CHAPTER-II

REVIEW OF RELATED LITERATURE

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

The review of related studies is an exacting piece of work calling for a deep insight and clear-cut perspective of the overall field. It is a crucial step which invariably minimizes the risk of the dead ends, rejected topics, rejected studies, wasted efforts, trial and error activity and even more important, erroneous findings based on a faulty research design. The review of literature also promotes greater understanding of the problem and its crucial aspects and ensures the avoidance of unnecessary duplication.

Emphasizing the importance of survey of related literature, Goods (1973) and others mentioned, “The competent physicians must keep constantly abreast of the latest discoveries in the field of medicine, the successful lawyer must be able to locate the information pertaining to the case in hand; obviously, the careful student of education, a researcher and investigator should become familiar with the location and use of sources of educational information”.

The review of related studies imply locating, studying and evaluating reports of relevant researches, study of published articles, going through related portions of Encyclopedias and Research Abstracts, study of pertinent pages out comprehensive books on the subjects and going through related manuscript if any. For any worthwhile study in any field of knowledge the research worker needs an adequate
familiarity with the work which has already been done in the area of his/her choice. He/she needs to acquire up-to-date information about what has been thought and done in the particular area. He/she has to build upon the accumulated and recorded knowledge of the past. He/she draws maximum benefits from the previous investigations, utilizes the previous findings, takes many hints from the designs and procedure of previous researches, matches his conclusions with the conclusions drawn earlier and tries to add from his side a line or two to the existing store of knowledge.

The preliminary survey of previous studies, literature, discussions and experiences related to the problem under investigation may accomplish a number of purposes. The search for related material is a time consuming but fruitful phase of any research programme. Its specific purposes are:

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

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

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

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

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

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

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

Keeping in view the importance of review of related literature the investigator reviewed the related literature. It is based on the material like Survey of Research, Research Journals, Research Abstracts and Encyclopedias available in different national level libraries, universities, Educational Research Centres of the country and abroad as well as studies available on website have been discussed under the following categories:

2.1 STUDIES CONDUCTED ABROAD

Luckher, Rosenfield, Sikes and Aronson (1976) found that as compared to traditional classrooms, Jigsaw improved academic achievement on a social studies lesson.

Johnson, Marugama, Johnson, Nelson & Skon (1981) concluded that cooperative learning experiences tend to promote student achievement more than they do under the traditional setting.

Perreault (1983) made an investigation on the study to experimentally comparing cooperative learning to non-cooperative learning with regard to their effects on cognitive achievement at the knowledge, comprehension and application levels of Bloom's Taxonomy with grade industrial art classes and found significant treatment effects in favour of cooperative learning for enhancement of achievement of the students.

Okebukola and Ogunniyi (1984) supported the effects of Cooperative, learning vis-à-vis Competitive and Individualistic interaction patterns on students’ achievement and -their level of acquisition of practical skills, showing clearly increased effects of cooperation on student achievement.
Stodolsky (1985) pointed out that an equally compelling argument can be made for CL on the basis of the effect it can have on reducing students’ anxiety by creating a relaxed, tension.

Hall, Lee Elhs (1988) while working on the effects of cooperative learning on achievement via vote analysis, and meta-analysis of the effects of cooperative goal structures on academic achievement, revealed as a major finding that the effect of cooperative learning on achievement differed in regard to the length of study, grade level and subject.

Watson, Scott and Marshal (1988) on the effects of the cooperative learning technique on the achievement of high school students with the main findings that there is an additive effect in using the components of cooperative learning, and that heterogeneous grouping and group incentives appear necessary to maximize students' achievement.

Bonaporte, E.P.C. (1989) compared the effects of two forms of classroom organization, that is, Cooperative-Mastery Learning (STAD) and Competitive-Mastery Learning on the mathematical achievement and self-concept of students, revealed superiority of the Cooperative Mastery Learning (STAD) form of classroom organization over the Competitive-Mastery Learning a sufficient indication that the act of combining Cooperative Learning procedures with Mastery Learning procedures results in enhancing mathematical performance and self-concept of students.

Slavin's (1990) reviewed of more than 70 high quality studies found that in most of these studies, the measured effects of cooperative learning on student achievement vis-à-vis those of traditionally taught control groups on the same objectives were significantly greater in cooperative learning groups than in control classes.

Eugene (1990) studied the effects of cooperative learning in the 149 traditional classroom on student achievement and attitude, too, indicated that the experimental group improved more than the control group academically.

McManus and Gettinger (1996) examined the teachers’ use and evaluation of cooperative group learning along with students’ reactions to working in groups and their verbal interactive behaviours during group activities and found positive
academic, social and attitude outcomes in the classrooms. Majority of student interactions were directly related to teaching and learning. Behaviours such as listening to another student or watching a student demonstrate how to complete a task occurred most frequently during group activities.

Nowak (1996) explored the effects of a cooperative learning programme on academic performance, cooperative interactions during lessons, and pro-social behaviours during play activities kindergarten classrooms. Scores on curriculum based mathematics probes and direct observations of cooperative interactions during the intervention served as primary dependent measures. Pro-social behaviours were assessed by direct observation in a free play outside the classroom. Results indicated that the cooperative learning procedures lead to improved academic growth as measured both by the curriculum-based mathematics probes and the mathematics section of the standardized group readiness test. Levels of cooperative behaviours increased during the instructional period when cooperative learning was in effect. Pro-social skill learned and practiced during the intervention generalized to the free play settings in and outside of the classroom environments. An increase in interactive play behaviours was observed for all participants during these time periods. For cooperative behaviours, the generality of effects with respect to maintenance over time was not supported. Social validity data suggested that teachers, students and parents found the cooperative learning procedure to be effective and acceptable.

Jordan and Metais (1997) identified the lack of social skills on the part of some school students is one contributory factor in student misbehaviour. The study suggested that cooperative learning contributes to the fostering of social skills in students of all ages. A ten-week programme of cooperative learning was implemented in a class of 10-12 year olds, to develop their social skills alongside their academic skills. It was found that as a result of programme social interactions became noticeably more varied and students agreed to work in assigned groups, even when they did not like some members of the group. Interpersonal relationships between students and teacher improved considerably for the isolated students.
McInerney et al. (1997) conducted a study, “Effects of metacognitive strategy training within a cooperative group learning context on computer achievement and anxiety: Cooperative groups scored significantly better on achievement tests, self-concept, and sense of control-mastery than did the direct instruction groups. Paradoxically, for the initially high-anxious learners, some aspects of computing anxiety remained high in the cooperative group relative to the direct instruction group, suggesting that anxiety may facilitate learning.

Muth (1997) found that cooperative learning could be used effectively during mathematics instruction to increase student comprehension of word problems, as well as to help them develop problem-solving skills. In the article “Using Cooperative Learning to Improve Reading and Writing in Mathematical Problem Solving,” she provides examples of how to implement cooperative learning in the mathematics classroom. Based on her experiences, The author concludes that cooperative learning can improve reading and writing, as well as interpersonal skills, during mathematics instruction, particularly when students are working on problem-solving strategies.

White (1997) investigated the effects of cooperative learning method and group activities on the secondary school students’ mathematics Anxiety Rating Scale. The pretest and posttest scores indicated that both the control and experimental groups began and ended the study with the same level of mathematics anxiety.

Antil, et al., (1998) examined the prevalence, conceptualization and form of cooperative learning used by elementary teachers. Survey was conducted and data indicated that 93% of teachers (n=85) from six elementary schools in two districts used cooperative learning methods. Interviews conducted with a sub-set of those teachers (n=21) all indicated having daily cooperative lessons in several subjects. It was found that majority of teachers subscribed to cooperative learning to achieve both academic and social learning goals, structured tasks for positive interdependence, and taught students skills for working in small groups. It was further highlighted that primarily, few teachers were employing recognized forms of this practice, because they did not tie individual accountability to group goals.

