CHAPTER – III
REVIEW OF RELATED STUDIES AND HYPOTHESES

At the initial stage of the present study, the search for related literature was carried out in relation to cognitive, non-cognitive and academic achievement with a view to seeking some guidelines from the work of previous researchers which could be of some help to the present investigation. The results of some of the related studies are discussed below to formulate hypotheses and get insight into variables.

3.1 INTELLIGENCE AND ACADEMIC ACHIEVEMENT

Intelligence is a correlate of academic achievement has been established as is evidenced by the studies reported by Rao (1965), Mohan et al (1975) and Gupta et al (1976).

Passi, (1972) found scholastic achievement to be significantly influenced by intelligence.

Joshi and Bajwa (1975) found no significant correlation between intelligence and academic achievement in Physics, Chemistry and Mathematics.

However Gupta (1976) found negative (.007) and insignificant correlation between achievement in Hindi and intelligence.

Singh, et al (1977) showed significant correlation between intelligence and achievement.

Dixit, (1985) in her study found that in the case of boys there is very high correlation between intelligence test scores and academic achievement whereas in the case of girls there was an average
correlation between intelligence test scores and academic achievement.

- **Sibia (1989)** found no relationship between intelligence and achievement in Mathematics.

- **Meena (1999)** and **Kumar (1994)** found positive and significant correlation between intelligence and achievement in Biology.

Positive and significant correlations between intelligence and achievement in English have been established by **Kaur (1983)** and **Kalie (1981)**.

- **Patel (1992)** in his study, “An inquiry into the scholastic achievement in the context of intellectual ability, creativity, personality traits, family background and other personal variables of talent search scholars of Gujarat”, found positive and significant relationship between intelligence and academic achievement.

- **Sawhney (1993)** concluded that above average and average ability students secured significantly higher score than the below average students irrespective of teaching strategy.

- **Mishra (1997)** in his study, “Correlates of academic achievement of high school student in India”, found positive and significant correlation between intelligence and achievement.

- **Bajwa (1998)** found that intelligence and achievement in Physics were positively correlated.

### 3.2 EMOTIONAL INTELLIGENCE AND ACADEMIC ACHIEVEMENT

**Dhaliwal (1971)** studied some factors contributing to academic success and failure among high school students and personality
correlates of academic over achievers and under achievers. The obtained results revealed that superior study habits, reservedness, high verbal ability, emotional adjustment and security feeling corresponded with over achievement whereas inferior study habits, outgoing tendencies, low verbal ability, emotional instability, assertiveness, poor emotional and home adjustment insecurity feeling were associated with academic under achievement.

**Lal (1980)** conducted a comparative study of emotional stability of mentally superior and average adolescents and concluded that the superior group as a whole is significantly better adjusted in areas of health and emotions and average group is significantly better in school adjustment.

**Sabapothy (1986)** examined the relationship between variables: anxiety, emotional and social maturity, socio-economic status and academic achievement of students. He found emotional maturity was positively and significantly related to achievement in individual and subjects and total academic achievement.

**Peter (1998)** a pioneer of emotional literary initiative in British Schools, launched a range of activities in schools for promoting emotional stability in schools. Activities like anger management group, antibullying training and seminars in emotional intelligence for everyone from governor to playground attendant were organized. After the schools made emotional intelligence a priority, the percentage of children achieving good grades rose from 8 percent to 39 percent. Peter Sharp put it as “when we feel good we work good”.
Ohm (1998) confirmed a link between healthy emotional skills and personal and academic achievement.

Tapia (1998) explored the relationship of emotional intelligence and academic achievement and found that there existed a low relationship between emotional intelligence and academic achievement.

Khera and Kaur (1999) and Gandhi (2001) found no significant difference in emotional intelligence of boys and girls. Miglani (2001) found a significant relationship between emotional intelligence and academic achievement.

Kaur, (2001) conducted study on “Emotional maturity of adolescents in relation to intelligence, academic achievement and environmental catalysts”, on a sample of 356 adolescents. The findings revealed: (a) emotional maturity and intelligence were found to be closely related; (b) no significant relationship was found between emotional maturity and academic achievement; (c) no significant differences were found in emotional maturity due to area, sex and type of school; (d) students of government schools were found to be more emotionally mature than private schools.

Manhas (2004) in her study on a sample of 400 Xth class students of Jammu region found a positive and significant correlation between emotional intelligence and academic achievement.

