CHAPTER – 3
REVIEW OF RELATED RESEARCHES

3.1 Introduction
3.2 Purpose of the Review
3.3 Importance of the Review
3.4 Review of the Related Research Studies
   3.4.1 Review of Past Studies
      3.4.1.1 Review of Related Studies on Cooperative Learning
      3.4.1.2 Review of Related Studies on Project Based Learning
   3.4.2 Review of Research Articles
      3.4.2.1 Review of Research Articles in Journals
      3.4.2.2 Review of Research Articles in Online Journal
      3.4.2.3 Review of Research Articles in Magazine
   3.4.3 Review of Seminar Papers / Conference Papers
3.5 Distinguish Features of the Present Study
3.6 Summary
CHAPTER – 3
REVIEW OF THE RELATED RESEARCHES

3.1 Introduction

The Review of Related Researches gives the investigator a systematic and explicit understanding of the research methodology of completed and recorded work produced by researchers, scholars and practitioners. The Valuable information obtained in the process of review helps an investigator in the planning, selecting and developing the research design of the study vis-à-vis its tools, sample, data collection and analysis. In addition, the outcomes/ findings of the past study also provides a strong conceptual as well as research base for new studies. This chapter is concerned with the review of the past research studies, articles related to major aspects of present study.

The review of work done implies locating, reading and summarizing objectives, methods and findings of the past researches. The review of related literature is nothing but wide look into the past research work done in specific field. It provides information related to the type of study and type of design that may be eventually used in conducting research. Research work done in the past serve as solid foundation on which any new investigation firmly rests.

Walter (1963) states that “The literature in any field forms the foundations upon which all future work will be built.” The author further observes that if one fails to build this foundation of knowledge provided by the review of past researches, the work is likely to be shallow and naïve and will often duplicate work that has already been done better by someone else.

Good, Bar and Scates (1954) points out that, “The keys to the vast storehouse of published literature may open doors to sources of significant problems and explanatory hypotheses and provide helpful orientations for definitions and comparative data for interpretation of results. In order to be truly creative and original, one must read extensively and critically as a stimulus to think.”

72
3.2 Purpose of the Review

Every investigator must know what sources are available in the field of research and how many of them are worthy enough to use. In the field of education, the investigator needs up-to-date information regarding the problem i.e. what has been thought and done in the particular area.

Good, Bar and Scates analyze the purpose of research review as follows:

a. To show whether the evidence already available solves the problem adequately without further investigation and thus to avoid the risk of duplication.

b. To provide ideas, theories, explanations or hypotheses valuable in formulating the problem.

c. To suggest methods of research appropriate to the problem.

d. To locate data useful in the interpretation of result.

e. By doing review of literature carefully investigator becomes aware of the important and unimportant variables in the concerned area of research.

Thus a review of the related studies, on the whole, prepares the investigator to formulate a research problem in which conceptually and practically important variables are selected.

3.3. Importance of the Review

A review of related studies helps the investigator in avoiding duplication of work done earlier. Review done carefully aims at interpretation of prior studies and indicating its usefulness for the present study to be undertaken. Thus prior studies serve as the pillar for the present study. In some cases duplication or replication of prior studies become essential. This is especially true when investigator wants to test the validity of the earlier studies. In such a situation, too, a careful review helps the investigator in getting acquainted with the number and nature of the studies related to the study whose validity is being assessed at present.

A careful review of the related studies enables the investigator to collect and synthesize prior studies related to the present study. This helps the investigator in building a better perspective for future research. A synthesized collection of prior
studies also help the investigator to identify the significant overlap and gaps among
the prior studies.

A review enables the investigator in discovering important variables relevant to the
area of the present study. When significant variables are discovered, the relationship
among them can be identified. Subsequently, the identified relationship is
incorporated into different hypotheses. Thus, for conducting a scientific study, the
relationship between the different variables must be explored by reviewing the related
studies so that a good context may be built up for subsequent investigation.

A careful consideration of ‘recommendations for further research’ in various research
studies guides the investigator regarding the suitability of the problem and assists in
delimiting her research problem. Therefore, the investigator has tried to review the
related past studies on Cooperative Learning Approach and Project Based Learning
Approach to benefit her in the above mentioned ways.

3.4. Review of the Related Research Studies

For convenience, the investigator has divided the studies into the following
categories:

3.4.1 Review of Past Studies
   3.4.1.1 Review of Related Studies on Cooperative Learning
   3.4.1.2 Review of Related Studies on Project Based Learning

3.4.2 Review of Research Articles
   3.4.2.1 Review of Research Articles in Journals
   3.4.2.2 Review of Research Articles in Online Journal
   3.4.2.3 Review of Research Articles in Magazine

3.4.3 Review of Seminar Papers / Conference Papers

3.4.1 Review of Past Studies

The investigator reviewed related studies on Cooperative Learning and Project Based
Learning related to the present study.
### 3.4.1.1 Review of Related Studies on Cooperative Learning

#### Table 3.1
Summary of Past Studies Reviewed on Cooperative Learning

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Title of the Study</th>
<th>Researcher/s</th>
<th>University / Institute</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>An Experimental Study To Evaluate The Effectiveness Of Cooperative Learning Versus Traditional Learning Method</td>
<td>Shafqat Ali Khan</td>
<td>International Islamic University Islamabad, Pakistan</td>
<td>2008</td>
</tr>
<tr>
<td>2.</td>
<td>Impacts of Kagan Cooperative Learning Structures on Fifth-Graders’ Mathematical Achievement</td>
<td>Lisa M. Cline</td>
<td>University of South Florida, Walden University</td>
<td>2007</td>
</tr>
<tr>
<td>5.</td>
<td>The Effects Of Small Group Cooperation Methods And Question Strategies On Problem Solving Skills, Achievement, And Attitude During Problem-Based Learning</td>
<td>Marian Belle Maxfield</td>
<td>Kent State University College of Graduate School of Education</td>
<td>2011</td>
</tr>
<tr>
<td>Sr. No.</td>
<td>Title of the Study</td>
<td>Researcher/s</td>
<td>University / Institute</td>
<td>Year</td>
</tr>
<tr>
<td>--------</td>
<td>----------------------------------------------------------------------------------</td>
<td>----------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>6.</td>
<td>The Effect of Jigsaw versus Whole Class Instruction on EFL Students’ Reading Motivation and Achievement</td>
<td>Ghina Hassan Al Badawi</td>
<td>American University of Beirut, Dept. of Education</td>
<td>2005</td>
</tr>
<tr>
<td>7.</td>
<td>The Effect Of Jigsaw II Versus Whole Class Instruction On EFL Students’ Reading Motivation And Achievement</td>
<td>Ghina Hassan Al Badawi</td>
<td>Department of Education of the Faculty of Arts and Sciences, American University Of Beirut</td>
<td>2005</td>
</tr>
<tr>
<td>8.</td>
<td>Evolving Strategies for Enhancing Cooperative Learning In Teacher Education</td>
<td>Nandita Nagar</td>
<td>Department of Education, University of Lucknow</td>
<td>2009</td>
</tr>
<tr>
<td>10.</td>
<td>Implementing Cooperative Learning In EFL Teaching: Process And Effects</td>
<td>Tsailing Liang</td>
<td>The Graduate Institute of English National Taiwan Normal University</td>
<td>2002</td>
</tr>
<tr>
<td>11.</td>
<td>Teaching Reading comprehension Skills to Mentally Retarded Students Via Cooperative Learning Based Teaching Programme and Studying the Effectiveness of the Programme</td>
<td>CORA İNCE, Nurhan</td>
<td>Special Education Department</td>
<td>2007</td>
</tr>
</tbody>
</table>
Study: 1
Name: Shafkat Ali Khan
Title: An Experimental Study To Evaluate The Effectiveness Of Cooperative Learning Versus Traditional Learning Method.
University: International Islamic University Islamabad, Pakistan
Year: 2008

Objectives of the study
1. To assess the effects of cooperative learning and traditional learning methods on achievement in reading comprehension of the students in the subject of English.
2. To assess the effects of cooperative learning and traditional learning methods on achievement in writing ability of the students in the subject English.

