CHAPTER 2
REVIEW OF RELATED LITERATURE

INTRODUCTION

The present study summarizes the research studies related to the problem under investigation. Review of research studies is of fundamental importance to provide insight into the problem, to familiarize the research with the studies previously done, to make the research adopt suitable design and to ensure perfection in the study to be made. With this view, the researcher has attempted to review numerous relevant and pertinent studies: that have been undertaken by the educational researchers in Teacher effectiveness and these studies have been classified into five areas as follows:

1. Teaching Effectiveness
2. Teaching aptitude
3. Style of learning and think (SOLAT)
4. Cognitive Style
5. Academic performance

2.1 RESEARCH STUDIES ON TEACHING EFFECTIVENESS

2.1.1 Studies Related to Teaching Effectiveness at Primary Level

The first recorded study of teaching effectiveness (Kratz 1896) is one of the earliest pieces of Educational research of any kind to appear. Set a design percentage that was to be followed for many years.

Cheung, Hoi Yan (2008) conducted a study entitled “A comparative study of Hong Kong and Shanghai primary in-service Teacher on their Teacher Effectiveness” The study was conducted on a sample of 725 Hong Kong and 575 Shanghai primary in-service teachers. The study was aimed at comparing their
effectiveness based on classroom teaching techniques, relationship with the student and their parents, communication skill, classroom management efficacies, and knowledge in information and communication technology. The teachers from Shanghai proved to be more effective in maintaining good relationship with students and parents and possessing good communication skills.

Mathew (2006) conducted a study on “Teacher effectiveness and mental health among teachers in Kerala”. The total sample was 360 and 17 schools in kottayam district, Kerala were selected for the study. The major findings were:
(i) There was positive correlation between teacher effectiveness and mental health
(ii) There was significant difference in teacher effectiveness of teachers who have varied early life experience favoring sorrowing perception of childhood.

George K.S. (2004) conducted a research study entitled “Identification of Certain Factors Influencing the Optimum Utilization of Teacher Effectiveness in the Primary Schools of Kerala”. He conducted a detailed study about the factors affecting teacher effectiveness. He classified the factors into four dimensions viz (i) personal dimensions (ii) psychological dimensions, (iii) sociological dimensions and (iv) institutional dimensions. The major findings of his study are (i) Identification of factors that help effective teaching is possible (ii) The highest number of influential factors identified were belonged to psychological and institutional dimensions. (iii) The extraneous variables do not influence teachers, professional efficiency and (iv) He identified influential factors that help in optimum utilization of teacher effectiveness by factor analysis.

Kendall (2001) conducted a study to differentiate the instructional practices of Kindergarten teachers who were more effective, effective and less effective in producing high student achievement. The teacher sample consisted of nine Kindergarten teachers and 208 ethnically diverse students from four schools. These findings suggested that it was possible to discern some common characteristics of teachers who are more effective, effective or less effective producing high kindergarten achievement. Teachers who were identified as effective generally self-reported a more developmental philosophy and practices.
Interestingly, the effective teachers’ students had high first grade academic achievement. Students of one teacher who was classified as more effective and self-reported a developmental approach maintained high achievement in first grade.

Anand S.P (1996) Developed a motivational package to promote teacher effectiveness at primary level. Riggs and Enochs (1990) for their study “Towards the development of an elementary teacher’s science teaching efficacy belief instrument” developed science teaching efficacy belief instrument (STEBI) to measure efficacy of teaching science. They found personal science teaching efficiency (PSTE) factor and science teaching outcome expectancy (STOE) factor both contribute to science teaching efficiency. The two factors PSTE and STOE are uncorrelated. Those teachers with high sense of PSTE were found to spend more time for developing science concepts in students and enjoyed science activities, whereas those scored low on PSTE spent less time to teach science and used a text based approach.

2.1.2 Studies Related to Teaching Effectiveness at Secondary Level


Major Finding

1. The teacher in general have high teacher effectiveness and average emotional Intelligence average job involvement, average academic aspect of job involvement, average administrative aspect on job involvement and average teaching attitude.

2. It is found that the male and female of teachers differ significantly in their teacher effectiveness.

3. It is found that the Rural and urban teachers differ significantly in their teacher effectiveness and extension service.
4. It is found that the married and unmarried teachers do not signify in their teacher effectiveness, emotional intelligence, academic aspect, administrative aspect and teaching attitude.

5. It is found that the teachers teaching in primary school, high school and higher secondary schools differ significantly in their teacher effectiveness, job involvement, emotional intelligence, teaching attitude, academic aspect, administrative aspect, extension activities.

6. It is found that the teachers with working government and government aided school and private schools did not significant in their teacher effectiveness and significantly differ in emotional intelligence, academic aspect, administrative aspect extension activity. Teaching attitude.

7. It is found that the teachers with a monthly income of rupees 10,000 and below, rupees10001-20,000 and 20001 and above did not differ significantly in their teacher effectiveness and differ significant emotional intelligence, academic aspect, administrative aspect, extension activity, job involvement and teaching attitude.

8. It is found that among the emotional intelligence, academic aspect on job involvement, administrative aspect job involvement, extension activity on job involvement and teaching attitude a positively highly and significant related to teacher effectiveness.

9. Teacher effectiveness whole sample it is found that only 7.1%. High effectiveness 12.6%, Average effectiveness 4.8%, primary school teachers 17.1% and high school teachers 8.4% of the contribute in teacher effectiveness in due to the independent variable, namely emotional intelligence, academic aspect on job involvement, administrative aspect on job involvement extension activity on job involvement and teaching attitude, among independence variable emotional intelligence contribution more high school teachers 3.7% among the independent variable Teaching attitude contribute more.

**Problem:** The present study aims to ascertain whether school achievement varies in terms of types of schools, achievement-motivation of students and effectiveness of teachers.

**Objective:** To study school achievement as related to type of schools, students’ achievement-motivation and teacher effectiveness.

**Methodology:** (1) School achievement varied significantly in terms of the four types of schools with public and missionary schools having the highest achievement and government schools showing the lowest achievement. (2) Students’ motivation had no relationship with school achievement. (3) Teacher effectiveness was positively correlated with school achievement.

Babu, R. and Ganaguru, A. Selvaraj (1997), From their research study on the topic “Teacher effectiveness and involvement in teaching”. Reported that the sex and locality of the high secondary school teachers had no effect upon teacher effectiveness. Also, they found that teachers with research degree possessed greater effectiveness and competence.


**Major Findings:** (1) Teacher effectiveness was significantly affected by teaching aptitude, job satisfaction, job attitude, job motivation, personality, value pattern, self-concept, intelligence and organizational climate. (2) The variables like locality, type of school, level of educational qualification, grade and teaching experience also
determined teacher effectiveness to some extent. (3) Teachers’ satisfaction with the nature of work and working conditions, positive attitudes towards the children and the job, adaptability, mental ability, professional information, intelligence, knowledge value, intellectual self-concept, political value and some job motivation factors, e.g. Peaceful quality of job, livelihood, influencing opportunity and enough leisure, were assessed as the paramount determinants of teacher effectiveness. (BS 0955)


Major Findings: (1) The open school organizational climate positively affected both the teaching competency as well as teacher effectiveness. (2) Teachers of Urban schools significantly excelled over teachers employed either in semi-Urban and rural schools or school located in industrial areas on both teaching competency and teacher effectiveness. (3) Females scored invariably high with insignificant differences in all types of schools, categorized in terms of territory, management type and organizational climate. (4) Moderately better teacher effectiveness was observed in schools under Christian management. (5) There existed a significant relationship between teaching competency and teacher effectiveness. (6) Teaching competency, territorial variables as well as school organizational climate yielded highly significant main effects, whereas sex and management types did not. (VPS 0859)

2.1.3 Studies Related to Teaching Effectiveness at College Level

Schulte et al. (2008) analyzed the characteristics of effective, high school teachers as perceived by 615 college students in relation to gender, ethnicity, students status and generational status. Qualitative analyses revealed the presence of 24 themes: caring, communication, creative, disciplinarian, fairness, flexible, friendly, fun, knowledgeable, listening, manages classroom, uses different modalities, involving, motivating, organized, passion for teaching, patience, builds
relationships, shows respect to others, challenges, service, teaches well and good personality.

**Arockiadoss, S.A. 2005.** *Teaching effectiveness of college teachers.*

**Objectives**

1. To investigate the extent of teacher effectiveness found among college teachers.
2. To study the influence of personal factors and institutional background of college teachers on their teacher effectiveness.

**Major Finding:** 1. The majority of the college teachers were effective only at a moderate level. 2. College teachers in the age group of 30-45 were effective in their subjects, a sense of humor and self evaluation. 3. Women teachers were effective in advising and guiding and possessed better skills of teaching and evaluation. Men teachers were effective motivators. 4. Arts teachers had mastery in their subjects and involvement in college activities. 5. Private college teachers showed more involvement in college activities. 6. Autonomous college teachers were equipped with higher teaching skills and were more involved in college activities. 7. Teachers involved in research and with research, degrees had mastery over their subjects, motivating skill and developed rapport with the students effectively.

**Ramakanta Mohalik, (2008).** *Impact of in-service Teacher education programs on teaching effectiveness and student achievement in English.*

**Major Finding:** 1. In-service teacher education has a significant impact on teaching effectiveness of secondary school English teachers taken as a whole. Teacher effectiveness of female and teachers having B.A B.Ed qualification is influenced by their participation in ISTE programmes. But ISTE did not have any impact on teacher effectiveness of male, urban and teachers having M.A., B. Ed qualification when considered separately. 2. The achievement of student in English is influenced by their teachers’ participation in ISTE. The achievement of rural, urban boys and a
girl student taught by teachers having ISTE is better than that of their counterparts taught by teachers without having ISTE.


**Major Funding:** 1. The I.Q of teacher trainees was found to be a useful predictor. 2. Teachers attitude towards their pupil did not show any significant relationship with teacher behaviour in the case of high achievers. 3. In the case of low achievers, it showed a negative significant relationship. 4. Students’ knowledge in their respective subject area was found to be the best predictor.

**Indira, B. (1997)** Studied on investigation into teaching effectiveness in relation to work orientation and stress.

**Major Findings:** 1. There was no significant difference between male and female lecture in their teacher effectiveness. 2. There was a significant difference in the teacher effectiveness and achievement orientation of two groups of lectures i.e. Below 35 years and above 35 years of age. 3. Experience had no significant influence on the teacher effectiveness of lectures.

**Tom (1996)** investigated the beliefs and ideas that pre service and in service teachers held about themselves as teachers, the student they teach, and the setting in I which they teach at the university of Wisconsin white water. The study revealed that teacher factors like, intelligence, personality, background and preparation program, contribute more to the overall effectiveness teachers.

**Srivastava (1990)** aimed to study the relationship between leadership style and effectiveness among the university teachers. The study reveals that the style -3 is positively correlated with effectiveness and most of the teachers followed style-2, high task-high relationship as their basic style.

The studies revealed that there is no difference in the teaching effectiveness of teachers with respect to age, gender, years of experience,
community, educational qualification and type of management, but there is a moderate relationship between teacher effectiveness and aspects like attitude towards teaching and classroom climate or organizational climate.

2.1.4 Studies Related to Teaching Effectiveness at Dimensions


Objectives: 1) To explore the dimensions of teacher-effectiveness in the subjects of science, English, Hindi, mathematics and social science, at three levels of education separately, 2) to discover the differences, if any, in the judgement of teacher effectiveness in science, English, Hindi, mathematics and social science, separately, and 3) to find out if the perception of teacher effectiveness in each of the subjects varied from level to level.

Hypotheses: 1) Teaching effectiveness will be characterized by a pattern of multiple dimensions rather than a single of specific dimensions. 2) The pattern of dimensions characterizing an effective teacher will differ from subject to subject, namely, among science, English, Hindi, mathematics, and social science. 3) The pattern of dimensions characterizing an effective teacher of a subject will vary at secondary school, college and university level. 4) There may be some dimensions common among subjects and among levels; however, the overall pattern of dimensions will be different for subjects and levels. The sample for the study comprised 1500 students (100 at each level in each subject) drawn from Himachal Pradesh university, Shimla, and various schools and colleges and universities. The semantic-differential technique was used for measuring perception of teacher effectiveness. The data were analyzed factor ally for extracting the dimensions of teacher effectiveness in the subjects of science, English, Hindi, mathematics, and social science. The number of factors varied between 14 and 20 for different subjects at different levels. These factors pertained, two different cognitive and affective characteristics of teachers, style of teaching, designing of teaching materials, interaction with students, etc.
Jenson (1951) employed a new approach, namely critical incident technique based upon the suggestion reported by Flanagan and his co-workers at American Institutes of Research to define criteria of teaching effectiveness. The different dimension included in the study are 1. Depth of knowledge, 2. Interpersonal relation with students 3. Delivery organization 4. Relevance 5. Testing 6. Grading 7. Assignment and work load and 8. Ability to motivation.

Mitze (1967) recommended four types of classification of information that is necessary for the investigator who seeks knowledge in this area of teacher effectiveness there are.

Type I Variable (prediction sources). Human characteristics on which teacher differ and which can be hypothesized to account-impair for difference in teacher effectiveness. Type II variable (contingency factors) contingency factor is those which modify and influence the whole complex of behaviors that enter into the academic process. Type III variable (Classroom Behaviour) classroom behaviour of teacher and pupils. Type IV variable (criteria of effectiveness or intermediate educational goals) criteria or standards, consisting of intermediate educational goals, i.e. the measurable outcomes at the end of a period of instruction at distinguished from the ultimate criterion which might be phased as “A better world which to live”

2.1.5 Studies Related to Teaching Effectiveness as Student Teachers

Singh (2002) Conducted a comparative study of job satisfaction of teacher educators in relation to their values, attitude towards teaching and teaching effectiveness. The sample of 250 teacher educators was taken from the college of education affiliated to Punjab, G.N.D. and Punjabi Universities. The results of the study showed that job satisfaction and attitude towards teaching were positively related to each other. Teacher effectiveness was also found to be positively and significantly related to job satisfaction.

Vasanthi and Anandi (1997) conducted a study on 417 B.Ed. Student-teachers in Madras City. It was found that intelligence, self-concept and attitude towards teaching of the female pupil teachers were significantly related to teaching
effectiveness. Teaching attitude showed the highest correlation with teaching effectiveness as compared to self-concept, achievement, motivation, anxiety and intelligence of the B. Ed students.

Sundara Rao, et al, (1990) investigated teacher effectiveness as an observational study by using 90 teaching staff through the observational technique. They found that sex has no significant affiliation with teacher effectiveness scores. However, in the case of patience and sympathy, women teachers are better than men teachers. In all other aspects men teachers are better than women teachers. Less experienced teachers appear to be pupil oriented showing more effective social and classroom skills. Language and humanities teachers were less friendly, science teachers were stereotyped and humanities teachers were more communicative. However, there may not be any definite trend in favor of any sub-group of teachers. Post-graduates were outstanding in most of the aspects over the graduate teachers. Positive and strong association is found between teacher effectiveness and the attainment of the B.Ed. level.

Bose (1993) studied the correlates of teaching effectiveness of 160 student teachers and found that positive significant relationship exists between teacher effectiveness and each of the predictor variables like intelligence, teaching attitude, self-confidence and previous academic achievement.

In a study of role perception beliefs held by early childhood preservice teachers, student teachers and classroom teachers, Kahlick (1993) identified important factors in teaching roles; and highlight areas of discrepancy between what teachers believe to be important and “real world” practice.

Al-Babtain (1982) found that there is no significant relationship between teacher-student interaction and teaching effectiveness.

