Chapter - 2

Review of Related Studies
REVIEW OF RELATED STUDIES

Significance of the Related Literature

Research takes the advantage of the knowledge which has accumulated in the past as a result of constant human endeavour. 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 study proposed by researcher.

A careful review of the research journals, books, dissertations, thesis and other sources of information on the problem to be investigated is one of the important steps in the planning of any research study. Review of the related literature, serves the following specific purposes.

(i) A careful review helps the researcher in selecting the variables lying within the scope of his interest, in defining and operationlizing variables and in identifying variables, which are conceptually and practically important.

(ii) It helps the researcher in avoiding any duplication of work done earlier, specially when the stability and validity of its results have been clearly established.
(iii) It also gives the researcher an understanding of the research methodology which refers to the way, the study is to be conducted.

(iv) The review of the related literature helps the researcher to know about the tools and instruments which proves to be useful and promising in the previous studies.

(v) The advantage of the related literature is also to provide insight into statistical methods through which the validity of research is to be established.

(vi) The final and important specific reason for reviewing the related literature is to know about the recommendations of previous researchers for further research which they have listed in their studies.

**STUDIES RELATED TO INTUITION**

Shimojo and Ichikawa (1989) examined a version of the Bayesisan probability problem, the problem of three prisoners by D.V. Lindly (1971) and F. Mosteller (1965). The problem illustrates the discrepancy between intuitive reasoning and mathematical formal reasoning about probability. The new version was also designed so that
different inferential schemes would lead to separate estimates of posterior probability.

Data obtained from 161 undergraduates in three experiments and theoretical analysis of the original and modified problem suggests that (i) The psychological processes of intuitive reasoning were qualitatively different from mathematical reasoning. (ii) Intuitive judgements can be categorized by distinctive propositional beliefs from which the judgements were apparently believed.

Gott (1989) presents an explication of expertise in two types of system diagnosis (SD) tasks:

(i) Human SD, as practiced by medical problem solvers and
(ii) Non human SD, as practiced by electronics trouble shooters.

Studies in both domains have revealed that it is particularised knowledge that plays a vital role for experts not in explicable powers of intuition. The present article describes advanced knowledge engineering methods that have been developed and applied in a number of Airforce technical domains so that experts, mental databases, and procedural libraries can be made explicit enough to serve as targets of instruction. Instructional principles have been
derived from this knowledge engineering work and are guiding the development of a new generation of technical training systems.

Markley (1989) described four methods by which to awaken, facilitate and apply intuitive capacities for problem solving and innovation. Method I, focussing, uses insights that occur solely at the level of thought, experienced as a shift in mind and body. Method II, is a procedure whose purpose is to use depth sources of intuition to heal projections, especially those dealing with people not liked. Method III, is a type of fast free forward overview useful for exploring situations in which likely future conditions differ from those encountered before.

In Method IV, the transcendental dimension of intuition is explored more deeply.

Kolanczyk (1989) discussed a model of creative intuition, synthesizing psychological research from different paradigms (e.g. “insight” brain literalization, neurolinguistic programming and mediation). A system of hypothesis is constructed that covers the characteristics of motivation, evaluation, emotion, attention in the process of creative intuition. The proposed model distinguishes creative intuition
from related processes, such as analytical problem solving, defense mechanisms, projection and feminine intuition.

Bowers and Parker (1990) investigated intuition as informed judgement in the context of discovery using two word tasks and a perceptual (gestalt closure) task. Two of these tasks demonstrated that Ss could respond discriminatively to coherence that they could not identify, and a 3rd demonstrated that this tacit perception of coherence guided Ss gradually to an explicit representation of it in the form of a hunch or hypothesis. Clues to coherence may automatically activate the problem solvers relevant mnemonic and semantic networks and eventually the level of patterned activation is sufficient to cross a threshold of consciousness at that point, it is represented as a hunch or hypothesis.

Levin and Druyan (1990) examined whether children and adults possess a single object, single motion intuition.

In experiment I, data from 180 3rd, 6th and 9th graders and 60 undergraduate show that Ss respond in accord with this intuition. On problem in which the intuition lead to errors, a large majority of subjects of all ages answered in correctly on problems in which it led to successful
performance. Ss answered more accurately than on problems in which the intuition was not applicable. Experiment two demonstrated that making 72 6th graders aware of the intuition and providing them kinaesthetic experiences that contradicted it produced significant improvements in their understanding.