Hypotheses of the study
1. There is no significant difference between the mean scores of control group on pre-test and post-test.
2. There is no significant difference between the mean scores of experimental group on pre-test and post-test.
3. There is no significant difference between mean scores of experimental group and control group on post-test.
4. There is no significant difference between mean scores of control group on pre-test and post-test with regard to achievement in reading comprehension.
5. There is no significant difference between mean scores of experimental group on pre-test and post-test with regard to achievement in reading comprehension.
6. There is no significant difference between mean scores of experimental group and control group with regard to achievement in reading comprehension on post-test.
7. There is no significant difference between mean scores of control group on pre-test and post-test with regard to achievement in literal level of reading comprehension.
8. There is no significant difference between mean scores of experimental group on pre-test and post-test with regard to achievement in literal level of reading comprehension.
9. There is no significant difference between mean scores of experimental group and control group with regard to achievement in literal level of reading comprehension on post-test.

10. There is no significant difference between mean scores of control group on pre-test and post-test with regard to achievement in evaluative level of reading comprehension.

11. There is no significant difference between mean scores of experimental group on pre-test and post-test with regard to achievement in evaluative level of reading comprehension.

12. There is no significant difference between mean scores of experimental group and control group with regard to achievement in evaluative level of reading comprehension on post-test.

13. There is no significant difference between the mean scores of control group on pre-test and post-test with regard to achievement in writing ability.

14. There is no significant difference between the mean scores of experimental group on pre-test and post-test with regard to achievement in writing ability.

15. There is no significant difference between mean scores of experimental group and control group with regard to achievement in writing ability on post-test.

16. There is no significant difference between the mean scores of control group on pre-test and post-test with regard to achievement in usage of parts of speech.

17. There is no significant difference between the mean scores of experimental group on pre-test and post-test with regard to achievement in usage of parts of speech.

18. There is no significant difference between mean scores of experimental group and control group with regard to achievement in usage of parts of speech on post-test.

19. There is no significant difference between the mean scores of control group on pre-test and post-test with regard to achievement in usage of tenses.

20. There is no significant difference between the mean scores of experimental group on pre-test and post-test with regard to achievement in usage of tenses.

21. There is no significant difference between mean scores of experimental group and control group with regard to achievement in usage of tenses on post-test.
Sample of the study
The researcher selected 128 subjects of Govt. Comprehensive Boys High School Rawalpindi. Participants were selected from three sections of 8th class of school.

Tool of the study
The researcher collected data using teacher made test.

Research Design
The researcher adopted pre-test, post-test equivalent group design was used.

Techniques of the study
The researcher analyzed data using Mean, Standard Deviation and Variance of pre-test scores were obtained. T-test was applied to measure the significance of the difference between the means of the two groups. To calculate the coefficient of correlation between odd and even items of post-test scores of the participants Spearman Brown Prophecy formula was used.

Major Findings of the study
The findings of the research study revealed that both the experimental and control groups were almost equal in reading comprehension and writing ability at the beginning of the experiment. The experimental group outscored significantly the control group on post-test showing the supremacy of cooperative learning method over traditional learning method. Hence, the ultimate result of the study indicated that cooperative learning method was more effective for English as compared to the traditional learning method. Furthermore, cooperative learning appeared to be more favourable for overcrowded classes.

Study: 2
Name: Lisa M. Cline
Title: Impacts of Kagan Cooperative Learning Structures on Fifth-Graders’ Mathematical Achievement.
University: MA University of South Florida, 2000, BS University of South Florida, 1996, Walden University
Year: 2007
Objectives of the study
To study the impacts of Kagan cooperative learning on the mathematical achievement of fifth-grade students due to the alarming decrease in mathematical scores on state tests over the past several years.

Research Questions of the study
The following research questions were addressed in this study:
1. What impacts do Kagan cooperative learning structures i.e., Rally Coach, Round Table, and Timed Pair Share have on mathematical achievement when used in a fifth-grade classroom?
2. Is there a significant difference in mathematical achievement between children in a Kagan cooperative learning classroom as compared to a traditional classroom?

Hypotheses of the study
The null Hypotheses is that the use of Kagan cooperative learning structures (i.e., Rally Coach, Round Table, and Timed Pair Share) does not have a significant effect on test scores or achievement in fifth-grade mathematics.

Sample of the study
The researcher selected 28 fifth-grade students from southeastern elementary school.

Tool of the study
The researcher collected data using achievement-test in mathematics.

Research Design
The researcher adopted Pre-test-Post-test, Quasi-experimental Quantitative Experimental Design.

Techniques of the study
The researcher analyzed data using t-test.

Major Findings of the study
The findings of the research study indicated a significant difference in the mathematical achievement in the fifth-grade students who participated in Kagan cooperative learning structures when compared to the mathematical achievement of the students who did not participate in Kagan structures. The expanded use of
Kagan’s cooperative learning structures could bring about increased math achievement not only for students at Taylor Ranch School, but if expanded in use, improved math scores across the nation. Increased use of Kagan cooperative learning structures may bring about outcomes including greater employability and social skills in order to prepare

**Study:** 3  
**Name:** Muhammad Iqbal  
**Title:** Effect Of Cooperative Learning On Academic Achievement of Secondary School Students In Mathematics  
**University:** University of Arid Agriculture/Institute of Education and Research  
**Year:** 2004

**Objectives of the Study**

1. To determine whether the cooperative learning is more effective than traditional methods of teaching with respect to academic achievements of students in mathematics  
2. To examine the effects of cooperative learning on the academic achievement of high-achiever  
3. To examine the effects of cooperative learning on the academic achievement of low-achievers  
4. To examine the effects of cooperative learning on the retention of the students in mathematics  
5. To recommend for the improvement and promotion of suitable method of teaching mathematics to secondary school students.

**Hypotheses of the Study**

1. There is no significant difference between mean achievement scores of students taught by Cooperative learning and the students taught by traditional method of teaching.  
2. There is no significant difference between mean scores of high achievers and low achievers of the control and experimental groups on post-test.  
3. There is no significant difference between mean scores of high achievers and low achievers of the control and experimental groups on retention test.
Sample of the Study
The researcher selected 28 students of Government Highschool DAV College Road Rawalpindi

Tools of the study
The researcher collected data using Teacher made Pre-test Post-test

Research Design of the Study
The Researcher used 2 X 2 factorial design.

Techniques of the Study
The data was analyzed using Analysis of Variance.

Major Findings of the Study
The major findings of the study revealed that Cooperative learning groups performed significantly better than the group taught by traditional method of teaching. Higher gain of low achievers as a result of cooperative learning can be attributed.