2.1.6 Studies Related to Teaching Effectiveness at the Survey of 12 strategies

Ronald A. Berk (2005) Twelve potential source of evidence to measure teaching effectiveness are critically reviewed: 1. Student rating 2. Peer rating

National standards are presented to guide the definition and measurement of effective teaching. A unified conceptualization of teaching effectiveness is proposed to use multiple source of evidence, such as student ratings, peer rating and self-evaluation, to provide an accurate and reliable base for formative and summative decisions. Multiple sources build on the strengths of all sources, while compensating for the weaknesses in any single source. This triangulation of sources is recommended in view of the complexity of measuring the act of teaching and the variety of direct and indirect sources and tools used to produce the evidence.

2.1.7 Studies Related to Teaching Effectiveness at Teaching Competency

Adle Rosenthal (1995) identifies the following seven competencies of an effective teacher:

**Competency I:** Subject matter knowledge: The effective teacher demonstrates knowledge of the subject matter field, as described under each teaching certificate.

**Competency II:** Communication Skills: The effective teacher: (a) communicates sensitively with language appropriate to students’ ages, levels of development, gender, race and ethnic, linguistic and socioeconomic backgrounds, as well as individual learning styles and needs (b) interacts with students, families, and colleagues.

**Competency III:** Instructional Practice: The effective teacher: (a) understands typical human development and is familiar with principles of curriculum and instruction, including strategies for integrating special education students into regular classroom settings and developing and implementing Individualized Education Plans (IEPs). (b) Reading and language arts as appropriate to the age, learning style and developmental stage of the learner (c) makes curricular content relevant to the experiences of students from diverse racial, socioeconomic, linguistic
and cultural backgrounds; (d) organizes and manages a classroom to support the
growth and learning of diverse students and (e) uses methods that develop students’
academic and social skills; works effectively with families and community sources.

**Competency IV:** Evaluation: The effective teacher: (a) designs and uses various
evaluative procedures to assess student learning (b) evaluates his or her own
teaching behaviour, and uses the results to improve student learning.

**Competency V:** Problem Solving: The effective teacher: (a) thinks critically about
teaching and learning (b) fosters student’s creative and analytical thinking skills.

**Competency VI:** Equity: The effective teacher: (a) deals equitably and
responsibly with all learners (b) understands the impact of western and non-
western civilizations on contemporary American culture and (c) uses this knowledge
to develop appropriate strategies.

**Competency VII:** Professionalism: The effective teacher (a) understands his or her
legal and moral responsibilities; (b) learns from experience and supervision; (c)
understands the impact of social problems that can affect student learning negatively
and uses appropriate strategies to address such issues.

Studies related to Teaching effectiveness on demographic variables:

**2.1.8 Studies related to Teaching Effectiveness at Gender**

**Vajaravelu (2009)** There were significant difference between male and
female of teacher effectiveness. There was a significant relationship between teacher
effectiveness and its factors such as preparation and planning for teaching,
classroom management, knowledge of subject-matter its delivery and presentation
for teaching. Teacher characteristics and interpersonal relations in the case of male
and female of government, Government Aided and private schools.

**Bansibihari Pandit and Lata Surwade (2006)** in their study on the
effect of emotional maturity on teacher effectiveness found that female teachers
were emotionally more mature/stable than male teachers, and emotionally more mature/stable teachers were more effective.

Cheung (2006) found that female teachers were significantly more efficacious than male teachers. Years of experience were weakly but significantly related to levels of Efficacy, and that educational level did not have a significant effect on efficacy level.

Amandeep and Gurpreet (2005) endeavored to find out the impact of teaching competency on teaching effectiveness. The sample of the study included hundred teachers out of which 50 were male and 50 were female teachers. The results of the study showed that female teacher is more effective than male teachers. The correlation between teacher effectiveness and teacher competency was found to be positive and significant.

Biswa and De (1995) The study on teacher effectiveness was found that only male and female teachers different significantly on teacher effectiveness and the female teachers were comparatively much more effective than their counterparts.

Das (1995) Studied teacher effectiveness in relation to intelligence, emotional maturity, self concept and attitude towards teaching. It was concluded that teachers with high intelligence were more effective in teaching than low intelligent teachers. A significant difference was found in the male and female teachers regarding teacher effectiveness. Male teachers were found more effective than female teachers. Roy (1978) reported no sex difference of teaching success between male and female teachers. Chhaya (1974) found that sex had a significant relation with teacher effectiveness.

2.1.9 Studies Related to Teaching Effectiveness at Subject Discipline

study revealed that experienced teachers who are recognized as effective constructivist teachers, performed much better than new teachers in most of the sub-categories of constructivist approach. But in some categories the new teachers outperformed the experienced teachers and achieved “Student Centre”. The findings support the fact that future educators should be taught the theory of constructivist and how to use it for effective teaching-learning process.

Khalaf (2000) attempted to explore variables related to chemistry achievement to 12th grade science in the United Arab Emirates (UAE). The sample included 204 males and 252 females in 66 classes in 60 schools from 10 districts or bureaus of education in the UAE. The results of the multiple linear regression indicated that the factors of prior Student Achievement, Student Perception of Teacher Effectiveness and Teacher Experience and Expertise accounted for 45% of the variance in school chemistry achievement. The results indicated that the strongest predictors of chemistry achievement and prior achievement in science, Arabic language and mathematics; student perception of teacher effectiveness or teacher experience and expertise.

Kumar S. (1991) researched on the topic “Teacher effectiveness among different groups of teachers in relation to personality traits”. He conducted the study in different subjects by teachers like science, Arts and commerce. The study revealed that there was no significant relationship between teacher effectiveness and personality traits among all the different groups of teachers.

Haddad (1985), in his study “Teacher Training: a Review of World Bank Experience: observed that experience of teachers as well as their academic qualifications indicate their effectiveness. Though it is not necessary that high quality leads, to high efficiency, there seems to be a high need of knowledge and skill that teachers must possess for teaching different subjects at different level.

2.1.10 Studies Related to Teaching effectiveness at Type of Management

Kaur (2008) studied job satisfaction, occupational, stress and value dimensions as correlates of teacher effectiveness. A sample of 1000 teachers was
selected from Government secondary school teachers of four districts of Punjab, namely, Ludhiana, Patiala, Mukatsar and Moga. Data were collected by different scales like teacher effectiveness scale by Kumar and Mutha, Job satisfaction scale by Sharma and Singh, study of the value scale by Ojha and self constructed occupational stress scale. The result of present study reflects that: The government secondary school teachers are average in their effectiveness; highly effective teachers were more satisfied with their jobs than less effective teachers. Further the study has shown that job satisfaction is a positive correlate of teacher effectiveness; Occupational stress is a negative correlate of teacher effectiveness. Also the teachers who are under high occupational stress are less effective; Theoretical, aesthetic and social values are found to be positive correlates and economic and political values are found as negative correlates of teacher effectiveness.

Vijaylakshmi and Mythill (2004) studied the influence of personal variables (Age, Martial Status, sex) and professional variables (Experience, qualification, subject of teaching, designation, level of colleges and types of college management) on the teacher effectiveness and work orientation of 220 teachers working in junior colleges, degree colleges, and professional colleges of the Vizianagaram district of Andhra Pradesh. Results showed that there was a significant difference between the teachers up to 35 years and above 35 years of age, married and unmarried, teachers with different designation and working with junior and degree colleges with regard to their teaching effectiveness. Regarding their work orientation, significant difference existed between married and unmarried, male and female teachers, teachers of different cutters, between junior and degree college staff and government and private college teachers. The positive and moderate relationship was present between teacher effectiveness and their work orientation. Teachers of above 35 years age, married teachers, female teachers, assistant professors and degree college teachers are more effective than their counterparts.

Mortimer (1994), from his study “School Effectiveness and Management of Effective Learning and Teaching”, found that the effective teaching skills as follows (i) Organizational skills needed to sort out material and sources of information (ii) Analytic skills to break down complex to simple (iii) skills for
synthesizing i.e. To build up ideas for arguments (iv) skills of presentation (v) skill in conducting assessment (vi) managerial skills and (vii) evaluative skill.

**Kaur (1993)** compared the relationship of intelligence, creativity and aptitude for teaching with teacher effectiveness on a sample of 220 school teachers. The study concluded that intelligence was significantly correlated with teacher effectiveness of Navodya School teachers, but it was not significantly correlated with the teacher effectiveness of traditional school teachers.

**Rancifer (1993)** from his study “Effectiveness Classroom Management: A teaching Strategy for a Maturing Profession”, claims that effective teachers adopt effective classroom strategies, maintain order, instruct efficiently and promote appropriate student behavior.

**2.1.11 Studies Related to Teaching Effectiveness at the Locality**

**Selsor (2003)** sought to examine the differential importance in primary dimensions of effective teaching as perceived by a sample of rural and suburban community college students and to analyze the teaching had learning implications. Students from 4 community colleges (N=337) were asked to rate 31 descriptive statements which encompass 9 dimensions of effective teaching and respond to one open ended question as stated in the student’s evaluation of educational quality. The quantitative results indicate that rural and suburban community college students rate dimensions related to communication skills the highest; instructor enthusiasm, individual rapport and group interaction in that order conversely, students rated dimensions related to learning and content among the lowest; learning value, breadth of coverage and assignments/readings, is that order.

**Raj (2000)** conducted a study on teacher effectiveness of secondary school teachers in relation to motivation to work and job satisfaction. The study was conducted on 100 secondary school teachers from 22 schools (both rural and urban) of Shimla District of Himachal Pradesh. The findings of the study showed that teacher motivation to work has significantly effected upon teacher effectiveness, i.e. Those having higher levels of motivation to work do effective teaching. The
conclusions drawn from the study were that teacher effectiveness was positively correlated with the level of motivation to work and teacher effectiveness was not significantly related to job satisfaction.

Biswa, Chandra and Tinku (1995) examined the effectiveness of secondary teachers in relation to sex of the teacher, location of school (rural and urban), management (Government and Private), type (boys, girls and coeducation) and organizational climate of schools. Results reveal that female teachers were more effective; whereas location and management of schools have no significant influence on teacher effectiveness; the teachers of schools with an open climate were most effective while those in schools with a closed climate were least effective.

Rao (1995) studied the relationship between teacher effectiveness, creativity and interpersonal relationship with teachers. The findings revealed that no significant relation was found between teacher effectiveness and the income or years of service of the teachers. However, a significant relationship was found between teacher effectiveness, creativity and interpersonal relationships of teachers and significant differences existed between rural and urban teachers with reference to interpersonal relationships.

Singh (1988) Studies teaching efficiency in relation to job satisfaction and SES of secondary school teachers and its was found that teaching efficiency or rural and urban trained and untrained teachers do not differ significantly.

2.1.12 Studies related to Teaching effectiveness at Educational Qualification

Patil and Deshmukh (1993) examined the relationship between teaching aptitude and teaching efficiency among pupil teachers at B. Ed level. The study was conducted to examine the relationship between the score of teaching aptitude and teaching efficiency of 238 B.Ed pupil teachers. Finding of the study reveal that (1) The male and female pupil teacher differed significantly on their teaching aptitude in favour of the female pupil teachers. (2) The graduate and post graduate pupil teachers also differed significantly on teaching aptitude in favour of the post
graduate pupil teachers. (3) Teaching aptitude of science and art groups did not differ significantly.

Sharma, R.D. (1984) conducted a study on “Student Teachers and Teaching Experiment in Education”. From his studies found that mere academic qualification can not be considered as the criteria, for success of a teacher. Effective teacher would go extraordinary lengths to understand their student and they put the relationship between teacher and students at the centre of effective teaching.

2.1.13 Studies Related to Teaching Effectiveness at the Nature of the Institution

Sushanta Kumar Roul (2007) Study of “Teacher effectiveness of Autonomous and Non- Autonomous College Teachers” reported that there was a significant difference between autonomous and non-autonomous college teachers on teacher effectiveness.

2.1.14 Studies Related to Total Teaching Effectiveness: New conception and improvement

Yin Cheong Cheng (1996) Based on the traditional conception of teacher effectiveness, process three strategies for improving it: short-term, long term and dynamic strategies. Proposes a new conceptual framework of total teacher effectiveness, were by the total quality of the teacher competency layer contributes to the total quality of the teacher performance layer and the latter contributes to the total quality of the student learning experience layer and then to the quality of the student learning outcomes layer and explains that the framework suggests a holistic approach to improving teacher effectiveness with the emphasis on the improvement of whole layer of teacher competence and performance instead of fragmentary improvement of teaching behavior. Advises that in order to ensure total layer quality and maximize teacher effectiveness, a congruence development cycle should be established with the teacher layer to ensure congruence and pursue total teacher effectiveness. It suggests that the proposed conceptual framework can provide a
new direction for studying and improving teaching effectiveness in particular and school effectiveness in general.

2.1.15 Studies Related to Teaching Effectiveness at Teaching Aptitude

Dr. vijayalaxmi Manu and Dr. yellappa. P (2013) “Teaching effectiveness of secondary school teachers in relation to their teaching aptitude” result Female and Government secondary school teachers have higher teaching effectiveness when compared to their counterparts. Rural and more experience secondary school teachers have a higher Teaching aptitude when compared to their counterparts.

Kumar (1999) studied teacher effectiveness among scheduled caste and non-scheduled caste teachers in relation to their teaching aptitude and self concept. Sample comprising 502 school teachers was drawn from government high and senior secondary school of 8 district head quarters of Punjab by employing multistage stratified randomizing technique. To study the interaction effect of caste, teaching aptitude and the different aspect of self awareness upon teacher effectiveness of secondary school teachers, 2X3X3 ANOVA was used. The main findings of the study were:

1. Teachers having high teaching aptitude as well as an ideal self concept was more effective.

2. Significant differences existed in the teacher effectiveness belonging to different levels of teaching aptitude.

3. Caste made no significant effect upon teacher effectiveness irrespective of teaching aptitude and ideal self-concept.

4. There was no significant interaction among the variables of caste, teaching aptitude and social concept on teachers’ effectiveness.

Beena(1995) found that teaching aptitude is a significant predictor of teaching effectiveness.
Shah (1991) found that teachers’ effectiveness has significantly affected by teaching aptitude, job satisfaction, job attitude, personality, value, pattern, self-concept, and intelligence organization climate.

Kukreti (1990) studied on some psychological correlates of successful teachers. Result found that there is a positive relationship between aptitude and success in teaching.

Bhasin (1988) studied teaching aptitude and relationship with teaching effectiveness of the high secondary school teachers in relation to the modern community and found that teaching aptitude had a significant and positive correlation with teaching effectiveness, but it had no direct relationship with teacher community participation.

Veera Ragavan and Arunkumar (1988) observed that there exists a significant difference in academic performance of students taught by highly effective teachers and those taught by low effective teachers. Singh (1987) found a positive and significant correlation between teaching aptitude and teaching effectiveness.

Vyas (1982) Teaching aptitude is one of the major determinants of teacher effectiveness. Female teacher trainees have a positive and significant relationship between teaching aptitude and teaching effectiveness. But teaching success when assessed by “Teacher’s Self Rating Measures”, found no relationship between teaching success and teaching aptitude of either male and female teachers.

Vashishta (1973) in a study of predictive efficiency of admission criteria for B. Ed study found that the academic grades, teaching aptitude and attitude towards teaching to be the best predictors of teacher effectiveness. Sharma (1971) In the study of predictors of teaching effectiveness found that, besides other variables such as academic grades, socioeconomic status, teaching experience, teaching aptitude is also a predictor of teacher effectiveness.
2.1.16 Studies Related to Teaching Effectiveness at Hemispheric Dominance

Dunn (2000) cites “learning style is a biologically and developmentally determined set of personal characteristics that make the identical instruction effective for some students and ineffective for others”.