Agor, W.H. (1991) described a brain skill management programme that can be used to find and exploit intuitive talent within organizations. Typically high intuitive managers work in environments that hinder the use of their brain skills. To counter this, executives should be assigned to tasks according to their brain skills rather than titles or seniority. Diagnostic testing (e.g. Myers-Briggs type indicators) can be used to locate highly intuitive executives. Such people can then be grouped together, in isolation. From those with thinking brain skills, and assigned the task of developing new ideas or solutions to problems, executives with thinking skills can then evaluate this work. Both groups can be brought together for final work.

Ross (1992) examined Jung’s conception of the process of intuition and its effect on religious orientation. The intuitive person has the capacity to
Abstract patterns of relationships among phenomena.

Construct new possibilities not dependent on the originating sensory phenomena.

Scan the phenomenal world for similar patterns and possibilities. The intuitive person’s openness to change, doubt and complexity with respect to religious belief and practical, contrast with stereotypes of the religious devotee. Appreciating the contrasting orientation that the intuitive and sensing functions bring to religious practice can help foster a climate of tolerance and acceptance both between and within religious communities and between therapist and client.

Eichler and Halseth (1992) discussed how group leaders can recognise and use their own intuition and enhance it among group members. The process of accessing intuition is based on trusting oneself. The intuitive leader is able to see the gestalt of group process. To sense the patterns that are emerging, and to know what strategies to employ and when to be quiet. The leader’s intuition is enhanced by knowledge about the intuitive process, stages of intuition, and
practices that foster intuition. By providing a conducive atmosphere, allowing reflective time, and seeing participants as collaborators, the group leader assists participants in accessing their intuition.

Wonder and Blake (1992) argued that the difference between eastern and western approaches to creativity is the difference between intuition and logic, respectively. The two approaches are best viewed as being different in degree. The creative thought process cannot take place without use of both logic and intuition. It is proposed that both approaches fit in to the same epistemological model, with the east emphasizing the mind’s ability to grasp. Patterns intuitively and the west stressing the mind’s ability to understand by organizing information.

Manokhou and Cheremushkin (1992) investigated via brain mapping the neurological electrical activity underlying mechanism of extralogical thinking (e.g. recognition of a visual image and decisions taken through insight) 16 Ss (aged 18-25 years) were asked to identify a complex. Double image of pictures presented on a projected screen. The procedure involved perceiving the visual image. Taking a decision, and signaling that a decision had been taken by
pressing a button. The same had to be done with a second image. Identification took place gradually by Neurophysiological processes and then reached a peak. Results indicate that a subconscious process is reflected in electrical activity regardless of the laws governing it and that subconscious and conscious thought processes have a similar electrographic expression.

Holder (1992) organisations are experiencing a change in the nature of their environment from a study to a chaotic state. This new environment requires organisations to focus on human beings and their mental, physical, feeling and spiritual faculties and thus to recognize that intuition is a key ability to be possessed by organisation members. Four forms of intuition are identified. Mental, physical, feeling and spiritual. Ways of enhancing these forms of intuition are described and the importance of recognising that these strategies are not mutually exclusive is noted.

Davis, J.H. (1992) intuitions about aggregate behaviour can be very compelling, and sometimes even persist in the face of contrary evidence. An example of apparent intuition-based assumptions about group decision making behaviour from each of the past four decades to discussed in detail.
(1) Group superiority relative to individual performance (the fifties), (2) exaggerated group risk-taking relative to individuals (the sixties), (3) Group size and performance level (the seventies), and (4) decision making performance of free discussion groups and (implicit) procedural constraints (the eighties).

Au and Rollins (1993) conducted four studies and examined whether 3-7 years old appreciate that a substance can continue to exist and maintain its inherent properties (e.g. taste, having weight) even after it has become invisible upon dissolution. These studies also examined whether young children have the concept of tiny invisible particles” and if so, whether they can use it to reason about material kinds. These studies revealed that, by age 3 some children could appreciate both conservation of matter despite visual disappearance and the existence of tiny, invisible particles. Moreover, they could make use of the particle concept to come up with a plausible mechanism for how a substance can continue to exist and maintain its inherent properties despite visual disappearance upon dissolution. The proportion of children who could do so increase with age. Such abilities can play an important role in the development
Choi (1993) investigated developmental changes in the intuitive thinking of 144 children in each of 4 grade levels (kindergarten, 2nd grade, 4th grade and 6th grade): mean ages for each grade were 5.67 years, 7.75 years, 9.58 years and 11.58 years respectively. Ss completed a perceptual inference task. Two response measures, the mean point of correct response and the mean RT were applied. Results of the mean point of correct response and the mean RT were applied results of the mean point of correct response show rapid improvement from kindergarten to 2nd grade and less rapid development change thereafter, but a U-shaped developmental change was not found. However, RT results do show a U-shaped developmental change.