Study: 4
Name: Babatunde A. Adeyemi
Title: Effects of Cooperative Learning and Problem–Solving Strategies on Junior Secondary School Students’ Achievement in Social Studies
University: Institute of Education, Obafemi Awolowo University, Ile-Ife
Year: 2008

Research Questions
1. Is there any significant effect of treatment (cooperative learning, problem solving and conventional methods) on achievement in social studies among JSS two students?
2. Do secondary schools boys and girls differ in their achievement in social studies?
3. Is there any significant interaction effect of treatment and gender on achievement in Social studies among JSS two students?
Sample of the study
The researcher used stratified cluster sampling in the selection of JSS two students from three public schools in Ife central Local Government Area of Osun State. In all there were 150 students (80 boys and 70 girls).

Tool of the study
The researcher collected data using Social Studies Achievement-test and instructional package on cooperative learning strategy, instructional package on problem solving.

Research Design
The researcher adopted pre-test, post-test control group non randomized quasi experimental design.

Techniques of the study
The researcher analyzed data using ANCOVA.

Major Findings of the study
The finding of the research study revealed that the cooperative learning strategy as the most suitable method for teaching Social Studies. It improves teaching ability of boys and girls depend on the exposure to many teaching strategies.

Study: 5
Name: Marian Belle Maxfield
Title: The Effects Of Small Group Cooperation Methods And Question Strategies On Problem Solving Skills, Achievement, And Attitude During Problem-Based Learning
University: Kent State University College of Graduate School of Education
Year: 2011

Objective of the study
The purpose of this study was to examine the effects of integrating instructional strategies during problem-based learning (PBL) on student learning.

Research Questions of the study
1. Is there a significant difference between PBL and traditional teacher-led instruction on student learning?
2. Does the interaction of cooperative learning methods and teacher questioning techniques during PBL result in higher achievement scores?

3. Does PBL improve the attitudes of learners toward science when augmented by the use of Jigsaw with teacher Socratic questioning, Jigsaw with didactic teacher questioning, traditional small group with didactic teacher questioning, and traditional small group with Socratic teacher questioning?

4. Does the interaction of cooperative learning methods and teacher questioning techniques during PBL have an effect on improving problem solving skills?

**Sample of the study**
The researcher selected grade 5 rural middle school students in an Ohio public school district.

**Tool of the study**
The researcher collected data using Ohio achievement-test, Purdue Elementary Problem Solving Inventory, Teacher Question Tally Sheet, Attitude Toward Science in School Assessment (ATSSA, Germann, 1988) questionnaire.

**Research Design**
The researcher adopted a quasi-experimental 2 by 2 factorial design

**Techniques of the study**
The researcher analyzed data using ANOVA, MANOVA

**Major Findings of the study**
The findings of the research study supported the use of PBL to improve student achievement. Students achieve at higher levels in science when compared to traditional teacher-led lecture instruction. The Socratic questioning groups had significantly higher achievement scores compared to the didactic questioning groups. The 2 PBL groups that used Jigsaw had a significantly more positive attitude towards science than the traditional small groups. There were no significant differences in problem solving between the groups. To assist in higher achievement and more positive attitudes when implementing PBL, the results of this study support the integration of Jigsaw cooperative learning method and Socratic questioning.
Hypotheses of the study
The study aimed at testing the following five hypotheses:

1. There’s no statistically significant difference in reading comprehension between the students who receive Jigsaw II instruction and those who receive whole class instruction.

2. There’s no statistically significant difference in vocabulary knowledge between students who receive Jigsaw II instruction and those who receive whole class instruction.

3. There’s no statistically significant difference in students’ self-concept as readers between the students who receive Jigsaw II and those who receive whole class instruction.

4. There’s no statistically significant difference in the value students place on reading between students who receive Jigsaw II and those who receive whole class instruction.

5. There’s no statistically difference in reading motivation between students who receive Jigsaw II instruction and those who receive whole class instruction.

Sample of the study
The researcher selected Forty-four Grade 5 students at a private elementary school from Beirut. Twenty-six of the children were boys and eighteen were girls. The children were from a low socioeconomic background as judged by the low tuition fee.

Tool of the study
The researcher collected data using Motivation to Read Profile (MRP) by Gambrell, Palmer, Colding, and Mazzoni (1996) and Gates-McGinitie Reading Test, 4th edition (GMRT) to assess reading comprehension and achievement of the children.
Research Design
The researcher adopted Post-test only Control Group Design

Techniques of the study
The researcher analyzed data using descriptive statistics (means and standard deviations) and Multivariate Analysis of Variance Test (MANOVA).

Major Findings of the study
The findings showed Jigsaw had a significant effect on students’ self concepts as reader, the value they place on reading and their motivation. However no significant differences were found in favour of Jigsaw II on the variables of vocabulary acquisition and reading comprehension.

Study: 7
Name: Ghina Hassan Al Badawi
Title: The Effect Of Jigsaw II Versus Whole Class Instruction On EFL Students’ Reading Motivation And Achievement
University: Department of Education of the Faculty of Arts and Sciences, AMERICAN UNIVERSITY OF BEIRUT (Ph.D.)
Year: 2005

Objectives of the Study
To investigate the question of whether Jigsaw II is more effective than whole class instruction in improving learners' reading achievement and motivation.

Hypotheses of the Study
1. There’s no statistically significant difference in reading comprehension between the students who receive Jigsaw II instruction and those who receive whole class instruction.
2. There’s no statistically significant difference in vocabulary knowledge between students who receive Jigsaw II instruction and those who receive whole class instruction.
3. There’s no statistically significant difference in students’ self-concept as readers between the students who receive Jigsaw II and those who receive whole class instruction.
4. There’s no statistically significant difference in the value students place on reading between students who receive Jigsaw II and those who receive whole class instruction.

5. There’s no statistically difference in reading motivation between students who receive Jigsaw II instruction and those who receive whole class instruction.

Sample of the Study
The researcher selected Forty-four Grade 5 students of private elementary school in Beirut. Twenty-six were boys and eighteen were girls.

Tools of the Study
The researcher collected data using Reading Survey of the Motivation to Read Profile (MRP), Gates-McGinitie Reading Test.

Research Design of the Study
The Researcher used posttest only control group design.

Techniques of the Study
The data was analyzed using MANOVA and descriptive statistics viz. mean and standard deviation.

Major Findings of the Study
The major findings of the study suggest that Jigsaw had a significant effect on student’s self concept as readers, the value they place on reading, and their reading motivation

Study: 8
Name: Nandita Nagar
Title: Evolving Strategies for Enhancing Cooperative Learning In Teacher Education
University: Department of Education, University of Lucknow (Ph.D.)
Year: 2009

Objectives of the Study
1. To prepare and implement Cooperative Learning Lessons based on different Cooperative Learning Strategies.
2. To find out the effectiveness of Cooperative Learning Strategies in reference to academic achievement, self esteem, interpersonal relations, individual and group cooperative work, trust behavior, collaborative skills and classroom environment.

3. To enhance Cooperative Learning in teacher trainees.

**Research Questions**

1. To what extent does the developed intervention programme affect the Cooperative behavior of teacher trainees?

2. Is there any difference between the terminal behavior / learning outcomes of the teacher trainees who participated in the intervention programme and those who did not participate in the intervention programme?