Xiaoping, Bernard and Margaret (1998) conducted a study, “Issues of Cooperative Learning in ESL Classes: A Literature Review” This article reviews the
research literature on cooperative learning in the second language (L2) classroom in relation to L2 acquisition, maintenance of first language (L1), the integration of language and content learning, and L2 learners' perceptions, and discusses some issues and problems of this educational innovation in an English as a second language (ESL) context. Although acknowledging the reported potential benefits of cooperative learning for L2 learners, it calls for further research to examine the types of L1 and L2 discourse produced in cooperative groups and find out about student development of academic discourse, to investigate whether L1 use in cooperative groups affects the interracial and intercultural relationships between students who speak different L1s, to look at the role of students' prior knowledge in L1 in their learning of new content knowledge in L2 in cooperative groups, and to explore how different groups of ESL students perceive cooperative learning and how cultural and educational backgrounds may influence their perceptions.

Earley (1999) investigated the effect of cooperative learning on the group work and social skills interaction of 64 social studies student from grade 9 to 11 during a twelve-week period. The self report group function survey was used to assess the significance of whether instruction of social skills is important in the cooperative learning setting. The student choice form was used to establish the significance of social skills being taught and to determine the effects on increasing friendship among group member. Results of the survey indicated that social skills taught through cooperative learning methodology increased group effectiveness as well as interpersonal interaction.

Cynthia et al. (2000) conducted a study, “Dynamics of Peer Education in Cooperative Learning Workgroups”. According to them many recent studies demonstrate that cooperative learning provides a variety of educational advantages over more traditional instructional models, both in general and specifically in engineering education. Little is known, however, about the interactional dynamics among students in engineering work groups. To explore these dynamics and their implications for engineering education, we analyzed work sessions of student groups in a sophomore-level chemical engineering course at North Carolina State University. Using conversation analysis as a methodology for understanding how students taught
and learned from one another, we found that group members generally engaged in two types of teaching-learning interactions. In the first type, transfer-of-knowledge (TK) sequences, they took on distinct teacher and pupil roles, and in the second, collaborative sequences (CS), they worked together with no clear role differentiation. The interactional problems that occurred during the work sessions were associated primarily with TK sequences, and had to do with students who either habitually assumed the pupil's role (constant pupils) or habitually discouraged others' contributions (blockers). Our findings suggest that professors can facilitate student group interactions by introducing students to the two modes of teaching interaction so group members can effectively manage exchanges of knowledge in their work, and also by helping students distribute tasks in a way that minimizes role imbalances.

Keith and Campbell (2000) reported that family was the most important factor-influencing factor for the social and emotional development of a child.

Bryan & Kent (2001) examined cooperative learning between pairs of college students in the field of education. Their findings indicated that cooperative learning did not decrease students' levels of anxiety.

Terenzini et al. (2001) conducted a study of nearly 500 undergraduate engineering students from six diverse institutions indicated that cooperative learning produced “statistically significant and substantially greater gains in student learning than those associated with more traditional instructional methods.” Even with differences in pre-course characteristics and learning advantages, levels of understanding and retention still increased in the cooperative learning settings.

Mara et al. (2001) conducted a study, “Linkages Between Children’s Social and Academic Competence: A Longitudinal Analysis”. In this study, the relation between social and academic competence was examined in a group of school-age children (N = 163) using structural equation modeling to determine the direction of influence between these two domains across time. A model posing that a reciprocal relation exists between the two domains was tested. The two nested models within the reciprocal model were also tested. To test these models, social acceptance as well as prosocial and aggressive behaviors were assessed by teachers and peers, and children’s academic achievement was measured by language and math report-card
grades and work skills. Results supported the reciprocal model, indicating that academic achievement directly influenced social competence from both first to second and second to third grade, and social competence was reciprocally related to academic achievement from second to third grade.

Peterson and Miller (2004) compared the experiences of college students during cooperative learning and large group instruction to discuss how they could apply important psychological principles to teaching-learning projects, under graduate education psychology students were assigned to small groups. During cooperative learning and large group instruction perceptions of their experiences with experience sampling method were measured. It was found that overall quality to experience was greater during cooperative learning benefits occurred specially for thinking on task, student engagement, and perceptions to task importance, and optimal levels of challenge and skill. Study revealed that students were more self-conscious and reported more difficulty concentrating during cooperative learning.

Samuel and John (2004) examined how the cooperative class experiment (CCE) teaching methods affect students’ achievement in Chemistry. The study found that CCE method facilitated students’ chemistry learning more than regular methods.

Williams, Devon (2004) suggested that colleges and universities can improve intergroup relations on campus by implementing a cooperative learning technique known as the jigsaw classroom. Study involved an argue as that use of the jigsaw classroom would facilitate a re-categorization process by which members of racial ethnic groups other than one’s own (them) would begin to be seen as being members of a more inclusive, “We”. The study included an examination of on-campus racial discrimination a discussion was made on some social psychological work and ultimately found that jigsaw classroom has the potential to reduce this type of discrimination.

Matthew (2006) conducted a study, “Language Learning Theories and Cooperative Learning Techniques in the EFL Classroom”. The researcher pointed out that group work in the educational context generally involves a small number of students working together to achieve a task. However, not all group work provides equal opportunities for learning for all members of the group. Cooperative learning
techniques allow instructors to more effectively structure and implement group work in their classrooms. This paper first discusses prevailing cognitive and social-cultural theories of second language acquisition, and then argues that cooperative learning as a teaching methodology not only adequately addresses the theories, but can be a powerful tool for language instructors in English as a Foreign Language (EFL) contexts where few native speakers of English are available as a resource for students. Finally, the paper gives several examples of cooperative learning techniques and tasks that used the techniques.

Gokce & Derin (2007) investigated the effects of cooperative learning in form of peer feedback, on the writing anxiety of Turkish prospective teachers of English. Results of the quantitative data showed that students in the cooperative learning group experienced significantly less writing anxiety than the students in the teacher-centered group. This indicates that students in the cooperative learning group showed a significantly higher decrease in writing anxiety level than their colleagues in the teacher-centered group. However, some researchers did not agree with the fact that cooperative learning can reduce anxiety in students.

Nakahashi (2007) used structured cooperative learning activities to reduce language anxiety of first-year students in Akita University by providing a non-threatening, supportive environment to language learning development. The outcomes showed that while the students’ learning anxiety was lowered, their language learning achievement scores improved significantly.

Hosseini (2007) conducted a study “Aspects of Cooperative Learning. Concurrent with the process of globalization, the pendulum in education is swaying towards interactive ways of learning/teaching”. According to him, education, in the past decades, has experienced a shifting paradigm from text-based pedagogy towards context-focused andragogy. And some modern approaches like cooperative Learning or contributive learning is rapidly evolving by virtue of the demand of such a context. By reintroducing cooperative learning, the author intends to recalibrate teachers’ attention. This study makes an attempt to highlight the significance of cooperative learning as the need of the hour in today’s world especially in the context of globalization.
Hosseini (2008) conducted a study “Cooperative Learning Methods”. According to him Cooperative Learning (CL) is a broad phrase for an effective approach to education. It has a number of methods/models such as Group Investigation, and Competitive Team Based Learning. Although at the surface structure they seem to follow the same principles, each of these methods has its specific features, which distinguishes it from others. This study is an introduction to these methods. It also an attempt to introduce a more realistic method of CL, developed by this researcher, which tries not only to reflect the realities of the real world in order to meet the challenges of globalization at class level, but also to affect the norms and principles of the real world. Certain misgivings or doubts regarding the meagre scope for the spirit of competition and individual achievements in this method of CL have been addressed.