Johnson and Daumer (1993) defined intuition and discusses the different functions of the left and right brain hemispheres. They also suggest techniques to be used to make intuition work in the communication process, and indicates how these techniques enhance communication. It is postulated that in order to develop the brain skill of intuition, it is sometimes necessary to shutdown cognitive
(left brain) analysis and pay special attention to intuitive (right brain) ways of knowing. Educators are encouraged to have students use the right as well as the left sides of their brains. The traditional work ethic that guides education should be reconsidered in light of evidence concerning the value of incubation (during which non-conscious synthesis occurs) and the deleterious impact of stress.

Miller (1993) determined the reliability and validity of the miller intuitiveness instrument (MII), an instrument designed to measure the self-perception of intuitiveness (SPI) of practicing nurses. Ample evidence of reliability and validity was found. (MII) provides a way to quantity the (SPI) of practicing nurses.

Leoni and Mullet (1993) investigated levels of intuitive mastery of the relationships between the concepts of mass, volume and density in 5th to 9th grade school students, total no. was 138) and 48 college students in France. The methodological framework of information integration theory (N.H. Anderson, 1991) was used. When asked to infer mass from information on volume and density, the rule applied most frequently was an additive rule (density plus volume). An alternative rule used by the majority of younger children
was unifactorial, involving only density. When asked to infer density the rule used most frequently was a unifactorial involving volume. Only science students primarily used the subtraction rule (means minus value) when asked to infer volume, the most frequent case was the absence of a coherent rule. University students tend to use the subtraction rule.

Wippich (1994) combined the processing view of implicit-memory interpretations with the model of intuition as proposed by Bowes et al. In their gestalt-closure task, Ss were shown slides of paired drawings. One of the drawings represented a fragmented picture of a common object, whereas the other was constructed by rotation of the elements of the coherent gestalt. When Ss were unable to name the object, they were asked to make a forced-choice decision regarding which of the 2-drawings represented a real object. Results show that the proportion of pictures not correctly identified that were nevertheless correctly selected as coherent was significantly higher than chance. The current experiment replicated there findings with 64 undergraduates. It was also shown that a study phase with either coherent or incoherent picture primes can bias
intuitive judgements in the test phase in accordance with a processing view.

Clement (1994) discussed evidence from thinking aloud case studies that indicates that part of the knowledge used by expert problem solvers consists of concrete physical intuitions rather than abstract verbal principles or equations. The case study examples focus on a number of observable behaviours in transcripts, including imagery reports, depictive hand motions and references to using intuition [Ss] were advanced doctoral students or Professors in technical fields by expert problem solver” means a person who is an experienced problem solver in a technical field.

[Propose] hypothesized cognitive structures and processes that can account for these behaviour patterns hypothesize the use of dynamic imagery in conjunction with perceptual motor schemas in order to account for cases where the S appears to be “running and imagistic simulation” of an event on the basis of a physical intuition. [Presents evidence] indicating that imagistic simulation can be used to make knowledge that is implicit in a physical intuition more explicit attempts to online an initial framework that describe
basic relationships between physical intuitions, imagery imagined actions, implicit knowledge and mental simulation. McKenzie (1994) through Monte Carlo simulation, the accuracy of several intuitive strategies for co-variation assessment and Bayesian inference under general conditions was investigated. Conditions under which most of the intuitive strategies well or badly were characterized. Results indicate that under some general conditions, all the intuitive strategies perform much better than chance and may perform surprisingly well. Some simple environmental variables have large effects on most of the intuitive strategies, accuracy, not just in terms of the number of errors, but also in terms of the kinds of errors (e.g. incorrectly accepting vs incorrectly rejecting a hypothesis). Furthermore, common to many of the intuitive strategies is a disregard for the strength of the alternative hypothesis. Thus, a key to better performance in both tasks lies in considering alternative hypothesis.