**Hypotheses of the Study**

1. The mean adjusted final scores of self esteem of the students belonging to the experimental group and the control group for strategy – 1, 2 and 3 combined (Ironing out a Problem, Picture Perfect and Cooperative Microteaching) will not differ significantly when the initial score is considered as covariate.

2. The mean adjusted final scores of self esteem of the students belonging to the experimental group and the control group for strategy – 1 (Ironing out of a Problem) will not differ significantly when the initial score is considered as covariate.

3. The mean adjusted final scores of self esteem of the students belonging to the experimental group and the control group for strategy – 2 (Picture Perfect) will not differ significantly when the initial score is considered as covariate.

4. The mean adjusted final scores of self esteem of the students belonging to the experimental group and the control group for strategy – 3 (Cooperative Microteaching) will not differ significantly when the initial score is considered as covariate.

5. The mean adjusted final scores of self esteem of the students belonging to the experimental group and the control group for strategy - 1 and 2 combined (Ironing out of a Problem and Picture Perfect) will not differ significantly when the initial score is considered as covariate.

6. The mean adjusted final scores of self esteem of the students belonging to the experimental group and the control group for strategy - 2 and 3 combined (Picture Perfect and Cooperative Microteaching) will not differ significantly when the initial score is considered as covariate.
Perfect and Cooperative Microteaching) will not differ significantly when the initial score is considered as covariate.

7. The mean adjusted final scores of Classroom Environment: Involvement in Class (Dimension – 1) of the students belonging to the experimental group and the control group will not differ significantly when the initial score is considered as covariate.

8. The mean adjusted final scores of Classroom Environment: Cohesiveness (Dimension – 2) of the students belonging to the experimental group and the control group will not differ significantly when the initial score is considered as covariate.

9. The mean adjusted final scores of Classroom Environment: Cooperation and Equality (Dimension – 3) of the students belonging to the experimental group and the control group will not differ significantly when the initial score is considered as covariate.

10. The mean adjusted final scores of Classroom Environment: Competition (Dimension – 4) of the students belonging to the experimental group and the control group will not differ significantly when the initial score is considered as covariate.

11. The mean adjusted final scores of Classroom Environment: Attitude towards the Subject Matter (Dimension – 5) of the students belonging to the experimental group and the control group will not differ significantly when the initial score is considered as covariate.

12. The mean adjusted final scores of Interpersonal Relationships: Sit Next to Him / Her in Class (Dimension – 1) of the students belonging to the experimental group and the control group will not differ significantly when the initial score is considered as covariate.

13. The mean adjusted final scores of Interpersonal Relationships: Loan Him / Her a Pencil / Book (Dimension – 2) of the students belonging to the experimental group and the control group will not differ significantly when the initial score is considered as covariate.

14. The mean adjusted final scores of Interpersonal Relationships: Tell Secrets to Him / Her (Dimension – 3) of the students belonging to the experimental group and the control group will not differ significantly when the initial score is considered as covariate.
15. The mean adjusted final scores of Interpersonal Relationships: Invite Him / Her to your Home (Dimension – 4) of the students belonging to the experimental group and the control group will not differ significantly when the initial score is considered as covariate.

16. The mean adjusted final scores of Interpersonal Relationships: Be his / Her Best Friend (Dimension – 5) of the students belonging to the experimental group and the control group will not differ significantly when the initial score is considered as covariate.

17. There will be no significant difference in the achievement level of the experimental group and the control group on post-test scores for strategy – 1 (Ironing out a Problem).

18. There will be no significant difference in the achievement level of the experimental group and the control group on the delayed post-test scores for strategy – 1 (Ironing out a Problem).

19. There will be no significant difference in the achievement level of the post-test and delayed post-test scores of the experimental group for strategy – 1 (Ironing out a Problem).

20. There will be no significant difference in the achievement level of the post-test and delayed post-test scores of the control group for strategy – 1 (Ironing out a Problem).

21. There will be no significant difference in the achievement level of the experimental group and the control group on post-test scores for strategy – 2 (Picture Perfect).

22. There will be no significant difference in the achievement level of the experimental group and the control group on the delayed post-test scores for strategy – 2 (Picture Perfect).

23. There will be no significant difference in the achievement level of the post-test and delayed post-test scores of the experimental group for strategy – 2 (Picture Perfect).

24. There will be no significant difference in the achievement level of the post-test and delayed post-test scores of the control group for strategy – 2 (Picture Perfect).

25. There will be no significant difference in the achievement level of the experimental group and the control group on post-test scores for strategy – 3 (Cooperative Microteaching).
26. There will be no significant difference in the achievement level of the experimental group and the control group on the delayed post-test scores for strategy – 3 (Cooperative Microteaching).

27. There will be no significant difference in the achievement level of the post-test and delayed post-test scores of the experimental group for strategy – 3 (Cooperative Microteaching).

28. There will be no significant difference in the achievement level of the post-test and delayed post-test scores of the control group for strategy – 3 (Cooperative Microteaching).

29. There will be no significant difference in the level of Individual and Group Cooperative Work on the post-test scores of the experimental group for strategy – 1, 2, and 3 (Ironing out a Problem, Picture Perfect and Cooperative Microteaching).

30. There will be no significant difference in the level of Trust Behaviour (Openness and Sharing) on the post-test scores of the experimental group for strategy – 1, 2, and 3 (Ironing out a Problem, Picture Perfect and Cooperative Microteaching).

31. There will be no significant difference in the level of Trust behavior (Acceptance and Support) on the post-test scores of the experimental group for strategy – 1, 2, and 3 (Ironing out a Problem, Picture Perfect and Cooperative Microteaching).

Sample of the Study
The researcher selected 24 teacher trainees of Christian Training College, Lucknow each in the experimental group and control group.

Tools of the study
The researcher collected data using Student Profile Form, Classroom Environment Checklist, Rosenberg’s Self Esteem Scale, Interpersonal Relations Assessment Technique, Examination of Trust Behaviour, Individual and Group Cooperative Learning Work Checklist, Social Skill Observation Form, Group Processing Form, Achievement-test for strategy – 1, 2, and 3 (Ironing out a Problem, Picture Perfect, Cooperative Microteaching), Feedback Form.
Research Design of the study
The researcher used Pre test – Post-test – Delayed Post-test Design.

Techniques of the Study
The data was analyzed using ANOVA, ANCOVA and Percentage

Major Findings of the Study
The achievement level of the teacher trainees was found to be remarkably high when they were tested after strategy – 1 (Ironing Out a Problem), Strategy – 2 (Picture Perfect) and Strategy – 3 (Cooperative Microteaching).

Study:  9
Name:  Hui-Chuan Liao
Title:  Effects Of Cooperative Learning On Motivation, Learning Strategy Utilization, And Grammar Achievement Of English Language Learners In Taiwan
University:  M.Ed., University of New Orleans
Year:  2005

Objectives of the Study
To examine the effects of cooperative learning on EFL students in Taiwan

Research Questions
1. How does motivation differ between the group receiving cooperative learning and the group receiving whole-class instruction?
2. How does utilization of learning strategies beyond class settings differ between the group receiving cooperative learning and the group receiving whole-class instruction?
3. How does grammar achievement differ between the group receiving cooperative learning and the group receiving whole-class instruction?