Law (2008) conducted two separate experimental studies on the effects of cooperative learning on 2nd-graders’ motivation and comprehension of text. In the first study, students in cooperative learning groups (n=160) were compared with their counterparts in traditional instruction groups (n=107). The results showed a significant difference between the two groups, with more favorable perceptions of teachers’ instructional practices and better reading comprehension in the experimental groups than in the control groups. In the second study, 51 second-graders participated in the instructional intervention program (cooperative learning). The results showed that students’ positive cooperative behavior and attitudes were related to their motivation and reading comprehension. When students perceived that their peers were willing to help each other and were committed to the group, they tended to be more motivated and performed better in reading comprehension.

Paleeri S. (2009) conducted a study “Cooperative Learning Strategies in Classrooms the Effective Accomplishment of MITA.” This theoretical study aims to understand the cooperative learning strategies, their significance and possibilities as effective method to nurture multiple intelligences and to identify the linkages of cooperative learning with MITA.

Ahmad and Mahmood (2010) conducted a study, “Effects of Cooperative Learning vs. Traditional Instruction on Prospective Teachers’ Learning Experience
and achievement”. This study investigated the effects of three experimental conditions on prospective teachers’ learning experience and achievement in the course of Educational Psychology. The conditions comprised (a) Traditional Instruction (TI) (b) Cooperative Learning Loosely Structured (CLLS) and (c) Cooperative Learning Students Team Achievement Division (CL STAD) model. The study explored change in students’ scores on learning experience and difference in achievement under these experimental conditions. Thirty-two student teachers enrolled in master degree program were the subjects of the study. Repeated measure design was used for the study. Thirty intervention lessons (ten in each condition) were delivered during the whole semester. Learning experience measure and Achievement test were administered at the end of each phase. The results of repeated measure analyses of variance (ANOVA) reveal that there is statistically significant difference between prospective teachers’ scores on learning experience measure across three experimental conditions. ANOVA results also reveal that there is a statistically significant difference in achievement scores favoring both CL conditions. The study concludes that cooperative learning enhances perspective teachers’ academic achievement as compared to traditional instruction and promotes enriched, enjoyable and interactive learning experience. The study has implications for teacher educators to prefer innovative instructional strategies as CL while teaching to prospective teachers.

Zakaria (2010) investigated the effects of cooperative learning on students’ mathematics achievement and attitude towards Mathematics. The purpose of this study was to determine the effect of cooperative learning on mathematics achievement and attitude towards mathematics. Approach: This quasi-experimental study was carried out on two form one classes in Miri, Sarawak. One class (n = 44) was assigned as an experimental group and the other (n = 38) was assigned as a control group. The two groups were pre-tested prior the implementation. At the end of the study, post test was given, while daily quiz was used as a tool for formative testing. Teaching and learning process was carried out for two weeks. Data were analyzed using the t-test to determine performance by comparing the mean of the post test for treatment and control group. Results: The results of this study showed that
cooperative learning methods improve students’ achievement in mathematics and attitude towards mathematics. The researchers concluded that cooperative learning is an effective approach, which mathematics teachers need to incorporate in their teaching.

Shimazoe and Aldrich (2010) provide several benefits on the use of cooperative learning approach for students. First, cooperative learning promotes deep learning of materials. Second, students achieve better grades in cooperative learning compared to competitive or individual learning. Third, students learn social skills and civic values. Fourth, students learn higher-order, critical thinking skills. Fifth, cooperative learning promotes personal growth. Finally, students develop positive attitudes toward autonomous learning.

Suwantarathip (2010) conducted a study, “The Impacts of Cooperative Learning on Anxiety and Proficiency in an EFL Class”. The purposes of this study were to examine the effectiveness of cooperative learning approach in reducing foreign language anxiety and to investigate its impact on language proficiency of 40 sophomore students enrolled in EN 211 course in the second semester of 2009 academic year at Bangkok University. Three instruments employed were the standardized Foreign Language Classroom Anxiety Scale (FLCAS) (Horwitz, Horwitz, & Cope, 1986), two proficiency tests covering reading and writing skills, and a semi-structured interview. The pre- and post- scores from the questionnaire and the tests of the group were calculated for descriptive statistics and compared using a paired sample t-test measure. It was found that the students’ top five sources of language classroom anxiety and overall language anxiety were significantly decreased. In addition, they obtained higher language proficiency scores for the post-test than the pre-test at the significance level of .001 after learning through this approach. The students also had a favorable attitude toward cooperative learning as a whole.

Wichadee (2010) conducted a study, “The Impacts Of Cooperative Learning On Anxiety And Proficiency In An EFL Class Ornprapat Suwantarathip”. The purposes of this study were to examine the effectiveness of cooperative learning approach in reducing foreign language anxiety and to investigate its impact on
language proficiency of 40 sophomore students enrolled in EN 211 course in the second semester of 2009 academic year at Bangkok University. Three instruments employed were the standardized Foreign Language Classroom Anxiety Scale (FLCAS) (Horwitz, Horwitz, & Cope, 1986), two proficiency tests covering reading and writing skills, and a semi-structured interview. The pre- and post- scores from the questionnaire and the tests of the group were calculated for descriptive statistics and compared using a paired sample t-test measure. It was found that the students’ top five sources of language classroom anxiety and overall language anxiety were significantly decreased. In addition, they obtained higher language proficiency scores for the post-test than the pre-test at the significance level of .001 after learning through this approach. The students also had a favorable attitude toward cooperative learning as a whole.

Awan, Riffat-un-Nisa; Azher, Musarrat; Anwar, Muhammad Nadeem; Naz, Anjum (2011) conducted a study, “An Investigation of Foreign Language Classroom Anxiety and Its Relationship with Students' Achievement, Journal of College Teaching & Learning”. The present study examines anxiety in English undergraduate classes with regard to the type of situations that provoke anxiety during different stages of the learning process and the relationship of anxiety with learners' achievement. Participants of the study include 149 undergraduates enrolled in second and sixth semester of different departments of University of Sargodha who are learning English as a foreign language. The questionnaire used in this study is the abbreviated form of Foreign Language Classroom Anxiety Scale (FLCAS). An inventory is also used to determine different situations that provoke anxiety. Finally, students' GPA in English classes is taken to find its relationship with language anxiety. The results show that language anxiety and achievement are negatively related to each other. It is also found that female students are less anxious in learning English as a foreign language than male students. "Speaking in front of others" is rated as the biggest cause of anxiety followed by "worries about grammatical mistakes", "pronunciation" and "being unable to talk spontaneously". It is suggested that the classroom environment should be encouraging and motivating. Moreover, teachers need to deal with anxiety-provoking situations carefully.
Lavasani and Khandan (2011) investigated the effect of cooperative learning on mathematics anxiety and help seeking behavior. The present study surveyed the effectiveness of cooperative learning over mathematics anxiety and help seeking behaviour of first grade of high school girl students. Experimental research method was pretest - posttest type which lasted for 8 meetings. For measurement of variables has been used from mathematics anxiety questionnaire and help seeking questionnaire (acceptance and avoidance from help seeking). In respect of executing project plan in pretest level and after execution of two questionnaires, based on highest mark of mathematics anxiety, 40 students from two schools have been selected randomly matching and were put at two groups of control and experimental. Teaching some subjects from math book at control group in traditional way and in exam group has been in cooperative learning method. After termination of educational meetings, again two questionnaires of mathematics anxiety and help seeking behaviour performed over some persons. For data analysis has been used from analysis of covariance (ANCOVA). Consequently results showed that cooperative learning method in comparative with traditional way, decrease mathematics anxiety in students significantly and increase help seeking behaviour and decrease its avoidance component (p < 0.05) at them.