Redford and Gaa (1995) investigated the relation between the sensing (S) - intuition (N) dimension of the Myers Briggs type indicator (MBTI) and moral development using 2 samples of 74 Ss each who were administered the MBTI and
the defining issues test (DIT) - correlation coefficients were computed for the perceiving scores of the DIT and for the continuous scores of each of the 4-preference scales of the MBTI. The coefficients of the two samples were statistically pooled and results supported the hypothesis that, of the 4 personality dimensions of the MBTI, the S-N dimension would be the only one to have a positive relation with Ss level of moral reasoning.

Miller (1995) described the process used to verify characteristics of intuitive nurses that supplied the framework for construction of Miller intuitiveness instrument (MII).

Evidence for validity of the MII was provided by examining factor analysis and correlations with the intuitive component of the Myers Briggs type indicator (MBTI) with 228 nurses. The following characteristics were subsequently verified intuitive nurses are willing to act on their intuitions, are skilled clinicians, incorporate a spiritual component in their practices, express an interest in the abstract nature of things, and are risk takers. Intuitive nurses prefer intuition to sensing (as reflected by the MBTI) as a way of take in information. They are extroverted and express confidence in
their intuitions, nurses who delay making decisions until all
the information is in and more intuitive than those who
make decisions abruptly.

Shirley and Langan (1996) reviews the available literature
on intuition and related concepts, including tacit knowledge,
insight and creativity. Definitions of intuition are discussed,
and attempts have made to distinguish among intuition,
insight and creativity. Relationships between intuition and
tacit knowledge and intuition and creativity are explored.

Types of intuition are proposed by F.E. Vaughan
(1979) and P. Goldberg (1989) are described, as are
hypothesis about how intuition works. Available empirical
research is presented along with a number of possible
avenues for other research.

Vanrooij (1996) explored the relationship between the
Jungian psychological functions of sensing (SN) and
intuition (INT) and preference for art among 179 Dutch
university and high school students. Preference for SN or
INT was accessed with the Myers – Briggs type indicator.
Form G (MBII) SS rated how much they liked 20 realistic
paintings over abstract one’s. INT SS did not show a
pronounced preference for any specific style, but were more apt to like abstract paintings than were SN Ss.

Gills and Deschutter (1996) examined intuitive syllabifications of disyllabic words with a single intervocalic consonant in 55 and 56 years olds and 58 year olds. The children syllabified Dutch disyllabic words with a single intervocalic consonant that were presented orally to them. The aim was to find out if these syllabifications adhered to the universal principles of syllable structure and if the children’s syllabifications witnessed or overruling of the universal phonological constraint by language specific one’s. Results indicate that universal principles are sufficient to explain syllabifications. Except for obligatory onset formation, other principles act as soft constraints that are influenced by factors such as stress and vowel and consonant quality. A language specific constraint proposed in the phonological literature, namely bimosaic minimalty, is hypothesized to be result of children’s familiarization with the spelling corrections.

Taggart and Lowe (1997) examined differences in responses to the 6 rational intuitive scales of the personal style inventory in relation to gender, age, ethnic group, birth
country, occupation and industry. Data were collected from 495 participants in training programmes in Australia, England, New Zealand and the US. Multivariate analysis of variance indicated no differences among groups on the 6 scales when they are not sensitive to the characteristics so separate norming scores are not indicated. Lack of differences between sexes contrasts with the finding that women score more intuitive than men on other style assessment tools findings are not, however, consistent, since characteristics other than gender may show similar disparate results, further study of rational – intuitive commensurability is needed.

Norenzayan and Nisbett (2002) examined cultural preferences for formal vs intuitive reasoning among 273 east Asian (Chinese and Korean), 187 Asian American, and 292 European American university students. The author’s investigation categorization (studies 1 and 2) conceptual structure (study 3) and deductive reasoning (studies 3 and 4). In each study a cognitive conflict was activated between formal and intuitive. Strategies of reasoning. European Americans, more than Chinese and Koreans, set aside intuition in favour of formal reasoning. Conversely, Chinese
and Koreans relied on intuitive strategies more than European Americans. Asian Americans, reasoning with either identical to that of European Americans, or intermediate. Differences emerged against a background of similar reasoning tendencies across cultures in the absence of conflict between formal and intuitive strategies.