As a result of the analyses on the above three major research questions, the following exploratory questions were investigated:
A. Is there an interaction effect between instruction (CL vs. WC) and prior English ability level on motivation? If so, what is the cause of the interaction?
B. Is there an interaction effect between instruction (CL vs. WC) and prior English ability level on out-of-class utilization of learning strategies? If so, what is the cause of the interaction?

C. Is there an interaction effect between instruction (CL vs. WC) and prior English ability level on grammar achievement? If so, what is the cause of the interaction?

D. How does student achievement differ between the cooperative learning group and the whole-class instruction group in terms of different cognitive levels?

E. What are the relationships among prior English level, gender, grammar achievement, task value, self-efficacy, use of elaboration strategies, and out-of-class peer collaboration behaviors?

**Hypotheses of the Study**

1. There is no statistically significant difference in the adjusted motivation means between the group receiving cooperative learning and the group receiving whole-class instruction.

2. There is no statistically significant difference in the adjusted means between the group receiving cooperative learning and the group receiving whole-class instruction in terms of use of learning strategies beyond class settings.

3. There is no statistically significant difference in the adjusted grammar achievement means between the group receiving cooperative learning and the group receiving whole-class instruction.

**Sample of the Study**

The researcher selected Two college classes (42 students each) in Taiwan.

**Tools of the study**

The researcher collected data using Motivated Strategies for Learning Questionnaire (MSLQ), English Grammar Proficiency Test and Achievement test.

**Research Design of the Study**

The Researcher used quasi-experimental pre-test-post-test comparison group research study.

**Techniques of the Study**

The data was analyzed using MANCOVAs, one- and two-way ANCOVAs, simple effects, and Pearson correlations.
Major Findings of the Study
The major findings of the study revealed that Cooperative learning was found to have large positive effects on motivation and strategy use, and medium-to-large positive effects on grammar achievement. Overall, the findings indicated a consistent pattern in favour of cooperative learning over whole-class instruction in teaching the Taiwanese learners English grammar. The results of the exploratory questions indicated that cooperative learning facilitated motivation and strategy use of learners across all subgroups, but more so with those performing at higher and lower levels. Grammar achievement of learners at higher and lower levels was affected positively. Additional analyses also indicated cooperative learning positively affected learning at higher cognitive levels. Implications for future research and for curriculum and instruction are addressed.

Study: 10
Name: Tsailing Liang
Title: Implementing Cooperative Learning In EFL Teaching: Process And Effects
University: The Graduate Institute of English National Taiwan Normal University
Year: July 2002

Objectives of the study
To investigate the effects of cooperative learning on EFL junior high school learners’ language learning, motivation toward learning English as a foreign language, and the high- and low-achievers’ academic achievements in a heterogeneous language proficiency group.

Sample of the study
The researcher selected two classes of the first year junior high school students in a rural town in central Taiwan. There were totally 70 students involved in this study.

Tool of the study
The researcher collected data using two oral tasks, scores of monthly examinations, motivational questionnaires, student interview, and teacher interview to achieve methodological triangulation.
Research Design
The researcher adopted Quasi-Experimental Group Design.

Techniques of the study
The researcher analyzed data using Independent Samples Test and Paired Samples Test to determine whether there were significant inter and intra-group differences.

Major Findings of the study
The findings of the research study suggested that cooperative learning helped significantly to enhance the junior high school learners’ oral communicative competence and their motivation toward learning English.

Study: 11
Name: Coraince, Nurhan
Title: Teaching Reading comprehension Skills to Mentally Retarded Students Via Cooperative Learning Based Teaching Programme and Studying the Effectiveness of the programme
University: Special Education Department
Year: 2007

Objectives of the study
The purpose of this study is to put forward the effectiveness of teaching reading comprehension depending on cooperative learning approach.

Sample of the study
The researcher selected students who attend special education classes and regular classes at Cumhuriyet and Karaçayır primary schools in Bolu. Nine mentally retarded and 27 normal progress students are determined according to pre-condition skills which are identified for this study. In sum, the study is applied to 36 students.

Tools of the study
The researcher collected data using reading comprehension and social skills control list.

Techniques of the study
The researcher analyzed the data using graphic analysis.
**Major findings of the study**

The findings of the study conclude that Reading Comprehension Programme which is developed in the light of cooperative learning approach is effective on mentally retarded students. It is stated that cooperative learning has an important role on learning aimed reading comprehension skills.

Thus this section comprises work by Tsailing, L. (2002) indicated that cooperative learning helped significantly to enhance students oral communicative competence and their motivation toward learning. Moreover Samih, B. (2009) stated that Project Based Learning Approach influence on skills such as working in team, problem solving and critical thinking as a result of the intervention. Marian, B. M. (2011) supported the use of PBL to improve student achievement. Students achieve at higher levels in science when compared to traditional teacher-led lecture instruction. Nandita, N. (2009) stated that the achievement level of the teacher trainees was found to be remarkably high when they were tested after strategy – 1 (Ironing Out a Problem), Strategy – 2 (Picture Perfect) and Strategy – 3 (Cooperative Microteaching). All these studies included in the above section indicates that teaching through Cooperative Learning Approach and Project Based Learning Approach various subjects enhance students oral communication, motivation towards learning, influence on skills such as working in a team, problem solving, critical thinking and achieve at higher level in various subjects. Ghina, H. A. (2005) suggested that Jigsaw had a significant effect on student’s self concept as readers, the value they place on reading, and their reading motivation. Hui, C. L. (2005) revealed that Cooperative learning was found to have large positive effects on motivation and strategy use, and medium-to-large positive effects on grammar achievement. Muhammad, I. (2004) revealed that Cooperative learning groups performed significantly better than the group taught by traditional method of teaching. Low achievers gain higher as a result of cooperative learning. Babatunde, A. A. (2008) cooperative learning strategy as the most suitable method for teaching it improves teaching ability of boys and girls depend on the exposure to many teaching strategies. Thus above studies indicated that students achievement in various subjects increases using various cooperative learning strategies.
### 3.4.1.2 Review of Related Studies on Project Based Learning

**Table 3.2**

Summary of Past Studies Reviewed on Project Based Learning

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Title of the Study</th>
<th>Researcher/s</th>
<th>University / Institute</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Influence Of Project Based Learning Approach On Pre-Service Science Teachers’ Conceptions Of The Nature Of Science And Technology And Scientific Process Skills</td>
<td>Samih Bayrakceken</td>
<td>Graduate School of Natural and Applied Sciences, Ataturk University</td>
<td>2009</td>
</tr>
</tbody>
</table>

**Study:** 1  
**Name:** Samih Bayrakceken  
**Title:** The Influence Of Project Based Learning Approach On Pre-Service Science Teachers’ Conceptions Of The Nature Of Science And Technology And Scientific Process Skills  
**University:** Graduate School of Natural and Applied Sciences, Ataturk University.  
**Year:** 2009

**Objectives of the study**

The aim of this study was to determine the pre-service science teachers’ understandings of the nature of science and their possession of scientific process skills and to investigate the influence of project based learning (PBL) approach on developing these understandings and skills. In addition, it was to determine pre-service science teachers’ attitude toward PBL.

**Sample of the study**

The researcher selected 42 senior pre-service science teachers.
**Tools of the study**
The researcher collected data using multiple choices and open ended questionnaires, follow up interviews, observations and rubrics.

