CHAPTER-III

REVIEW OF RELATED STUDIES AND HYPOTHESIS

Research takes advantages of knowledge which has accumulated in the past as result of constant 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 a study proposed by a research. A careful review of the research Journals, dissertations, theses and other sources of information on the problems is one of the important steps in the planning of any research study.

Realizing the importance of review, Best (2001) says, “a familiarity with the literature in any problem, area helps the students to discover what is already known, what others have attempted to find out, what methods have been promising and disappointing and what problems remained to be solved”. Further the study of related research literature helps in avoiding duplication, guides in carrying out of investigation successfully and makes the researcher familiar with the steps involved in it.

Therefore, in this chapter review of related research studies have been presented with a view to get generalizations and frames the hypotheses for the execution of present study.

3.1. COGNITIVE STYLES AND ACADEMIC ACHIEVEMENT

Graffin (1982) conducted a study entitled “An investigation style on field dependence/field independence dimension and their writing process” and reported that Field
Independent subjects obtained higher realistic scores than dependent subjects.

Rahul (1983) reported that field independences have positive relationship with total achievement and in different school courses. More the field independence, higher the achievement of the students.

Phuvipadawat (1984), in his study, analysis that field independent subjects achieved significantly high scores in mathematics achievement test than the field dependent subjects.

De (1985), compared cognitive style and cognitive ability of tribal and non-tribal students of high school. The findings indicated that tribal students were more oriented towards field dependence than non-tribal.

Nelson (1986) studied the effect of field independent and field dependent cognitive styles on achievement on telecourse and found that students with field independent style scored higher grades than students with field dependent styles.

Guerrieri (1987), studied the relationship of cognitive style to English proficiency, reading and mathematics achievement in second grade Hispanic children. The findings elicited from these analyses demonstrated that cognitive style did not appear to be related to reading or to mathematics achievement.

Jai Prakash, Rai and Srivastava (1989) studied cognitive style of field independence / dependence among tribal and non-tribal children. Results showed that tribal children were found
to be significantly field dependent than non-tribal children. Sex difference was found in case of non-tribal children favoring males. But no sex difference was found in cognitive style of tribal children.

**Hota, N. (1991)** concluded that field independent subjects perform better on cognitive measures than did field dependent ones.

**Verma and Swain (1991)** Studied the effect of cognitive style on scholastic achievement and showed that field independent cognitive style group obtained significantly higher mean scores in English, maths, general science, social studies, drawing and in total than their field dependent counterparts.

**Verma and Sheikh (1992)** studied the relationship between cognitive styles and the academic performance. Cognitive style of 98 girls, and 87 boys studying in four higher secondary schools of Jammu province was measured through GEFT and achievement is measured in terms of aggregate marks obtained by each student in previous 10th class examination. The results showed that the co-efficient of correlation between scores of cognitive style and academic performance was found positive and significant (P<01).

**Venugopal (1994)** has concluded on the basis of his study that achievement was not related to cognitive style. Field independent and field dependent pupils do not differ in their achievement in biology.
Kusuma (1998) found that 41% of tribal children were field dependence and higher percentages (55%) of non-tribal children were field-independence.

Kumar (1998) studied the interaction of approaches to study the cognitive style on achievement in biological science. The findings revealed no significant, main effect on cognitive style on achievement in Biology.

Caken (2000) found that the cognitive styles had a significant effect on students performance.

Verma and Sharma (2000), conducted a study on 120 adolescents of IX class of Bharatpur city with the objectives to compare the academic achievement of adolescents possessing independent and dependent learning styles in respect of hindi, english, mathematics, general science, social studies and total area of study. It was found that the group of dependent learning styles students was significantly better than the group of independent learning styles students so far as achievement in social studies was concerned. There was no significant difference between mean scores of achievement in hindi, english, mathematics, general science, social studies and total area of study in respect of competitive and collaborative learning style groups.

Kirk (2000) investigated the relationship of cognitive style and achievement in chemistry. Results indicated that field independence has significantly correlated with academic achievement in chemistry.
Panda, S. & Tripathy, S. (2005) found that there is correlation between cognitive styles and scholastic achievement.