Daneshamooz and Alamolhodaei (2012) conducted a study, “Cooperative learning and academic hardiness on students’ mathematical performance with different levels of mathematics anxiety”. The study has shown the relationship between mathematics anxiety, mathematics performance and academic hardiness in high school students in term of students learning method (Cooperative learning vs. traditional learning). For students who are working in small math cooperative groups, researchers have found that they can develop problem solving. The main aim of this study is to show that how much learning method could be helpful for learner with high math anxiety. The sample comprised 263 (134 males and 129 females) college students were tested on Mathematics Anxiety Rating Scale, Academic Hardiness Scale and Mathematics examination. Results obtained indicated that students work together with low or high mathematics anxiety had better performance in mathematics score. Also, results have revealed that mathematics anxiety has significant negative
correlation with mathematics performance and academic hardiness. It is also found
that the gender differences in mathematics anxiety are significant, whereas no
significant differences are detected between boys and girls in mathematics
performance and academic hardiness. In addition, the result of the study showed that
students who work together with low or high mathematics anxiety had better
performance in mathematics score.

Strategies on Elementary Students’ Science Achievement and Social Skills in
Kuwait”. The study compares the effects of two methods of teaching—teacher-
centered and cooperative learning—on students’ science achievement and use of
social skills. The sample consists of 163 female elementary science students in 8
intact grade 5 classes who were assigned to 2 instructional methods and were taught
an identical science unit by 4 classroom teachers. The students’ science achievement
was measured by a researcher-designed achievement test given to students as a pretest
and a posttest. Students’ social skills were determined by a researcher-designed
survey administered as a pretest and posttest. Analysis of the achievement test scores
and the social skills survey responses revealed that cooperative learning strategies
have significantly ($p > 0.05$) more positive effects on both students’ achievement and
social skills than teacher-centered strategies. These results provide an evidential base
to inform policy decisions and encourage and persuade teachers to implement
cooperaive learning methods in Kuwaiti classrooms.

Hijazi and Al-Natour (2012) conducted a study, “Teachers' Attitudes Towards
Using Cooperative Learning For Teaching English Skills”. The purpose of this study
is to investigate teachers' attitudes towards using cooperative learning for teaching
English Language in Jordanian schools. The researcher followed the equivalent
pre/post T test two group designs. To achieve the aim of the study, a pre/post-test was
constructed to measure students' achievement in English language. The test consisted
of thirty items on English language. The sample of the study comprised of (113)
seventh grade students in Zubaida secondary school for girls and Al Khansaa School
for girls in Amman and were distributed into four sections, which were selected
purposefully, and also (20) teachers to measure their attitudes towards using
cooperative learning for teaching English language. The subjects of the study were distributed into four groups (two experimental and two control groups). The experimental groups' students were taught English language using cooperative learning while the control group students were taught English language using the conventional way. The subjects were (60) students for the experimental group and (53) students for the control group. Those subjects were distributed into four purposefully selected sections in Zubaida secondary school for girls and Al Khansaa School for girls in Amman. Descriptive statistical analyses were used (means and standard deviation) for the pre and post-tests of students' English language test to experimental and control groups. Means and standard deviations and T-Test were used for teachers' attitudes and measure the effect of experience and educational level variables. The findings of the study indicated that there were statistically significant differences in the post-test between the control and the experimental groups in favor of the experimental group and there were statistically significant differences in teachers' attitudes due to experience variable and educational level variable. The researcher proposed some recommendations to enhance the importance of using cooperative learning on students' achievement in English language such as conducting further studies on other populations and for a longer time.

Shekarey (2012) investigated the effects of cooperative learning on the development of students’ social skills. The purpose of this study was to examine the effects of cooperative learning through small group learning on the development of students’ social skills. This quasi-experimental study was carried out on male high school students of Kashan during 2009-10. Fifty students were randomly selected from two of the 2nd grade classes of a high school in Kashan. The experimental group was taught using cooperative learning techniques, whereas the control group continued in their ordinary traditional method. Pretest was carried out before the intervention and post-test was carried out after implementing the experiment. Follow up was done 45 days after intervention. Data were collected through the Matson Evaluation of Social Skills. The results of the study showed that the mean scores of the experimental group showed significant difference between the pretest and post-test (p=0.0001) and also had significant difference with the control group.
(p = 0.0001). There was also a difference between the social skills of the two studied groups including the reduction of aggressiveness, impulsivity, dissocial behaviors, pride, jealousy and isolation (p = 0.0001). The investigator concluded that cooperative learning method is more effective in the development of students’ social skills compared to traditional learning methods.

Van Wyk (2012) investigated the effects of the STAD-cooperative learning method on student’s achievement, attitude and motivation in Economics education. This study explores the effects of STAD on student achievement, attitude and motivation in economics education. Three research instruments, a Test of Economic Literacy (TEL); a Motivation Scale and an Economics Modular Test were employed for the purpose of this study. Quasi-experimental research, a pretest-posttest design was constructed for the purpose of this research. Results revealed that STAD compared to direct instruction promoted positive attitudes, showed better achievements and motivated students to learn in economics education.

Ayodeji (2013) investigated the effect of a cooperative learning technique on the academic performance of high school students in Mathematics. This study focused on whether students' performance in algebra improved when taught algebraic concepts using STAD versus traditional methods. A sequential, explanatory, mixed methods design was used. The treatment group (n = 54) was taught using the STAD cooperative learning technique, and the control group (n = 47) was taught using traditional methods. The quantitative data came from the school-administered end-of-chapter test. The quantitative data were analyzed using ANOVA. Qualitative interview data responses were coded and analyzed using open coding. The findings showed that although students performed significantly higher using STAD, teachers preferred traditional methods because they were familiar with them and they required less planning time. The results suggested that with ongoing training and support, teachers will feel more comfortable using STAD. The study contributes to positive social change by providing teachers with a better understanding of a promising method of algebraic learning that can lead to success in higher level high school mathematics courses.
Hossain and Tarmizi (2013) investigated effects of cooperative learning on students’ achievement and attitudes in secondary Mathematics. The main purpose of this study was to identify the effects of cooperative learning on students’ mathematics achievement and attitudes towards mathematics in selected secondary schools in Bangladesh. A total of 80 students (40 from Boys’ school and the other 40 from Girls’ school) of grade nine participated in this study where quasi-experimental design was administered. Data were analyzed using independent-sample test. The results showed that cooperative learning had significant effects on mathematics achievement and attitudes towards mathematics. It was found that students’ performance in mathematics and attitudes towards mathematics were affected by exposure to the cooperative learning. The findings of this study have shown a great improvement in mathematics achievement and attitudes towards mathematics. Therefore, cooperative learning can be successfully used to promote student’ performance in mathematics in secondary schools in Bangladesh.

Mbacho and Bernard (2013) conducted a study, “Effects of Jigsaw Cooperative Learning Strategy on Students’ Achievement in Secondary School Mathematics in Laikipia East District, Kenya. This study sought to find out if the use of Jigsaw Cooperative learning Strategy during instruction of Surds and Further logarithm in mathematics to form three 17 year old students had effects on their performance. Surds and Further logarithm are topics that are performed poorly at the KCSE. There is however inadequate documented information in research conducted in Kenya on effects of the use of Jigsaw Cooperative learning Strategy on students’ achievement in mathematics. Solomon four non-equivalent control group research design was used in the study. The two experimental groups received the Jigsaw cooperative learning Strategy as treatment and two control groups were taught using the conventional learning/teaching methods. A simple random sample of four co-education district secondary schools was selected from Laikipia East District. The sample size was 160 students out of a population of about 20,000 students in the district. A mathematics achievement test (MAT) was used for data collection. The instrument was validated and had reliability coefficient of 0.87. Data was analyzed using ‘t’ and ANOVA tests to test hypothesis at 0.05 significance level. Findings of
this study show that learners taught using Jigsaw cooperative learning strategy performed better than those taught using Conventional learning methods. The results also show that there is no significant gender difference in achievement when learners are taught using Jigsaw cooperative learning strategy. Conclusions, implications and recommendations of the study are summarized.

