking abilities through deliberately designed creativity nurturing procedures.