Drewes, A.A. (2002) notes that among DR L.E. Rhine’s collection of over 30,000 letters of spontaneous adult Psi experiences were separate files containing 216 acceptable cases received between 1961 and 1977 from school age children (aged 10-18 years) 148 of the letters specially recounted 157 spontaneous Psi experiences. These cases were compared with S.A. Schouten’s (1982) analysis of 1,620 randomly selected adult – only Psi experiences letters for the Rhine collection. The children’s experiences were analysed. According to Schouten’s categorises, resulting in precognitive dreams (PDS: 52.2%) and intuitive experiences (IES: 25.1%) chi-square analysis yielded a significant difference between the two samples for PDS, IES and waking secondary experiences. Two thirds of the children’s letters were from females, the highest connection for the percipient with acquaintances, and very low reporting of
experiences with parents. Same sex target person prevailed in PDS and IES for male and female percipients 14.8% of the reported PDS were about. The children themselves and 8.9% about their pets. The highest percentage of precognitive content was around trivial events (54.1%) compared with death (18.5%) or serious injury (19.3%) also in contrast to Schouten’s data. Several case examples are provided.

Bamberger (2003) tracing the compositional process of two musically untrained college students, this close case study demonstrates their ability try to produce archetypal tonal melodies, even when working initially within the constraints of tonally and metrically ambiguous melodic materials. The two students were representative of a sample of about 75 who participated in a new approach to music fundamentals supported by novel, interactive computer music environment. Student’s, logs including their compositional sketches, decision-making, analysis of progressive modifications and completed compositions, served as evidence and data for analysis. It is argued that, when students work at their own pace, with immediate sound feedback, can modify given materials and trace access to
multiple representatives at differing levels of detail they are able to make explicit their intuitive criteria for compositional decision-making, as well as proposing an intuitive model of a sensible tune.

Frantz (2003) H. Simon made overlapping substantive contributions to the fields of economics, psychology, cognitive sciences, artificial intelligence, decision theory, and organization theory. Simon’s work was motivated by the belief that neither the human mind, human thinking and decision making, nor human creativity need be mysterious. It was after he helped create “thinking” machines that Simon come to understand human intuition as subconscious pattern recognition.

In doing so he showed that intuition need not be associated with magic and mysticism, and that it is complementary with analytical thinking. This paper will show how it overlaps in his work and especially his work on (artificial intelligence) affected his view towards intuition.

Betsch and Plessner (2003) conducted a laboratory experiment, the author’s compared the relative impact of two possible determinants of intuitive evaluative judgements. Case of recognition and total value of prior
encounters with a target, normal participants encoded daily return values of shares on the stock market while watching. Videotaped ads on the computer screen. This dual task procedure ensures that participants subsequently lack relevant event memories and thus have to rely on their intuition when evaluating the targets. In the presentation, the share appearing least frequently—pro frequently produced the lowest sum of returns. Evaluative judgements reveal a preference for the share with the highest sum of returns, although evident from recognition latencies, it was the one that was more difficult to recognize. The results provide evidence for the value—account model of implicit attitude formation, which predicts that intuitive evaluative judgements reflect the total value of prior encounters.

STUDIES RELATED TO MENTAL ABILITIES AND CREATIVITY

The present researcher could not find any study directly related to the topic of the present research. However, few studies deals with general mental ability and creativity are cited below.

Kulshreshtha (1956) conducted a study on a representative sample of 1520 students studying in literary, scientific and commerce stream of X and XI classes of the Board of High
School and Intermediate education, Uttar Pradesh. Non-verbal test of intelligence (group test 70/23) from relation test (both prepared by National Institute of Industrial Psychology, London) and Jalota’s group test of general mental ability were employed as measure of intellectual ability and examination marks served as the measures of attainment. The coefficient of correlation between the three measures of intelligence and academic achievement obtained in the study, were not high, yet they clearly indicated that students belonging to scientific stream both at the high school and intermediate level possessed a higher level, of intelligence than those belonging to literary and commercial groups.

Mishra, S.L. (1967) made an attempt to study the variations of intelligence with occupational training course, age, sex and locality. The findings showed that fifteen year old boys received higher score and lowest score and the medium score was received by sixteen, seventeen and eighteen year old boys. Boys did significantly better than the girls and high scores of physical science group showed significantly higher total in two tests but there was no significant difference in the total with high score of engineering group.
Olton (1967) investigated the extent to which thinking and problem solving ability of fifth grade students could be improved by the use of self instructional programme lesson (The productive thinking) it showed statistically significant increments in thinking and problem solving performance on a wide variety of a productive thinking measures. These instructional benefits occurred for virtually all types of students, regardless of sex or general IQ level and were specially mark, for the students in classroom having in environment which were judged to provide relatively and little support and encouragement for the development of productive thinking.