Zakaria, Solfitri, Daud, & Abidin (2013) in their study, “Effect of Cooperative Learning on Secondary School Students’ Mathematics Achievement” attempted to determine the effects of cooperative learning on students’ mathematics achievement in secondary school students in Pekanbaru, Indonesia. In addition, this study also determined students’ perception concerning cooperative learning. The samples of this study consisted of 61 Form Three students. In order to control the differences of dependent variables, a pre-test was given before treatment. After treatment, a post-test was administered to both groups. Two types of instruments were used to collect the data: the mathematics achievement test and open-ended questions on cooperative learning. The pre-test and the post-test data were analyzed using t-test. Content analysis was used for the open-ended questions on cooperative learning. The results showed that there was a significant difference of mean in students’ mathematics achievement between the cooperative group and the traditional group. Content analysis data revealed that students in the cooperative group were able to increase their understanding and to develop their self-confidence.

Fini, Zarei, and Sardare (2014) conducted a comparative study “Effect on Jigsaw 2 and Traditional Teaching Methods on Educational Achievement”. The present study was carried out to investigate the effect of learning by jigsaw 2 methods on educational achievement. This quasi-experimental research included pre-test and post-test with control group. The research population was comprised of all high school boys and girls studying in Bandar Abbas. The research sample contained 30 high school first-grade girls and 30 high school first-grade boys in experimental groups and the same number in control groups. In the experimental groups, jigsaw cooperative method was used for a course of 8 sessions, while the control groups received traditional method. Data were analyzed with ANOVA. The results revealed that training by jigsaw 2 method caused increased educational achievement in
experimental groups, which was significant at error level of $p<10.001$. In addition, teaching through jigsaw 2 resulted in increased educational achievement in the boys experimental group, which was significant at error level of $p<0.01$. The same applied to girls experimental group at error level of $p<0.01$. Therefore, jigsaw 2 technique was more efficient than traditional method in teaching mathematics. Additionally, those who were trained by jigsaw 2 showed greater educational achievements.

Orora, Keraro, and Wachanga (2014) investigated the effects of cooperative e-learning teaching strategy on students’ achievement in secondary school Biology in Nakuru County, Kenya. This study investigated the effects of cooperative e-Learning (CEL) teaching strategy on students’ achievement. The study was quasi-experimental and the Solomon’s Four Non-Equivalent Control Group Design was used. Four secondary schools in Nakuru County in Kenya were used and the focus was on form two students (second grade students in the secondary school cycle). Convenience sampling was used to select the four schools that participated in the study. The study involved county schools to ensure that the students participating were of comparable academic abilities. Two hundred (200) students participated in the study. The CEL intervention focused on the topic transport in animals and lasted for five weeks. The instrument that was used in this study is Biology Achievement Test (BAT) with a reliability coefficient of 0.97. Data was analysed using Analysis of Variance (ANOVA) and t-test. Statistically significant values were accepted at $\alpha = 0.05$. The findings indicate that CEL enhances achievement when compared with conventional methods. The findings further indicate that CEL overcomes the gender disparity in achievement. It is concluded that CEL is an effective strategy that should be incorporated in the teaching of Biology. CEL should also be incorporated in teacher education programmes.
2.2 STUDIES CONDUCTED IN INDIA

Sumitra (1994) studied the effect of cooperative learning on student achievement, self-concept and liking of classmates. In this study pre-test, post-test control group design has been employed. Eighty students of 10th class studying in Model School, Rohtak were assigned to experimental and control groups randomly. The student’s achievement, self-concept and liking of classmates were the dependent variables. Teaching of seven units of social science syllabus for a period of five months through Cooperative learning Method (STAD) was the experimental treatment and treatment and traditional method was followed for teaching the control group. The Socio-Economic-Status (SES) and intelligence were adjusted by applying analysis of co-variance. For testing the significance of difference between the means of students’ achievement, self-concept and liking of classmates, ‘t’ test was used. The findings of the study were (i) The results arrived at during this study showed that the post-test achievement mean scores of the experimental and control groups, controlling for intelligence and socio-economic status differ significantly in favour of the experimental group. This implies that the students who were taught social science through cooperative learning showed significant improvement in their achievement in social science than the students who received instruction through traditional method. This suggests that cooperative learning contributes towards raising the achievement of students; (ii) The group of students taught social science through cooperative learning showed significantly higher gain in achievement than the group of students taught social science through the traditional method; (iii) At the post-test stage, students of the experimental group achieved significantly higher means score on the test of self-concept that the group of students taught through the traditional method; (iv) The mean gain score of the students of the experimental group being significantly higher on the test of self-concept than that of the control group, it implies that cooperative learning, by helping in improving student achievement, is effective in improving their self concept as well; (v) At the end of the experimental treatment, the group of students taught social science through cooperative learning scored significantly higher on the test of ‘Liking of Classmates’ than the group of students taught through traditional methods; (vi) The mean gain score of the experimental
group after the experiment being significantly higher than that of the control group on the test of “Liking of Classmates” leads to the conclusion that students taught through cooperative learning develop more liking for their classmates than the students who learn through traditional method of teaching.

Karnasih (1995) investigated the effect of small-cooperative group learning on 160 tenth grade students’ achievement and affective behaviours in mathematics and developing a descriptive model of grouping patterns based on students’ interactions and interviews providing information concerning their feelings and reactions to the method and the group membership in small group cooperative learning. To develop the grouping patterns, small heterogeneous and homogeneous groups were formed by recording students’ mathematical ability, gender and field-dependency. The findings revealed that small group cooperative learning opportunities in mathematics classroom showed significant impact on students’ achievement and mathematics anxiety. Most students preferred small group learning, but some high achieving field independent males did not prefer small groups. With respect to grouping patterns, this study found that either homogeneous or heterogeneous groups could be interactive but the most interactive groups were those in which there were no social and cognitive difference in problem of group members.

Ponnusamy and Sudarsan (2001) conducted a study, “Students Achievement and Cooperative Learning Method in Mathematics at Upper Primary Level” to study the Effectiveness of Cooperative Learning Method in enhancing the Mathematics Achievement of the students at the Upper Primary Level and to study the effect of variables such as sex and standard on the achievement of the students under cooperative learning method. A total of 120 students constituted the sample chosen from three schools in Coimbatore district of Tamil Nadu State. These students belonged to VII and VIII Standards. Among these, 60 students were treated as control group and remaining 60 were taken as experimental group. Tools achievement tests in mathematics were conducted to both VII and VIII standards. The investigators used the control group post-test design in the study. Mean, SD and t-test were computed to know the significance difference between the mean achievement scores of the
experimental and control group. The findings of the study revealed: (1) Cooperative learning contributes a lot to improve the academic performance of the students in VII and VIII standards in learning mathematics. (2) The standard has no effect on the performance of experimental group students and so the effectiveness of cooperative learning can be generalized. (3) Gender has no effect on the performance of experimental group students and so the effectiveness of cooperative learning can be generalized. The study cites three references.

Pandey and Kishore (2003) investigated the effect of cooperative learning on cognitive achievement in Science. This study examines the effect of one of the methods of cooperative learning—STAD on achievement in science in an Indian context. The study used two intact classes of 9th grade students with 36 students. Both the classes were taught the same context for a duration of twenty five instructional days. Students in the experimental class worked in small heterogeneous groups to learn the content while the other class was taught by traditional lecture-discussion method. Students’ outcomes were measured by an achievement test development for this purpose. Data analysed through analysis of covariance revealed that STAD was more effective than traditional method for knowledge level as defined by Bloom’s taxonomy. However, both the methods were found to be equally effective for comprehension level.