Borgert (1991) studied the effectiveness of right brain stimulation on creativity in writing and it was found that both the right and left hemispheric preference groups demonstrated an increase in creativity. But there was no significant difference between the creative expression of those children with a right hemispheric preference. The females showed a greater change in creative expression than the males. It was also found that children in the classroom of the teacher with right hemisphere preference were more creative than those of the teacher with the left hemisphere preference.

Reitz (1986) studied the thinking styles of school administrators and their relationship to leader effectiveness and indicated that there was no relationship existed between the thinking styles and leadership effectiveness of school administrators. The human information processing survey was used to study the thinking styles and career leader program was used to measure the leader effectiveness. Reynolds and Torrance (1978) concluded that teacher-directed learning tends to favor students with a left hemisphere style of learning, while self-directed learning tends to favor right hemisphere learners.

2.1.17 Studies Related to Teaching Effectiveness at Cognitive Style

Rockoff et al. (2008), in their in-depth survey on new Math teachers in New York City, collected information on a number of non-traditional predictors of effectiveness including teaching specific content knowledge, cognitive ability, personality traits, feeling of self-efficacy, and scores on a commercially available teacher selection instrument. They found that individually only a few of these predictors had statistically significant relationship with student and teacher outcomes. However, when all of these variables were combined into primary factors

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summarizing cognitive and non-cognitive teacher skills, they found that both factors had a modest and significant relationship with student and teacher outcomes, particularly with student test scores. These results suggest that while there may not be a single factor that can predict success in teaching, using a broad set of measures can help schools improve the quality of their teachers.

Douglas Rutledge (2007) compared research on the theoretical models and predictors of teacher effectiveness with those of other occupations, focusing on three specific predictors of worker effectiveness: cognitive ability, personality, and education. The comparison of the teachers and other workers studies yields a variety of ways in which research on teacher effectiveness might be improved and expanded: First, the worker literature illustrates specific theoretical models, such as job organization fit, that complement existing models regarding the work of teachers. The potential value of extending worker models to teaching in this way is reinforced by the fact that the three teacher characteristics mentioned above, predict effectiveness in similar ways among teachers and other workers. Second, by outlining multiple models of effectiveness, it is possible to identify the important dimensions on which they vary, such as the unit of analysis and the assumed roles of the individual worker in relation to the organization. Third, research on other workers highlights some ways to improve the measurement of the three predictors and teacher effectiveness, going beyond the use of test scores.

Halpin (1991) investigated the relationship between the cognitive style matching of elementary principals and teachers and teachers' perceptions of principal leadership effectiveness on 98 principals and 286 teachers. The results indicated that there was no statistically significant difference in the mean effectiveness scores between teachers who had a cognitive style match with their principal and teacher who had a miss matched style with their principal.

2.1.18 Studies Related to Teaching Effectiveness at Academic Achievement

Begency, et.al (2008) in a study of teachers’ perception of student academic abilities. Suggested that teachers are generally accurate when estimating
students with strong oral reading fluency skills, but teachers have more difficulty in judging students with average to low oral reading fluency.

Kammati Jayaramanna (2001) conducted a study of “Teacher Effectiveness in Relation to Work Orientations and Academic Achievement of Students”. He studied teacher effectiveness giving priority to personal aspect, professional aspects intellectual aspect, teaching strategies and social aspect of teacher effectiveness. He found all the above mentioned factors strongly influenced teacher effectiveness and that teacher effectiveness influenced the academic achievement of students. He also reported that work orientation and teacher effectiveness were positively correlated.

Cawley and Zimmaro (2000), Conducted a study on “Student Evaluation of Innovative Teaching and Learning” six components for measuring teacher effectiveness was proposed. They are:

i. Well prepared
ii. Clear objectives
iii. Clear communication
iv. Fair student teacher interaction
v. Promote student participations
vi. Provide timely feedback

Bose (1993) studied the correlates of teacher effectiveness of 160 student teachers and found that positive significant relationship exists between teacher effectiveness and each of the predictor variable like intelligence, teaching attitude, self-confidence and previous academic achievement.

Fattu and Hawsam (1950) in reviewing research on predictor criteria and teaching effectiveness remarked that there was positive correlation between academic achievement and teaching success. Fuller (1946), found a correlation of .62 between success in student teaching and college grade points. Seagoe (1945) studied the relationship between academic achievement and teaching success of pupil-teachers in practice teaching. By using the University of California’s rating
scale for practice teaching as a criterion of success in practice teaching of the pupil-teachers, he concluded that tests of achievement had little predictive validity. Again in 1946, using the same measure of success, he found grade point ratio not significantly related to success in teaching practice.

2.2 STUDIES ON TEACHING APTITUDE

2.2.1 Studies Related to Teaching Aptitude and General

Praveen R (2012) “Teaching aptitude of student teachers studying in the college of education in relation to their Mental Health” found that there is a significant relationship between teaching aptitude and mental health (r=0.595) of student teachers studying in B. Ed colleges in Bangalore university. Sarah Babu (2010) studied the significant correlation is found to exist between value pattern and teaching aptitude of the pupil teachers. Salman Kuraishy and Jarrar Ahmed (2010) studied the teaching aptitude of prospective teachers in relation to their academic background. The major findings of the study was (1) high academic group were significantly different from the low academic background group on mental ability, attitude towards children, interest in the profession and total teaching aptitude. (2) The male subjects were found to be having a higher level of teaching aptitude as well as mental ability and professional information

Satish Prakash (2010) studied the professional aptitude of the IGNOU teacher trainers. The findings were: (1) There was no difference between professional aptitude of arts and science teacher trainees. (2) Professional aptitude of second year teacher trainees was better than that of first year teacher trainees. Nalini Srivastava and Pratibha (2009) studied the relationship of teaching competency with teaching aptitude and professional commitment. The findings of the present study revealed a positive and significant relation between teaching aptitude and teaching competency of primary school teacher.

Goel (2008) studied the made a comparative study of teaching aptitude of pre service and in service teachers. The major findings were: (1) No significant difference has been found in the mean achievement scores of the pre service
teachers with respect to their streams of study, teaching experience, gender and marital status. (2) The mean achievement score of the in service teachers on teaching aptitude had been found significantly higher than that of the pre service teachers. **Bhoom Reddy (1991)** investigated a study on “Teaching Aptitude and Attitudes of Secondary School Teachers in Andhra Pradesh”. The sample composed of 332 student-teachers, 80 experienced teachers and 20 teacher awards. The findings were: 1) the male and female respondents do not differ in teaching aptitude test, 2) the respondents belonging to various faculties and experience-wise do not differ on the performance of the teaching aptitude test, 3) the male and female respondents do not differ significantly in their attitudes towards teaching and 4) the respondents belonging to various age groups do not differ significantly in their attitude towards teaching.

**Upadhyaya (1976)** investigated a study on “Construction and Standardization of the Aptitude Test for Secondary School Teachers”. The major objectives of the study were: i) to plan, construct and standardize an aptitude test in Gujarati for secondary school teachers and ii) to study some correlates of aptitude for teaching such as sex, socioeconomic background, academic, discipline and previous experience as teachers. A preliminary form of the test was prepared. One hundred and twenty five items were finally selected. The sample for test consisted of 1409 student teachers. The finding of the study was that sex and socioeconomic background were not related to aptitude for teaching, whereas academic discipline and previous experience of teaching were found to be significantly related to aptitude for teaching. **Metha (1972)** observed that teacher with high teaching aptitude were higher on all aptitudes of the Differential Aptitude test- viz verbal reasoning, numerical ability, space relation and abstract reasoning.

### 2.2.2 Studies Related to Teaching Aptitude and College Level

**Umasankar (2011)** “Assessment of teaching aptitude of engineering college students” reported (1). Female students have greater teaching aptitude than male students. (2). 14.5% of the selected students have high teaching aptitude whereas 52% of the selected students have low teaching aptitude. The remaining
33.5% have average teaching aptitude. (3) There is no correlation between the 
discipline and teaching aptitude of selected samples.

Rama Krishna (2008) studied the teaching aptitude of students of B. Ed 
colleges. The findings were (1) Female students possess more teaching aptitude 
than male students (2) Ed. CET ranks and the scores on teaching aptitude have a 
positive relationship. Kahlon and Saini (1989) studied the impact of teacher 
education on the teaching aptitude of graduate trainees of Punjab Agricultural 
University. The objectives of the study were to (i) to evaluate the impact of teacher 
education on the teaching Aptitude of education graduates and (ii) to find out the 
relationship between academic Achievement and Teaching Aptitude. The sample of 
the study comprised of all the 20 students of the B.Ed. Class from the Punjab 
Agricultural University. Teaching aptitude test constructed by Srivastava and 
Prakash was applied at the start and at the end of the academic session. Finding of 
the study reveals that (i) various personality traits studied indicated significant 
differences in favor of fairness and cooperative attitude, followed by kindliness 
moral character, beside wide interest, Enthusiasm and patience, respectively 
showing strengthening of these traits with the teaching of various education courses. 
(ii) Teaching of education courses affect the development of teaching aptitude. 
(iii) Academic Achievement was significantly related to teaching aptitude.

Sharma (1984) conducted a study on “Teaching Aptitude Intellectual 
Level and Morality of Prospective Teachers”. The objectives of the study were i) to 
find out aptitude, intellectual level and morality of prospective teacher, ii) to 
compare these factors between male and female teachers and iii) to compare 
teachers of different disciplines in relation to these factors. The sample of the study 
included 412 student teachers who were studying in ten teachers’ colleges of the 
three universities of Rajasthan. The Teaching Aptitude Test, Group Mental Ability 
Test and self-made teachers’ Morality Test were used for data collection.

The findings were: 1. About 75% of student teachers were below 
average in aptitude and intellectual ability. 2. An insignificant difference was found 
in teaching aptitude, ability in sex-wise and discipline wise comparison and 3. A
positive correlation was found between teaching aptitude, intellectual level and morality of prospective teachers.

2.2.3 Studies Related to Teaching Aptitude and Hemispheric Dominance

Yeh (2007) in a study suggested that pre service teachers with high levels of C.T. dispositions, CT skills, and Intra personal intelligence as well as those with judicial thinking styles, are mindful, analytical and reflective in their teaching practices and therefore more likely to continually improve their skills in teaching aptitude.

2.2.4 Studies Related to Teaching Aptitude and Cognitive Style

Witkin et al. (1977) done a longitudinal study entitled role of field dependent and field independent cognitive style in academic evolution with the purpose to assess hypotheses derived from field dependence theory about the role of cognitive style in student’s academic achievement. The result of the study revealed that the correlation between group embedded figures test scores and the scholastic aptitude test-verbal (SAT-V) scores were quite low; cognitive style was not significantly related to overall school achievement; it was related to achievement in specialized areas. Ekstorm (1978) studied the relationship between teacher aptitude and knowledge, teaching behaviour and pupil outcomes. It was found that only cognitive style and one aptitude component (level of aspiration) are found related over both grade levels and subject.

Ekstorm (1974) investigated the relationship between cognitive characteristics of teachers, their teaching behaviour and academic success of their pupils. Two major components found as affecting student achievement are (1) Teacher knowledge and (2) Teacher aptitude. In this study it was hypothesized that certain matches between teacher and pupil knowledge, skill, aptitude and cognitive style tend to facilitate pupils learning.
2.2.5 Studies Related to Teaching Aptitude and Academic Performance

Fatima, Kaneez; Humera, Syeda (2011) report on the basis of findings, it was concluded that B. Ed trainees have above average level teaching aptitude and high academic achievement. The co-efficient of correlation between teaching aptitude and academic achievement is positive and low. There is no significant difference between male and female B. Ed trainees for the both the variables.

Sajan (2010) Studied teaching aptitude of student teachers with respect to their gender and academic achievement at the graduate level examination. The sample for this study is selected by stratified random sampling from the Teacher Education institutions in Malabar area of Kerala. Teaching Aptitude Test Battery (TATB) developed by Singh and Sharma (1998) was used to measure aptitude in teaching. Analysis of the results shows that the majority of students have sample teaching aptitude. The female students are found to be significantly better than their male counterparts in teaching aptitude test. The academic achievements at graduate level examination have no substantial relation with aptitude in teaching.

Jose Augustine (2010) studied the teaching aptitude, competency, academic background and achievement in Educational Psychology. A sample of 200 student teachers from 5 colleges of teacher education in the Kottayam Revenue district in Kerala were taken for the study. Teaching aptitude scale (TAS) structured and validated by M/s. Psycom Services was used for the study. The findings of the study were: (1) There was a significant relationship between teaching competency and teaching aptitude of student teachers. (2) There was no consistent positive relationship between academic background and teaching of student teachers. (3) There was no significant difference between men and women student teachers in teaching competency and teaching aptitude.

Ranganathan (2008) studied the Self esteem and teaching aptitude of DTED Students. The major objectives were: (1) to explore the relationship between self esteem and teaching aptitude of DTED students. The study reveals that the results were done with an independent sample test. It was shown that there was a
significant positive relationship between high self esteem and teaching aptitude and there was no significant difference between gender and level of self-esteem and teaching aptitude among the students. **Dushyant Kaur (2007)** studied the Academic Achievement, Teaching Aptitude and the Personality Traits as the Predictors of success in Elementary Teacher Training. Objectives of the study were sorted out as to study the academic achievement at +2 level in predicting success in elementary teacher training course in terms of achievement, teacher education rating and school teacher rating, to study the teaching aptitude in predicting success in terms of achievement, teacher educator rating and school teacher rating and to study personality traits as indicator of success in elementary teacher training course in terms of achievement, teacher educator's rating. Academic achievement of student teacher at the +2 level was in high correlation with all the indicators of success in the elementary teacher education course in expect with school rating. It contributed 23% in the prediction success of external examination of ETE course.

**Rodger (2007)** in a study examined a possible aptitude treatment interaction between teaching clarity and student test anxiety. Results revealed significant beneficial main effects for high vs low teacher clarity for both achievement motivation measures, but no aptitude treatment interaction between teacher clarity and student test anxiety. **Parveen Sharma (2006)** conducted “A study of teaching aptitude in relation to general teaching competency, professional teaching and academic achievements of B. Ed pupil teachers.” The findings were (1) discipline and sex of the pupil teachers do not contribute towards teaching aptitude of pupil teachers (2) Female arts pupil teachers secured significantly higher mean scores than their counterpart male arts pupil teachers. (3) Teaching aptitude of the pupil teachers was significantly correlated with their general teaching competency.

**Skipper and Charles (1993)** conducted a study about the Instructional preferences of pre service teachers at three different levels of Academic aptitude. The study revealed that pre service teachers with varying academic ability are different in their preferences for the objectives and teaching methods of humanistic education and this should be recognized in development of Instructional strategies.
In the study of aptitude and achievement as predictor of performance on teaching competency, Ken and Kleine (1984) found a relatively small, but significant relationship between the overall competency factor and achievement variables. The competency factor is also correlated significantly with aptitude variables.

Vyas (1982) studied the “Relationship of Select Factors with the Teaching Success of Prospective Teachers of Rajasthan”. The main purpose of this study was to examine the relationship of certain factors (predictors) such as age, academic achievement, verbal and nonverbal intelligence, personality adjustment, self-perception, attitude towards teaching, teaching aptitude and socioeconomic status of the perspective teachers with their teaching success criteria such as supervisor’s ratings, self-rating and university marks. The findings of the study were: 1. Age was significantly related to the criterion, 2. Attitude towards teaching showed a significant relationship with the criterion self-rating in all the samples, 3. Teaching aptitude had a significant relationship with self-rating and university total marks, 4. In the case of the male sample significant predictors were age and attitude towards teaching and 5. In the case of female sample predictors were age, academic achievement and attitude towards teaching.