Kumar (2006) in his study on a sample of 205 tribal and 202 non-tribal students studying in 12th class in Hamirpur and Kinnaur districts of Himachal Pradesh found that tribal and non-tribal students differed significantly with respect to field independent and field dependent cognitive styles. Further non-tribal students were found to be higher on field independent-cognitive styles.

Geetangali (2007) conducted “a study of academic achievement in relation to cognitive styles and hemisphericity at secondary stage” and found that cognitive styles had a significant effect on students academic achievement. More the field independence of the students, higher the academic achievement.

3.2. ACADEMIC ACHIEVEMENT AND LEARNING STYLES

Carter (1948) worked on the topic “correlation between method of learning and achievement” and found some positive correlation between methods of learning and achievement.

In 1974 Canfield and Lafferry developed an instrument for measuring the relative learning style preferences of students for academic conditions, contents and modes of learning. The instrument was field tested on a wide variety of college students in prevocational and professional programmes, including physical therapy. The learning styles inventory includes the personality and attitudinal variables were believed to influence the teaching learning process. The significant differences
between male and female students scores were found on inventory. Women were found to have a higher preference for organization qualitative content whereas men preferred numeric and inanimate content. Women also expressed a higher expectancy of receiving a letter grade of “B” than did males.

Afif (1977) studied “the effect of accommodating students learning styles on academic achievement and attitude towards algebra”. The results concluded that gender played significant role in this study. Male students who were taught by the method of instruction corresponding to their learning styles preferences had slightly higher attitudinal gain scores and consistently higher achievement gain scores than male students who were taught by the traditional lecture method. On the other hand, female students who were taught by the methods of instruction that accommodated their learning style preferences had higher attitudinal gain scores and relatively no change in academic achievement.

The purpose of Payton, Hueter and Marianne (1979) study was to describe the learning style preferences of students enrolled in their first year of basic professional programmes in physical therapy in the United States in the academic year 1975 to 1976. The testing instrument used was the learning styles inventory developed by Canfield and Lafferty. A sample of 1,009 (40.5% of total population) was collected. The results have been tabulated using descriptive statistics of means and standard deviations for: 1 Total sample, 2 men and 3 women. The mean scores for men and women are not separated because they are almost the same as for the total sample. The one exception is
that men had a significantly higher preference for competition than did women. Although competition was low for both groups. The typical or average physical therapy student in the first year of his processional program is neutral. The differences between men and women were extremely slight.

Torrance and Sato (1979) reported that different cultures and educational systems influence people’s ways of processing information.

Hopkins (1982) has reported that there is no significant was difference in the learning styles of the students, due to sex differences.

Soliman and Torrance (1986) undertook research on Japanese, American and Kuwaiti college students’ learning and thinking styles and observed that Japanese students preferred an intuitive approach, and the American students favored an integrated approach to problem solving.

Kirk (1986) found that learning styles measured through Kolb’s LSI were correlated to grade point average and accommodators earned the highest GPA’s in higher education.

Verma and Kumari (1988) conducted a study on learning style preferences of senior secondary students in relation to their sex. The sample of 105 male and 105 female students were randomly selected for the study. The results of the study indicated that male students differed significantly with female students, with regard to their preferences for individualistic vs. non-individualistic learning styles. Female students tended to have relatively more preference of field independent learning
Female students showed relatively more liking for environment oriented learning style in comparison to male students.

Joy (1991) investigated the impact of learning style factors on college students’ retention and achievement. The purpose was to determine the effect of exposure to different level of learning styles information on the academic achievement and retention rate of full time college freshman students. The results of the study established no significant impact of learning style factor on college students achievement. Burkey (1993) found the same results.

Verma and Sangeeta (1992) made a study entitled- “an ex-post facto study of relationship of family climate and learning style”. A sample of 200 girl students was selected. The findings of the study reveal that family climate of adolescent girl students was not significantly related to their learning preference. There is an evidence to support the idea that field independent students achieved higher in academic than field dependent students. 