Krishnanaraj and Kalaiyarasan (2004) studied whether the STAD approach of with reward’ was more effective that the traditional approach in developing selfesteem of learners, besides investigating whether the group investigation approach ‘without reward’ scores over the traditional approach resulted in enhancing the self esteem of learners. For experiment-I, which was subjected to STAD with reward, a total of 48 learners studying in IX standard ‘G’ section was chosen from Alagappa Model Higher Secondary School, Karaikudi. The learners were grouped into 8 teams with 6 members in each team based on the VIII standard annual examinations scores of the learners in science subject. For experimental group-II, which was subjected to Group investigation method without reward, 48 learners studying in IX standard ‘H’ section, were chosen from the same school. They were also jumped into same member of teams and the criteria followed as in the earlier case. For application of
cooperative learning approaches, 6 topic of Biology were selected. The treatment lasted for 60 days. The control group consisted of 48 learners studying in IX standard ‘A’ section of the same school. The group was exposed to traditional method of instruction and no novel treatment was given. The investigation revealed that (i) The STAD with reward approach and the traditional method differed in enhancing the self-esteem of learners. It was noted that STAD with reward approach proved to be more effective than the traditional approach in enhancing the self-esteem of learners; (ii) A comparison between the traditional approached and group investigation approach revealed a true difference in the mean scores. The Group investigation approach was found to be more effective than the traditional approach; (iii) A comparison between the two cooperative learning approaches revealed the more effective nature of STAD approach than the group investigation approach in enhancing self-esteem of learners; (iv) It was concluded that the STAD approach proved to be more effective in enhancing the self-esteem of learners than the group investigation approach and the traditional approach.

Tripathy (2004) investigated cooperative learning as a method of promoting learning through student cooperation rather than competition and considered it as a method of effectively using student groups in a classroom. The primary elements involved in this strategy of teaching science were positive interdependence, individual accountability, face-to-face interaction with peers, use of pro-social skills and group processing of a given academic task by the learners, the role of teacher being that of an academic consultant. Teaching-learning of difference between metals and non-metals by modified cooperative learning method was suggested after a tryout in real classroom situation. In a cooperative learning system, students were divided into groups and they worked together to master an assigned lesson. Groups were heterogeneous, with one high level child, one or more children identified as with special educational needs and others of various abilities. Each group member was assigned a role for that lesson. The findings of the study revealed that students who were working in groups were more likely to stay on task and remain motivated because of peer support and encouragement. Working together is good as it does a lot to increase self-esteem and reduce normal peers rejection, which is so important for
peer support and encouragement. Cooperative group learning induces cooperative attitude in the learners, which in the long run, has the potential of carry over into other areas of the competitive world.

Sahoo Swarnaprava (2005) conducted a study “Cooperative Learning: An Instructional Strategy for Learning Centered Education”. The researcher pointed out that cooperative learning methods hold great promise for accelerating students’ attainment of high academic standards and the development of the knowledge and abilities necessary for thriving in a multicultural world. The research on cooperative effort dating back to the late 1800s has established that having students work together cooperatively is a powerful way for them to learn and has positive effects on the classroom and school climate. This has been verified by teachers in classrooms from pre-schooling through higher education stage. Furthermore, the researchers over the past 100 years have focused on a wide variety of diverse outcomes of cooperative learning methods, e.g. achievement, higher level reasoning, retention, transfer of learning achievement motivation, social and cognitive development, moral reasoning, friendships and the quality of learning environment. There may be no other instructional strategy that simultaneously achieves such diverse outcomes. The basic elements inherent in various cooperative learning methods, viz. positive interdependence, and group skills, group processing and its diverse outcomes, have immense implications for learning centered education. The importance of emphasizing cooperative learning in classrooms goes beyond just achievement, positive relationship, and psychological health. The ability of all students to learn to work cooperatively with others is the keystone to building and maintaining stable marriages, families, careers and friendships. Being able to perform technical skills such as reading speaking, listening, writing, computing and problem solving are valuable, but of little use, if a person cannot apply those skills in cooperative interaction with other people in career, family, and community environments.

Satya Prakash, and Patnaik (2005) conducted a study, “Effect of Co-operative Learning on Achievement Motivation and Achievement in Biology” to find out the effect of co-operative learning on achievement motivation and achievement in biology. The sample of 200 students from 3 schools of Tumkur town of Karnataka
was selected for the study. Out of them 100 students were treated as experimental and 100 students as control group. The students of both the groups were matched by pairing their intelligence and achievement scores in biology. Achievement values and anxiety inventory (AVAI) by Prayag Mehta and Achievement Test in Biology developed by one of the investigator were used in the study. The findings of the study revealed that (1) There was positive effect of co-operative learning on achievement motivation. (2) Co-operative learning has a positive effect on achievement in Biology in terms of knowledge, understanding and application objectives as well as total achievement. The study cites six references.

Vanessa, Green and Ruth (2006) conducted a study, “Children's cooperative and competitive interactions in limited resource situations: A literature review”. They pointed out that the ability to balance cooperative and competitive behaviors has important implications for a child's overall development. While socially competent children appear to learn highly successful strategies for entering peer groups and negotiating access to limited resources, the development of this level of social competence can be challenging for preschool-aged children. Early childhood educators may therefore have to intervene to develop the child's social competence and promote the use of negotiation and effective conflict management strategies. Using theories of social exchange and human sociobiology, this paper reviews literature on cooperation and competition involving limited resources and highlights the implications of this research for early childhood education. Results suggest that a variety of individual and social-contextual factors might influence a child's development of socially competent behavior. The review highlights the importance of teaching children to negotiate effectively with peers.

Sharma and Sharma (2008) conducted a study “Cooperative Learning: Highway to Learning to live together”. This study besides giving a bird’s eye view of the concept and methods of cooperative learning, highlights its benefits for the students and the teachers and its specific and unique outcomes for learning, indicating a paradigm shift in teaching learning strategies. It suggests a road-map of how cooperative learning can help in ‘learning to live together’ as the principal goal of education.
Mehra and Thakur (2008) conducted a study “Effect of Cooperative Learning on Achievement and Retention in Mathematics of Seventh Graders with different Cognitive Styles”. The present study was conducted to compare the effect of cooperative learning and conventional group learning on achievement and retention in mathematics of 112 seventh graders with different cognitive styles. The obtained data was analysed with the help of 3-way analysis of variance. The major findings of the study were: (i) students when exposed to cooperative learning yielded better mean gain on achievement scores and retention scores as compared to those taught through conventional group learning; (ii) Field independent and field dependent students yielded comparable mean gain on achievement scores but field independent students exhibited better retention than field dependent group of students; (iii) Through cooperative learning students yielded better mean gains on achievements scores and retention scores on items related to knowledge than those related to comprehension level but yielded comparable mean gains items related to comprehension levels and application levels and at knowledge and application levels; and (iv) Field independent and field-dependent students yielded better mean gains on achievement and retention scores through cooperative learning than conventional group learning.

Sharma and Sharma (2008) conducted a study, “Effect of Cooperative Learning on Interpersonal Relationship of Elementary School Students” to find out weather the approach of student-teams achievement division (STAD) with reward is more effective than the traditional approach in enhancing interpersonal relationship among elementary school students. **Method** : In the present study, pre-test, post-test, control group quasi-experimental design was used with purposive sample in the form of intact sections of class VII of the same school. The intact sections were equated on intelligence and socio-economic status. The sample of the study comprised of 80 students of class VII (40 as control group and 40 as experimental group) studying in S.R.S. Senior Secondary School, Rohtak. **Findings** : According to the authors the study proves the great effectiveness of STAD approach in enhancing interpersonal relationship of teachers. As relationship become more positive there will be corresponding increase in productivity responsibility to do the assigned work,
willingness to take on and persist in completing difficult tasks and commitment to peers success and growth.