Pandey, R.N. (1970) study was concerned with the testing of general mental ability among five well-defined social classes. The sample of 800 students studying in classes from standard VIII to the undergraduate stage in Gorakhpur district. The tools used were the social class evaluation scale, specially prepared by the investigator and Jalota’s group test of general mental ability. The major findings were:-

(i) Each social group differed from the rest, significantly, on mental ability scores.
(ii) Students belonging to the upper end of the continuum of social class scored better on the various elements of the mental ability test.

(iii) Differences among students in general mental ability became smaller with the advancement of age and education.

(iv) Mental ability was found to be susceptible to differences in social levels.

Berglund, Gosta W. (1970) 418 Swedish children (11 years old) were divided randomly into four experimental groups. Three mental ability tests of the factor type were administered to the groups by means of four different sets of instructions. In the first group, the tests were presented as intelligence tests and the second group as achievement tests. The third group received the original instructions of the tests, and the fourth group received routine instructions.

It is concluded: (a) That the four instructions do not differentiate the groups in power tests, and (b) that the routine does not affect the Ss’ working speed to the same degree as the other instructions.

Passi, B.K. (1972) conducted a study to explore the relationship between creativity and intelligence on the
students of higher secondary schools of Punjab. The test employed for this purpose were Passi’s test of creativity, Jalota’s group test of mental ability and Raven’s standard progressive matrices. The coefficient of correlation obtained between creativity and intelligence was 0.26 and 0.33 respectively. He obtained curvilinear relationship between creativity and intelligence which suggests the possibility of a threshold point beyond which the two scores did not correlate.

Khetena (1973) conducted a study to find out the effect of creative thinking strategies with children between the ages of five and eleven to think creativity. Teachers were trained for there patterns of teaching. The result showed that the training to think creativity with pictures influences the creativity of children in terms of figural flexibility, originality and evaluation, specially at the kindergarten and grade one levels.

Collahan (1973) attempted to find the effects of a programme called mark I creative programme on creative thinking of sixth grade students. The results indicated that those was a trained towards high mean scores for the experimental group.
Rai (1974) attempted to investigate the relationship between intelligence and achievement. The sample consisted of 1000 students of science (Biology) matched on the basis of socio-economic status. Jalota's group test of general mental ability served as a measure of intelligence. The investigation revealed that intelligence was significant for better achievement.

Nair, P.M. (1975) conducted a study of personality characteristics of creative high school pupils. The objective of the study was to solve the problem of identification of the creative pupils in the classroom by simple observation of the adjusting nature of their personality. The findings of the study revealed that creative pupils were found to differ from non-creative pupils in respect of the adjustment variable (2) the creative pupils were better adjusted than the non-creative pupils, personally as well as socially (3) the non-creative pupils exhibited the highest degree of anxiety whereas, the creative pupils exhibited the least degree of anxiety.

Kumari K. (1975) conducted a study of relationship among creativity, intelligence, and adjustment and value patterns in adolescence age ranged from 13 to 19 years. Sample of
the study comprises one thousand subjects including 500 girls and 500 boys. Intelligence, adjustment, creativity tests were the tools used for the study. Important hypothesis were (i) There is a positive and significant relationship between creativity and intelligence, creativity and adjustment,. Creativity and value pattern (ii) the level of adjustment is not dependent on the amount of intelligence – following were the important findings (a) there was no significant relationship between intelligence and creativity, creativity and adjustment (iii) level of adjustment was significantly related to the amount of intelligence. (iv) Intelligence had no place in patterning of the value system among adolescents and so no specific value was related to intelligence.

Dharmangadan, M.A. (1976) carried out an analytical study of creativity in the school children. The study was intended to determine the relationship between creativity and intelligence, temperament, motivation and certain selected environmental factors. Product moment coefficient of correlation, partial correlation of three analysis of variance and covariance were the statistical techniques. Findings of the study revealed that intelligence (both verbal and non-
verbal) was found to correlate highly with creativity. (2) The relationship between the different components of SES index and creativity indicate a differential pattern. (3) The family size showed only a weak relationship with creativity (4) Extracurricular activities showed no relationship to creativity.