Susabda (1992) reported that learning style of the average and below average students tended to be more concretely dimensional while superior students tended to be more abstract in their thinking.

Huang and Sisco (1994) reported that Chinese students scored as more pragmatic than the American group and the Chinese men and American women scored as more Idealistic than the Chinese women and American men.
Mickens (1995) in a study found that learning style had no correlation to achievement of adults in a training partnership. In this study learning styles were measured by Kolb's learning style inventory.

Pederson (1995) observed that there is no significant difference in the learning style of the students on the basis of gender differences.

Goodwin (1995) in his study indicated that students taught by instruction that matched their preferred learning style, had significant gains in academic achievement, significant high achievement resulted, among previously failing students when they were taught with strategies and complemented their learning style preferences.

Verma and Sharma (2000) conducted a study on 120 adolescents of IX Class of Bharatpur City with the objectives to compare the academic achievement of adolescent students possessing independent and dependent learning styles in respect of hindi, english, maths, general science, social studies and total area of study. It was found that the group of dependent learning styles students was significantly better than the group of independent learning styles students so far achievement in social studies was concerned. There was no significant difference between mean scores of achievement in hindi, english, maths, general science, social studies and total area of study in respect of competitive and collaborative learning style groups.

Jones (2000) in his study, "Are learning styles subjects are sensitive?" reported that there were statistical significant
differences in students learning preferences by academic achievement.

Bernardo (2001) reported that American students differed from Hong Kong students and Filipino students with regard to factor structures of thinking styles.

Srivastava (2002), in her study found that most popular learning style of students is accommodating learning style and second popular learning style is convergent. The study also revealed that students following convergent learning style scored better in science than the students following other learning styles. Also students learning styles and their intelligence were related with each other. It was found that high socio-economic status of the students facilitates accommodative learning style. Most of the students with low SES preferred convergent learning styles. Study also showed difference in learning styles of boys and girls. Most of the girls preferred convergent and accommodative learning styles and very few girls preferred divergent and assimilative learning styles whereas all the four learning styles were preferred by almost equal number of boys.

Verma (2004) concluded her study on a sample of 120 senior secondary students. These students were drawn from two Tibetan schools located in Shimla and Dharmshala and Indian students from two Govt. Senior Secondary Schools of Shimla (HP). The culture and gender were considered as independent variables and 13 thinking styles were regarded as dependent variables. It was found that Indian Students had significantly stronger preference for legislative, conservative and monarchic thinking and lower preference for global and internal styles of
thinking than tibetan students. It means Indian students like more to create, invent, design or think in his/her own way and requires little structure. Further he/she likes more to adhere to rules and prefers that he/ she has one good or single way of doing thing and devotes more his/her all time and energy to it than tibetan students. On the other hand tibetan students prefer more to deal with the larger and global issues, generalitizes and abstractions.

Among males, Indian males were observed to be characterized more by legislative, conservative oligarchic and internal thinking styles and to be characterized less by global and external thinking styles than Tibetan students. These studies suggest that Indian male students show more preference for number of goals, treating them of equal importance than tibetan students. In females, Indian females exhibited stronger preferences for legislative, executive and monarchic styles of thinking. In females Indian sample, gender differences was noticed in case of only one thinking style, i.e. oligarchic style. Male students had more preference for many goals than female students.

Singh (2006) conducted a study on 465 students (27 males and 447 female) studying in B.A III class in the degree colleges of Punjab state. He revealed students differed significantly in their academic achievement on artistic, aesthetic vs. temporal interest due to significant t-value at .01 levels. Further students having preference for artistic and aesthetic interest achieved higher in the subject of fine arts as compared to their counterparts who had preference for temporal interest.
Significant differences are obtained on the variable of academic achievement of students in Fine Arts due to three learning styles i.e. preference for divergent thinking style vs. preference for convergent thinking style; preference for creative thinking style vs. preference for intellectual thinking style, preference for imaginative thinking style vs. preference for analytical thinking style. Mean scores clearly revealed that students having preference for divergent thinking style and preference for imaginative thinking style achieved higher in the subject of Fine Arts as compared to their counterparts who had preference for convergent thinking styles and preference for analytical thinking style. Also male and female students differed in their academic achievement and results were in favour of female students.