Lekhi (2005) in her study on a sample of 939 adolescents revealed significant correlation between academic achievement and emotional maturity. In other words, she found that academic achievement and emotion maturity go side by side in same direction.
3.3 CREATIVITY AND ACADEMIC ACHIEVEMENT

The relationship between creativity and achievement was first of all systematically examined by Getzels and Jackson (1959, 1962), who selected a creative group consisting of children high on creativity but not commensurately on I.Q. and an intelligent group consisting of children high in I.Q., but not commensurately high in creativity. They reported that the achievement scores of both the groups were equally superior to the achievement scores of population as a whole. The findings of Getzels and Jackson were supported by a series of the studies conducted by Torrance (1960), Cooper and Richmond (1975). They expressed the fact that those superior in creative ability have greater potentiality for success in academic pursuits as compared to their counterparts having lower ability in divergent production.

Pathak (1961), Flescher (1963) and Taylor (1958) have shown no relationship between creativity and academic achievement.

Cline Richard and Needham (1963) followed the design of fisher-Doolittle’s multiple correlation and found that the creativity tests have considerable predictive value for achievement of both boys and girls.

Passi (1971) aimed at exploring the relationship between creativity on one hand and variables of intelligence, scholastic achievement, sex and residential background on the other hand. The result of his study established a correlation of 0.385 between creativity and achievement.

Passi (1971) and Asha (1983) also found positive and significant correlation between creativity and achievement.
Gakhar (1985) found significant and positive correlation between mathematics achievement and measures of creativity. Yadav (1985) concluded that creativity can be fostered among the students by providing suitable academic environment. Hence curricula formulated keeping in view the I.Q., academic achievement and age of learners will have a profound influence on the development of creative abilities. The high inter correlations among intelligence, academic achievement and creativity indicate that creativity can be fostered within the individual by providing enriched academic achievement.

Kaur (1992) in her study, “Relationship among creativity, intelligence and academic achievement in different subjects of X-grades”, found positive and significant correlation between measures of creativity and academic achievement.

However Kapoor (1996) in his study, “A study of creative thinking ability of high school pupils of Arunachal Pradesh in relation to their sex and academic achievement”, found that the mean scores of high and low achievers do not differ significantly on the variable of creativity.

Sood (1999) in her study on 460 students of X+1 stage (260 from residential schools and 200 from non residential schools) found that out of all measures of creativity only fluency has significant positive correlation with the mathematical achievement of the students in case of residential school students.

Prasad (2002) also found significant positive correlation between mathematical creativity and achievement.
3.4 PROBLEM SOLVING ABILITY AND ACADEMIC ACHIEVEMENT

Das (1978) investigated the relationship of self concept with sex difference, problem solving ability, cognitive style and school achievement. A total of 360 subjects drawn randomly from the primary and middle schools located in rural areas participated in the study. Tools used were intellectual achievement, responsibility scale, Self-concept scale, concept learning, logical ability and school achievement. It was found to be significant in case of cognitive style, problem solving and school achievement.

Sodhi and Gill (1996) conducted the study with the objectives to determine whether the training strategies affect creative problem solving skills or not and also to find out if the cognitive style affects the creative problem-solving skills or not. The sample for this study was 240 students of class IX taken randomly from four schools of Ludhiana (Punjab) study revealed that right brain training strategy emerged as a superior strategy to traditional method. So far as creative problem solving skills in mathematics are concerned, students became more fluent, flexible and original in solving problems.

Rajnish (1998) in his study on a sample of 600 students of X+1 class taken from senior secondary school of Punjab state revealed that variable of problem solving ability was found to be significantly positively correlated with the scientific creativity as obtained t-value was significant at 0.1 level of significance.

Sood (1999) also obtained correlation between problem solving ability and mathematical achievement to be significant.
Prakash (2000) found that there is significant relationship between the problem solving ability and mathematical creativity and mathematical achievement.

3.5 STUDY HABITS AND ACADEMIC ACHIEVEMENT

Often the parents and the teachers are at a loss to understand the reason for the discrepancy between the ability of their children and their actual accomplishment. At least, part of the contribution to the condition is likely to come from poor study habits or lack or training in study. Occasionally, a slight change in the way of studying makes ordinary performance into superior one. So, there is a reason to believe that many students who fail could succeed if they from effective study habits.

Lewis and Leona (1954) found sex differences in study habits of school students. The study revealed that boys liked tales of adventure where as the stories of home and school life have been liked by girls student.

Vedavall (1956) of Shri Padamavali college for Women, Tirupati administered the Study Habits Inventory of Krishna to 130 boys and 83 girls studying in intermediate and degree classes allotting 4,3,2,1 marks to positive items. Negative statements were scored in reverse order. The analysis showed following conclusions:

1. No students may be classified as very good in his study habits.
2. Men students show better study habits than women students.
3. No difference is noticed in the study habits of intermediate and degree class students.
Review of Related Studies and Hypotheses...