Gupta (1977) studied the relationship of creativity with self-concept on a sample of 1000 boys and girls of 12\textsuperscript{th} in Jammu city. A verbal and nonverbal battery of MIER, and the Deo’s personality word list were used as the measure of creativity and self-concept respectively. This study confirmed the theories of Allport, Rogers and Maslow. The result highlighted the healthier self concept and higher self acceptance as important personality characteristics conducive to higher creativity. Highly creative individuals were found to possess higher self concepts and higher acceptance both of which were conducive to better adjustment, yet the presence of a common factor between the two variables was not borne out by the results.

Ameerjan, Girja and Bhadra (1978) attempted to investigate the relationship between general mental ability and academic achievement. The sample consisted of 224 fresh
men of veterinary and agricultural sciences. Ravon’s progressive matrices was employed as measuring tools of mental ability. The study revealed that academic achievement was significantly related to general mental ability.

Asha, C.B. (1978) Carried out an empirical study of the adjustment patterns of creative children in secondary schools. The study attempted to find out another highly creative children different from their less creative peers indifferent areas of adjustment such as home, health, social and school adjustments and whether better adjusted children differed from their maladjusted peers in creative performance. A test of creative thinking abilities, an adjustment inventory, a school adjustment inventory and personal adjustment inventory were the tools. The sample comprised 1,100 students of standard X drawn from twenty four high school in Trivandrum district in Kerala. The study revealed that none of the group classified on the basis of creativity showed significant difference in health, social and school adjustment areas, for the boys and girls. (ii) the three creative groups among boys showed significant difference in emotional adjustment (iii) only two sub groups
(high and moderately creative group) of boys showed significant differences in home adjustment.

Singh, R.P. (1979) conducted a study of creativity in relation to adjustment, frustration and level of aspiration. The study was aimed at (i) to find out the nature and extent of the relationship between creativity and adjustment, creativity and frustration reaction and creativity and level of aspiration (ii) To study the predictors of creativity. Six hundred (600) male students of class IX and X were randomly selected as the sample of the study, creative thinking by Mehdi, adjustment inventory by Sinha and Singh, frustration test by Chauhan and level of aspiration test by Shah and Bhargawa were the test employed for the investigation. Statistical techniques used included t-test, product moment correlation and multiple regression analysis. The major findings were (i) creativity was found to be positively and significantly related to total, social and educational adjustment at 0.05 level, but creativity was not found to be significantly related to emotional adjustment. (2) The value of multiple regression coefficient between creativity and adjustment, aggression and level of
aspiration was found to be significant at 0.05 level, while others were insignificant.

Qureshi, A.N. (1980) conducted a study of creativity in relation to intelligence, manifest anxiety and level of aspiration of high school girls. The study was undertaken to know (i) how and at what level intelligence, anxiety and level of aspiration are related to creativity (ii) how much and in that way intelligence, anxiety and level of aspiration influenced creativity (iii) The dynamics of aspiration. Statistical technique involving analysis of variance and coefficient of correlation were used. The sample was drawn from Firozabad town and three hundred girls of high school and intermediate classes were selected creativity test of Mehti, group test of mental ability (Jalota), STAT by Sharma and Singh and level of aspiration inventory (Patel). Findings of the study revealed that intelligence was significantly and positively related to intelligence (ii) Anxiety appeared to be a positive correlated of creativity (iii) intelligence, anxiety and aspiration promoted creativity and its components (iv) aspiration were related to creativity and its components.
Maddu, V. (1980) carried out an investigation of some personality correlates of intelligence and creative abilities among high school students in Andhra Pradesh. Major objectives of the study were to investigate the relationship of certain variables to creativity. The sample consisted of 474 boys drawn from various high schools, in the two cities of Hyderabad and Secundrabad cluster and multistage sampling technique was adopted in the selection of sample. Passi’s test of creativity, a group test of general mental ability, and high school personality questionnaire. Major findings were (i) the high creative group was found to be negatively correlated ($r = -0.096$) with intelligence (ii) Personality characteristics of the high creative groups (iii) The high as well as low creative groups did not show any significant correlation with intelligence.

Pandey R.C. (1981) conducted a study of creativity as related to rural urban background, sex, socio-economic status and formal education with special reference to the high school students of Kumaun division. The main objectives of the study were to find out the relationship between creative factors and SES of students and to study the incidence of creativity and compare its pattern among
males and females as well as rural and urban students. The sample was selected on the basis of stratified random sampling techniques, comprising 400 students of class VIII. Findings of the study revealed a positive trend in case of the upper SES group with creativity while a negative trend appeared in group with the lower SES (ii) No significant difference between mean creativity scores of boys and girls. (iii) There was evidence of significant difference between the mean creativity scores of the samples of rural and urban students.