2.2.6 Studies Related to Teaching Aptitude and Gender

Augustine, J (2010) found no significant difference between men and women student teachers in teaching competency and teaching aptitude. Sajan (2010) studied teaching aptitude of student teachers with respect to their gender and academic achievement at the graduate level examination. The female students are found to be significantly better than their male counterparts in teaching aptitude test. The academic achievements at graduate level examination have no substantial relation with aptitude in teaching.

Kuraishy, S. and Ahmad, J. (2010) found a significant difference between male and female prospective teacher in the measure of mental ability, attitude towards children, professional information and total teaching aptitude. Male subjects were found to be better than their female counterparts in respect to mental
ability, professional information and total teaching aptitude. **Prem Sunder (2010)** found that all the D.Ed students have positive aptitude towards teaching and there is a significant difference between the aptitude of boy and students towards teaching. **Ranganathan (2008)** found that there is a significant positive relationship between high self-esteem and teaching aptitude and there is no significant difference between males and females and the level of self-esteem and teaching aptitude.

**Arun, K.K. and Geeta, H. (2006)** found that the prospective teachers of both groups (male & female) have high aptitude for teaching than the other three aptitudes; guidance, management and research. Male prospective teachers were better in guidance and management aptitude while female prospective teachers have high aptitude for teaching and research. **Natesan and Khaja Rahamathulla (2003)** studied the teaching profession, perception, teaching aptitude, and personality factors of secondary grade teachers. The sample consisted of 200 men secondary grade teachers and 200 women secondary grade teachers. There was no significant difference between secondary grade assistant teachers and secondary grade headmasters in teaching profession's perception and all the areas of teaching aptitude except Interest in a study of self-esteem and teaching aptitude of DT Ed. Students. **Sharma (1984)** studied the effect of sex on teaching aptitude. No significant effect of sex was found on teaching aptitude. **Som (1984)** revealed that an in significant difference was found in teaching aptitude ability in sex wise and discipline wise comparison.

### 2.2.7 Studies Related to Teaching Aptitude and Subject Discipline

**Rama Krishna (2008)** studied the teaching aptitude of students of B.Ed colleges. The findings were (1) Female students possess more teaching aptitude than male students (2) Ed. Get ranks and the scores on teaching aptitude have a positive relationship. **Bhattacharya (1995)** studied teaching aptitude of science and non-science student teachers in relation to their level of anxiety. The study was aimed to compare the teaching science and non-science graduate student teachers of B.Ed., on sample of 100 ( 50 each for science and non-science steam) Teaching Aptitude Test constructed & standardized by Jai Prakash and Srivasthava was used,
and found that there was no significant difference between science and non-science graduate student teacher in teaching aptitude. **Goel and Mishra (1993)** made an attempt to study prediction of the educational competency using a regression equation. The sample comprised of 119 students of B.E. course. Relevant data were collected using tests on teaching aptitude, language ability, general mental ability and social sensitivity. For educational competency the percentage, scores obtained by the teacher trainees in the B.Ed. Final examination were considered. The collected data were subjected to regression analysis. The major findings of the study revealed that out of four independent variables. (1) Language ability, (2) Teaching aptitude, (3) general mental ability and (4) social sensitivity, the teaching aptitude contributed the most while the language ability; followed by social sensitivity and the general mental ability were found to be poorer predictors of teaching competency of teacher trainees.

**Donga (1987)** found that teacher aptitude is not a factor to control the adjustment behavior of the student teachers. The study also suggests that female teacher trainees are more adjusted than male trainees. Trainees of different colleges differed significantly in adjustment. Trainees coming from science faculty have the lowest adjustment. **Pandey (1968)** Constructed and standardized a teaching aptitude test. The study aimed at developing a standardized tool for use as a teaching aptitude test in the selection of trainees in the institutions of teacher education of Uttar Pradesh and also other states having Hindi as the medium of instruction.

The test included the following eight sub tests: professional knowledge, vocabulary, inferential reasoning, number series, numerical reasoning, logical selection, general information and reading comprehension. The first draft of the test (reliability 0.83 by modifying K.R. formula 20) developed on the basis of the results of the job analysis of teaching was administered. The second draft was evolved from the item analysis made after the first tryout. The final draft was administered to a sample of 1190 (650 males and 540 females) trainees of the normal schools of Uttar Pradesh, with an age ranging from 17 to 34 years and academic qualification from Junior high school to intermediate standard. The draft took 75 minutes for completion. The distribution of scores was slightly negatively skewed and
leptokurtic. Sex-wise and qualification-wise distributions of scores were also carried out. The percentile and T score norms were calculated for the total sample boys’ group, girls’ group and different academic qualification groups. The test was validated against supervisors’ ratings (0.49) and final examination marks (0.62). using the Thurstone’s centroid method, the data were analysed which yielded four factors, viz., General Educational Factor, Reasoning Factor, Numerical Skill Factor and Reading Comprehension Factor. Teaching aptitude has interested many researchers. Preparation and standardization of tests for selection of students for teacher-education courses has attracted them quite widely. Kulandaivel and Rao (1968) Analyses the qualities of a good teacher and a good student as rated by students.

2.2.8 Studies Related to Teaching Aptitude and Management

Parvati, S.G. and Jagadesh (2009) found that the teachers working in government and private secondary schools do not differ significantly in their aptitude towards teaching profession. Sudarsan, S. (2001) found a significant difference in the mean achievement scores of teachers of the government and private schools. Srinivasan, V. (1992) found that government school teachers differed from aided school teachers with regard to the aptitude towards teaching. Prakasham, D. (1988) found that female teachers scored invariably higher in all types of schools, categorized in terms of territory, management type and organizational climate.

2.2.9 Studies Related to Teaching Aptitude and Locality

Ravana Reddy, S. (2001) found that both rural and urban prospective mathematics teachers were possessing a high teaching aptitude, without having any significant difference in their teaching aptitude. Periasamy (2001) studied the difference in teaching aptitude of urban and rural students of DIET trainees and found out that there is no difference between urban boys and rural girls in aptitude towards teaching. Pandya (1993) studied the teaching aptitude of secondary school teachers of Gujarat state in the context of some psycho, social variables, The major findings were: (1) The female trainees were found to obtain significantly higher
scores than their male counterparts. 2. There was no significant difference between the urban and rural trainees. **Bhasin. C (1988)** found no significant difference between rural and urban, government and non-government, and male and female teachers with regard to their aptitude and effectiveness.

### 2.2.10 Studies Related to Teaching Aptitude and Educational Background

**Kueaishy S. and Ahmad, J. (2010)** observed that high academic background group was significantly different from low academic background group on mental ability, attitude towards children, interest in profession and total teaching aptitude. **Nirmala Devi, S. (2005)** found that there is no significant difference in the attitude of the student teachers with undergraduate and postgraduate qualifications towards teaching.

### 2.2.11 Studies Related to Teaching Aptitude and Age Groups

**Reddy, Bhoom N, (1991)** found that age did not influence the performance of teaching aptitude tests. **Nair (1974)** revealed that the age of the teacher had a positive relationship with teaching ability. **Debnath, H.N. (1971)** found that the age was significantly related to teaching efficiency.

### 2.3 STUDIES RELATED TO HEMISPHERICITY

#### 2.3.1 Studies Related to Hemispheric Dominance in Right Left and Integrated Brain

**Hemispheric Dominance:** In this study, it refers to the respondents’ cerebral preference in the processing of information which is categorized into three namely: 1.) Left- brain dominance 2.) Right- brain dominance and 3.) Whole brain dominance.

**Evans (2010)** The right brain / left brain Theory has it that the brain has two hemispheres (commonly called the right brain and the left brain) which think in different ways. The right brain is visual and processes information by looking first at the whole picture then the detail. The left brain is verbal and processes
information by looking at the pieces then putting them together to get the whole. The right brain is more intuitive; the left is analytical and sequential.

Naik (2009) There are many differences between the two hemispheres of the brain. The person's nature largely depends on which part of his brain dominates the nervous system (Naik, 2009). The right brain is intuitive, meaning, it is led by feelings, while the left brain is analytical, meaning it is led by logical approach towards problems. Right brain tends to make lateral connection from the derived information, whereas the left brain tends to make logical deductions from the derived information. The right brain is visual, stressing on music and pattern while the left brain is verbal, stressing on words, numbers and symbols. Right brained people struggle with mathematical formulas and words to express themselves, while left brained people are very good at memorizing mathematical formulas and also express them pretty well. In people with right brain domination, organizational skills are very poor, on the other hand people with left brain domination are highly organized. People with right brain don’t give attention to minute details, but people with left brain tend to focus on each and every minute detail and the step taken. When given a task of assembling a particular thing, right brain people will start working promptly without reading the instructions, while left brained people will carefully go through the instructions and then start working. When people with right brain communicate, they tend to make many gestures with their hands, contrary to which left brain people hardly use gestures when communicating. Right brain is designed to listen to ‘how’ something is being said, while left brain is designed to listen to ‘what’ is being said. Although right brained people don’t rationalize things they do have the tendency to question the rules, on the other hand left brained people never question rules, instead they readily accept them.

Nick (2005) People with dominant right brain have difficulty in prioritizing things which makes them execute things in a hurry at the last moment, whereas people with dominant left brain are well versed with planning the future which makes them to be prepared well in advance. Restalk (2002) In general, the left and right hemispheres of the brain process information in different ways. A person tends to process information using the dominant side. However, the learning
and thinking process is enhanced when both sides of the brain participate in a balanced manner. This means strengthening the less dominant hemisphere of the brain.

**Bradshaw (1996)** Brain hemisphericity is the tendency of an individual to process information through the left hemisphere or the right hemisphere or in combination. **Oxford (1996)** cited that research has demonstrated that the left hemisphere operates in a linear, sequential manner with logical, analytical, propositional thought. On the other, the right hemisphere operates in a non-linear, simultaneously fashioned and deals with non-verbal information as well as dreams and fantasy. The left hemisphere appears to be specialized for language, whereas the right hemisphere is specialized for Visio-spatial and oppositional thought.

**Venkatraman (1994)** reports on interpretation of complex visual patterns and analysis of voice intonation, face processing, awareness of body position, spatial orientation and the perception of fine and gross motor activities, dreaming, imagery, creativity and music come under the realm of the right hemisphere. The samples in this study are more right hemisphere oriented and they tend to exhibit these qualities. The left hemisphere specializes in sequential, logical, verbal, symbolic, convergent production and logic functioning.

**Airman and Lавiner (1991)** maintained that the left hemisphere dominants are highly analytical, verbal, linear and logical learner, whereas right hemispheric dominants are highly global, visual, emotional and intuitive learners. Whole brain dominants are those who process information through both hemispheres equally and exhibits characteristics of both hemispheres. **Ohrman and Lавiner (1991)** cited that research has demonstrated that students are capable of mastery of new skills if they are taught through instructional method that complements their hemispheric preference. Several studies have found that students taught through methods that matched their hemispheric style achieved statistically significantly higher test score that they were taught through other teaching methods. Studies have suggested that brain hemisphericity is associated with different occupations and academic majors.
Lavach (1991) examined the hemisphericity of the students with different majors. He reported that humanities students showed preference for the right-hemispheric dominance. Natural science students demonstrated a left-hemispheric mode, while social science majors showed preference for left hemispheric dominance. The left-brain has no trouble processing symbols. Many academic pursuits deal with symbols such as letter, words and mathematical notions. The left-brain person tends to be comfortable with linguistic and mathematical endeavors. Left brained students will probably just memorize vocabulary words or math formulas. The right brain, on the other hand, wants things to be concrete. The left-brain persons want to see, feel or touch the real object. Right brain students may have trouble learning to read using phonics. They prefer to see words in context, to see how the formula works.

Wittrock, M.C, (1978) inferred that the right hemisphere may be more intuitive, imaginative, insightful, has a rudimentary verbal conceptual scheme, aesthetic experiences, produces visual imagery, sees things in a broader perspective, uses the information from the left hemisphere to elaborate, to form new combinations, to attribute new meanings to it. Ornstein (1973) found that the left hemisphere apparently specialized in sequential, logical, verbal, symbolic, convergent production and logic functioning. Samples, R.E., (1975) observes that the left hemisphere is far more constrained and it shifts through inputs and reduces functions to logical rational forms, acts more like a digital computer. This is the mind that requires structure and order, which processes, perception and sensory input in logical and linear modes.

2.3.2 Studies Related to Hemispheric Dominance and Cognitive Style

Robert J. Sternberg, Li-Fang Zhang (2001) “Perspectives on Thinking, Learning and Cognitive Styles” Traditionally, many psychologists and educators have believed that people’s successes and failures are attributable mainly to individual differences in abilities. For the past few decades, however, investigators have been studying the roles of thinking, learning, and cognitive styles in performance with both academic and nonacademic settings. Although these three
kinds of styles may be viewed as overlapping historically, they have been conceptualized in different ways. They discussed articles telling significant/insignificant differences and relationships between hemispheric dominance, related cognitive style of file independence/dependence and sex; Arrington’s (1987) study of the relationship between field independence/dependence, visualization and problem solving in adolescent male sand females.

**Kohlbrenner’s (1988)** experimented study on hemispheric specialization and aspect so behavior taking into account other variables, including gender; Margolis’ (1990) study about language and gender; Ross’ (1994) researched on cognitive style and academic achievement involving gender; **Froehle’s (1990)** study on the correlates of EEG hemispheric integration; Brown’s (1988) investigation on the relationship of background, sex and cognitive profile with success in computer programming among college students. **Freshmen and Nah’s (1989)** study of the relationship between learning style and place of residence, gender and academic achievement of Korean language and other subjects have given the researcher an idea to include the variable of —sex||.

### 2.3.3 Studies Related to Hemispheric Dominance and Academic achievement

**Mohanasundaram.K. and Kumar, J. (2000)** conducted a study on Hemisphericity and Achievement of Class XI Students Studying History in Higher Secondary School. The objectives of this study were to find out the significant difference, if any, in achievement, in history of Higher Secondary students with right, left and integrated hemisphere dominance, to find out the correlation, if any, between hemisphericity and achievement of Higher Secondary students in history.

**Method:** Descriptive normative survey method was adopted in the study. A sample of 300 students studying History in Class IX in Higher Secondary schools in Thanjavur District in Tamil Nadu, using stratified random sampling technique was adopted for the study. The tools used were Style of Learning and Thinking Test and Achievement Test. Findings: (1) there was a significant difference in achievement between the students with right and integrated hemisphere dominance. (2) There was no significant difference in achievement in history among the students with left and
right and left and integrated hemisphere dominance. (3) There was significant correlation between right and integrated hemisphere dominance and achievement in the history of the students. It inferred that the right hemisphere dominance contributes more to the achievement than the integrated hemisphere dominance. The study suggested for further study that by activating the right hemisphere of the brain, the achievement of the students in history subject can be improved. It can be implemented in other subjects also.

Fitz (2006) Studied academic achievement of students in relation to their preferred learning, thinking style and study and found that weaker preferences for imaginative thinking style was likely to obtain poor academic achievement or vice versa. As regards to the other thinking style, viz; logical thinking style, intellectual thinking style, optimistic view of problem solving, thinking style and analytical style were not significantly associated with academic achievement of the students.

