CHAPTER-II

REVIEW OF RELATED LITERATURE

Man being at the peak of the creation is the only animal that does not have to begin from a new step in every generation but can take advantage of the knowledge which has been accumulated with in the countries. The importance of review of related literature or related studies can not be denied in any research. Such literature provides the researcher with the footprints of earlier travelers gone ahead on the same route; they save her from the pitfalls and help her in removing the hindrances, which are likely to come in her way. Related literature works as a guide-post not only with regard to quantum of work done in the field, but also enables us to perceive the gap and lacuna in the concerned field of research.

Research in any field implies a step ahead in the exploration of the unknown concepts. One such preparation is the collection of appropriate knowledge of what has already been done in a particular field. A step towards unknown can only be taken after a thorough review of the related literature and researches conducted in that area. Any research without such a review of related literature is likely to be a building without any foundation. The review of related literature provides a clear picture of the study to be taken as a pre-requisite to the proper planning of the problem and conducting the research. The review of the past investigations in a particular field serves as a guide to the investigator as it helps her to avoid duplication of the work already done in that area. The knowledge that what has already been done in the area of researches regarding the methods used for data gathering and the results of their analysis, keeps the investigator systematic in her own endeavour.

According to John W. Best, “Practically all human knowledge can be found in books and libraries. Unlike other animals that must start a new with each generation, man builds upon the accumulated and recorded knowledge of the past. Her constant adding to the vast store of knowledge makes possible progress in all area of human endeavour.”
According to Borg, “The literature in any field forms the foundation upon which all future work will be built. If we fail to build the foundation of knowledge provided by the review of literature our work is likely to be shallow and naive and will often duplicate work that has already been done better by someone else.”

According to C.V. Goods, “The survey of related literature may provide guiding hypothesis suggestive methods of investigation and comprehensive data for interpretive purpose.”

Research takes advantage of the knowledge which has accumulated in the past as a result of constant human endeavor. It can never be undertaken in isolation of the work that has already been done on the problems which are directly or indirectly related to a study proposed by a researcher. A careful review of the research journals, books, dissertations, theses and other sources of information on the problem to be investigated is one of important steps in the planning of any research study. Review of the related literature, besides, allowing the researcher to acquaint herself with current knowledge in the field or area in which he/she is going to conduct her research. The review of related studies is an exacting piece of work calling for a deep insight and clear-cut perspective of the overall field. It is a crucial step which invariably minimizes the risk of the dead ends, rejected topics, rejected studies, wasted efforts, trial and error activity and even more important, erroneous findings based on a faulty research design. The review of literature also promotes greater understanding of the problem and its crucial aspects and ensures the avoidance of unnecessary duplication. Emphasizing the importance of survey of related literature, C. V. Goods and others mentioned, “The competent physicians must keep constantly abreast of the latest discoveries in the field of medicine, the successful lawyer must be able to locate the information pertaining to the case in hand; obviously, the careful student of education, a researcher and investigator should become familiar with the location and use of sources of educational information”.

The review of related studies imply locating, studying and evaluating reports of relevant researches, study of published articles, going through related portions of Encyclopedias and Research Abstracts, study of pertinent pages out comprehensive books on the subjects and going through related manuscript if any. For any
worthwhile study in any field of knowledge the research worker needs an adequate familiarity with the work which has already been done in the area of her choice. She needs to acquire up-to-date information about what has been thought and done in the particular area. She has to build upon the accumulated and recorded knowledge of the past. She draws maximum benefits from the previous investigations, utilizes the previous findings, takes many hints from the designs and procedure of previous researches, matches her conclusions with the conclusions drawn earlier and tries to add from her side a line or two to the existing store of knowledge. The preliminary survey of previous studies, literature, discussions and experiences related to the problem under investigation may accomplish a number of purposes. The search for related material is a time consuming but fruitful phase of any research programme. Its specific purposes are:

- It helps the research worker to find out what is already known, what others have attempted to find out, what methods of attack have been promising or disappointing and what problems remain to be solved. It shows whether the evidence already available, solves the problem adequately without further investigation.

- It is the basis of most of the research projects in various sciences and humanities. It forms the foundation upon which all future work will be built.

- It enables her to know the means of getting to the frontier in the field of her research. Unless she has learnt what others have done had what still remains to be done, she cannot develop a research project that will contribute something to the knowledge existing in her field.

- It furnishes her with indispensable suggestion about comparative data, good procedures, likely methods and tried techniques.

- Through it she will also know in detail about all related research projects in progress which are completed or reported.

- The insight into the methods, measures etc. employed by others will lead to significant improvement of her research design. It makes her alert to research
possibilities that have been overlooked and research approaches that have proved to be sterile.

- It provides ideas, theories, explanations, hypotheses and methods of research, valuable in formulating and studying the problem.
- It helps in locating comparative date useful in the interpretation of results.
- It prevents pointless repetition of research.

Keeping in view the importance of review of related studies the investigator reviewed the related literature. It is based on the material like Survey of Research, Research Journals, Research Abstracts and Encyclopedias available in different national level libraries, universities, Educational Research Centres of the country and abroad.

On the basis of the review collected from different sources, the investigator divided the whole review into two parts: (1) Studies conducted in India, (2) Studies conducted Abroad, these studies have been presented under following paragraphs.

2.1 STUDIES CONDUCTED IN INDIA

Mehdi, B. (1977) conducted a study on “Socio-Psychological Factor in Creativity among School Children”. The study was designed to test the hypotheses that (i) rural children will differ from urban children in respect or personality traits related to creativity, (ii) the personality traits related to creativity, (ii) the personality patterns of high and low creative will show marked differences with regard to their environment. (iii) the home background will have a more determining effect on creativity than variations in the type of schools attended, (iv) boys and girls will different in respect of personality traits which are related to creativity either in type or in degree or both, even when environment is held constant, (v) the creatives possess high level of energy, are introvert and independent in thought an action, and have a capacity to entertain opposing values and to tolerate apparent confusion or ambiguity in solving problems irrespective of the environment in which they are placed. The findings of the study were: (i) the correlation between creativity and intelligence was significant but considerably low (ii) Correlation of self-evaluation inventory with
intelligence, as measured by Standard Progress both boys and girls who were creative seemed to be sociable. (iv) Correlation of self-evaluation inventory with verbal and non-verbal creativity scores were relatively low. (v) In the rural boys sample, the correlations of biographical inventory with verbal and non-verbal tests of creativity were 0.012 and -0.118 respectively. For urban girls the correlations obtained were 0.198 and 0.133, respectively.

Bhattacharya, S. B. (1978) conducted a study on, “Interaction of Personality and Creativity”. The objectives of the study were: (i) to construct and standardize a verbal test of creativity in Hindi, (ii) to measure the interaction of fourteen personality factors of HSPQ and creativity on the achievement of students of Classes IX and XI, (iii) to measure the interaction of thirteen personality factors of HSPQ and creativity on intelligence as measured by factor B of HSPQ of students of Classes IX and XI, (iv) to measure verbal elaboration, comparability, literary quantitative production and to find out their relationships with composite creativity, fluency, flexibility and originality scores, (v) to find out the differences between high, average and low creatives on fourteen personality factor scores and to draw their personality profiles, and (vi) to find out the personality correlates of creativity for those in Classes IX and XI. The major findings of the study were (i) There was no interaction of creativity and the fourteen personality factors of HSPO on the achievement of students of classes IX and XI. (ii) factors C,G,H,Q4 and creativity interacted to affect the intelligence of those in classes IX and XI. (iii) Levels of personality factors did not affect intelligence. (iv) Levels of creativity did not affect the intelligence of the students. (v) Levels of any of the fourteen personality factors did not affect the achievement of class XI pupils. (vi) Verbal elaboration had a significant positive relationship with composite creativity and its two components flexibility and originality (vii) Comparability had significant positive relationship with creativity and its two components flexibility and originality (viii) Literary quantitative production was significantly and positively related to composite creativity and all its components fluency, flexibility and originality. (ix) The high creative secondary and higher secondary students were more warm hearted, more outgoing, more intelligent, less excitable and more adventurous than the low creative secondary students. (x) The low
creative secondary students were conforming, dependent, shy, withdrawn and quick in seeing dangers.