Thakur (2008) studied the effect of cooperative learning on attitudes, achievement and social skills on a sample of 112 students of seventh graders with different cognitive levels. The sample was divided into field-independent and field-dependent student who attained comparably on achievement which show that changing from a tradition competitive classroom to a cooperative one does not diminish student’s achievement, it significantly improves achievement. In the study, group were rewarded based on member’s learning and also students were made individually accountable for their academic performance. Thus positive effect on achievement and retention in mathematics was found. The research supports usefulness of cooperative learning for improving students attitudes towards mathematics. But social skills were not enhanced as a result of institutional treatment for 62 days.

Pushpanjali and Satyaprakasha (2010) conducted a study “Effect of Cooperative Learning on Achievement Motivation and Anxiety”. They pointed out that Cooperative Learning is a broad phrase for an effective approach to education. Cooperative Learning is a classroom-learning environment in which students learn in mixed ability heterogeneous groups on academic tasks. In the present study an attempt has been made to find out the effectiveness of cooperative learning strategy on achievement motivation and anxiety of class VIII students of Bangalore city. The findings of the study were a) Cooperative Learning strategy was more superior to conventional method in significantly promoting achievement motivation and b) Cooperative Learning strategy was effective in significantly reducing the anxiety.

Kaul (2010) conducted a study “The Effect of Learning Together Techniques of Cooperative Learning Method on Students Achievement in Mathematics”. This study was an experimental research in which pretest-posttest design with control group was applied. The study was conducted in May 2008 with 70 pupils studying in 7th class in N.S. Public School, Gamma II Greater Noida, Uttar Pradesh. In this study, experimental and control groups have been used. Learning Together Technique of Cooperative Learning method has been applied to the experimental group and
traditional teaching method has been applied to the control group. Conclusions showed that there is a significant difference between the results of experimental and control groups. Learning together technique of cooperative learning method is more effective than traditional teaching methods.

Ali (2010) conducted a study “To study the effect of mode instruction i.e. co-operative mastery learning and conventional group learning on self-esteem and achievement of fifth graders in English, Hindi and Assamese.” He found that co-operative mastery learning yielded higher achievement gain scores than conventional group learning for fifth grade students in English, Hindi and Assamese language. Co-operative Mastery Learning yielded almost similar achievement gain scores in English, Hindi and Assamese language for tribal non-tribal.

Behera and Pattanaik (2010) conducted a study “Effect of Cooperative Learning on Achievement in History”. They pointed out that quality of education is always a preeminent agenda of various committees and effective methods and strategies are essential for improving the quality of education. Co-operative learning is a successful strategy in which students construct knowledge together and understand the concepts early. It also improves social skills, self-esteem creativity etc. Therefore in this study an attempt is made to use cooperative learning in history classrooms and find out its effect on achievement of students. The result of the study indicates great effectiveness of cooperative learning on development of achievement in history of the students.

Pandya (2011) conducted a study, “Interactive effect of co-operative learning model and learning goals of students on academic achievement of students in mathematics”. The study seeks to ascertain whether co-operative learning model is equally effective for students with mastery and performance goals. The study uses quasi-experimental and factorial design for conducting the experiment. The experiment was conducted on 153 students of standard IX studying in schools affiliated to the SSC Board and with English as the medium of instruction. It has used two tools, namely, achievement test in mathematics and learning goals inventory both developed by the researcher. The researcher has also developed an instructional programme for co-operative learning. The techniques used to test the hypotheses
include the ‘t’ test, ANOVA and ANCOVA. The study found that the effect of the co-operative learning model on students’ academic achievement is maximum. Co-operative learning model was found to be more effective for students with mastery goals whereas the traditional lecture method is found to be more effective for students with performance goals.

Gupta and Pasrija (2011) conducted a study “Team Assisted Individualization (TAI) : Impact on Achievement and Retention in Mathematics”. According to them Cooperative Learning, as a teaching-learning technique provides opportunities for diverse students to develop skills in group interactions and in working with others that is required in the modern competitive world. The purpose of this study was to determine the impact of the cooperative learning Approach-Team Assisted Individualization (TAI) on the achievement and retention in Mathematics among ninth graders. Cooperative learning was compared with conventional teaching learning classroom structure using an experimental design. 98 students of ninth class were randomly selected out of which 52 students formed Experimental Group (E) and 46 students formed Control Group (C). Achievement Test in Mathematics and Instructional Material were developed by the investigators themselves. Whole teaching – learning process was carried out for ten weeks only. At the end of the experiment, achievement test in Mathematics was given to the subjects. After a gap of twenty days, achievement test was again administered on the same subjects to assess the retention of learned material. Data were analyzed by using t-test. The findings revealed that the Experimental Group outscored significantly the Control Group on post-test showing the obvious supremacy of CO-operative Learning Technique (TAI) over Conventional Method of teaching. On retention test, significant difference was found between mean retention scores of the two groups (E and C).

Gupta and Pasrija (2011) conducted a study Cooperative Learning Versus Traditional Learning Effect on Achievement in Mathematics. They pointed out that cooperative learning allows students to be creative and inventive in integrating diverse knowledge and skills, use a variety of media, use procedures such as the scientific method, formulate their own questions and answers, share their learning and accomplishments with others, and transfer and apply diverse information and skills. In
this context, the present study has been designed to determine the impact of the Cooperative Learning Approach-Student Teams Achievement Divisions (STAD) on the achievement and retention in Mathematics among ninth graders. AN experimental design with pre-test post-test control group was employed to compare cooperative learning with conventional teaching learning classroom structure. 92 students of ninth class were randomly selected out of which 46 students formed Experimental Group (E) and 46 students formed Control Group (C). The investigators developed Achievement Test in Mathematics and Instructional Material for teaching Mathematics to school students through Co-operative Learning Strategy (STAD). The coefficient of reliability of the achievement test was found to 0.90. The instructional material was also validated against two types of evaluation, self evaluation and expert appraisal. The experimental treatment was given for ten weeks only. At the end of the experiment, achievement test in Mathematics was given to the subjects. After a gap of twenty days, achievement test in Mathematics was again administered on the same subjects to assess the retention of learned material. Data were analyzed by using t-test. The findings revealed that Experimental Group performed better than Control Group on post-test showing the obvious dominance of co-operative strategy (STAD) over Conventional Method of teaching. Significant difference was found between mean retention scores of the two groups (E and C) favouring the cooperative learning strategy.

Gupta and Pasrija (2012) conducted a study “Effect of Cooperative Learning on High School Students’ Mathematics Achievement and Retention using TAI and STAD Methods”. The study was designed to compare the effects of team assisted individualisation (TAI) and student teams-achievement division (STAD) on ninth grade students’ academic achievement and retention in mathematics. 144 students were selected on the basis of multistage random sampling for this experimental study. The experimental group-1 (E₁) comprising 52 students were taught through TAI: experimental group-2 (E₂) comprising 46 students were taught through STAD, and the remaining 46 students were treated as control group (C). Achievement test in mathematics and instructional material were developed by the investigators themselves. Whole teaching – learning process was carried out for ten weeks only.
Data were analyzed using one way analysis of variance to compare the three groups. The findings revealed that the experimental group-1 and experimental group-2 outscored significantly the control group on post-test showing the obvious supremacy of co-operative learning over traditional method of teaching. On retention test. Significant difference was found between mean retention test significant difference was found between mean retention scores of the three groups (E₁, E₂ and C).