Li-Fang Zhang (2002) “Thinking Styles: their relationships with modes of thinking and academic performance” This study aimed at investigating the nature of thinking styles as described in the theory of mental self-government. Two-hundred-and-twelve US university students responded to the Thinking Styles Inventory and the Styles of Learning and Thinking. Results from convergent statistical analysis procedures indicated that thinking styles and modes of thinking share certain common variance in the data. It was evident that the more creativity-generating and more complex thinking styles are significantly related to holistic mode of thinking, and that the more norm-conforming and more simplistic thinking styles are significantly related to an analytic mode of thinking. These findings are discussed in terms of practical implications for educators. Garcia and Hughes (2000) found significant correlation between academic achievement and thinking styles.

F Cano-Garcia, EH Hughes (2000) conducted a study on “Learning and Thinking Styles: an analysis of their interrelationship and influence on academic achievement” and found that students’ academic achievement was related to students’ thinking styles. Students who prefer to work individually (internal), who do not enjoy creating, formulating, and planning for problem
solution (Legislative in a negative sense) and those who have adherence to existing rules and procedures (Executive) were those who obtained higher academic achievement. Grigorenko and Strenberg (1997) found significant correlation between academic achievement and thinking styles.

Gill (1989) studied the effect of training strategies on creative problem solving skills and cerebral dominance in relation to intelligence, personality and cognitive style with the objective to study the influence of training strategies and intelligence and there interaction on academic achievement of adolescents and found that the level of intelligence, personality types, cognitive style and training strategies when paired, did not show any interaction in terms of performance in creative problem solving skill in mathematical cerebral dominance.

Gordon (1986) Hemispheric preference, the newest element of learning style, refers to the tendency of a person to use one side of the brain to perceive and function more than the other. The objective of the study was to investigate the psychological domain of learning styles in terms of the hemispheric patterns of Singapore Secondary Two students in the three achievement levels, namely Normal (low achievers), Express (average achievers), and Special (high achievers). Using the Cognitive Laterality Battery (Gordon, 1986) to measure the students' hemispheric dominance, the study found that it is in the psychological domain of the students' learning styles, in terms of their hemispheric dominance that the Secondary Two students in the three achievement levels are distinctly different.

2.3.4 Studies Related to Hemispheric Dominance and Gender

Jangaiah (1998) Results indicate that gender plays a role in hemispheric preference for information processing. In right hemisphere preference, the boys dominated while in left hemisphere preference, the girls dominated. This has been observed in a study on learning and cognitive style for the same age-group.

Springer and Deutsch (1989) The boy who are more right hemisphere orientation preferred learning style of concepts in the order of content preference followed by interest. Learning performance, class preference and verbal. The boys
who are left hemisphere oriented preferred learning style of concepts in the order of verbal, class preference, learning preference, content, preference in interest. Under thinking style, those boys with right hemisphere preference showed preference for concepts in the order of problem solving. Creativity, convergent/Divergent, logical/fractional and imagination respectively. The boys who were left hemisphere oriented in their preference of concepts of thinking style showed the order of preference as logical, fractional and problem solving, imagination respectively.

2.3.5 Studies Related to Hemispheric Dominance and Subject Discipline

Lavach (1991) examined the hemisphericity of the students with different majors. He reported that humanities students showed a preference for the right-hemispheric dominance. Natural science students demonstrated a left-hemispheric mode, while social science majors showed preference for left hemispheric dominance. The left-brain has no trouble in processing symbols. Many academic pursuits deal with symbols such as letter, words and mathematical notions. The left-brain person tends to be comfortable with linguistic and mathematical endeavors. Left brained students will probably just memorize vocabulary words or math formulas.

2.3.6 Studies Related to Hemispheric Dominance and Educational Qualification

Saleh (2001) investigated the correlation between the students’ choice of academic majors and their brain hemisphericity. The participants in this research were 429 graduate and undergraduate students at a large university in the southern part of the United States. The data were analyzed using analysis of variance to determine the influence of brain hemisphericity on students’ choice of academic majors. The results lent support to earlier research in their findings of a strong correlation between academic majors and brain dominance. The ANOVA model showed a significant effect of brain hemisphericity on students’ choice of academic majors. Arts/literature students tended to be right brained while business/commerce students were left brained. Students majoring in education, nursing, communication, and law were right brained, while students majoring in business/commerce,
engineering, and science were left brained. The study also demonstrated an
evidence of a general shift in students’ brain hemisphericity from earlier research in
which more students were identified as whole brained.

2.4.1 Studies Related at Cognitive Style and General

Altan et al. (2006) in their study investigated the cognitive style,
achievement scores and attitude towards computer among university students and
found that there was no significant relationship between cognitive style and
academic achievement; cognitive style and attitude towards computer. Sayed (2006)
studied the relationship between cognitive style and personality traits of secondary
school students and found significant differences between field dependent and field
independent groups on personality factors A, B, C, D, E, G and Q4; field dependent
students were reserved, less intelligent, affected by feelings, excitable, assertive,
having weaker super ego, uncontrolled and tensed; field independent students were
warm hearted, more intelligent, emotionally stable, undemonstrative, obedient,
having strong super ego, controlled and relaxed; no significant difference existed
between field dependent and field independent groups on the personality factors F,
H, I, J, O and Q2.

Banerjee(2003) studied adjustment patterns and cognitive style of
creative and non creative students with the objective to explore the relationship
between cognitive style and creativity, and between adjustment and cognitive style
by taking a sample of 567 students and found that there was a significant correlation
between creativity and cognitive style and there was no significant difference in the
cognitive style of VII & VIII grade students; cognitive style and adjustment patterns
revealed no difference due to grades; field independent students made better
adjustment at home and school area. Naufal (2000) investigated interaction between
cognitive style of field dependent (field dependence, field neutral, field
independence) and learning strategies (advance organizer, concept map and outline
number learning strategies) on student’s performance in a hyper media environment.
Results revealed no significant interaction between cognitive style and learning
strategies; field independent students scored significantly better than field dependent students.

Ross (1994) investigated the dimension of cognitive style in 9th, 10th, and 11th grade African-American high school students. Although research indicated that an analytic, rather than a relational style is a predictor of academic success, research also indicates that African-American students tend to be significantly more relational than analytic. The findings of the study indicate that although as a group this African-American sample appeared to be relational in perceptual variation in Analytical-perceptual style predicted achievement better than any other cognitive style variable and was correlated with achievement in general and all academic achievements and academic subjects. Hite (1993) made an investigation to determine if gender and Cognitive style (FD/FI) affect performance on the reading test of the Florida College level Academic Skill Test (CLAST-R) for retake examinees. The study also examined the impact of gender and field orientation on the prediction of CLAST-R form of a comprehension test of the Nelson-Denny Reading Test (NDRT). The comparative study involved 2 levels of 2 independent variables, gender and field orientation (FI/FD) Results of a 2x2 ANOVA on the CLAST-R variables indicated a main effect on field orientation.

Witkin et al. (1984) studied the difference between field dependent-independent cognitive style of low and high achieving Mathematics students with the objective to study the effect of achievement in relation to field dependent-independent by taking a sample of 675 students from different categories of high school and found that low achieving mathematics students were more field dependent than high achieving mathematics students in high school; for dropouts there was significant interaction of achievement with respect to field dependence. Bachman (1979) studied the relationship between cognitive style and concept attainment and success and found out a low correlation between cognitive style and concept attainment.

2.4.2 Studies Related at Cognitive Style and Academic Achievement
Kent (2009) made an investigation of cognitive style, learning style and study skills as predictors of academic achievement of prospective teachers and found that examination mastery along with cognitive style and imaginative style was found to be a good predictor of academic achievement. Geetanjali (2006) studied the academic achievement in relation to cognitive style and hemispheric style at secondary stage and found that cognitive style had a significant effect on student achievement; more the field independence of the students, higher the academic achievement.

Alphert (2004) conducted a study of relationship between cognitive style, gender, intelligent quotient and academic achievement of high school students and recorded a low but significant correlation between cognitive style and academic achievement. Sarpage (2003) studied the influence of field dependence/field independence cognitive style on students’ achievement and found that cognitive style of field dependence/field independence was positively related to students achievement.

Chiu (1997) conducted a study of relationship of cognitive style and manifest anxiety to academic performance among Chinese children and found that cognitive style was related to academic achievement and emotional responsiveness of children. Kiranmayi et al (1996) studied the influence of socioeconomic status on cognitive style and academic achievement and found that higher socioeconomic subjects were field independent and showed better achievement, whereas lower socio economic subjects tended to be field dependent and had lower level academic achievement; cognitive style of field dependent had a significant positive relationship with academic achievement.

Thilagavathy T and Andal (1995) “A study of academic achievement of adolescents in relation to their Cognitive Style, Locus of Control, Self-esteem and Mental health” Studied found that there is a positive and significant relationship between academic achievement and cognitive style. Lettri (1995) conducted a study on cognitive profile as the basic determinant of academic achievement. The result of this study indicates that a cognitive profile separate seventh and eighth grade
subjects into significantly different achievement level groups, measured by standardized test. Also the results indicated that, the cognitive profile was a basic determinant of an individual’s level of academic achievement and could accurately show specific learning deficit that significantly contributes to low academic achievement.

**Canning (1993)** studied the relationship between cognitive style and academic achievement of students and identified that field independent students should be provided with curriculum and materials that are concrete, personal, visual and manipulative for improving performance. **Wolf (1992)** used canonical correlation to investigate the relationship among a set of variables associated with individual difference and found that cognitive style, affective or social traits were measures of academic process; canonical correlation confirmed a significant correlation between cognitive style and academic success set and between the field dependence – independence set and academic success set.

**Tripathy(1991)** Studied cognitive functioning, affective adjustment and academic adjustment of the tribal children in Orissa and found that tribal children in integrated schools showed more field independent cognitive style than tribal children in tribal schools, and the non-tribal children in integrated schools performed better in cognitive style test as compared to tribal children in tribal schools; family setting variables such as occupation of the father, income of the family, education of the parents, studying time and housing facilities were positively related to conservation and cognitive style as well as to the academic achievement of children in all the groups.

**Noh and Fagua (1990)** report to Significant relationship was found between cognitive style and Achievement in school subject on Korean VIII grade students. **Ballard (1985)** Studied the interactive of cognitive style and Achievement of 68 secondary ESL students and found that significant correlation exists between Field independent and Achievement in the school subjects. **Gosnel (1983)** Investigated the relationship between students’ cognitive style on the field dependence and field independence dimension and their writing process with the
objective to study the relationship between field independence-dependence cognitive style and academic success on achievement of nursing students by taking a sample of 350 undergraduate students selected through purposive sampling techniques and found a significant relationship between cognitive development and academic achievement (r=0.38 and p=0.001).

2.4.3 Studies Related to Cognitive Style and Field Independent and Field Dependent

Implication for learning comes from Witkin’s third dimension which separates self from no self. These two dimensions most often describe the social and intellectual characteristics that impact on learning and instruction. (Witkin & Goodenough, 1976). Field dependents rely on external referents for psychological functioning while field independent relies on themselves as primary referents. In accordance with that principle, the second principle then is that field independents are capable of imposing their own cognitive structure on situations, whereas field dependents must be provided with an external structure. With the framework provided by within in mind, a number of studies have provided new insights into the relevance of field dependence-independence on how students learn social material, the use of mediators in learning, the effects of reinforcement, cue salience, how teachers teach, how teachers and students interact, career differentiation, educational–vocational interests, educational-vocational choices and achievement, and so on.

Goodnight (1976) concluded that field dependents who are dominated by salient cues in concept-learning tasks, use a “spectator” approach to learning. They are more affected by negative reinforcement, and are better at incidental learning of social information. Hansen (1980) Field independence predicted higher proficiency in learning Spanish, especially for field independent females. Goodfellow, (1980) reported to passing students were more field independent, whereas failing students and students who dropped out of nursing course were more field dependent.

Canelos, Taylor, & Gates, (1980) Concluded that Field defendants had more difficulty in abstracting relevant information from instruction supporting more difficult learning tasks. Vaidya & Chansky (1980) Studied that across grades, field
independents was correlated with higher mathematics achievement, especially for concept and application. King, (1983) Field independent scores were better on music, reading tasks than field dependents.

Phifer, (1983) Studied that Field independents recalled significantly more from mathematical/scientific passages whereas field-dependent recalled more from socially oriented passages. Skaggs, Rocklin, Dansereaw, & Hall, (1990) Field independents recalled more structural and functional information (equipment most part) than field dependent. Lu & Suen, (1995) Field independent achieved more on performance-based assessment than field dependents. James (1973) reported that the most field independent teachers gave field independent students higher grades than field dependent students and the most field dependent teachers assigned the highest grades to the field dependent students.

Packer & Bain, (1978) Field – dependent children learned mathematics better from field dependent instructor than from a field independent teachers. Adams & McLeod, (1979); McLeod, (1978)Field independents learned the most in maths lessons when given minimum guidance and maximum opportunity for discovery, where as field dependents profited most from maximum guidance. Jolly, (1980)Field dependent students taught by field independent teachers achieved more than field dependent students taught by field dependent teaches. All students learned more from field independent teachers. Wilborn, (1981) Field independents learned more from an individualized, self paced course than field dependents

Tannerbaum, (1982) Field dependents achieved higher scores on a neutron test after using highly structured materials (presented in a logical order using a deductive sequence requiring written answer to convergent question), whereas field independents achieved more from the low strutted treatment materials. When collaborative pairs of learners consisted of two field independents, they performed much better than two field dependents Frank & Dais, 1982. One of each produced intermediate results. Field independents were more efficient at taking notes in outline format than the field.
Studies related to demographics variable

2.4.4 Studies Related to Cognitive Style and Gender

Helen (1998) studied the difference between field dependent / field independent cognitive styles of low and high achieving mathematics students. The results showed that the low achieving students were more field dependent than high achiever students; female students in traditional schools were more field dependent than male students. Kellecher (1997) explored the possible differences in field-dependent / field-independent among different fields of commerce students. The group embedded figure test was administered to 29 male and 32 female students. The result indicates that commerce students were moderately field independent; males did not differ significantly from a female on group embedded figure test scores.

O Brien (1991) studied the differences among selected characteristics of college students in relation to their cognitive style preferences. Findings revealed district differences in cognitive style between males and females, systematic differences associated with major area of study level of Academic achievement and educational level.

2.4.5 Studies Related to Cognitive Style and Subject Discipline

Bagech (2004) studied scholastic achievement in life science in relation to cognitive style of socially disadvantaged group of secondary students with the objective to determine the relationship between the scores of boys and girls on cognitive style and scholastic achievement, and to predict the scholastic achievement of boys and girl students by taking a sample of 689 students of class X and found that in the case of girls there existed a low and positive relationship between scholastic achievement of life science and cognitive style; the regression equation for prediction of scholastic achievement indicates that about 23% of variance of scholastic achievement in life science explained jointly by cognitive style and socially disadvantaged group.
Kirk (2000) investigated the relationship of attitude towards science, cognitive style and self concept of achievement in chemistry at the secondary school level. Results indicated that field independence was significantly correlated with problem solving, academic and laboratory achievement; better attitude towards the social benefit and problems accompany scientific progress which was significantly correlated with higher achievement on all the academic measures of chemistry. Sureshan (1997) studied the interaction effect of cognitive style and classroom environment on biology students of secondary school and found that there was a significant difference between boys and girls with respect to cognitive style.

Tinajero and Paramo (1997) investigated the relationship between cognitive styles and student achievement in several subject domains (English, mathematics, natural science, social science, Spanish, and Galician). With the sample of 408 middle school students, the researchers asserted that cognitive style was a significant source of variation in the overall performance of students. That is, field independent subjects outperformed their field dependent counterparts. Behal (1992) revealed that high ability students acquired mathematical concepts better than average and below average ability students irrespective of model of teaching; high ability field independent students achieved significantly higher scores in mathematical concept test than average ability field independence and below the average ability field independent students; high-dependence, average ability field-dependence as well as lower ability field-dependence.