**Jhag, D. S. (1979)** conducted a “Study of Personality Correlates of Creative Children 15 plus Studying Science Subjects.” The objectives of the study were (i) scientific creativity at the higher secondary level, (ii) to explain scientific creative behaviour in terms of specific constellation of certain personality correlates, (iii) to see whether creativity could be better understood within the cognito-personalological context, (iv) to compare the personality traits of creative science pupils with non-creative science students, and (v) to compare and contrast personality correlates of highly creative and highly intelligent science pupils. The findings of the study were: (i) Scientific creativity was normally distributed. (ii) The urban students were superior to the semi-urban, in scientific creativity. (iii) The creatives and non-creatives did not differ significantly on Personality Factor A (reserved vs. outgoing). (iv) The male and the female subjects had more or less similar personality styles in respect of the reserved versus outgoing trait. (v) Students belonging to the urban and semi-urban background did not differ significantly in personality styles, particularly on the reserved versus outgoing trait. (vi) There was significant contribution of scientific creativity to the variance in Factor B (concrete thinking versus abstract thinking). (vii) Creative students were significantly better in abstract thinking, emotional stability, independence, self-sufficiency, self-concept and intelligence and were more venturesome, relaxed, controlled and doubting. (viii) The creative boys were adventurous while the creative girls were shy, timid, restrained and sensitive to threat. (ix) The creative boys were more self-assured, placid, secure, complacent and serene while the creative girls were more guilt-prone, apprehensive, self-reproaching, insecure and worrying. (x) There was no difference in the pattern of personality correlates of creative children from the urban and semi-urban areas. (xi) The semi-urban students were more shy, restrained, different and timid than their urban counterparts. (xii) The semi-urban boys were more rule-bound, persevering, venturesome, socially bold, precise and self-disciplined than the urban boys. (xiii) The urban girls were more rule-bound, per-severing, assertive and socially precise than the semi-urban girls. (xiv) There was no significant difference in the achievement of the
high creative and the high intelligent groups.

**Ahmed, S. (1980)** conducted a study on, “Effective of Socio-cultural Disadvantages on Creative Thinking.” The major aim of the investigation was to study the impact of socio-cultural disadvantage on the development of verbal and non-verbal creative thinking. The major findings were: (i) Irrespective of the type of school and the class, the mean scores of the disadvantaged home children on both verbal and non-verbal tests of creativity were apparently lower than the mean scores obtained by children from advantaged home background. (ii) Irrespective of the home background and class, only the students from the EAS yielded the highest mean score while the rest of the schools did not show any gradual rise or fall in the mean score values with respect to the schools being characterized in terms of the status of being disadvantaged. (iii) Irrespective of the type of school and the type of home background, the mean score values obtained by the students increased from Class VIII to Class XI. This was true for both the advantaged and the disadvantaged subjects. (iv) The mean scores of the subjects on the verbal and non-verbal scores increased as the schools became characterized with respect to the status of being more advantaged. (v) The scores on verbal and non-verbal tests of creative thinking were found to be significantly determined by all the three factors, viz., the class, home background and type of school.

**Muddu, V. (1980)** conducted “A Study of Some Personality Correlates of intelligence and creative Abilities among High School Students in Andhra Pradesh”, The objectives of the study were: (i) to measure the degree of creativity among school-going students in Andhra Pradesh, and (ii) to investigate the relationship of certain variables to creativity. The findings of the study were: (i) The high creative group was found to be negatively correlated ($r = -0.096$) with intelligence. (ii) Weaker super-ego strength, emotional indulgence, high strength of self-sentiment and low ergic tension were positively and significantly correlated with intelligence. (iii) Creativity was found to be having highly significant relationships with fluency ($r = 0.859$), flexibility ($r = 0.675$) and originality ($r = 0.777$). (iv) Relationships between intelligence and fluency ($r = 0.124$), flexibility ($r = 0.114$), and originality ($r = 0.125$) were positive and significant. The association between creativity and creative abilities
Pal, A. (1980) conducted “A comparative Study of Some Psychological Characteristics of the Creative High and the Creative Low Socio-Economic Groups of College Students.” The objective of the study was to examine whether and how far the discrepancy in socio-economic status (SES) contributed to differences in certain non-cognitive characteristics among highly creative college students (both males and females). The non-cognitive characteristics considered were altogether forty-five in number and were selected from five areas, namely, (i) interest (ii) achievement motivation (iii) value systems. (iv) adjustment, and (v) temperamental traits. The major findings of the study were: (i) Of the nineteen significant results (t-values) noted in the case of males, three were related to interest, three to achievement motivation, six to values, two to adjustment and five to temperament (ii) In fifteen out of the nineteen significant values, male students belonging to the HSE group had higher mean scores than those of the LSE group. (iii) Of the six significant t-values obtained for female students two were related to interests, one to achievement motivation one to value area and two to temperament. (iv) The six significant t-values noted in the case of females did not, however, show any clear pattern of difference between the creative females of the two socio-economic groups. (v) The results of profile analysis showed that difference between the patterns of inter-variable distances obtained for the two socio-economic groups were significant far the three areas, viz., interest, achievement motivation and temperament. This result was true far bath male
and female students.

Vijaylakshmi, J. (1980) studied “Academic and Socio-Economic Status as predictors of Creative Talent.” The findings of the study were (i) There was a significant difference between the high creative and low creative in academic achievement. (ii) There was a significant difference between the high creative and the low creative in SES. (iii) The average academic achievement of high creative was more than the average academic achievement of the low creative. (iv) SES had a facilitation effect on the creative ability of the pupil.

Joshi, S. P. (1981) studied “The Verbal Creativity in Marathi Language in Relation to Achievement Among Marathis and Environmental Factors of the Students as well as Teaching in High Schools”. The main findings of the investigations were: (i) The results of urban areas deviated from those of rural areas in some variables. (ii) In urban areas, high achievers were also high creatives. (iii) For rural areas, there was a low relationship between the achievement scores and the creativity scores. (iv) The factors supporting creativity were, power of artistic or literary expression, ability to structure and acquired expressive skill.

Kishore, G. A. (1981) conducted a study on, “Development study of Creativity in relation to certain Personality Correlates.” The main purpose of the investigation was to explore and identify creativity in pre-adolescent children at the secondary school stage. Three broad objectives were: (i) to construct and standardize a battery of tests capable of measuring creativity at both the verbal and the non-verbal levels of behaviour in children in the Hindi-speaking belt, (ii) to study creativity development along the age continuum (and also education), and (iii) to explore the relationship between creativity and personality structure. The major findings were: (i) The high interfactor and factor-test correlations indicated that all the factors by both the tests possessed satisfactory factor (construct) validity. (ii) significant but considerably low correlations of both the tests with intelligence reinforced confidence in the discriminate validity of the tests. (iii) Concurrent validities with teacher ratings and scholastic achievement showed low but significant relationship. (iv) Test-retest reliabilities of both the tests were found to be quire high; evidences of inter-scorer reliability were also very encouraging implying that the two test batteries constituted a
reliable and valid tool for identifications of creative talent at the secondary stage. (v) The developmental curves for different creativity measures revealed a consistent increase from Grades VI to VIII (i.e., from age 11 to 13). After this period there appeared a general decline, except for non-verbal elaboration, up to the age of fifteen, i.e., Grade X. Elaboration showed a tendency to develop with maturity and experience. The graphical displays revealed an important fact that the period of greatest potential productivity was found to lie between the age 13 and 14. (vi) Scores for creativity and personality characteristics of various grades indicated that during Classes VI to VIII divergent traits of personality stable, excitable, assertive, happy-go-lucky, venturesome, doubting, self-sufficient, expedient, tough minded, placed, indisciplined and relaxed, were found consistently associated with all the creativity measures. In the later classes IX-X, convergent personality traits different from those listed above (except intelligence) were found highly correlated with all the creativity measures.

Mishra, B. N. (1981) conducted a study on “The Relationship between Personality Socio-Metric Choices In Class-Room.” The objective of the study was to investigate relationship between personality traits and sociometric choices among school-going early adolescents. The main findings of the study were: (i) A person with four choices, on the average, enjoyed leadership, (ii) The proportion of mutual choices appeared to be low. (iii) Adjusted subject chose and reciprocated with adjusted counterparts. (iv) Coefficients of correlations between, self-rating and rating about friend on personality characteristics appeared to significant.