_Narula (2007)_ in her study on “the academic achievement in Mathematics in relation to emotional intelligence, creativity, learning style and mathematics aptitude of high school stage” found significant correlation between the learning styles and academic achievement of students.

### 3.3. ACADEMIC ACHIEVEMENT AND STUDY SKILLS

_Abraham (1973)_ revealed that study habits do not play significant influence on English achievement.

_Kanta (1979)_ conducted her study with the objectives to find the study habits of boys and girls living in urban and rural areas. She concluded no difference in the study habits of urban and rural areas, however, science students scored higher on student habits inventory as compared to students studying arts subjects.
Shejwal (1980) investigated the study habits of college students affiliated to Pune University. Study was conducted on 360 boys and girls living in hostel. Sample comprised of students belonging to urban and rural areas and studying in 10+2, B.A./B.Sc. (I) IInd and IIIrd year. Study revealed that boys were having better study habits as compared to girls. The entire students were having problems related to task orientation.

Sexana (1981) conducted his study on 720 boys and girls of 15-18 years age. In his study he observed that study habits of students belonging to rural areas were better as compared to the study habits of students belonging to urban areas.

Dubulle (1989) studied the study habits of first generation learners. The major findings of the study were that first generation learners were at disadvantages as they were found poor in various areas of study habits. Parents and family background play a great role in framing study habits of the children. In case of first generation learners, the teacher has to play a great role in directing the studies of disadvantaged children. His help is required not only in the classroom but out of the classroom also.

Bala (1990) in her study found positive relationship between study habits and academic achievement.

Bhargava (1990) studied the study habits and academic achievement of secondary school students. Study was conducted on 150 boys and girls of Agra city. Study revealed that there was no significant difference in the study habits of boys and girls.
Patel and Patel (1996) in their enquiry study habits of pupils and its impact upon their academic achievement. The findings were – high achievers were having better study habits as compared to low achievers. There was significant difference in the study habits of boys and girls.

Jain and Munjal (1998) investigated the study habits of B.Ed. students. It was found that on an average 33% pupil teacher are present in the class and they write the notes of a teacher. These students were having the habits of taking notes from other sources such as journals, reference books, newspapers etc. It was also noted a that these notes help them in preparing for the final examination.

Gelat (1999) investigated the effect of the study habits on educational achievement of the students of secondary school. His main findings were: there is significant positive effect of study habits on educational achievement of the students of secondary schools. There is no significant effect of sex on educational achievement of the students of secondary schools.

Sharma (2002) in her study on a sample of 400 girls and 400 boys and living in family and hostel of Maharani Gyatri Devi School, Banasthali Vidyapeeth and Arya Vidyapeeth of Jaipur of Rajasthan concluded insignificant difference in the study habits of girl students living in family and hostels.

Verma (2001) found that there was no significant difference in the study skills of science and Arts group.

Dinesh (2003) found significant difference in the study habits of Arts and Science students but Science students were
not different from Commerce Students in their habits.

Bania (2004) in her study found no significant difference between the study habits of boys and girls of IX class due to TV viewing.

Gakhar (2005, 2008) investigated the study skills of bachelor of Physiotherapy students and concluded that there are significant positive correlation between goal orientation study skill and academic achievement and also scholarly skill and academic achievement. In other words higher the achievement of the students, stronger will be their preference for goal orientation study skill and scholarly skill. Thus higher the achievement stronger will be preference for goal orientation study skills (i.e. goal setting, goal compatibility goal striving, goal achieving progress) and scholarly skills (i.e. academic achievement and concentration). Present study also concluded that there are significant differences in the academic achievement of students due to low and high goal orientation study skill, low and high scholarly skills. Further differences in academic achievement are in favour of students who are high in goal orientation study skills, scholarly study skill and over all study skills. On the remaining five study skills viz, activity structure skill, lecture mastery study skill, text book mastery, examination mastery study skill and self mastery study skills no significant correlation were found between these skills and academic achievement.