Jarial (1981) conducted a relational study between creativity and intelligence with reference to sex. Torrance test of creative thinking and Jalota’s General Mental ability tests were employed on 200 male and female students of class IX. He obtained a positively significant relationship between the verbal and non-verbal creativity and intelligence.

Singh, K. (1982) made an extensive study of creative thinking in relation to some cognitive and non-cognitive variables. The sample consisted of 370 students from grade VIII, IX and X. Jalota’s general mental ability test, personality inventory, McClelland’s test of achievement
motivation were employed on the sample. The important results obtained from the above study were:

(i) Boys achieved significantly higher mean scores than the girls on the measures of creative thinking.

(ii) Creativity was found to related positively and significantly with intelligence among boys and girls.

(iii) Creativity had positive and significant relationship with the academic achievement of boys and girls.

(iv) The introversion, extroversion and neuroticism, emotional stability scale had negative relationship with creativity.

(v) Achievement motivation had positive and significant relationship with creativity.

Singh, O.P. (1982) conducted a study of creativity in high school students in relation to intelligence and socio-economic status. The sample of the study consisted of 400 rural and 400 urban high school students. Joshi’s test of mental ability was used, for the assessment of intelligence, Baqer Mehdi’s test was used for the measurement of creativity and information about socio-economic status of the family was collected with the help of questionnaire. The
main findings of the study were (i) The mean intelligence test score of the science students was significantly higher than that of the arts students (ii) In general the SES of the urban students was higher from rural areas. (iii) The mean creativity score of the urban students was higher than that of the students from rural areas (iv) the main creativity score of science students was higher than that of arts students.

Mehrotra, S. (1986) studied the relationship between intelligence, socio economic status, anxiety, personality, adjustment and academic achievements of 535 class student. The tool used was Jalota’s group general mental ability test. The finding suggested that there is a positive relationship between intelligence and academic achievement.

Myrs S. (1986) made a study to find out the relationship between problem solving abilities and synthesis, the sample of the study includes fourth, fifth and sixth grade gifted students. The instrument used was the Weschler intelligences scale for the children revised (Wisc-R) and the Ross test of higher cognitive abilities. The findings of the studies indicate that
(i) There was a significant relationship between grade level and problem solving abilities.

(ii) No significant relationship was found between problem solving skill and grade level of general intelligence on all the subjects of the Ross and the Wisc-R except for Ross sub test VIII. The sub-test had a positive relationship with the Wisc-R verbal and scale sector.

Desai, N.N. (1987) carried out an investigation into the creative thinking abilities of students of higher secondary of Gujrat State in the contest of some psycho-socio-factors. Main objectives of the study were (i) to study the trend of creative thinking ability of pupils of higher secondary schools. (ii) To study the creative thinking ability in relation to different socio-economic levels and (iii) To study creative thinking ability in relation to scholastic achievement, anxiety and reasoning. Sample of the study was 608 students from rural and urban area both girls and boys SES scale by B.V. Patel and Arora. The anxiety scale by Nighawan, the percentage marks obtained by the students at SSC examination were the tool of the study. ANOVA was the statistical technique. The investigation revealed that (i)
there exists no difference in creative thinking ability of urban and rural higher secondary students. (iii) There was no significant difference between the means of high SES students (iii) there was no difference between the means of science and common stream students.

Sudhir, and Muraleedharan, (1987) investigated in to science achievement in relation to intelligence and SES. The sample comprised of 146 male and 165 female secondary school students. They were administered a science achievement test, a group test of intelligence and SES scale. Findings, revealed that SES and intelligence are positively related with science achievement, i.e. high socio-economic status and high intelligence subjects and higher science achievement scores than low SES and low intelligence group.

Mc Duffie Harriet, E. (1988) attempted to study the effect of intelligence, creativity and cognitive style on success in composition. The main aim was to study the effect of intelligent, creativity and cognitive styles on success in composition. The sample of the study consists of 109 college freshmen at a small Southern Public University. The findings of the study demonstrate that students with high
performance scores in writing are more affected by intelligence and cognitive styles than by creativity. In fact, creativity score on originality had no co-relational significance with success in academic writing performance.