**Research Design**
The researcher used Pre-test Post-test Design.

**Techniques of the study**
The researcher analyzed data using qualitative and quantitative methods.

**Major findings of the study**
At the beginning of the intervention, it was determined that the majority of the pre-service science teachers had has merit or naïve conceptions about all aspects of the nature of science and technology. At the end of the intervention, there were improvements in the most of these conceptions and in the scientific process skills. However, it was found that the pre-service science teachers had still naïve conceptions about the social and cultural aspects of science and they still thought that scientific knowledge is a discovery. They stated that they had skills such as working in team, problem solving and critical thinking as a result of the intervention.

**3.4.2 Review of Research Articles**
The investigator reviewed research articles from various Research Journals and Online Journals related to the present study.
### 3.4.2.1 Review of Research Articles in Journals

#### Table 3.3

Summary of Journal Articles Reviewed on Cooperative Learning

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Title of the Study</th>
<th>Researcher/s</th>
<th>Journal</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Effect of Cooperative Learning on Achievement of Students in General Science at Secondary Level</td>
<td>Qaisara Parveen</td>
<td>International Education Studies (Vol. 5, No. 2; ISSN 1913-9020)</td>
<td>2012</td>
</tr>
<tr>
<td>3.</td>
<td>Effect of Peer Group Activity-Based Learning on Students’ Academic Achievement in Physics at Secondary Level</td>
<td>Safqat Hussain1, Saeed Anwar2, Muhammad Iqbal Majoka</td>
<td>International Journal of Academic Research (Vol. 3, No. 1.)</td>
<td>2011</td>
</tr>
<tr>
<td>5.</td>
<td>The Effectiveness of Teaching Physics through Project Method on Academic Achievement of Students at Secondary Level - A Case Study</td>
<td>Shafqat Hussain, Sarfraz Ahmed, Serwat Mubeen, Sadaf Tariq</td>
<td>Journal of Education and Practice, (Vol 2, No 8)</td>
<td>2011</td>
</tr>
<tr>
<td>Sr. No.</td>
<td>Title of the Study</td>
<td>Researcher/s</td>
<td>Journal</td>
<td>Year</td>
</tr>
<tr>
<td>--------</td>
<td>------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------</td>
<td>----------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>7.</td>
<td>The Effect of Cooperative Learning on Students’ Mathematics Achievement and Attitude towards Mathematics</td>
<td>Efandi Zakaria &amp; Luchung Chin</td>
<td>Journal of Social sciences Vol. 6 No. 2</td>
<td>2010</td>
</tr>
<tr>
<td>8.</td>
<td>The Effects of Cooperative Learning on Turkish Elementary Students’ Mathematics Achievement and Attitude towards Mathematics using TAI and STAD Methods</td>
<td>Kamuran Tarim &amp; Fikri Akdeniz</td>
<td>Educational Studies in Mathematics, (Vol. 67, No. 1)</td>
<td>2008</td>
</tr>
<tr>
<td>9.</td>
<td>Effect of Cooperative Learning On Academic Achievement Of 8th Grade Students In The Subject Of Social Studies</td>
<td>Qaisara Parveen1, Sheikh Tariq Mahmood1, Azhar Mahmood1, Manzoor Arif</td>
<td>International Journal Of Academic Research (Vol. 3. No.1)</td>
<td>2011</td>
</tr>
<tr>
<td>Sr. No.</td>
<td>Title of the Study</td>
<td>Researcher/s</td>
<td>Journal</td>
<td>Year</td>
</tr>
<tr>
<td>--------</td>
<td>----------------------------------------------------------------------------------</td>
<td>---------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>16.</td>
<td>Relationship Between Reading Attitudes, Achievement, And Learners Perceptions Of Their Jigsaw Ii Cooperative Learning Experience</td>
<td>Ghazi M. Ghaith</td>
<td>Reading Psychology (Volume 24, Issue 2, pages 1 – 121).</td>
<td>2003</td>
</tr>
<tr>
<td>17.</td>
<td>Effect of Cooperative Learning Strategies on Two Areas Pertaining to the Social Skills of the students.</td>
<td>Sunayna J Kadle</td>
<td>Quest in education (volume XXXIV No-2)</td>
<td>2010</td>
</tr>
<tr>
<td>18.</td>
<td>A Study of Student’s Attitudes towards Cooperative Learning</td>
<td>Kiran Akhtar, Qaisara Perveen, Sidra Kiran, Mehwish Rashid, Amna Khatoon Satti</td>
<td>International Journal of Humanities and Social Science (Vol. 2, No. 11)</td>
<td>2011</td>
</tr>
</tbody>
</table>
Article: 1
Name: Qaisara Parveen
Title: Effect of Cooperative Learning on Achievement of Students in General Science at Secondary Level

This article was selected from the International Education Studies (Vol. 5. No.2. April, 2012). It was a research article published in the journal.

Objectives of the Study
1. To teach the experimental group through cooperative learning and control group through traditional teaching without cooperative learning
2. To measure the General Science achievement of experimental and control group after the experiment
3. To compare the performance of the experimental group with control group

Hypotheses of the Study
1. There is no significant difference between mean pre-test scores and mean post-test scores of the experimental group.
2. There is no significant difference between mean pre-test scores and mean post-test scores of the control group.
3. There is no significant difference between the mean achievement scores of the control group on post-test and mean achievement scores of the experimental group on post-test.

Sample of the study
The researcher selected 36 female students of 9th class in Govt. High School Dhok Ratta Rawalpindi.

Methodology of the Study
The researcher used pre-test post-test control group design.

Tools used for the study
The researcher used General Science achievement test and material used in the study consisted of five lesson plans, five work sheets and five quizzes for collecting the data.
Techniques of Data Analysis
The data was analyzed using mean, standard deviation and t-test.

Major Findings
Findings of the study revealed that cooperative learning method is superior to traditional method in general science achievement of 9th grade students.

Article:  2
Name:  Daniel OLUDIPE, Joanthan O. AWOKOY
Title:  Effect of Cooperative Learning Teaching Strategy on the Reduction of Students’ Anxiety for Learning Chemistry

This article was selected from the International Journal of Turkish Science Education Volume 7, Issue 1, March 2010). It was a research article published in the journal.

Objectives of the Study
To investigate the influence of cooperative learning methods of teaching on Senior Secondary School students’ anxiety for learning chemistry.

Sample of the study
The researcher selected 20 students (52 females and 68 males) randomly selected from the senior secondary schools in South-West Nigeria.

Methodology of the Study
The researcher used quasi-experimental design.

Tools used for the study
The researcher used two lesson notes and Chemistry Anxiety Scale for collecting the data.

Techniques of Data Analysis
The data was analyzed using one-way analysis of variance (ANOVA).

Major Findings
Findings of the research study revealed that students in both the cooperative learning group and conventional-lecture group exhibited high level of chemistry anxiety at the
Pre-test level. However, after the treatment (Post-test level), the chemistry anxiety level of the students in cooperative learning group reduced drastically while the chemistry anxiety level of the students in conventional-lecture group increased.

**Article:** 3

**Name:** Safqat Hussain1, Saeed Anwar2, Muhammad Iqbal Majoka

**Title:** Effect of Peer Group Activity-Based Learning on Students’ Academic Achievement in Physics at Secondary Level

This article was selected from the International Journal of Academic Research (Vol. 3. No.1. January, 2011). It was a research article published in the journal.