4. Students coming from rural areas show slightly better study habits than those from urban areas.

5. First born student show better study habit than students who were born to their parents subsequently.

6. The educational level of the parents has no influence on study habits of children.

7. Individual students vary in habits of study.

**Jamaur (1958)** conducted an investigation in some of the psychological factors underlying the study habits of the college students with the help of study habits inventory. The findings have suggested that study habits are positively related to academic achievement.

**Jamaur (1961)** conducted a research on Study Habits Inventory and made an investigation into some psychological factors underlying the study habits of college students. The sample consisted of college students in Patna. The findings have suggested that:

1. Study habits are positively related to academic achievement but are not dependent on scholastic aptitude.

2. Though study habits are not related to extroversion, introversion, they are related to general personal adjustment as well as home, health, social and emotional adjustment.

3. Some environmental factors are related to study habits. Lighting has positive relationship.

**Srivastava (1965)** pointed out that for good academic success, good study habits and positive attendance is importance.
**Review of Related Studies and Hypotheses...**

*Jamaur (1974)* observed that study habits effect scholastic achievement, independent of intelligence. He also found that study habits is related to:

(a) Position in the family (b) Father's occupation (c) Hobbies (d) Future educational & vocational plan of study.

*Nirmal Kanta (1979)* concluded that there is no significant difference in study habits of boys & girls.

*Bala (1990)* in her investigation found that there is a positive relationship between study habits and academic achievement.

*Gelat (1999)* investigated into the effect of study habits on educational achievement of students of secondary schools, his main findings were:

1. There is no significant positive effect of study habits on educational achievement of students of secondary schools.
2. There is no significant effect of sex on educational achievement of students of secondary schools.
3. There is no significant effect of study habits and sex on the educational achievement of students of secondary schools.

*Dinesh (2003)* found no significant differences in the study habits of high, average and low achievers.

### 3.6 HOME ENVIRONMENT AND ACADEMIC ACHIEVEMENT

*W.J. Capbell (1952)* in a study, “Influence of home environment on educational problem”, concluded that home environment affects secondary school achievements. He has suggested that the children who were progressing beyond expectation at centre schools, gained on the average higher scores on scale designed to measure the social and cultural level of the home.
Review of Related Studies and Hypotheses...

**Plowden Report (1967)** on a study of government schools in England found family and home environment as a most significant factor in affecting academic achievement of students.

The environment provided to the children by their home has drawn the attention of Jagannathan (1986) significant difference has been observed between high achievers and low achievers on the home variable namely educational environment, income spatial environment, social background provision of facilities and parent child relationship.

In the study of Dwivedi and Sharma (1987) on 40 IXth class boys studying in two government high schools of Bikaner in Rajasthan, it was concluded that home environment in the form of orthodox nature of family, its economic background, family dispute and lack of opportunities are some of the important factors which affect the creativity and achievement of the students.

Nirmala (1992) concluded that parent rejection and acceptance have an impact on child’s school achievement.

Rani (2003) in her study concluded positively significant correlation between home environment and achievement in political science.

Gaur (2005) in her study found significant positive correlation between home environment and academic achievement of students.

### 3.7 Hypotheses

The present study was conducted to test the following hypotheses:
1. (a) There exists positive and significant relationship between academic achievement in Biology and intelligence.
   
   (b) There exists positive and significant relationship between academic achievement in Biology and emotional intelligence.
   
   (c) There exists positive and significant relationship between academic achievement in Biology and creativity.
   
   (d) There exists positive and significant relationship between academic achievement in Biology and problem solving ability.

2. (a) There exists positive and significant relationship between academic achievement in Biology and study habits.
   
   (b) There exists positive and significant relationship between academic achievement in Biology and family environment.

3. The increase in the prediction value after step up addition of each variable of intelligence, emotional intelligence, creativity, problem solving ability, study habits and home environment would be significant towards the prediction of academic achievement in biology.

4. (a) There would be significant difference in the achievement in Biology due to high and low level of intelligence.
   
   (b) There would be significant difference in the achievement in Biology due to high and low level of emotional intelligence.
Review of Related Studies and Hypotheses...

(c) There would be significant difference in the achievement in Biology due to high and low level of creativity.

(d) There would be significant difference in the achievement in Biology due to high and low level of problem solving ability.

(e) There would be significant difference in the achievement in Biology due to high and low scores on study habits inventory.

(f) There would be significant difference in the achievement in Biology due to rich and poor family environment.