Gupta and Pasrija (2012) conducted a study “Co-operative Learning: An Efficient Technique to convert students into Active Learners in Classrooms”. This study discusses the need of co-operative learning in Indian classrooms in order to promote active participation of all students in the classroom. In order to prepare the students for life and higher education, the gaining and improvement of important mental skills such as the effective usage of the mind, critical thinking and problem solving are necessary so that they can face the challenges of life actively. In recent years, teaching has been confronted by demands for higher standards and better pupil achievement in several parts of the world. Researchers have suggested a shift from teacher-centered instruction towards more active participatory learning methods as one way to improve the quality of the learning process. The search on co-operative learning is overwhelmingly positively, and co-operative approaches are appropriate for all curriculum areas. The present paper reflects that co-operative learning makes teaching-learning more satisfying, momentous, enjoyable and effective.

Gupta and Pasrija (2012) conducted a study “Boosting up achievement and retention in Mathematics Through team Assisted Individualized Instruction Among Ninth Graders in Relation To their Intelligence”. The current study aimed at studying the effectiveness of co-operative learning strategy TAI on the Mathematical achievement and retention among ninth graders at two levels of intelligence. This is an experimental study with 2x2 factorial design. Students of ninth class of the schools affiliated to Haryana Board in Rohtak city constituted the population of the study. 98 students of high and low intelligence of ninth class were taken as the sample for the study out of which 52 students formed experimental group (E) and Control Group (C) was having 46 students. The investigators used General Intelligence Test (GIT) by S.M. Mohsin and Socio-Economic Status Scale Questionnaire (SESSQ) by S.D.
Kapoor to measure the intelligence and the socio-economic level of students respectively. The investigators developed Achievement Test in Mathematics to measure the achievement of students in Mathematics. Data were analyzed by using ANOVA and t-test to compare the mean scores of two groups (E and C). The ultimate result of the study indicated that co-operative learning was more effective instructional paradigm for Mathematics as compared to conventional method of teaching and the co-operative learning strategy TAI boost up students achievement and retention in Mathematics.

Parveen and Batool (2012) investigated the effect of cooperative learning on achievement of students in General Science at secondary level. The aim of the study was to explore the effects of cooperative learning on General Science achievement among 9th class students. Based upon previous research literature it was hypothesized that significant difference existed between the mean posttest scores of General Science achievement of experimental group and control group. The pretest posttest control group design was chosen for the experiment. The study sample consisted of 36 students of 9th class who were equally distributed among experimental group and control group, matched on the basis of their annual examination at general science scores. The dependent variable of General Science achievement was measured through self-constructed 30-item achievement test used as a pretest as well as a posttest. The experiment group was taught through cooperative learning while control group was taught through traditional teaching. The material was used such as lesson plans, worksheets and quizzes, designed to implement cooperative learning methodology. The data were analyzed through mean, standard deviation and t-test and .05 was the selected level of significance. The main result of the study was that cooperative learning method is superior to traditional method in general science achievement of 9th grade students.

Vijaya (2012) conducted a Case-Study of Cooperative Learning and its Impact among First Year Engineering Students in Tamil Nadu. The aim of this study is to examine the effectiveness of cooperative learning approach in reducing the fear and anxiety of I year Engineering students while trying to achieve the competence in English Language. It is quite understood that the anxiety is experienced by a
considerable number of students with low proficiency, while speaking and writing in English. So, a case study was conducted in a class of forty Engineering students. Tests were given on speaking, reading, and writing skills. The pre-scores and post-scores from the questionnaire and the tests of the group were calculated for descriptive statistics and compared. It was found that the students’ overall language anxiety significantly got decreased. In addition, they obtained higher language proficiency scores for the post-test than the pre-test after learning through this approach. The survey also revealed that students also had a favourable attitude toward cooperative learning.

Mehar and Sekhri (2012) conducted a study “Effect of Co-operative Learning Strategy on Achievement in Mathematics in Relation of Self-Esteem”. The present study investigates the effect of co-operative learning strategy on achievement in mathematics in relation to self-esteem. The study was conducted on a sample of 100 students of VIIIth class mathematics students for the purpose of present investigation a pre-test and post-test factorial design was employed. In order to analyze the data (2x2) analysis of variance was used for the two independent viz. instructional treatment and self-esteem levels. The present study shows following findings: (i) Co-operative learning strategy was found more effective than the conventional teaching strategy. (ii) Performance of students with different self-esteem groups through co-operative learning strategy was not found significant. (iii) The treatments were not found interacting with different self-esteem groups in respect of gain scores. However, the findings suggest that co-operative learning strategy can prove to be a better strategy for teaching mathematics at secondary school stage.

Dheeraj & Kumari (2013) investigated the effect of co-operative learning on achievement in environmental science of school student. The investigators in this study have tried to explore the effect of cooperative learning on Achievement in social science of secondary school students. The present study is an experimental study based on randomized two group post test. It was conducted on a sample size of 60 students from Gaya district of Bihar. Out of which 30 Students were in experimental group and 30 students in controlled group. Two self developed tools were used in the form of Instructional Tool unit wise Lesson Planning along with
teaching aids and Measuring Tools in the form of a teacher made test and a 3 point scale to study the impact of the method used. Experimental group was taught through co-operative learning method and controlled group was taught through traditional method. Findings of the study reflected that mean achievement of the students exposed to co-operative method differs significantly from the mean achievement of the students taught through traditional method.

Sanwal (2013) conducted a comparative study on Social Competence in Adolescents. She pointed out that Social Competence is the ability of an individual to behave in ways that are skilled and effective. Social competence has been defined as the social ability and interpersonal skill of an individual in effectively meeting a person – situation interaction or successfully dealing with “an individual environmental factors”. Therefore, the present study was investigated to the assess Social Competence of adolescents age group 13 to 15 years out of which 60 girls (30 from IX standard and 30 X standard) and 60 boys (30 from IX standard and 30 X standard) were selected randomly. The sample was selected from Sadhu Vaswani Public School, Jaipur city (Rajasthan). Social Competence Scale (SCS), Prof. V.P. Sharma, Dr. Kiran Shukla and Dr. Prabha Shukla a standardized tool was used for data collection. The data collected for the present study were coded, qualitative and quantitative assessment was attempted. For quantitative analysis frequencies and percentage values and t-test were computed. The major findings of the study revealed that the percentages of 120 adolescents that falls in low and very low category (93.33%) of social competence level. These finding are in line with the study of White (1963) it can be depicted from the results that adolescents have low transaction with social environment, so there is less of learning as they do not come in contact with others, successful experiences.

Sharma & Kalra (2013) investigated the effect of co-operative strategy on students’ achievement in mathematics at elementary level. This study was designed to find out the effect of co-operative strategy on students’ achievement in mathematics at elementary level. Sample consisted of 30 class VIII students from an English Medium School which is divided into two groups of 15 each, one Group was taken as Experimental ad other as Control Group. Mathematics Achievement Test
(MAT) was administered on both the groups. Result confirmed the hypothesis that students learning in co-operative strategy have gained significantly higher score in mathematics over the traditional method of teaching.

2.3 OVERVIEW

Cooperative learning is a successful teaching strategy in which small teams, each with students of different levels of ability, use a variety of learning activities to improve their understanding of a subject. To be successful, all members in a group must achieve mastery of the material or contribute to the completion of a group assignment. Cooperative-learning promoted academic achievement is relatively easy to implement and is not expensive. Johnson and Johnson (1999) states that “cooperative learning is the instructional use of small groups so that students work together to maximize their own and each other’s learning.

Although many researches on cooperative learning have been done abroad as well as in India, showing positive outcomes. Cooperative learning promotes students’ motivation, encourages group process, fosters social and academic interaction among students and rewards successful group participation in the learning of school subjects.

In this chapter, the researcher tried to found out the gap areas for research in connection with learning strategies and Achievement in Hindi grammar. The studies in respective areas were analyzed and evaluated. The investigator also attempted to explain in what way the previous studies helped in shaping the present study. The recent trends in these areas have been revealed in review of related literature.