**Objectives of the Study**

To examine the effect of peer group activity-based learning on academic achievement of secondary schools students in the subject of physics.

**Sample of the study**

The researcher selected High school in public sector having suitable conditions in Abbottabad city after a survey of schools having required strength at secondary level. In the selected school, 88 students of 10th class (science group) were divided into two equivalent groups on the basis of pre-test scores using matched random sampling technique.

**Methodology of the Study**

The researcher used pre-test post-test equivalent experimental group design.

**Tools used for the study**

The researcher used self - made Achievement-test for collecting the data.

**Techniques of Data Analysis**

The data was analyzed using mean score; standard deviation and t–test were used as statistical tools.

**Major Findings**

Findings of the research study revealed that Experimental group showed better performance than controlled group. Furthermore the experimental group performed significantly better than control group in the domain of knowledge, comprehension
and application, but no significant difference was found in both comparison groups in skill development. Hence the ultimate results of the study indicated that peer group’s activity-based learning was more effective for teaching of physics as compared to traditional lecture method of teaching at secondary level.

Article: 4  
Name: Kemal Doymus, Umit Simsek, Ataman Karacop and Sikri Ada  
Title: Effects of Two Cooperative Learning Strategies on Teaching and Learning Topics of Thermochemistry

This article was published in World Applied Sciences Journal (Vol. 7 (1): 34-42, 2009, ISSN 1818-4952, IDOSI Publications, 2009). It was a research article published in the journal.

Objectives of the study
To determine the effect of group investigation and jigsaw techniques on students’ achievement in thermochemistry unit of a general chemistry course.

Sample of the study
The researcher selected 80 students studying chemistry in two different classes during the 2008-2009 academic years.

Tool of the study
The researcher collected data using Thermochemistry Achievement-test (TAT) and The Particulate Nature of Matter Evaluation Test (PNMET)

Research Design
The researcher used pre-test post-test experimental group design.

Techniques of the study
The researcher analyzed data using independent t-test.

Major Findings of the study
The major findings of the research study revealed that the instruction based on group investigation techniques, caused a significantly better achievement in terms of the TAT and PNMET compared to jigsaw technique designed chemistry instructions.
This article was published in Journal of Education and Practice, (Vol 2, No 8, 2011). It was a research article published in the journal.

Objectives of the study
The aim of this study was to examine the effect of teaching Physics through project method on academic achievement of secondary schools students in the subject of Physics.

Hypotheses of the study
The following hypotheses were tested to achieve the objective of research study:

1. There is no significant difference between achievement scores of students in the subject of physics taught through project teaching method (PTM) and those taught by traditional teaching lecture method (TTLM) at secondary level.

2. There is no significant difference between achievement scores of students in the subject of physics in cognitive domain (knowledge ability) taught through project teaching method (PTM) and those taught by traditional teaching lecture method (TTLM) at secondary level.

3. There is no significant difference between achievement scores of the students in the subject of physics in cognitive domain (application ability) taught through project teaching method (PTM) and those taught by traditional teaching lecture method (TTLM) at secondary level.

4. There is no significant difference between achievement scores of the students in the subject of physics in cognitive domain (comprehension ability) taught through project teaching method (PTM) and those taught by traditional teaching lecture method (TTLM) at secondary level.

5. There is no significant difference between the achievement scores of students in the subject of physics in psychomotor domain (skill development ability) taught through project teaching method (PTM) and those taught by traditional teaching lecture method (TTLM) at secondary level.
Sample of the study
The researcher selected 80 students of science STD X Government Centennial Model Secondary School for boys Abbott bad.

Tool of the study
The researcher used achievement-test (pre-test/post-test) covering eight chapters were used as measuring instrument.

Research Design
The researcher used pre-test post-test control experimental group design.

Techniques of the study
The researcher analyzed the data using means, standard deviation; independent t-test.

Major Findings of the study
The findings of the research study revealed that on whole, experimental group showed better performance than controlled group. Furthermore the experimental group performed significantly better than control group in learning domain (knowledge, comprehension, and application and skill developments). The results this study indicated that teaching Physics through Project method was more effective as compared to traditional lecture method at secondary level.

Article: 6
Name: Dhananjay Dheeraj and Rima Kumari
Title: Effect of Co-operative Learning on Achievement in Environmental Science of School Students

This article was published in International Journal of Scientific and Research Publications, (Vol. 3, Issue 2, February 2013). It was a research article published in the journal.

Objectives of the study
1. To design teaching learning material on Cooperative learning
2. To study the effectiveness of Cooperative learning on achievement in EVS – II of Class – V students in comparison with traditional method.
3. To examine whether learning becomes more joyful through Cooperative learning
Hypotheses of the study
The following hypotheses were tested in this study:
1. Cooperative learning enhances significantly the achievement in EVS of Class – V students
2. Learning will be more joyful through Cooperative learning strategies

Sample of the study
The researcher selected 60 students of section A and B of Class – V of D. A. V. Public School Cantt. Area, Gaya out of this 30 were in the experimental group and remaining 30 were in the control group.

Tool of the study
The researcher collected data using lesson plans and teacher made achievement test.

Research Design
The researcher adopted Randomized Two Group Post-test Design

Techniques of the study
The researcher analyzed data using t-test and Chi - Square

Major Findings of the study
The finding indicated cooperative learning has a significant impact on the achievement of Class – V students in EVS – 2. Learning was very joyful under Cooperative learning system.

Article:  7
Name:  Efandi Zakaria & Lu chung Chin
Title:  The Effect of Cooperative Learning on Students’ Mathematics Achievement and Attitude towards Mathematics

This article was selected from the Journal of Social sciences Vol. 6 No. 2, 2010).
It was a research article published in the journal.

Objectives of the study
1. To study the differences in achievement in mathematics between the experimental group and control group.
2. To study the differences in students’ attitude towards mathematics between the experimental group and control group
Sample of the study
The researcher used convenience sampling technique. The sample size was of 82. 44 students were in experimental group and 38 were in control group.

Tool of the study
The researcher collected data using achievement-test and attitude questionnaire and the statements were administered using Likert five point scale.

Research Design
The researcher used Quasi experimental design & non equivalent control group design for the study.

Techniques of the study
The data was analyzed using t–test.

Major Findings of the study
The findings of the research study revealed that the cooperative learning method improves students’ achievement in mathematics and attitude towards mathematics.

Article: 8
Name: Kamuran Tarim &Fikri Akdeniz
Title: The Effects of Cooperative Learning on Turkish Elementary Students’ Mathematics Achievement and Attitude towards Mathematics using TAI and STAD Methods

This article was published in Educational Studies in Mathematics, (Vol. 67, No. 1, January 2008). It was a research article published in the journal.

Objectives of the study
To compare the effects of Team Assisted Individualization (TAI) and Student Teams-Achievement Divisions (STAD) on fourth grade students’ academic achievement in and attitudes towards mathematics.
Sample of the study
The researcher selected randomly seven classes of a school for this experimental study. Two of these were given instruction through TAI; two through STAD, and the remaining three were treated as a control group.

Techniques of the study
The researcher analyzed the data using 3 X 1 covariance analysis to compare the groups.

Major Findings of the study
The major findings of the research study revealed that, no significant difference was observed regarding students’ attitudes towards mathematics using TAI and STAD methods.