Bali, S. S. (1981) conducted a study of Common Personality Factors of Highly Creative Persons in Different Fields. The major aim of the study was to investigate common personality factors of highly creative persons in different fields, viz., poetry, painting, science and music. The six factors were identified as Emotionality, Sensitivity, Ego-ideal, Emotional Introversion, Creative Mood and Social Will. Longitudinal interpretations of factor matrix revealed: (i) poets possessed factors like emotional sensitivity, creative mood and social will, (ii) painters’ profiles consisted of factors like emotional sensitivity, and creative mood, (iii) scientists’ profiles consisted of common factors of ego-ideal, emotional introversion and social will and (iv)
Musicians' profile showed factors of ego-ideal and social will.

Agrawal, S. (1982) studied creativity as a function of self-esteem, risk-taking and home background. The study gave the following conclusions: (i) Risk taking more or less, was found to be a positive and significant factor in fostering creativity of both the sexes. (ii) Self esteem was found to be a significant factor to promote creativity, specially in the case of boys. In the case of girls its impact was not very powerful. (iii) Socio economic conditions of the home played no role or very insignificant role in fostering creativity of both the sexes. (iv) In all the designs, parental acceptance was found to be a very significant and positive factor in the development of creativity of both the sexes. (v) Parental rejection was found to be a negative and demoting factor in creative development specially in the case of boys. In the case of girls its effect was not observable. (vi) Except social risk-taking, other types of risk-taking and self-esteem did not interact with each other to affect creativity. (vii) Risk-taking and socio-economic condition did not interact to influence creativity. (viii) Risk taking with its various ramifications did not interact with parental acceptance and rejection to influence creativity. (ix) Self esteem and socio-economic conditions did not interact with each other to affect creativity of either sex. (x) Self esteem and parental acceptance did not interact to influence creativity of either boys or girls. (xi) Self-esteem and parental rejection did no interact significantly to influence creativity. (xii) Risk taking and parental acceptance were found to be more important predictors of creativity than self-esteem and socio-economic conditions.

Kausar, F. (1982) conducted a study on, “Children’s Curiosity and its relationship to intelligence, creativity and personality”. The study was an exploratory attempt to investigate the relationship of curiosity to intelligence, creativity, extraversion and neuroticism in elementary school children of 7 to 10 years of age. It also aimed at finding out the sex difference in curiosity in children of the same age group as well as differences in curiosity between the high and the low socio-economic status groups of 10 year old boys and girls. The major findings of the study were: (i) There was no significant relationship between curiosity and intelligence un an overall basis except for girls of 10 year of age. (ii) The relationship between curiosity and
creativity was significant only for certain age groups; however, no developmental trend was observed. (iii) The relationship between curiosity and extraversion was significant for certain age groups and for certain subjects of curiosity. There was no overall significant relationship between curiosity and extraversion. (iv) The relationship between curiosity and neuroticism was not significant between curiosity and neuroticism and intelligence, creativity, extraversion and neuroticism for different age groups indicated overall significant relationship. It was therefore inferred that curiosity was a combined effect of the variables—intelligence, creativity, extraversion and neuroticism. (vi) Boys generally scored higher in curiosity than girls. The younger age groups showed a higher level of curiosity than the older groups. (vii) There were significant differences in curiosity between the high and the low socio-economic boys and girls of the 10-year age group. The difference in curiosity between the high and the low socio-economic status groups of girls was more pronounced than that of the boys (viii) Curiosity is a multifactor phenomenon and a complex construct involving cognitive and personality factors.

Madhosh, A. G. W. (1982) conducted a study on “Personality Correlates of Sociometric Status in different Interpersonal Situations.” The objective of the investigation was to study the personality profiles of students in different sociometric classes in the sub-cultures of Jammu, Kashmir and Ladakh. The major findings of the study were: (i) The populars of Jammu and Kashmir region were intelligent, outgoing, warm-hearted, Socially bold and relaxed, but those of the Ladakh region were conservative, socially not bold, critical but intelligent. (ii) The neglectees of Jammu and Kashmir region were dull, cool, tense, submissive and timid, but those of the Ladakh region were outgoing freedom lovers and sensitives. (iii) The isolates of Jammu and Kashmir region were withdrawing, tense and shy but those of Ladakh region were liberal, outgoing and happy-go-lucky. (iv) The most desirable personality traits among the Jammu and Kashmir region students were outgoing, socially bold, relaxed, but those for the Ladakh region were: shy, conservative.

Sharma, K. (1982) studied the factors related to creativity. The main objective of the study was to explore the relationship of creativity with certain
background, psychological and organizational factors of a student of higher secondary school of Delhi. The major findings were (i) Boys were more creative as compared to girls. (ii) Number of siblings was found to be negatively related to creativity. (iii) Creativity was higher in nuclear families and families with higher SES, (iv) Birth order did not have any effect on the creative performance of the students; however, intercorrelation patterns between background variables and creativity were significantly different amongst students at different birth orders. (v) Scholastic achievement was found to be positively related to the measures of creativity. (vi) Creativity was significantly higher in the high I.Q. group in comparison to middle and low I.Q. groups, further, the middle I.Q. was found to be significantly higher than the low I.Q. group. (vii) Perception of teacher behaviour by students was found to be related to creativity in students. (viii) Attitudes of the students towards school, were not significantly related to creativity. (x) Parental preference for conforming behaviour in the children was negatively related to creative behaviour whereas parental preference for independent self-assertion was positively related to creativity. (xi) Parental preference for extraverted and sociable orientation among their children was not found to be related to creativity. (xii) Central School students were found to be most creative; next in order were public, private-aided and government schools respectively. (xiii) Organizational climate of the school was not found to be related to creativity in students.

Singh, K. (1982) studied the creative thinking of high school students of Himachal Pradesh in relation to some cognitive and non-cognitive variables. The major findings of the study were: (i) The verbal and non-verbal creative thinking scores of high scholastic students were normally distributed. (ii) The high school boys achieved significantly higher scores than the high school girls on the measures of verbal and non-verbal creative thinking. (iii) The verbal, non-verbal and total creative thinking scores were positively and significantly related with the verbal and non-verbal intelligence of high school students. (iv) The verbal, non-verbal and total creative thinking scores had a positive and significant relationship with the academic achievement of the high school boys and girls. (v) Age was negatively and significantly related to verbal, non-verbal and total creative thinking. (vi) The
introversion- extroversion and neuroticism emotional, stability scale had, negative relationship with verbal, non-verbal creative thinking. (vii) Test anxiety was negatively and significantly related to verbal, non-verbal and total creative thinking. (viii) Achievement-Motivation had a positive and significant relationship with verbal, non-verbal and total creative thinking. (ix) Sex was positively and significantly related to verbal, non-verbal and total creative thinking of high school boys and girls.

Srivastava, B. (1982) conducted a Study of Creativity in relation to Personality Factors, Birth Order and Linguistic Ability among the High School Students. The aim of the study was to find out the relationship of creativity with personality factors, birth order and linguistic ability among high school students. The main findings of the study were: (i) There was positive relationship between the scores on creativity and the scores on different personality factors. (ii) The first-born children had higher creativity scores than the later-born children. (iii) Students knowing three languages were more creative than those knowing only one or two languages. (iv) Boys were more creative than girls. (v) There were no significant differences among the Hindu and the Muslim students as regards creativity. (vi) The socio-economic status of the family had positive relationship with creativity.