In a study Beigal (1992) examined cognitive style and Academic achievement in a sample of 81 students broken into four general content areas, Science, English, Mathematics and Social studies and found that the cognitive style (FD/FI) of the subject influenced their achievement in school subjects. Verma et al. (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, Math’s, General Science, Social Studies and Drawing and in total more than their field dependent counterpart.
Noh and Fagua (1990) found significant relationship was found between cognitive style and achievement in school subjects in Korean VIII grade students. Adeyemi (1989) investigated the effect of cognitive style, instructional mode and gender of students on achievement in biology by taking a sample of 5.50 adolescents selected through random sampling technique and found that subjects differed significantly in their post test achievement scores on instructional mode and cognitive style factors; main effect of gender was not significant.

Gill (1989) studied the effect of training strategies on creative problem solving skills and cerebral dominance of relation to intelligence, personality and cognitive style with the objective to study the influence of training strategies and intelligence and there interaction on academic achievement of adolescents and found that, the level of intelligence, personality types, cognitive style and training strategies when paired, did not show any interaction in terms of performance in creative problem solving skill in mathematics cerebral dominance. Nelson (1986) studied the effect of field independent-dependent cognitive style on achievement in tally course and found no significant difference between the attitude of field dependent and field independent students enrolled in a tally course; students with field independent learning style scored higher grades than students with field dependent style; there was no association between field independence/dependence and course completion.

Paul (1986) conducted a study of the cognitive style of high school students of home science in relation to age and achievement. The objective of the study was to study the relationship between cognitive style and their achievement in home science and found that cognitive style was positively and significantly correlated with achievement in home science. Year (1986) investigated the effect of lesson structure and cognitive style on science achievement of elementary school children and found that high structure lessons resulted in higher achievement than low structured lessons; field independent students achieved significantly higher scores in science scores than field dependent students.
Dagger (1985) compared the effects of two contrasting instructional approaches representing the field dependence-independence cognitive dimension of mathematical problem solving performance and found a significant difference in the mathematical problem solving post test and gain scores of two treatment groups receiving a field dependent and field independent instructions over the control group. The conclusion supported the assumption that the field dependence-independence cognitive dimension applied to teaching improves the students’ performance in mathematics problem solving ability. Jacoby (1985) studied the relationship between field independence, problem solving ability, science achievement and intelligence using an analogy based problem solving method and found that field independent subject scored significantly higher in the problem solving task than the field dependent; field independent subject using an analogy scored significantly higher on the problem task than field dependent subjects who did not use an analogy; cognitive style of subject may influence successful use of analogy based problem solving strategies in the solution of new paradigm problems.

Crow et al. (1984) studied perceptual orientation of community college students and their attitude towards science and found that field independent students showed positive attitude and scored significantly higher in science achievement than field dependent students with a negative attitude towards science. Randolph (1984) studied the relationship among cognitive style, achievement in science, personality and sex of students with the objective to investigate the relationship between cognitive style and achievement in science and found that there existed significant correlation between field independent and science achievement; there was no significant difference between the performance of males and females in science achievement. Saracho (1984) conducted a study to determine whether field independent students show higher level of academic achievement than field dependent students, and the extent to which this difference was affected by gender and grade level. The results of the study showed that student’s cognitive style and grade level were related with each other and field independent subjects were higher achievers than field dependent subjects.
Copeland (1983) studied the effectiveness of cognitive style over the conventional group learning by taking IX grade science students and found that field independent groups had a marginal advantage over field dependent group; field independent subject’s performance was significantly better than field dependent subjects in analogical problem-solving and subjects who were provided with a principle based content performed better than subjects who were provided a procedure based content; there was no significant differences in student performance in French version of mathematics test.

2.4.6 Studies Related to Cognitive Style And type of Management

Sheikh (1990) studied cognitive style in relation to intelligence, creativity and academic achievement of 185 adolescents of government schools. The results indicated that high intelligent and high creative group tend to be more field independent than average and low intelligent and creative group. Average intelligent groups were more field independent than low intelligent groups but high and average creative groups do not show any significance in the cognitive style; female students had greater field independence them their counter male adolescents.

2.4.7 Studies Related to Cognitive Style and Locality

Aruna et al. (2006) studied the influence of cognitive style, intelligence and classroom climate on process outcomes in science by taking a sample of 1000 pupils of standard XI of secondary school in Kerala through proportionate stratified sampling technique and found that boys and girls differ significantly at 0.01 level in the mean scores of cognitive style, intelligence, classroom climate and dependent variable process outcomes in science; urban and rural school students were not significant at 0.05 level with regard to cognitive style and the high mean score was associated with urban subjects; government and private school students were not significant at 0.05 level for cognitive style and intelligence; the relationship between cognitive style and process outcomes in science was significant, positive but low; cognitive style and intelligence had significant effect on process outcomes in
science; the main effect of cognitive style and intelligence on process outcomes in science was significant implies that the level of process outcomes in science was different for different levels of cognitive style and intelligence.

Debut (2005) studied cognitive style and cognitive ability of tribal and nontribal school students and found that tribal pupils were more oriented towards field dependence-independence than nontribal; male and female tribal and nontribal students differed in field dependence, whereas this difference was not noticed in case of field independence; cognitive style was associated with academic achievement. Theraken (1996) studied the effect or urban and rural upbringing on cognitive style by taking a stratified random sample of 80 subjects, 40 students were taken from urban 40 from rural areas. The results showed that urban males were more field more independent than urban females; sex differences did not affect the cognitive style of rural adolescents.

Chatterjee et al. (1982) examined differences between urban and rural males in field dependency and geometrical figure recognition capacity (GFR), and found that urban students to be more field dependent and to have greater geometrical figure recognition capacity; better adjusted field independent students had significantly higher scholastic achievement than poorly adjusted field dependent students.

2.4.8 Studies Related to Cognitive Style and Educational Qualification

Murphy, Casey, Day, and Young (1997) studied to determine the relationship between academic achievement and cognitive style of 63 undergraduates Canadian students in information management program. They found that field independent students performed better than field dependent subjects in only one of the technical courses.

2.4.9 Studies Related to Cognitive Style and Age Group

Stabler (1994) determines which of the independent variables viz. The field dependent-independent cognitive style, race, gender, age or socioeconomic status had the greatest impact on the student’s formal level of reasoning. The group
embedded figure test and logical reasoning test showed an internal reliability of 0.91 and 0.81 respectively. Males, females and low socio economic status subjectees tended towards field independence. Logical reasoning test scores were positively related to group embedded figure test scores.

2.5 STUDIES ON ACADEMIC PERFORMANCE

2.5.1 Studies Related to Academic Achievement in General

Mehta (2010) studied personality needs and academic achievement of secondary school students with the objective to find out the relationship between personality needs and academic achievement by taking a sample of 120 students (50 high achievers, 70 low achievers) from five schools by using systematic sampling technique and found that need achievement, need dominance, need nurturance and need endurance were positively and significantly related to students academic achievement while need succorance, affiliation, abasement and aggression were significantly but negatively related to academic achievement.

Sridevi et al. (2008) studied the relationship between emotional intelligence, adjustment, self concept and scholastic achievement of higher secondary students and found that there was a positive relationship between emotional intelligence, adjustment, self concept and achievement of higher secondary students. Sharma (2007) studied problem solving ability and scientific attitude as a determinant of academic achievement of higher secondary students and found that high achievers had high problem solving ability in comparison to average and low achievers; there exists a positive relationship between achievement, problem solving ability and scientific attitude.

Oyesoji (2005) studied correlates of learning styles on the academic performance of secondary school adolescents and found that there existed a significant relationship between learning styles and academic performance of secondary school adolescents; three senses of learning viz. Auditory, visual and kinesthetic significantly contributed to academic performance. Alarm (2001) studied academic achievement in relation to socioeconomic status, anxiety level and
achievement motivation with the objective to study academic achievement in relation to socioeconomic status and to view the extent up to which academic achievement of the children was affected by their anxiety level and revealed significant positive relation between socioeconomic status and academic achievement, achievement motivation and academic achievement; and a negative relationship between anxiety and academic achievement.

**Panda (1997)** studied the impact of creativity and adjustment on academic achievement and found that creativity and adjustment were essential factors in the progress of academic achievement of students. The correlation between academic achievement and creativity, academic achievement and adjustment showed that there was a linkage between them. Therefore proper stress may be given to develop creative power among the students, so that they can be balanced and ultimately secure better academic achievement.

### 2.5.2 Studies Related to Academic Achievement in Theory and Practical

Kaur and Kaur (2002) investigated that (1) there was a significant relationship between entrance test scores and achievement scores of teacher trainees (N=100) (2) Gender significantly affected the achievement as both male (N=50) and female (N=50) teacher trainees were found to be significantly different in entrance test scores and also in achievement scores. Lyle (1996) stressed the importance of supervision during teaching practice facilitates student-teachers’ professional learning by bridging the gap between theory and practice. Gopala charyalu (1984) reported that multiple regression analysis revealed that SES, attitude towards profession and training Factor –B, Factor-Z and Factor –Q2 of 16 P.F were significant with the criterion of achievement in theory of student teachers of TTIS.

Good (1983) elaborates that teaching practice components help to create an effective and reliable teacher who can assume his role competently in natural classroom setting. Pathak (1979) observed that the quality of the output as judged by the examination result of B. Ed trainees was poor so far as the knowledge foundation of educational theory and practice was concerned. About 71 percent got a third division in theory; however, it was considered satisfactory in respect of competency to teach in the classroom situation.

Patted (1975) Studied 200 B.Ed students to find out the relation between perceptual factors and success in teacher education course. The study revealed that out of five perceptual factors, Self-perception, and teacher professional perception emerged as significant correlates for success in final theory examination. Sharma (1973) made critical study of compulsory course in the theory of education offered by universities for the B.Ed/B.T degrees large number of secondary school trained teachers expressed that subject knowledge helped them most and training helped them least in becoming successful teachers and whole nearly 55 percent of the teachers found their training only “somewhat useful” about 39 percent found it really useful.

2.5.3 Studies Related to Academic Achievement and Gender
**Sarani et al. (2010)** Studied achievement in Mathematics of secondary school students with the objective to find out the differences in Mathematics scholastic achievement test in relation to gender, caste, type of school, nativity and medium of instruction at secondary school level by taking a sample of 480 students and found that girls performed better than boys in Mathematics scholastic achievement test; caste did not influence the performance in Mathematics scholastic achievement test; type of school, medium of school and locality influenced the performance in Mathematics scholastic achievement test.

**Vijayakumari (2010)** Studied correlates of academic achievement of secondary students with the objective to study the relationship of academic anxiety and achievement motivation with academic achievement, and to find out the interaction effect of academic anxiety, achievement motivation and gender on academic achievement by taking a sample of 400 students of IX class through Stratified sampling technique and found that academic achievement was negatively related to academic anxiety and positively related to achievement motivation; the interaction of academic anxiety and achievement motivation on academic achievement was not significantly different for boys and girls; the interaction effect of gender and academic anxiety on academic achievement did not differ significantly for different level of achievement motivation; the interaction effect of gender and achievement motivation on academic achievement did not differ significantly among different levels of academic anxiety.

**Chadha et al. (2008)** studied the impact of optimistic and pessimistic attitude on the academic achievement of adolescents and signifies that the optimistic or pessimistic attitude had significant relationship with academic achievement among male and female adolescents as well as adolescents. **Pandey et al. (2008)** studied the significance of difference between male and female adolescents on academic performance, achievement motivation, intelligence and socioeconomic status and found that there was no significant difference between male and female adolescents on the measure of academic performance.
Meera et al. (2008) studied the classroom learning environment and self-esteem as correlates of achievement in social studies and found that achievement in social studies was very with regard to differences in the self esteem of students; achievement in social studies for boys and girls vary with regard to the difference in their classroom learning environment. Subramaniyam et al. (2008) studied academic achievement and emotional intelligence of secondary school children and found that there was no significant difference with regard to the impact of gender on emotional intelligence and academic achievement, besides there being no relation between academic achievement and emotional intelligence.

Prashad (2007) studied the correlation between level of aspiration & school achievement in relation to gender and caste and found that gender and achievement of students did not have interactive effects on level of aspiration; the high achieving students had a higher aspiration level in comparison to low achieving students. Rajendran et al. (2007) studied parents’ education and achievement scores in chemistry with the objective to investigate the influence of parents education level on the achievement scores of students by taking a sample of 120 students and found that there was no significant difference between achievement of boys and girls in the post test, when the parents education was taken into consideration; there was no significant difference among achievement of zoology students in the post test, when the parents education is taken into consideration; there was no significant difference among the achievement of boys and girls of experimental group in the post test, when their parents education is taken into consideration.

Singh et al. (2007) studied the impact of caste, gender and habitat on achievement in Mathematics at upper primary school level with the objective to study the impact of caste, gender and habitat in achievement by taking a sample of 200 students of eighth class and found that boys were better than girls in achievement in Mathematics and students of urban areas were better in achievement than the students of rural areas. Uniyal (2007) studied the level of the aspiration and scholastic achievement in relation to gender and caste with the objective to study the level of aspiration that determined the scholastic achievement by taking a
sample of 514 adolescents and found that there exists a very high significant difference between the high and low achiever students in overall aspiration scale; gender and achievement of students do have interactive effects on the level of aspiration; level of aspiration was significantly influenced by scholastic achievement of students.

Panigrahi (2005) studied academic achievement in relation to intelligence and socioeconomic status of high school students with the objective to examine the influence of intelligence and socioeconomic status on academic achievement of high school students by taking a sample of 100 students from Bhubaneshwar city of Orissa and found that there was significant and positive correlation between academic achievement of intelligence; high intelligence leads to better academic success; There is a low positive correlation between academic achievement and socioeconomic achievement. Reddy et al. (2004) studied the school effectiveness factors and their contribution towards enhanced learning achievement by taking a sample of 242 middle schools students selected through simple random sampling technique and found that learning achievement of the rural students was lower than the achievement of the urban students; academic performance of girls was superior to the performance of boys; there was low and positive relationship between physical, curricular and administrative factors in the learning achievement of pupils in each subject; relationship between administrative factors of school effectiveness and learning achievement was negative and not significant.

Vamadevappa (2005) studied the impact of parental involvement on academic achievement among higher primary students with the objective to find out the extent of relationship between parental involvement and academic achievement by taking a sample of 200 students studying in 7th standard and found that there was a positive and significant relationship between parental involvement and academic achievement; There is a significant difference in the achievement scores of boys and girls of high and low parental involvement; There is also a significant difference between boys and girls in their academic achievement. Varte et al. (2005) studied intelligence and academic achievement in relation to the parent child relationship on
intelligence and academic achievement of high school students by taking a sample of 450 students selected through stratified random sampling technique and found no gender difference in intelligence, academic achievement and parent child relationship.

**Diseth (2003)** compared intelligence and academic achievement of adolescent boys and girls of IX and XI class and found that among students of class XI there was no difference in the academic achievement of intellectually superior and intellectually very superior boys and girls; at other intellectual levels the academic achievement of girls was superior to that of boys. In general the intelligence test scores of boys were higher than those for the girls; in case of boys there was very high correlation between intelligence test scores and academic achievement whereas in case of girls there was average correlation. **Gakhar (2003)** studied relationship between emotional maturity and self concept in academic achievement of students at secondary stage with the objective to find the difference in emotional maturity of boys and girls, students of urban and rural areas, students of government and private schools, children of working and non-working mothers with a sample of 200 students of secondary stage and found that there was a negative correlation between intelligence and emotional maturity; a significant correlation between emotional maturity and academic achievement of boys and girls.