The research literature reveals that study skills of students have not been sufficiently investigated in relation to academic achievement. Moreover there is contradiction in the
finding of previous studies. Therefore in view of the dearth of studies on study skills in India, the investigator thought it worthwhile to investigate the study skills of prospective teachers in relation to their academic achievement.

From the above review of literature, it has been found that very little work has been done in the area of learning and cognitive styles and study skills and their relationship with academic achievement and hence the need for conducting research in this area.

3.4 HYPOTHESES

1. a) There will be significant positive correlation between cognitive styles and academic achievement of prospective teachers.

2. a) There will be significant positive correlation between imaginative learning style and academic achievement of prospective teachers.

b) There will be significant positive correlation between analytical learning style and academic achievement of prospective teachers.

c) There will be significant positive correlation between precision learning style and academic achievement of prospective teachers.

d) There will be significant positive correlation between dynamic learning style and academic achievement of prospective teachers.

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3. (a) There will be significant positive correlation between goal orientation study skill and academic achievement of prospective teachers.

b) There will be significant positive correlation between activity structure study skill and academic achievement of prospective teachers.

c) There will be significant positive correlation between scholarly skill and academic achievement of prospective teachers.

d) There will be significant positive correlation between lecture mastery study skill and academic achievement of prospective teachers.

e) There will be significant positive correlation between textbook mastery study skill and academic achievement of prospective teachers.

f) There will be significant positive correlation between examination mastery study skill and academic achievement of prospective teachers.

g) There will be significant positive correlation between self mastery study skill and academic achievement of prospective teachers.

h) There will be significant positive correlation between study skills (total) and academic achievement of prospective teachers.

4. Joint effect of percentage variance will be more as compared to the individual prediction of independent
variables in predicting the dependent variable of academic achievement of prospective teachers.

5. There will be significant difference in the cognitive styles of male and female prospective teachers.

6. a) There will be significant difference in the imaginative learning style of male and female prospective teachers.

   b) There will be significant difference in the analytical learning style of male and female prospective teachers.

   c) There will be significant difference in the precision learning style of male and female prospective teachers.

   d) There will be significant difference in the dynamic learning style of male and female prospective teachers.

7. a) There will be significant difference in the goal orientation study skill of male and female prospective teachers.

   b) There will be significant difference in the activity structure study skill of male and female prospective teachers.

   c) There will be significant difference in the scholarly study skill of male and female prospective teachers.

   d) There will be significant difference in the lecture mastery study skill of male and female prospective teachers.

   e) There will be significant difference in the text book mastery study skill of male and female prospective teachers.

   f) There will be significant difference in the examination mastery study skill of male and female prospective teachers.
g) There will be significant difference in the self mastery study skill of male and female prospective teachers.

h) There will be significant difference between study skills (total) of male and female prospective teachers.

8. There will be significant difference in the cognitive styles of urban and rural prospective teachers.

9.a) There will be significant difference in the imaginative learning style of urban and rural prospective teachers.

b) There will be significant difference in the analytical learning style of urban and rural prospective teachers.

c) There will be significant difference in the precision learning style of urban and rural prospective teachers.

d) There will be significant difference in the dynamic learning style of urban and rural prospective teachers.

10. a) There will be significant difference in the goal orientation study skill of urban and rural prospective teachers.

b) There will be significant difference in the activity structure study skill of urban and rural prospective teachers.

c) There will be significant difference in the scholarly study skill of urban and rural prospective teachers.

d) There will be significant difference in the lecture mastery study skill of urban and rural prospective teachers.

e) There will be significant difference in the text book mastery study skill of urban and rural prospective teachers.
f) There will be significant difference in the examination mastery study skill of urban and rural prospective teachers.

g) There will be significant difference in the self mastery study skill of urban and rural prospective teachers.

h) There will be significant difference in the study skills (total) of urban and rural prospective teachers.

11. There will be significant difference in the academic achievement of male and female prospective teachers.

12. There will be significant difference in the academic achievement of prospective teachers belonging to urban and rural areas.