Agawal, K. P. (1988) conducted a study on, “Types of schools corresponding factors as predictors of creativity at secondary level”. This study concentrates on types of schools and corresponding factors as predictors of creativity at secondary level. The major objectives of the study were: (i) To find and compare Grade XI students of four types of schools, namely, aided schools, government schools, Kendriya Vidyalayas and public schools in respect of their (a) verbal creativity and its components. (b) nonverbal creativity and its components, and (c) total creativity, (ii) to determine and compare the classroom learning environment of four types of schools. (iii) to compare high and low creatives of the four types of schools in respect of sixteen components of classroom learning environment, (iv) to find out the relationship among different components of classroom learning environment and total creativity, (v) to examine the predictive effectiveness of different components of classroom learning environment in respect of creativity, (vi) to compare the teacher's perception of the ideal pupil in four types of schools, (vii) to identify the relationship
between teacher's perception of the ideal pupil and total creativity, (viii) to compare the students in respect of their socio-economic status, and (ix) to identify school type-wise and total sample-wise relationship between the socio-economic status of the students and their creativity. Major Findings of the study were: (i) Significant differences were found among Grade XI students of the four types of schools in respect of total creativity, and verbal and non-verbal creativity and their components. (ii) No substantial differences were found in the learning environment of four types of schools. (ii) Significant differences on some learning environment was found among high and low creatives. (iv) Verbal creativity was related only with one learning dimension, namely, material environment in aided schools; with two dimensions, friction and innovation in government schools; with competitiveness in Kendriya Vidyalayas; with cohesiveness, friction, goal-direction, favouritism and competitiveness in public schools; and with friction, difficulty, competitiveness and innovation in the total sample. (v) Negative relationship was found between verbal creativity and learning environment dimensions. (vi) Few learning environment dimensions could predict creativity and its components. (vii) The predictive effectiveness of significance found learning environment components varied in degree from school to school. (viii) A high degree of association was found between the ranking and perceptions of teachers from different schools about the characteristics of an ideal pupil. (ix) Very low association was found between the perceptions of teachers and the creative experts of personality. (x) The students of the four types of schools differed in respect of their socio-economic status. (xi) Socio-economic status influenced creativity and its three types, namely, verbal ability (A), verbal creativity (B) and non-verbal creativity significantly in aided schools and in the total sample. However, neither creativity nor its types were found to be influenced significantly by socio-economic status in the remaining three schools, namely, government schools, Kendriya Vidyalayas, and public schools. (xii) Socioeconomic status influenced creativity and its components to a moderate degree only.

Ray, T. (1989) conducted a comparative study of a few personality characteristics of creative minds in arts and science and their parental relationship during childhood. The objectives of the study were: (i) To see if the manifestly
creative people have more wish to be loved than the manifestly non-creative people, (ii) to see if there is any difference between the manifestly creative people and manifestly non-creative people in their conformity and non-conformity, (iii) to measure quantitatively the masculine and feminine traits in the manifestly creative and the non-creative groups, (iv) to study whether the manifestly creative people show any neurotic tendencies or whether they are mentally as healthy as the manifestly non-creative people. (v) to measure the parental love and aggression experienced by the manifestly creative group in childhood compared to the non-creative group, and (vi) to find out how creative people differ in a significant manner from non-creative people. The major findings were: (i) Parental love experienced by the scientific-creative group was positively less than in the case of the manifestly non-creative group. There was a statistically significant difference between the male scientist group and the male non-creative group. As far as father’s aggression was concerned. The female scientist group was more aggressed by their parents than any other group. This difference was statistically significant. In case of mother’s love (ML) both male and female groups experienced less mother’s love than the non-creative male and female group. But the scores of mother’s aggression (MA) were at par in case of both the groups. (ii) On parental love the creative visual artist group was positively less than the manifestly non-creative group. In case of inventory FL and ML, both the visual artist male and female groups secured less parental love than the non-creative group. Their mean difference was significant. But in case of parental aggression of the male and the female visual artists groups and the non-creative group the mean difference was very little. There was a significant difference between the male visual artist and the male non-creative group. (iii) There was a significant difference in the case of both the creative groups (scientist and visual artist) as compared to the manifestly non-creative group. Female creatives both in case of scientists and visual artists, were more masculine than the manifestly non-creative women. The female creative groups were less feminine than the manifestly non-creative females. The femininity was much more in the case of creative males as compared to the manifestly non-creative group; and again. it was much more pronounced in the case of visual artists. (iv) The creative groups, both scientist and
visual artists, showed less conformity than the manifestly non-creative groups. This was true in the case of both male and female subjects. (v) There was a significant difference between the normal and the two creative groups. (vi) The creatives and the manifestly non-creatives did not differ much in mental health.

**Roy, D. K. (1990)** conducted a study on, “Personality Differentials of Adolescents with Scientific Creativity in relation to Environment”. The main objectives were: (i) To study the difference between the low and high scientifically creative adolescents on various dimensions of creativity based on the S.I. model of Guilford, (ii) to study personality differences between low and high scientifically creative adolescents in terms of Cattell’s trait theory; (iii) to examine the perception of the home environment (different dimensions) by low and high scientific creative adolescents, and (iv) to examine the perception of the school environment (different dimensions) by low and high scientifically creative adolescents. The major findings were: (i) Lower scientific creativity (LLCS) and higher scientific creativity (HSC) groups differed significantly on all the three parameters of structure of intellect model. The HSC group was found to be better than LSC group on these parameters (ii) HSC adolescents differed markedly from the LCS adolescents in terms of most of the personality traits (iii) Both the groups differed significantly, so far as perceived impacts of home and school environment were concerned.

**Bilqies (1988)** conducted a Study of creative thinking among boys and girls in relation to socio-economic status. This study concentrates on creative thinking among boys and girls in relation to their socio-economic status. The objectives of the study were: (i) To find out the relationship between creativity and socio-economic status at different levels (high/low), and (ii) to find out the difference in creativity with respect to sex. The major findings of the study were: (1) Creativity and SES were positively related. (2) Boys and girls belonging to the same level of SES did not differ significantly on the three components of creativity, viz., fluency, flexibility and originality. (3) No gender differences were found to exist in creativity. (4) Boys with high SES and low SES were found to be different on fluency and flexibility. However, in the originality scores, the differences failed to reach any level of significance.
Khiangte, V. (1988) conducted a study on, “Non-cognitive correlates of creativity among the secondary school students” to examine the creative thinking ability in secondary school students. The major objectives were: (i) To compare the personality characteristics of the high creative and the low creative secondary school students. (ii) To make suggestions for improving the educational practices to enhance creative thinking ability among secondary school students. The major findings were: (i) High creative students were superior in abstract thinking, assertive, affected by feelings, tender minded, placid, doubting, venturesome and reserved when compared to low creative. (ii) High creative girls were observed to have a higher degree of ergic tension than the high creative boys, and were noted to be tense, restless and took a poor view of the degree of unit, orderliness and leadership. (ii) rural high creative students when compared to urban high creative girls showed that high creative girls from urban areas were found to be more intelligent, emotionally stable, conscientious, tender minded, and self-sufficient as against their reserved, group-dependent and expedient rural counter-parts.

Gupta, K. K. (1988) conducted a study on, “The creative development of secondary school children in relation to sex intelligence and urban and rural background” to study focuses on the creative development of secondary school children in relation to sex, intelligence and urban and rural background. The major objectives of the study were: (i) To study the creative development of secondary school boys and girls along the age continuum and education in order to (i) know the trends of creative development of boys and girls, (ii) estimate the sex differences in creative development. The major findings were : (i) Urban and rural boys and girls developed rapidly in creativity from the age of 11 to the age of 13 and 14 but later there was a sharp decline up to the age of 15 years. (ii) In general creativity had a tendency to rise from the age of 11 and continue to do so up to Grades VIII and IX. After this stage there appeared a sharp decline. The development of creativity was at its peak between the age of 13-14 years.

Sharma, G. S. (1988) conducted a study on, “Creativity: An investigation into personality correlates” to find creativity in terms of its components, and Oil to determine the self-concept, values, need, and personality factors of adolescents in
relation to fluency, flexibility and originality. The major findings of the study were:

(i) On the basis of empirical verification of the null hypotheses of the study, it was found that when the adolescents were imbued with high or less creativity components (i.e., fluency, flexibility and originality) they had clear perceptions about their values, self-concept, needs and personality factors. (ii) Each component of creativity had its own orientation and should be studied separately to enhance our knowledge of the truth.