**Jaganadhan (2003)** studied the effects of certain social, psychological factors in the academic achievement of students studying in classes VIII to X and found that the three levels of home environment as low, middle and high obtained 41.38, 47.05 and 62.37 of mean academic achievement respectively. Statistically the differences between the means yielded a significant effect of home environment for academic achievement (F=17.23 at 0.01 levels). Home environment yielded a correlation of 0.42 with academic achievement, which was highly significant. The partial correlation between home environment and achievement was 0.179, which was also significant. For boys and girls the respective correlations were 0.391 and 0.450. They were positive and significant.
Casinos (2003) studied interactive effect of mental health, school adjustment and socioeconomic status on academic achievement with the objective to find out the difference among students who were well adjusted and maladjusted to school environment differ in their academic achievement by taking a sample of 200 students (102 boys and 98 girls) with the age range of 15-16 years and found that mental health had significant determinant effect of achievement in school subjects; students having better social and emotional adjustment attain good academic scores. Varma (2003) examined the type of child rearing practices, personality and academic achievement of advantaged and disadvantaged students with the objective to find out the difference between groups with regard to personality traits, adjustment and academic achievement by taking a sample of 200 Hindu male students and found that students of advantaged and disadvantaged groups did not differ significantly on Cattell’s 14 personality factors, but there was significant difference between both the groups with respect to their academic achievement; negative relationship exists between anxiety and academic achievement; intelligence was a positive predictor variable of academic achievement; feeling of security and adjustment was related to academic achievement.

Suneetha et al. (2001) studied age and gender differences as factors affecting academic achievement and revealed that gender was more important variable than intelligence quotient in deciding high academic performance, girls were among top ranking students; girls were better in interaction and concentration while the boys were better than girls in language, reasoning and drilling dimension. Basant (2000) studied parental beliefs about education and child’s development and its relationship with school performance by taking an objective to study the difference in academic performance of students in relation to gender, intelligence and culture with a sample of 200 students selected through random sampling technique and found that there was difference in the total academic performance of students as well as in their scores in language, science, social science with respect to culture but not gender, parents beliefs about development due to learning as well as cognitive processes were relatively positive to students’ intelligence quotient as well as to their academic achievement.
Dangwal (2000) studied the relationship of reaction to frustration and academic achievement with the objective to study the relationship between academic achievement and aggression, types of reaction to frustration by taking a sample of 70 students of class V and found that relationship between intro-punitiveness and academic achievement, and extro-punitiveness and academic achievement were not significant among boys, girls and total group; in boys impunitiveness and academic achievement were significantly and directly correlated to each other; obstacle dominance and academic achievement were inversely correlated to each other; the relationship between ego defense and academic achievement was highly significant and strong.

Koreswara et al. (1998) studied reading achievement in relation to demographic variable with the objective to study the relationship between gender and reading achievement among high school students by taking a sample of 1296 students of 8th and 10th grade and found that girls were better than boys in reading achievement; class as a variable affected reading achievement of students of 10th class were far better in achievement than 8th and 9th class; students of residential schools performed better than day scholar students in rural and urban area; region and locality had no significant influence on reading achievement of high school students. Narayana koteswara and Ramachandra Reddy (1998) revealed that high school girls (N=645) are better than boys (N=648) in reading achievement.

Kaur (1992) studied the interrelationship between creativity, intelligence and academic achievement of 11th grade boys and found that relationship between creativity and intelligence was low but positive; academic achievement commonly influenced the correlation between creativity and intelligence; relationship between creativity and intelligence was non linear; low positive relationship existed between creativity and academic achievement; creativity commonly influenced the correlation between academic achievement and intelligence; the relationship between intelligence and academic achievement was linear. Kumaraswamy (1992) indicated that sex of the adult learners did not influence their achievement in reading, writing, arithmetic, (3Rs) as well as total achievement.
Viuayalakshmi and Hemalatha Natesan (1992) found that XI Standard girls (N= 50) have a higher mean academic achievement compared to the of boys (N=50) which in significant at 0.01 level. Ramaswamy (1990) observed that there is a significant difference between boys and girls of high and low achievers in academic achievement. Mahapatra (1987) reported that the sex of the B. Ed students (N=420) had a significant effect on teaching success intelligence, attitude towards teaching and vocational interest. Gupta (1987) studied the relation between Locus of control, anxiety, personality traits, level of aspiration and academic achievement of secondary school students with the objective to assess the magnitude and direction of relationship of Locus of control, anxiety, personality traits, level of aspiration with academic achievement by taking a sample of 670 students of average intelligence drawn from a population of 3780 students of class XI of Hindi medium schools of Allahabad city and found that Locus of control, anxiety, level of aspiration was correlated negatively with academic achievement, Socio economic status had significant positive correlation with academic achievement; boys were high achievers, more internally controlled and less anxious than girls.

Quraishi and Bhat (1986) conducted a study on 200 undergraduate students of M.S university of Baroda and found that the variable sex has a significant effect on academic achievement. Gopalacharyalu (1984) showed that sex did not have any influence on all three achievement variables, namely, theory, practical and total achievement of student-teachers of TTIS. Patil (1984) observed that there was no significant difference between the achievement of male and female – B. Ed students in four compulsory papers. Singh (1984) made a survey of the study habits of high, middle and low achieving adolescents in relation to their sex, intelligence and socioeconomic status and found that study habits of boys and girls differed significantly at different levels of academic achievement.

Gupta (1983) has shown that 9th class girls have on the whole greater achievement motivation and higher academic achievement than 9th class boys. The relationship between achievement motivation and achievement is positive and significant. Jaganadhan (1983) reported that sex does not have significant influence
on the academic achievement of V, VI, VII class pupils. Asud Ullakhan et al. (1982) showed that sex of pre – university students XII class was found to be not effective in bringing about any variation in the scholastic achievement. Patnalk and Panda (1982) found that the sex difference of found out of 16 P.F. is differ significantly in good and poor teachers. Dholakia (1980) found that in practice teaching of teacher trainees, the male trainees received more positive comments and the female trainees more negative comments but their achievement scores did not differ significantly.

Kolwadkar (1980) conducted study of gifted children in relation to their personality traits, level of adjustment and academic achievement and found that socioeconomic status, father’s occupation, education of parents, size of family, ordinal position, health status were significantly related to academic achievement, adjustment was positively correlated with academic achievement in the case of boys. Roach (1979) conducted a study of 206 boys and 212 girls from 5 urban elementary schools in Jamaica and found that the girls scored significantly higher than the boys in the mathematics achievement test. Roy (1978) reported no sex difference of teaching success between male and female teachers. Rangaswamy and Visvesvaran (1977) conducted a comparative study of the academic achievement of high school sportsmen and other students and found that there was no significant difference between the academic achievement of sportsmen and non – sportsmen in the S.S.L.C. (XI class) public examination. The girls who participated in sports have shown significantly better achievers than the boys Sex difference is however not significant in the case of non-sports students.

Vasanth Ram Kumar (1969) came out with the finding that the sex and academic achievement are significantly related to each other. Gupta (1968) observed that there were no significant difference between boys and girls of 9th class in any of the three variables under study, Viz, academic achievement, intelligence and economic status. Har govind gupta (1968) observed that except in the high intelligence group of VIII class pupils, a significant relationship academic achievement and sex there appears to exist in both the moderate and low intelligence
groups. **Padmanabhan Nayar and Visvesvaran (1966)** found that while there was no significant difference between the achievement of urban boys and girls of X class, there was significance between the achievement of rural boys and girls, the same results have also been obtained by **Balasubramaniyan and Feroze (1966)** while investigating the achievement of pupils of standard X in mathematics. **Pavithran and Feroze (1965)** found that there is no marked difference between boys and girls in scholastic achievement of tenth class pupils. Both are more or less on the same level of achievement. **Farquhar (1963)** found a significant relationship between academic achievement and sex of XI grade high school students. **Jayamma (1962)** observed that no influence of sex on teacher’s professional success at primary level. **Johnson Jr. (1955)** reported no significant relationship between sex and teaching effectiveness.

### 2.5.5 Studies Related to Academic Achievement and Subject Discipline

**Vasanthi (2010)** studied learning environment and academic achievement of higher secondary physics students with the objective to study the relationship between learning environment and academic achievement by taking a sample of 223 students of Mathematics and Science group and found that the correlation between learning environment and academic achievement of Hindu students, non BC students, and rural students vary significantly. **Noorjehan et al. (2009)** studied factors affecting academic achievement of IX standard students in mathematics and found that factors like mathematical creativity, attitude towards mathematics, achievement motivation and a low level of anxiety influenced the academic achievement in mathematics at secondary stage and recommend the inclusion suitable of curricular and co-curricular programs to improve performance in mathematics.

**Adeniyi et al. (2008)** studied five variables as predictor of academic achievement among school going adolescents and found that the causative factors of academic performance as a resident in the family, school, society and government were not significant in predicting the secondary students’ performance in two major subjects (English and Mathematics). But there was a significant relationship
between the causative factors resident in the child and the academic performance of the school. **Babu et al. (2008)** studied the achievement of higher secondary students in accountancy and their parental encouragement with the objective to find out whether there was any significant difference in gender, locality and family type with respect to higher secondary student’s achievement in accountancy and found that there was significant and relatively low relationship of higher secondary students in respect of achievement in accountancy and parental encouragement; no significant relationship in respect of parental encouragement and achievement in accountancy for female students, urban students and students belonging to joint family system; males, rural students and students of nuclear families showed better achievement than that of their counterparts.

**Gafoor et al. (2007)** studied the effect of private tuition on achievement in science of secondary school pupils and found that there was a significant difference between achievement in science of pupils belonging to tuition and non tuition groups, when intelligence and achievement motivation were controlled; achievement in science did not differ between two groups, but the pupils of low achievement motivation improved their achievement in science by receiving private tuition. **Nirmla et al. (2006)** studied optimization of academic achievement in mathematics with the objective to study the contributing factors and optimizing variables of academic achievement in Mathematics by taking a sample of 900 students from higher secondary classes and found that mathematics information processing skill, decision making skill and attitude towards mathematics had a significant contribution towards the academic achievement in mathematics; among the five factors of information processing skill two of them (surface disintegrated and strategic study) had played a significant role in getting maximum aggregate marks in mathematics; as regards the decision making, all the five factors (approach, internal, external, avoidance and quick) and played a prominent role in maximizing the aggregate performance in mathematics.

**Vijayalakshmi et al. (2006)** studied the relationship between stress and mathematics achievement with the objective to study the impact of gender, year of study, management, medium of instruction, parental educational qualification on
mathematics achievement of students by taking a sample of 180 students and found that there existed a negative and low correlation between students stress and mathematics achievement; gender, year of study, management, medium of instruction and level of parental educational qualification do not have an effect on mathematics achievement; students studying in urban local colleges were having higher mathematics achievement when compared to semi-urban and rural localities. **Laxmidhar Behera and Sushant Kumar Roul (2004)** investigated that there is significant difference at 0.01 level between the performance of Arts (N= 319) and Science (N=331) background B.Ed student – teachers. It demonstrates superiority of Science background student teachers.

**Balasubramanian and Siva Kumar (2001)** observed that (i) there exists a significant difference in academic achievement in the subject Teaching of Tamil and English and Teaching of English and Mathematics of Primary teacher training students. (ii) There is no significant difference in the academic achievement in the subjects. (a) Education in Emerging India and Educational Management and Educational Psychology and Child study. (b) Teaching of mathematics and teaching of Environmental study and (c) Teaching of Environmental study and Education Emerging India and Educational Management. **Nagaraju (2001)** conducted that academic achievement in all the school subjects in Telugu, Hindi, English, Mathematics, General Science and Social Studies in X class public examination have positive significant influence at 0.01 levels on the study habit of the pupils N=1800.

**Viswanatha Nair and Bindu (1998)** conducted a study on 879 pupils studying in 9th standard of the schools of Kerala state. The results revealed that (a) sex of the pupils is associated phenomenon of discrepant achievement in mathematics and social studies (b) Age of the pupils are associated with the phenomenon of discrepant achievement in Malayalam, Hindi, English and Social studies (c) The democratic variables are not significantly associated with discrepant achievement in many school subjects.

### 2.5.6 Studies Related to Academic Achievement and Type of Management
Aruna et al. (2009) studied academic achievement in relation to social phobia and socioeconomic status and found that there was no significant difference in the achievement of social studies for the students paired as government and private school; In the management of school and social phobia were not the factors influencing the achievement in mathematics; significant difference in achievement in social studies was observed for the students paired as boys and girls, rural and urban students, and high and low socioeconomic status groups. This indicates that factors like gender and socioeconomic status were the factors influencing the achievement in social studies.

Dhall et al. (2009) studied intelligence as related to self confidence and academic achievement of school students with the objective to explore the relationship between intelligence and academic achievement among secondary school students by taking a sample of 1000 students and found that there was a significant relationship between academic achievement and intelligence of secondary school students; there existed a significant difference between boys and girls of secondary school in terms of intelligence, there existed significant difference between boys and girls of secondary school in terms of academic achievement.

Gurubasappa (2009) studied intelligence and self concept as correlates of academic achievement of secondary school students with the objective to find out the relationship between academic achievement with intelligence and self concept by taking a sample of 400 students and found that there was high significant correlation between academic achievement with intelligence and self concept; there was significant difference in the academic achievement of students with different levels of intelligence and self concept; there was significant difference in the academic achievement of students in context of gender, type of school, medium of instruction, locality and socio economic status.

Bajwa et al. (2006) compared personality adjustment and academic achievement of senior secondary students of co-educational and single gender schools and found that there was a significant difference in academic achievement of girls studying in co-educational and single gender school; significant difference in
academic achievement of boys studying in co-educational and single gender school. **Chamundeswari et al. (2006)** studied general mental alertness and intelligence in relation to academic achievement of students at the secondary level with the objective to investigate the possible differences between academic achievement in Mathematics of students at secondary level in different types of schools by taking a sample of 291 students and found that there was a significant difference between achievement in Mathematics of students at secondary level in government, aided and matriculation, government and government aided, matriculation and corporation schools; there was no significant difference between achievement in Mathematics of students at the secondary level in corporation and government, corporation and government aided, government and matriculation schools; there was significant correlation between mental alertness, intelligence, achievement in Mathematics and English of students at the secondary level in different types of school.

**Vaidya (2006)** studied educational aspiration of higher secondary students and compared the academic achievement of students of formal and non formal education and found that there was significant difference in the academic achievement between the students studying through formal and non formal education in Telugu test; significant difference exist between students studying through formal and non formal mode of education in their academic achievement in the areas of vocabulary, reading comprehension, writing and grammar; students from non-governmental school had higher educational aspiration than the students from government school. **Panda (2005)** studied correlation between academic achievement and intelligence of class IX students with the objective to study the relationship between academic achievement and intelligence by taking a sample of 765 secondary school adolescents studying in government, aided and private schools and found that there was low relationship between intelligence and academic achievement in different categories of school and also there was a significant difference in academic achievement of students in different categories of school.

**Sindhu (2005)** studied teacher’s motivation, student adjustment and their academic achievement with the objective to compare school adjustment of boys and girls and their achievement level by taking a sample of 680 students of X class from
Kendriya Vidyalayas through stratified random sampling technique and found no significant difference in the achievement of boys and girls; better liking of teachers contributed to better achievement of boys; girls displayed superior adjustment as compared to boys. Singh (2005) studied the determinants of learner achievement at primary stage and found that high socio economic status was positively related with achievement, the achievement of students belonging to SC/ST groups was low; achievement of government school students was also poor.