Sumangala V. (1988) conducted a study on, “Some psychological and social-familial correlates of creative behaviour among secondary school children”. This study focuses on the identification of some psychological and social-familial variables as correlates of creativity among secondary school children. The objectives of the study were:

(i) To compare the three creativity groups (high-creative, average-creative and low creative) in pairs in respect of each of the independent variables, (ii) to estimate the association of creativity with each of the independent variables for the three subgroups (based on creativity) and to compare the correlation coefficients of these three subgroups. (iii) to predict creativity in terms of the three best predictions from the group of psychological variables, and again from the group of social-familial variables, and to estimate the multiplier in terms of each of these two sets of variables. (iv) to identify through factor analysis 1 the psychological factors and social-familial factors possessing considerable loading of creativity and to isolate the psychological and social-familial variables present in each, and (v) to compare separately the psychological and social-familial factor structures of the high-average—and low-creativity groups to see whether there is differentiation in the factor structures corresponding to the three creativity groups. The major findings were:

(i) The robust creativity associated psychological and social-familial variables combining the results of two-tailed ‘t’-tests, r's and high-creativity loaded factors indicated by factor analysis were the psychological variables and the social-familial variables. (ii) The psychological variable ‘self-concept’ and the social-familial variable ‘ordinal position in the family’ had no association with creativity. (iii) The psychological variables, ‘examination anxiety’ and ‘general anxiety’ had no negative relation with creativity. (iv) The social-familial variable, ‘family size’, was negatively related to
creativity. (v) The difference in the number of factors, nature of factors and the amount of variation in each suggested that the psychological factor structures as well as the social-familial factor structures of high-creative, average-creative, and low-creative groups were different. The differing factor structures and evidence to the strong association between creativity and many of the select psychological and social-familial variables.

Singh, C. (1989) conducted a study on, “The interactive effects of need achievement, creativity components and second order personality factors on learning of college-going students. The present study concentrates on measuring the interactive effect of need achievement creativity and second order personality factors on learning among college students. The major findings were: (i) Need achievement was a significant determinant of the anagram task learning of female adolescents. (ii) The success of female adolescents on anagram task learning was significantly influenced by their creativity components. (iii) Female adolescents having low level of PFQ and PFQII had higher score on anagram task learning. (iv) Female adolescents having high level of PF QIII, PF QIV PF QV and PF QVI had higher score on anagram task learning. (v) The interactive effects of n ach. creativity components and personality factors on anagram task learning performance showed a lot of combinations and variations.

Joshi, R. (1989) conducted a study of creativity in relation to personality, locus of control and alienation. The major objectives of the study were: (i) To study the creativity of students studying in four different professional fields in relation to their personality traits, locus of control and alienation, and (ii) to study the personality pattern of high and low creative students of each group. The major findings of the study were: (i) All the groups were found to be significantly different on the various measures of creativity, personality, locus of control and alienation. (ii) Females were reported to be higher on fluency, originality, extra-version and neuroticism than males.

Shan, H. R. (1989) conducted a study on, “Effectiveness of certain curricular activities in the development of creative thinking of high school students of the backward hilly region of Jammu.” This study centres on the effectiveness of certain
curricular activities in the development of creative thinking in the high school students of the backward hilly region of Jammu. The major objectives of the study were: (i) To develop verbal and nonverbal tests of creative thinking, (ii) to study the effect of teaching through the cocurricular activities of brainstorming, problem-solving, project activity, and quiz in comparison to the traditional method of teaching, on the verbal fluency, verbal flexibility, verbal originality, and total verbal creative thinking of students. The major findings were: (i) The groups of students who were taught science using various curricular activities, namely brainstorming, problem-solving, quiz and project activity, gained significantly in verbal fluency, verbal flexibility, verbal originality, elaboration, non-verbal originality, total non-verbal originality, total non-verbal creative thinking, and total creative thinking (verbal and non-verbal as compared to the groups taught by the traditional method of teaching. (2) Brainstorming was found to be significantly more effective in comparison to the use of problem-solving, quiz and project activity in the development of verbal fluency, verbal flexibility, non-verbal originality, total (verbal flexibility, non-verbal originality and total (verbal and non-verbal) creative thinking.

Ahmed, S. (1990) conducted a study on, “Effect of Socio-cultural Disadvantages on Creative Thinking”. The major aim of the investigation was to study the impact of socio-cultural disadvantage on the development of verbal and non-verbal creative thinking. The question for which answer was sought was whether those coming from disadvantaged home environment derived more benefit from advantaged schools than those coming from rich home environment. The major findings were: (i) Irrespective of the type of school and the class, the mean scores of the disadvantaged home children on both verbal and non-verbal tests of creativity were apparently lower than the mean scores obtained by children from advantaged home background. (ii) Irrespective of the home background and class, only the students from the EAS yielded the highest mean score while the rest of the schools did not show any gradual rise or fall in the mean score values with respect to the schools being characterized in terms of the status of being disadvantaged. (iii) Irrespective of the type of school and the type of home background, the mean score values obtained by the students increased from Class VIII to Class XI. This was true
for both the advantaged and the disadvantaged subjects. (iv) The mean scores of the subjects on the verbal and non-verbal scores increased as the schools became characterized with respect to the status of being more advantaged. (v) The scores on verbal and non-verbal tests of creative thinking were found to be significantly determined by all the three factors, viz., the class, home background and type of school.

Kumari, S. (1990) conducted a study of modernity of undergraduate students with reference to their socio-economic status, self-concept and level of aspiration to study modernity of undergraduate students with reference to some variables. The objectives of the study were: (i) To study the differences between the means of the four sub areas of modernity of under-graduate boys (UGB) and under-graduate girls (UGG), (ii) to study the relationship between SES/self-concept (S.Con.) Level of Aspiration (LOA) and modernity of UGB and UGG. and (iii) to study the differences between the means of mod of boys (B) and girls (G) with high and low SES/S.Con./LOA. LOA. The major findings of the study were: (i) UGG were in general more modern than UGB and they differed significantly in respect of all the four areas of modernity. (ii) Rise in SES resulted in significant increase in modernity of UGB and UGG. (iii) As S.Con. increased UGB and UGG showed significant increase in modernity. S.Con. in general was propellant to modernity. (iv) As LOA rose UGH and UGG showed a decline in modernity. LOA was not propellant to modernity. (v) UGB and UGG belonging to the high SES were significantly more modern than their counterparts from the lower SES.

Kumari, S. (1990) conducted a study of personality characteristics, intelligence, achievement motivation, adjustment and so-socio-economic status of juvenile and adult female offenders. It is an attempt to study the personality characteristics, intelligence, achievement motivation, adjustment and socioeconomic status of juvenile and adult female offenders. The objectives of the study were: (i) To study the personality characteristics, intelligence, achievement motivation, adjustment and socio-economic status of juvenile and adult-female offenders, (ii) to work out the inter-correlations for the variables of personality characteristics, intelligence, achievement-motivation, adjustment and socio-economic status in respect of juvenile
delinquents and adult offenders, and (iii) to study the separate and interactive effects of ecological background and age level of the offenders on each of the dependent variables of psychoticism, neuroticism, extraversion, intelligence, adjustment, achievement-motivation and socio-economic status. The major findings of the study were: (i) Offenders had the traits of psychoticism and neuroticism, but they were not extraverts, (ii) Delinquents had low intelligence and achievement-motivation, (iii) Criminals were generally from the lower class of SES except urban juvenile delinquents who belonged to the middle category of SES. (iv) Offenders were maladjusted in all the areas of adjustment. (v) In the case of urban and rural juvenile delinquents and adult rural and urban offenders total adjustment was significantly correlated with social and emotional adjustment, and social and emotional adjustment were significantly related with each other. (vi) In the case of juvenile and adult female offenders, no significant differences were observed in case of personality characteristics. Intelligence, achievement-motivation and adjustment, except in case of SES, and health adjustment.

Padhan, G. (1990) studied creative thinking in relation to socio-economic status and scholastic achievement of the higher secondary students of Baroda city. The main findings of the study were: (i) Sensitivity, fluency, thinking, (ii) There was no significant relationship between creative thinking and socio-economic status. However, it was found that there was significant and positive relationship between creative thinking and scholastic achievement, (iii) Relationship of fluency and originality with socio-economic status was found significant while relationship between flexibility and socio-economic status was found to be insignificant. However, it was found that there was a positive and significant relationship between fluency, flexibility originality and scholastic achievement.

Chadha, N.K. and Chandna, S. (1990) conducted the study deals with the correlation between creativity, intelligence and scholastic achievement. The findings of the study were: (i) Correlation was positive and significant, between creativity and intelligence, creativity and scholastic achievement, and intelligence and scholastic achievement, (ii) Intelligence Quotient correlated with creativity and scholastic achievement, (iii) There was positive and significant correlation between intelligence
and scholastic achievement when the effect of creativity was partialled out, (iv) There was negative and significant correlation between creativity and scholastic achievement when the effect of intelligence was partialled out.