Pandey et al. (2003) studied relationship between socio economic status and academic achievement of adolescents and found significant relationship between academic achievement and socio economic status; significant difference between academic achievement of adolescents studying in different types of school depending upon the socio economic status of parents. Haseen (1999) studied academic achievement as a function of social class, parent child interaction, dependency behaviour and school management and found that type of school and school management affects the academic achievement of students; all the four independent variables namely social class, parent child interaction, dependency behaviour and school management had significant effect on academic achievement of adolescents; sex differences did not yield any significant effect on academic achievement.

Kumari (1998) investigated intelligence, achievement, adjustment and socioeconomic patterns of different psychometric group of adolescents. A sample of 529 students was drawn from nine schools (government and private) of Jalandhar city (Punjab). The sociometric status of these students was worked out on the basis of a psychometric questionnaire and four extreme groups of peoples, neglected, isolates and registries were formed. Further, it was managed to keep 50 students in each category, so that final sample consisted of 200 students of class IX. These students were administered the Jalota group intelligence test, Mittal socioeconomic scale, and the self prepared social metric scale. The main findings of the study were that the group combinations of popular and neglectees, popular and isolates, popular and rejects differed significantly on intelligence; peoples accounted for significant differences from the other sociometric group on achievement; there existed a positive relationship between intelligence and achievement for all psychometric
groups; positive correlation exists between achievement and total adjustment for popular, neglectees, isolated and rejected.

Verma et al. (1991) undertook a study with the major objective to identify factors responsible for poor results in the secondary school examination and examining their bearing on school success. The sample consisted of 515 randomly selected students of class X from different academic streams and found that students’ who expressed high degree of ego involvement, indicated the degree of persistence and secured better marks in their final examination. Wongoo (1991) conducted a study to find out whether the students from government and private schools differ significantly so far as their socioeconomic status and academic achievement was concerned and found that the government and private school students from highly advanced, advanced and normal schools differed significantly so far as their socioeconomic status was concerned. Discerned significant difference on academic achievement was found between the students from government and private, highly advanced and advanced schools; academic achievement of students from normal government and normal private schools did not differ significantly; relationship between socioeconomic status and academic achievement when computed on total sample (N=180) was statistically significant.

2.5.7 Studies Related to Academic Achievement and Locality

Choudhary (2009) studied the family pattern and academic achievement of students and found that students from urban joint family were better in academic achievement than the students coming from a rural joint family; students coming from urban nuclear family were better in academic achievement than the students coming from rural nuclear families; urban students were better in academic achievement than rural students. Mohanty (2009) studied social correlates of academic achievement of rural underprivileged primary school girls and found that socioeconomic status was a potential social correlate of academic achievement; home environment had positive correlation with academic achievement in the case of low achievers only; school environment failed to establish any relationship with the achievement level of high and low achievers.
Mittal (2008) studied academic achievement of secondary level students in relation to their mental health and locality with the objective to study the academic achievement of secondary level students of different localities by taking a sample of 640 students of secondary level and found that there was significant difference in academic achievement of secondary level students of different localities; academic achievement of students urban locality was better than the academic achievement of rural locality of secondary level students; urban locality students had better teaching learning environment at school as well as at home than students of rural locality; relationship between academic achievement and mental health of students of secondary level of urban locality was highly significant; there was no significant difference between correlation coefficient of academic achievement and mental health of secondary level students of different localities.

Rajendran et al. (2007) report that are rural students were inferior to urban students in their achievement scores in chemistry at the college level and found that there was no significant difference between the achievement of boys as well as girls in the post test of chemistry; locality of students (urban/rural) had no influence on the achievement scores of students at the college level. Dwivedi (2005) studied the influence of school environment and approval motive on academic achievement of students with the objective to compare educational attainment of students belonging to different categories of schools according to their environment by taking a sample of 400 X class students from sixteen different institutions and found that students from schools with enriched environment had significantly better academic achievement than the students from poor school environment; academic achievement of students of urban schools was significantly higher than that of students of rural schools; the students who were high approval seekers had significantly greater achievement than the students who were low approval seekers.

Pandey (2005) studied parental disciplining behavior and academic achievement of adolescents and found that there was a positive effect of father’s disciplining behavior upon academic achievement of urban adolescents of a high intellectual level; rural adolescents showed positive and significant impact of mother’s disciplining behavior upon academic achievement of average intellectual
level. **Rajasekar (2005)** studied higher secondary students’ achievement in computer science with the objective to study the achievement of students in computer science by taking a sample of 410 first year higher secondary students and found that there was no significant difference between boys and girls, urban and rural students, and students studying in private and government schools in respect of their achievement in computer science.

**Gakhar et al. (2004)** studied social stress, locality and gender as the factors affecting academic achievement with the objective to study how social stress, locality and gender and their various interactions separately affect the academic achievement and the reasoning ability of the students by taking a sample of 769 students of Jammu division and found that rural students as well as male rural students scored high academic scores as compared to their counterpart. Rural students scored higher on the reasoning ability test than urban students, although locality was affecting the reasoning ability of the students significantly at 0.01 levels. **Ganguly (2004)** studied determinants of academic achievement in rural and urban areas and found that parental care about child’s education, emotional climate at home and socio-economic status of family had a positive correlation and crowded living conditions at home had a negative correlation with the academic achievement of students in rural and urban areas; library facilities, teacher’s training, teacher’s classroom behaviour and attitude towards teaching had a positive correlation and student teacher ratio had a negative correlation with the academic achievement of students; peer influence and movies had significant and positive correlation, and the distance between home and school had significant negative correlation with achievement of students; attentiveness to study, school attendance, health and interest in study had a positive correlation with students’ achievement.

**Mehera (2004)** explores a study on the achievement at secondary level with the objective to assess the students’ achievement in Mathematics, the nature of major learning environment, scientific attitude and attitude towards subject with a sample of 600 students of urban and rural areas of Burdwan district in West Bengal and found that achievement in Mathematics was significantly related to major learning environment; urban students showed significantly higher achievement in
Mathematics, better learning environment and better attitude towards Mathematics leads to good academic scores; no sex wise difference was found in the achievement of students in Mathematics. Jayaswal et al. (2003) examined the role of parental support and academic achievement of tribal school students by taking a sample of 300 students through multistage sampling technique and found that parents of high achievers exerted significantly more support in their children’s studies than the parents of low achiever students; the parents of high achievers had higher aspiration for their children’s educational success and high prestigious occupation with attractive financial return, but the parents of low achievers were not strongly ambitious of children’s upward mobility; the high achievers parents believed in counseling like frequent beating. High achiever parents were liberal and allowed their children to mix with their peers, whereas the parents of low achievers were authoritarian and did not allow peer mixing.

Adepoju (2002) studied locational factors, private cost and academic performance of secondary school students and found that significant differences existed in the academic performance of students in urban and rural secondary schools, particularly in English language; the locational factors did not contribute significantly to the academic performance in English language and Mathematics. Vyás (2002) studied learning style, mental ability, academic performance and other ecological correlates of under graduate adolescent girls with the objective to study the effect of ecological correlates on the academic performance of girls students by taking a sample of 545 adolescent girls and found that most of the girls showed academic attainment of average level; no significant difference in the achievement of girls belonging to arts and science group; there was significant differences in the learning style and mental abilities of girls residing in urban and rural area.

Tehlan (2001) conducted a comparative study of the impact of general intelligence, level of aspiration and awareness of facilities on the academic achievement of scheduled caste students by taking students of senior secondary stage and found that general intelligence of male scheduled caste students were better than the female scheduled caste students; general intelligence of rural male scheduled caste students were better than the urban male scheduled caste students;
general intelligence of female urban scheduled caste students was better than the rural female scheduled caste students; intelligence level of female urban scheduled caste students were better than the rural female scheduled caste; level of intelligence of the urban male scheduled caste students was better than the rural male scheduled caste students.

Joshi (2000) conducted a study on neuroticism, extraversion and academic achievement as related to gender and culture. The sample chosen for the study was 400 students of VIII class belonging to urban and rural areas. Eysenck’s personality inventory was used for data collection. Results revealed a significant difference between boys and girls in rural areas of academic achievement. Mishra (1997) examined the correlates of academic achievement of high school students and found that intelligence was significantly correlated with academic achievement for both boys and girls; the correlation between intelligence and academic achievement was higher in case of girls; socioeconomic status was not significantly related with academic achievement of boys and girls; academic achievement of rural students was lower than the achievement of urban students; academic performance of girls was superior to the performance of boys.

Bookman (1996) studied academic adjustment in relation to scholastic achievement of secondary school pupils by taking a sample of 545 senior secondary school students and found that academic adjustment was significantly related to the scholastic performance; the scholastic performance and locality were unrelated; there was no difference among the subjects from urban, semi-urban and rural localities with regard to scholastic performance. Verma (1995) studied academic achievement of girls students in relation to their rural, urban background and found that IX grade rural students scored higher than urban students though they had lower level of aspiration and low intelligence quotient. Ecological deprivation was negatively related to achievement. Singh (1984) studied the effect of the level of aspiration on achievement and found that rural students received lower marks than urban students and there was a positive correlation between level of aspiration and achievement.
2.5.8 Studies Related to Academic Achievement and Medium of Instruction

Paltasingh (2008) studied relationship among creativity, intelligence and achievement scores of secondary school students with the objective to study the correlation between creativity and intelligence; intelligence and science achievement; intelligence and scholastic achievement by taking a sample of 180 subjects of IX class from Oriya medium secondary school and found that there was significant positive correlation among creativity and science achievement, creativity and scholastic achievement, intelligence and science achievement as well as intelligence and scholastic achievement.

2.5.9 Studies Related to Academic Achievement and Age Groups

Dange et al. (2007) studied library facilities and the academic achievement of secondary students with the objective to find out the correlation between library facility and academic achievement of secondary students by taking a sample of 100 students in the age group of 16-17 years and found that intelligence and academic achievement were directly related to the psychological character of an individual; reading ability, concentration and sitting hours improves the academic scores of students. Kumaran (2003) studied organizational climate and academic performance with reference to the school, age, management and sex, and found that younger schools were better in academic performance; unaided private schools had better position than government corporation and aided private schools in all aspects of organizational climate and academic performance; mixed schools had better organizational climate aspects than unisex schools and also the academic performance was good in these schools.

2.5.10 Studies Related to Academic Achievement and Birth Order

Sputa et al. (1995) conducted a study on birth order and family size influence on adolescent and related parenting behaviors. The Subjects were 195 IX grade boys and girls and their parents from urban, suburban and rural communities in southeast and Midwest Asia. Questionnaires to measures adolescent and parent’s perception of parenting style and parental involvement were used. Results
showed birth order and family size influence adolescents academic achievement. **Munroe and Munroe (1984)** conducted a study on birth order and intellectual performance in three East African societies. The sample consisted of 147 secondary school girls in the Gursil, kipsigis and largely tribal areas in East Africa. The results indicated that overall school grades and performance were negatively related to birth order in all the 3 societies indicating that birth order was negatively related to Academic achievement of children. **Miner (1968)** conducted a study to find the relationship between birth order and the academic achievement of the children. The results revealed that first born children and children in small families achieved a higher level than later born children in large families.

### 2.5.11 Studies Related to Academic Achievement and Parental Income

**Nagaraju et al. (2002)** studied the study habits of IX class pupils in relation to certain sociological factors. Pupils studying IX class were selected for this study. The total sample for final study was 460. Results revealed that fathers and mothers educational qualification have significant influence on the study habits. The annual income of the family has no significant influence on the study habits of IX class pupils. **Grewal (1985)** carried out a study to find out the effect of socio-economic status on academic performance of children. The sample consisted of 550 students (335 boys and 200 girls) from 16 higher secondary schools of Bhopal studying in class XI, with modal age of 16, socio economic status of parents was assessed by using Kuppuswamy’s socio economic status scale. The results revealed that academic performance was influenced by socio economic status of the subjects.

### 2.5.12 Studies Related to Academic Achievement and Parental Occupation

**Budhdev (1999)** conducted a study, which was designed to compare academic achievement among children of working and non working mothers studying in secondary schools of Saurashtra region. The sample included 307 girls of non-working mothers. Academic achievement of the children of working mother was greater than the children of non-working mothers. **Singh (1996)** studied the personality characteristics of school adolescents in relation to their mother’s
employment. A sample of 200 students drawn from the schools of Agra (Bihar) of age 18-21 years were in 100 students was of a working mother’s group and 100 of the housewives. Hindi adaptation of 16 PF questionnaires was used. The results revealed that subjects of working groups of mothers generally seemed to be outgoing, open minded, emotionally more stable, bold, venturesome, adaptive to change, independent in decision making and active, while students of non-working group of mothers were found more reserved, less outgoing, emotional, shy, conservative, withdrawing, traditional oriented and depending.

**Muller (1995)** examined how parental involvement intervenes in the relationship between maternal employment status and mathematics achievement in terms of educational adjustment of 8th grades. Data on 13,831 students and their parents from the National Educational Longitudinal Study of 1988 (NELS, 1988), base year and 1st year followed up were analyzed. The findings showed that part time employed mothers generally had the highest levels of involvement. Children performed better on base year tests when mothers were employed part time or not employed. **Mallik and Katyal (1993)** they found that daughters of working mothers exhibited more frustration as compared to the daughter of non-working mothers. The first possible reason for such findings could be that the mother who is working loses lots of her valuable time due to employment, which otherwise could have been devoted to her girl child.

### 2.5.13 Studies Related to Academic Achievement and Parental Education

**Pal et al. (1996)** studied social-psychological factors, which promote student’s mathematics competence among urban and tribal students. A sample comprised of 194 urban and 132 tribal students was administered mathematics achievement test developed by the National Council of Educational Research and Training. It consisted of three parts. First part contained information regarding age, caste, parental education and occupation, family, gender etc. Second and third sections measured Self-concept and locus of control, respectively. The test of significance revealed that mathematics competence of urban students was positive.
and there existed significant relationship between fathers had higher educational status performed better in mathematics.

2.5.14 Studies Related to Academic Achievement and Type of Family

Similarly, Cherian (1990) study revealed a negative relationship between family size of children and their academic achievement. He conducted a study on family size and academic achievement of children. The sample consisted of 369 boys and 652 girls in the age range of 13 to 17 years who represented total 7 standard external examination conducted by the Department of Education of the Government of Transkel was taken. Raj and Krishnan (1980) carried out a study to determine the relationship between academic achievement with family size. The sample consisted of 300 pupils (149 boys and 151 girls) studying in standard IX of 8 secondary schools in Trivandrum city. The results revealed that the correlation between academic achievement and family size was negative and not significant.

Conclusion: Summarizing the research studies cited above it could be inferred that teaching effectiveness depends on the content knowledge of the subject as well as the generic pedagogical knowledge. In addition to this teaching effectiveness seem to be significantly influenced by teacher characteristics like aptitude for teaching and cognitive style, i.e. thinking and learning style. Content knowledge of B.Ed student teachers could be assessed by evaluating their academic proficiency. Pedagogical knowledge of student teachers perhaps in a way gets reflected in the “Aptitude for the Teaching”.

The survey of related literature has helped the investigator to have clear perspective of the problem chosen for the present investigation. It has enabled the investigator to formulate relevant hypotheses for the present study, as well as the methodology to gather relevant data for the present study. It has also helped the investigator to interpret the obtained findings in the light of the previous research studies. A detailed description of procedure followed for the investigation is presented in the next chapter.