**Jain, S. (1992)** conducted a study of creativity in relation to the teaching aptitude, skills and personality variables of pupil teachers. The major objectives were: (i) To determine the personality profiles of creative teachers, (ii) to investigate the relationship of creativity with the teaching aptitude, skills and personality variables of pupil teachers and its impact on their classroom creativity. The major findings were: (i) Positive and highly significant correlation was found between creativity and classroom creativity, teaching aptitude, and teaching skills.

**Sharma, M. L. (1992)** conducted a study on, “Value orientation, socio-economic status and culture in relation to personality needs”. The main Objectives of the study were : (i) To study value orientation in relation to personality needs, (ii) to study SES in relation to personality needs, and (iii) to study culture in relation to personality needs. (The four needs selected were: need-affiliation, need-change, need-order and need-achievement.) The major findings were : (i) Need-affiliation, need-order and need-achievement were more prominent in the rural culture, irrespective of their values and SES. Need-order was more prominent in those persons who belonged to high SES, irrespective of their values and culture. (ii) Need-affiliation was more prominent in those persons who belonged to the rural culture with low theoretical, economic and social values. (iii) Need change was more prominent in those persons who belonged to rural culture, and high economic value. (iv) Need achievement was more prominent in those persons who belonged to the rural culture and had high religious value. (v) Need-change was more prominent in urban people with low SES. (vi) Need-affiliation, need achievement and need-order were more prominent in the high SES group. (vii) Need-affiliation was more prominent in those persons who belonged to the rural culture, low social value and high SES.

**Pal, Y. (1992)** conducted a study on, “Inter-domain relationship between intelligence and personality and between creativity and personality by canonical analysis”. The present study tries to study the inter-domain relationship between intelligence and personality, and between creativity and personality by canonical
analysis. The main objectives of the study were: (i) To identify the kind of subjects covered and the methodologies used in the studies concerning personality, intelligence and creativity; and (ii) to draw conclusions on the nature of relationships between these domains on the basis of analysis of major findings of related studies. The major findings were: (i) The subjects covered by the studies on the relationship between intelligence and personality had been mostly cross-sections of young and old children adolescents normal adults, males, neurotic children of elementary schools, nurses, male medical and psychiatric patients. In all these studies the statistical techniques largely used were comparison of means correlations regression analysis, curvilinear relationship, analysis of variance and factor analysis. The creativity and personality domain related studies covered artists, painters, physicists, eminent scientists, professional/academic scientists, science as well as arts students creative adolescents, artistic children, writers, architects, creative women, mathematicians, etc. (ii) Results indicate that there were seven meaningful squared canonical correlations. There was an interdomain dimension, namely, general intelligence and a small group factor which had some loading on personality traits, sense of wellbeing and community. Personality factors played vital roles in promoting convergent thinking abilities. There was no evidence regarding the role of intellectual abilities in interplay of personality traits. The canonical analysis of creativity and personality domains identified six pairs of meaningful canonical dimensions. (iii) The total redundancy coefficients for personality and intelligence were 2.8 and 13.4 % respectively. Personality traits predicted 13% of total variance of intelligence domain. Role of personality traits in shaping creativity was only up to 5%.

Arora, R. K. (1992) conducted a study on, “Interational effect of creativity and intelligence on emotional stability, personality adjustment and academic achievement.” The study deals with the relationship between creativity and intelligence and their interactional effect on emotional stability, personality adjustment and academic achievement. The main objective of study is to investigate into the interactional effect of creativity and intelligence on emotional stability personality adjustment and academic achievement. The major findings of the study were: (i) High creative/high intelligence group was significantly highest in emotional
stability than the remaining three creative/intelligence groups. (ii) Those possessing both high convergent and divergent abilities were by far the most accommodative persons among different creative-intelligence groups. (iii) All the high intelligence groups performed better than the low ones.

Kumar, M. A. S. (1992) conducted a study on, “Socio-educational correlates of creativity among secondary school students in Arunachal. The present research is designed to examine the creative thinking ability of the secondary school students in Arunachal Pradesh. The sample comprised 200 secondary school students from two government high schools and one Central school of the lower Subansiri and West Siang Districts of Arunachal Pradesh. The major findings were: (i) The male and female students did not show any significant difference in their creative thinking ability. (ii) The students belonging to high (15 years and above) and low (below 15 years) age-groups failed to differentiate in their creative thinking ability. (iii) The last-born were found to be definitely superior in creative thinking ability when compared to the middle-born and the first-born. (iv) Parents’ education was found to foster higher creative thinking ability. Students with educated parents attained higher creativity scores than those with illiterate parents. (v) Parental occupation was not found to be a factor related to the creativity of the children. (vi) A moderately high positive linear relationship was observed between the variables of creativity and socio-economic status. The students from high socio-economic background were definitely superior to those from the lower strata in their creative thinking ability. (vii) The students with a higher family facility score possessed a higher creativity score than their lower family facility counterparts. (viii) Exposure to mass media seemed to have a positive significant effect on the creative thinking ability of the children. The students highly exposed to media had an advantage over the lower exposed students in their creative disposition. (ix) The students with literary interests gained superiority in creative thinking when compared to those with social and cultural interests. (x) The students with high creative thinking ability sported pastimes of an informative nature as against the recreational and socio-cultural leisure-time activities of the low-creative students. (xi) The type of school in which the students studied was also found to influence their creative thinking ability. The government school students had an edge
Kumari, K. (1992) conducted a study on, “Creativity of ninth graders in relation to their socio-economic status, achievement-motivation and adjustment”. This study aims to find relationships of creativity and its measures with SES, achievement motivation (n-ach) and adjustment. The major findings were: (i) Creativity and SES were positively correlated. (ii) Achievement need was positively correlated with total creativity. (iii) When the effect of SES was partialled out, the magnitude of correlation between n-achievement and all the four creativity measures was reduced and remained significant only for fluency. (iv) When the effect of SES and adjustment was partialled out, n-achievement which was originally positively correlated with flexibility and total creativity, did not remain. (v) Total creativity flexibility and originality were not related with adjustment. Fluency was positively related with adjustment. When the effect of SES was partialled out, the adjustment was not related with total creativity fluency flexibility and originality. (vi) After partialling out the effect of SES and n-achievement, no relationship was found between adjustment and creativity measures. (vii) Prediction of creativity was not significantly better when made on the basis of the conjoint effect of SES, n-achievement, and adjustment than if made on the basis of either of the three independent variables. This was true for total creativity as well as fluency, flexibility and originality. (viii) SES was positively correlated with n-achievement as well as adjustment. (ix) High SES students had significantly more n-achievement than low SES students. (x) Compared with low SES students, high SES students had better emotional, social, educational and total adjustment. (xi) Compared with low n-achievement students, high n-achievement students had more emotional, social, educational and total adjustment.

Rajagopalan (1998) attempted to study creative talent in relation to convergent and divergent thinking. Major findings were: (i) creative talent was significantly related to both convergent and divergent thinking (ii) Aesthetic creativity and scientific creative talent were significantly relates to convergent and divergent thinking whereas cognitive creative talent and talent in craft were not significantly related to either of them (iii) Divergent thinking had greater weightage for aesthetic and scientific creativity in comparison to convergent thinking (iv) In a group of pupils
whose IQ was more than 120, a highly significant relationship was found among the convergent and divergent thinking and achievement scores. A significant association between higher level intelligence (IQ more than 120) and creative talent was also seen. The relationship and association was also true for the highs scores in the creativity test. (v) The important discriminating variables, discriminating higher creative groups from lower creative groups were aesthetic creativity, scientific creative talent originality and fluency.

Gakhar, S.C. and Dharmindera (2003) studied intellective and non-intellective factors associated with mathematical creativity at the elementary school stage. Findings were: (i) The variable of intelligence was found to be significantly and positive correlated with mathematical creativity. Variable of mathematical achievement was also found to be significantly and positively correlated with mathematical creativity. No relationship was found between creativity and mathematical creativity due to insignificant r-value. Variable of socio-economic status was found to be positively and significantly correlated with mathematical creativity. Home environment was also found to be positively and significantly correlated with mathematical creativity. There was significant difference between boys and girls in their mathematical creativity due to significant t-value of 0.01 level and results were in favour of boys. There significant difference in mathematical creativity of urban and rural children.

Gakhar and Lata, P. (2005) studied intelligence, creativity, self concept and personality characteristics of delinquents and non-delinquents. They found that out of 16 personality factors, male delinquents and non-delinquents differ on A,B,E,G, L, Q1, Q3 and Q4 factors. Female delinquents and non-delinquents differ on A,B,G, O, Q3 and Q4 factors.

National Curriculum Framework (2005) reiterated in its chapter on ‘Learning and Knowledge’, it becomes necessary to change our approach to teaching. In fact, knowledge of the child’s information processing styles would enhance teaching and make the exercise fruitful. The teaching techniques in the schools can be undertaken in consonance with the students’ style of learning and thinking. Further it would enable the teacher to organize the teaching and learning procedures in such a
way that they tone up and activate the hemisphere

**Vengopal, K. and Mridula, K. (2007)** conducted a study on, “Styles of Learning and Thinking.” The present study is aimed at examining the hemispheric preferences for information processing and styles of learning and thinking in children. Results revealed that there was significant difference in the right and left (brain) hemisphere preference for information processing among children and that boys were more right hemispheric oriented and girls were more left hemispheric oriented in information processing. Significant difference in the styles of learning and thinking and concept preference among right hemisphere and left hemisphere dominant children was also observed with respect to both genders.

**Reddy, S. V. B. (2008)** investigated creativity of the student teachers of college of Education. Conclusions were (i) The hypothesis that the male and female student teachers do not differ significantly with regard to their non verbal creativity was accepted. (ii) The hypothesis that the male and female student teachers do not differ significantly with regard to their verbal creativity was accepted (iii) The hypothesis that the male and female student teachers do not differ significantly with regard to their creativity (verbal and non verbal) was accepted.

**Chauhdary, V. (2008)** studied to find out the correlation between academic achievement and creativity of the creative and non-creative students. The results shows that the value of the correlation coefficient for the two variables as creativity and academic achievement among creative students was found to be 0.234 and among non-creative students 0.14 respectively. A significant correlation was found between these two variables of creative students. It reveals that creative students who scored higher of creativity measures, would also score higher on academic achievement and vice versa. On the other hand no significant correlation was found between those two variables among the non-creative students. It is concluded that the relationship between creativity and academic achievement is positive and significant in case of higher achievers or creative students but negligible in case of non-creative.

**Sanroshi, H. and Roy, A. (2009)** conducted a study on, “Relationship of Five Personality Dimensions with Learning Patterns among University Students. The
study examined the relationship between the measure of big five personality dimensions with the learning behaviour pattern (cooperative, competitive and individualistic). The findings have numerous implications for teachers and researchers in the field of teaching learning personnel psychology training and development and performance appraisal.

2.2 STUDIES CONDUCTED IN ABROAD

Reynolds and Torrance (1978) concluded that teacher-directed learning tends to favour students with a left hemisphere style of learning, while self-directed learning favours right hemispheric learners. Such a conclusion may not be possible here, but the probability of such a case may exist since the components of each hemisphere styles are so.

Mack (1987) attempted to determine (a) how important teacher educators and student teachers believed it was to include teaching methods of enhancing creativity in a teacher training program, and (b) how thoroughly teacher educators and student teachers believed the methods of enhancing creativity had been taught in their undergraduate teacher education programs in 10 colleges and universities. Mack found that students and teachers in the 10 institutions surveyed felt that it was important to enhance creativity in children. In addition, teacher educators and student teachers who were surveyed ranked “methods of enhancing creativity in children” at the 85% and 90% level, respectively. Forty-eight percent of teacher educators and 52% of student teachers felt that it was included in their teacher preservice instruction. It is interesting that teacher educators ranked “methods of enhancing creativity” 5th out of 20 in importance, but only 10th out of 20 in how well it was taught at their institution. Student teachers ranked this item 2nd out of 20 in importance, but 7th out of 20 in how well it was taught. Mack concluded that both groups valued enhancing creativity but that this goal was not met as well as the teachers had hoped.

Bull, Montgomery, and Baloche (1995) conducted a study to determine what was being taught in creativity courses, surveyed 103 college faculty who participated in the first creativity conference at the Alden B. Dow Creativity Center of Northwood University in Midland, Michigan, and who taught these types of courses. This faculty represented junior colleges, 4-year institutions, and master's- and doctoral-granting
institutions. They reported that these faculty recommended that (a) a safe climate should be established in the classroom whereby the students feel free to explore their creative potential, (b) this exploration should lead to an openness to creative experiences, and (c) this openness should promote curiosity, which should lead to insight and innovation.

Feldhusen & Goh (1995) discussed the relation of one’s cognitive and learning styles to creativity. Can we consider cognitive and learning styles with the demands in our schools, especially to problem-solving tasks and so on? The issues of transfer of creative thinking skills across domains and the use of authentic tasks also were discussed (e.g., Guilford, 1950, 1967a) and need further study. That is, the transfer of creativity skills problem may be facilitated through the use of more authentic tasks in our schools.

Kim, et al. (1995) conducted a study on, “The Relationship of Creativity Measures to School Achievement and to Preferred Learning and Thinking Style in a Sample of Korean High School Students. For 92 male and 101 female Korean 11th graders, creativity as measured by the Torrance Tests of Creativity, showed little relationship to 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.

Runco and Chand’s (1995) suggested that motivation is important for creative thinking and that, in their model, problem finding would facilitate intrinsic motivation in individuals. In other words, students will be more motivated when they choose their own tasks. This would make the task meaningful to the individual. They further suggested that educators devote more time to problem-finding skills to communicate to students that this ability is as important as problem solving. Often, though, extrinsic motivators must be used to foster intrinsic motivation.

Trevlas, E., Matsouka, O., Zachopoulou, E. (2003) conducted a study, “Relationship between Playfulness and Motor Creativity in Preschool Children”, Previous research has noted a corresponding relationship between young children's play and divergent thinking ability. This study examined how far fluency and flexibility in movement patterns' production, as indicatory elements of divergent
thinking and critical thinking, are related to a variety of psychological elements (physical spontaneity, social spontaneity, cognitive spontaneity, manifest joy, sense of humor) that compositely contribute to playfulness, an internal personality characteristic. A total of two hundred and fifty preschool-aged children participated in this study. Their teachers completed the Greek version of Children’s Playfulness Scale. The Divergent movement ability test was used to rate children’s motor creativity. The data indicated a significant correlation between total playfulness and (a) motor fluency and (b) motor flexibility. This means that playfulness and motor creativity are interconnected because movement during preschool age is the primary way of action, expression, learning and development.

Yang, S. C. and Lin, W. C. (2004) conducted a study on “The Relationship among Creative, Critical Thinking and Thinking Styles in Taiwan High School Students.” The study investigated the relationships among demographic variables (class grades, school types, major field, parent's education level, etc.), psychological type, thinking style, critical thinking, and creative thinking in senior high school students. The study explored the extent to which students' inclinations and perceived competence to engage in creative thought, as well as their ability to think critically, can be predicted by one aspect of their personality and their psychological preferences. 1119 male senior high school students (grades 10 and 11) participated in the present study. The Thinking Styles Inventory, Chopsticks Creativity Test, Watson-Glaser Critical Thinking Appraisal and Myers-Briggs Type Indicator were administered to the participants. The present study, anchored in Sternberg’s theory of mental self-government and Jung’s theory of personality types, serves to lend partial support to the evidence of the relationships of thinking styles to personality types. The present findings show the scales across the TSI and MBTI inventories are, in general, related in predictable ways.

Zhang, L. F. (2005) conducted a study, “Thinking styles and the big five personality traits revisited.” This article had two objectives. The first was to further explore the utility of measuring intellectual styles (a general term encompassing such style constructs as cognitive, learning, and thinking styles) in addition to measuring personality. The second was to verify Sternberg’s (1988) claim that the theory of
mental self-government is applicable to non-academic settings as well as to academic settings. The Thinking Styles Inventory (Sternberg & Wagner, 1992) and the NEO Five-Factor Inventory (Costa & McCrae, 1992) were administered to 199 parents of secondary school students in mainland China. Findings suggest that it is meaningful to investigate intellectual styles in addition to examining personality. In addition, results supported Sternberg’s assertion regarding the validity of the theory of mental self-government in both academic and non-academic settings.

Zhang and Sternberg (2006) grouped 13 thinking styles into 3 types; Type I styles are perceived more positive and adaptive and include legislative, judicial, hierarchical, global, and liberal styles whereas Type II styles are more negative and less adaptive and include executive, local, monarchic, and conservative styles. Finally, Type III styles are neither positive nor negative but adaptable due to the requirements of a situation and include anarchic, oligarchic, internal, and external.

Zhang, L. F. (2006) conducted a study on, “Preferred Teaching Styles and Modes of Thinking among University Students in Mainland China.” The present study had three purposes. The first was to further explore the psychometric properties of the Preferred Thinking Styles in Teaching Inventory [Zhang, L. F. (2003). “The preferred thinking styles in teaching inventory.” The University of Hong Kong: Hong Kong]. The second was to test the hypothesis that the preferred teaching styles of mainland Chinese university students in the present investigation are similar to those of students in Hong Kong and the United States in previous studies. The final and most important purpose was to examine the incremental validity of modes of thinking beyond students’ self-rated abilities in predicting students’ preferred teaching styles. The study concluded that like university students in Hong Kong and the United States in previous studies, mainland Chinese students in the present study also expressed a strong like for teaching styles that are creativity-generating and that allow collaborative work. Similarly, they indicated a strong dislike for teaching styles that are norm-conforming, that require multi-tasking but without communicating a sense of priority, and that restrict students to working individually, without collaboration with others. Going beyond the previous studies, the present study found that an integrative mode of thinking positively contributed to students’ preference for
teaching styles that are creativity-generating and that encourage group work, but negatively contributed to students’ preference for teaching styles that are norm-favoring and that discourage collaborative work. Implications of these findings are discussed in relation to teaching that accommodates diverse thinking styles and teaching that generates creative thinking.

**Zhang, L. F. (2007)** conducted a study on, “Intellectual Styles and Academic Achievement among Senior Secondary School Students in Rural China, Educational Psychology.” The present study empirically addressed two longstanding controversial issues in the field of intellectual styles. The first concerns the distinction (or similarity) between various style constructs. The second relates to whether or not intellectual styles make a difference to students’ academic achievement. Specifically, the study investigated the relationship between Torrance’s modes of thinking and Sternberg’s thinking styles. It also examined the role of the two style constructs in achievement in Chinese, English, and mathematics. It is concluded that each of the two style constructs has a unique value in explaining individual differences in human performance. Furthermore, the study makes another call for cultivating creative intellectual styles among school students.

**Baer, M. et al. (2008)** conducted a study on, “The Personality Composition of Teams and Creativity: The Moderating Role of Team Creative Confidence”. They examined the possibility that teams composed primarily of individuals with personality characteristics conducive to team creativity (e.g., high extraversion, high openness to experience, low conscientiousness, high neuroticism, low agreeableness) would show synergistic increases in creativity. The finding indicated that when team creative confidence at T1 was high, team creativity at T2 increased quadratically as the number of team members who scored high on extraversion, high on openness, or low on conscientiousness increased. However, the number of individuals composing a team who scored high on neuroticism or low on agreeableness had no relation to team creativity under conditions of high or low team creative confidence. Implications of these results for the design of creative teams are discussed.

**Xinfa, Y. (2008)** of Free Universal, Berlin studied creativity, efficacy and their organizational, cultural influences. The findings showed that there were
significant differences on cultural efficacy among Caucasian-Germans, Asian-Germans, Chinese studying abroad and domestic Chinese. However there were no cultural, bicultural and bilingual differences in general self-efficacy and creativity self efficacy between German and Chinese participants. Again it demonstrated that there were significant teaching duration, age differences and significant two way school teaching subject interaction in creative organizational climate and significant gender difference in general self-efficacy. Path analysis indicated that the significant path coefficients were from creativity organizational climate to cultural efficacy of own culture to creativity self efficacy. There was only indirect pathway from creative organizational climate to creativity self efficacy.

Silvia, P. J. et al. (2009) conducted A Snapshot of Creativity: Evaluating a Quick and Simple Method for Assessing Divergent Thinking. Creativity assessment commonly uses open-ended divergent thinking tasks. The typical methods for scoring these tasks (uniqueness scoring and subjective ratings) are time-intensive, however, so it is impractical for researchers to include divergent thinking as an ancillary construct. The present research evaluated snapshot scoring of divergent thinking tasks, in which the set of responses receives a single holistic rating. We compared snapshot scoring to top-two scoring, a time-intensive, detailed scoring method. A sample of college students (n = 226) completed divergent thinking tasks and measures of personality and art expertise. Top-two scoring had larger effect sizes, but snapshot scoring performed well overall. Snapshot scoring thus appears promising as a quick and simple approach to assessing creativity.

Mark Bateya, Tomas Chamorro-Premuzicb and Adrian Furnhamc (2009) conducted a study, “Intelligence and personality as predictors of divergent thinking: The role of general, fluid and crystallized intelligence”. The study examined the relationships between measures of intelligence, personality and divergent thinking (DT) in student samples. Study one investigated the incremental validity of measures of IQ and fluid intelligence with the Big Five Personality Inventory with regards to DT. Significant relationships of DT to fluid intelligence, Extraversion and Disagreeableness were observed. Study two investigated the incremental validity of measures of fluid and crystallized intelligence (as assessed by a test of general
knowledge) with the Big Five Personality Inventory with regards to DT. Hierarchical regression analyses revealed a significant relationship between crystallized intelligence and DT. The nature of the relationships of IQ, fluid and crystallized intelligence, in addition to personality traits to tests of DT were considered.

**Batey, M., Furnham, A. and Safiullina, X. (2010)** conducted a study on, “Intelligence, General Knowledge and Personality as Predictors of Creativity.” This study sought to examine the contribution of fluid intelligence, general knowledge and Big Five personality traits in predicting four indices of creativity: Divergent Thinking (DT) fluency, Rated DT, Creative Achievement and Self-Rated creativity and a combined Total Creativity variable. When creativity was assessed by DT test, the consistent predictor was fluid intelligence. When creativity was assessed in terms of achievement or self-rating, personality variables were consistently predictive.

**Kapranos (2010)** conducted a study on, “Embedding ‘Learning & Thinking Styles’ Into Engineering Materials Courses.” An area identified as useful for both staff and new students is ‘Learning & thinking styles’. The majority of new students join the department being used to teaching styles that might be totally different to those they encounter in their first year at University. In addition if they are not aware of the different styles of teaching & learning they could potentially find themselves overwhelmed by any apparent lack of ‘understanding’ or failing to make the ‘connection’ with a subject. The study results from the experience of running this scheme as part of an Introduction Week & Skills Week combination and discusses any possible benefits from embedding ‘Teaching and Learning’ as seen through personal feedback from students.

**Furnham, A. et al. (2011)** conducted a study on, “Individual Difference Predictors of Creativity in Art and Science Students”. Two studies have reported that used multiple measures of creativity to investigate creativity differences and correlates in arts and science students. The first study examined Divergent Thinking fluency, Self-Rated Creativity and Creative Achievement in matched groups of Art and Science students. Arts students scored higher than Science students on two of the three measures. Regression analysis indicated that the educational domain demographic variable was the most consistent predictor of all three measures of
creativity. The second study compared natural science, social science and arts students on two performance and two preference measures of creativity, whilst controlling for the effects of general intelligence. Results indicated only Self-Rated Creativity displayed significant group differences, with the regression analysis suggesting a stronger role of personality variables. The differences between the groups and implications for the measurement of creativity are considered.

Zhu, C. and Zhang, L. F. (2011) conducted a study on, “Thinking Styles and Conceptions of Creativity among University Students”. This research aimed to understand university students’ thinking styles and the relationship with their views of creativity. The Thinking Styles Inventory-Revised II was used to measure 13 thinking styles as defined in Sternberg’s theory of mental self-government and the Conceptions of Creativity Scales was used to inquire students’ views about the conditions for evaluating creativity from six aspects: intelligence, knowledge, style of thinking, personality, motivation and learning environment. Significant relationships were identified between thinking styles and conceptions of creativity. This research contributed to the understanding about the relationship between conceptions of creativity and thinking styles, and brings insights for educators about educational innovations, as one of the key objectives of educational innovations is to develop creativity of the younger generation.