Article: 9
Name: Qaisara Parveen1, Sheikh Tariq Mahmood1, Azhar Mahmood1, Manzoor Arif2
Title: Effect of Cooperative Learning On Academic Achievement Of 8th Grade Students In The Subject Of Social Studies

This article was a research article published in International Journal Of Academic Research (Vol. 3. No.1. January, 2011, Part III). It was a research article published in the journal.

Objectives of the study
To explore the effect of cooperative learning on academic achievement of 8th grade students in the subject of social studies.

Hypotheses of the study
There is significant difference between mean post-test achievement score of the experimental group and mean achievement score of the control group

Sample of the study
The researcher selected 35 students who were distributed among experimental group (N=18) and control group (N=17), by matching them on the basis of their annual examination at social studies scores.
Tool of the study
The researcher collected data using self constructed, 25-item achievement-test.

Research Design
The researcher adopted pre-test post-test control group design for the experiment.

Techniques of the study
The researcher analyzed data using t-test.

Major Findings of the study
The findings of the research study did not confirm the research Hypotheses. Cooperative learning was not found to be a better instructional strategy than routine method of instruction.

Article: 10
Name: Shafqat Ali Khan
Title: The Effect of Cooperative Learning on Academic Achievement of Low Achievers in English

This article was published in Academic Journal Language in India, (Vol. 11, Issue 2, March 2011). It was a research article published in the journal.

Objectives of the study
1. To investigate the effectiveness of traditional learning method and cooperative learning method on the academic achievement of low achievers in the subject of English.
2. To compare the degree of effectiveness of teaching using cooperative learning method and through traditional learning method on the academic achievement of low achievers.

Hypotheses of the study
The following hypotheses were tested in this study:
1. There is no significant difference between the achievement scores of students of the control group exposed to the traditional learning method.
2. There is no significant difference between the achievement scores of the students of the experimental group exposed to the cooperative learning method.
3. There is no significant difference between the achievement scores of the students of the control and experimental groups in terms of mean score gains on post-test.

**Sample of the study**
The researcher selected 128 students of 8th classes of Government Comprehensive High School Rawalpindi. Their ages ranged from 13 to 14 years. The participants were selected from that school which represents the population of typical government schools in Pakistan, i.e., large classes and students of different socio-economic status.

The experimental group included 64 participants who studied together in sixteen teams of four members each according to the dynamics of cooperative learning. Meanwhile, 64 participants in the control group studied the same material with traditional learning method. All students were randomly selected from all three sections of 8th class of the school.

**Tool of the study**
The researcher collected data using Pre-test and Post-test, Reading Comprehension Test, Writing ability test.

**Research Design**
The researcher adopted Pre-test Post-test Equivalent Group Design.

**Techniques of the study**
The researcher analyzed data using t-test.

**Major Findings of the study**
The finding indicated cooperative learning is more effective than comparable traditional (whole class) method in academic achievement of sample students of elementary classes.

**Article:** 11

**Name:** Pandya, S.

**Title:** Interactive Effect of Co-Operative Learning Model and Learning Goals of Students on Academic Achievement of Students In Mathematics
Objectives of the Study
To study the effects of co-operative learning model and learning goals of students on the Academic Achievement of students in Mathematics.

Research Questions
1. Do experimental and control group students’ pre-test scores on academic achievement in the subject of Mathematics differ significantly?
2. Do experimental and control group students’ post-test scores on academic achievement in the subject of Mathematics differ significantly?
3. Do students’ post-test scores on academic achievement in the subject of Mathematics differ when students’ pre-test scores are controlled?
4. What is the interactive effect of co-operative learning model and learning goals (in terms of mastery learning and performance goals) on the Academic Achievement in the subject of Mathematics?
5. What is the effect size of the treatment on the Academic Achievement in the subject of Mathematics?

Sample of the Study
The researcher selected 153 students of standard IX studying in schools affiliated to the SSC Board and with English as the medium of instruction

Methodology of the Study
The researcher used quasi-experimental design & factorial design.

Tools of the study
The researcher used self- made Achievement-test and Learning Goals Inventory (Pandya, 2004)

Techniques of Data Analysis
The researcher used statistical techniques such as the t-test, ANCOVA, two-way analysis of variance and wolf’s formula. To compare the pre-test and post-test scores on academic achievement, the t-test was used. To compare the post-test score on academic achievement of students after partiailling out the effect of pre-test scores,
the technique of ANCOVA was used. Wolf’s formula was used to measure the extent of effectiveness of the Co-operative Learning Model on the dependent variable, namely, academic achievement of students in Mathematics. Two way ANOVA was used to study the interactive effect of Co-operative Learning Model and students’ learning goals on the dependent variable, namely, academic achievement of students.

**Major Findings**

Findings of the research study revealed 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.

**Article:** 12  
**Name:** R.A. Olatoye; A.A. Aderogba, and E.M. Aanu  
**Title:** Effect of Co-operative and Individualized Teaching Methods on Senior Secondary School Students’ Achievement in Organic Chemistry.

This article was published in the Journal of The Pacific Journal of Science and Technology (Volume 12, Number 2, November, 2011). It was a research article published in the journal.

**Objectives of the study**

To investigate the main and interaction effects of co-operative and individualized teaching methods on senior secondary school students’ achievement in organic chemistry using gender and self-concept as moderating variables.

**Hypotheses of the study**

1. There is no significant main effect of treatment (co-operative, individualized and control/lecture) on students’ achievement in organic chemistry.
2. There is no significant main effect of gender on students’ achievement in organic chemistry.
3. There is no significant main effect of self-concept on students’ achievement in organic chemistry.
4. There is no significant interaction effect of treatment and gender on students’ achievement in organic chemistry.
5. There is no significant interaction effect of treatment and self-concept on students’ achievement in organic chemistry.
6. There is no significant interaction effect of gender and self-concept on students’ achievement in organic chemistry.
7. There is no significant interaction effect of treatment, gender and self-concept on students’ achievement in organic chemistry.

Sample of the study
The researcher selected One hundred fifty-six (156) students for the study.

Tools of the study
The researcher collected data using Chemistry Achievement-test (CAT), Teaching Manual, Self-concept Questionnaire (SCQ)

Research Design
The researcher used 3x2x2 randomized pre-test, post-test quasi-experimental factorial design.

Techniques of the study
The researcher analyzed data using Analysis of Covariance (ANCOVA).

Major findings of the study
The findings of the research study indicated that there is significant main effect of treatment on student achievement in organic chemistry. Another finding of the study was that there is no significant effect of gender on students’ achievement in organic chemistry. Finally, there is no significant effect of self-concept on student achievement in organic chemistry.

Article: 13
Name: Francis A. Adesoji & Tunde L.
Title: Effects Of Student Teams-Achievement Divisions Strategy And Mathematics Knowledge On Learning Outcomes In Chemical Kinetics
This research article was selected from the Journal of International Social Research (Volume 2/6 Winter 2009). It was a research article published in the journal.

Hypotheses of the study
The following hypotheses were tested at 0.05 level of significance.
1. There is no significant main effect of treatment on
   (a) Students’ achievement in chemical kinetics
   (b) Attitude towards chemical kinetics
2. There is no significant main effect of mathematical ability on students
   (a) Achievement in chemical kinetics
   (b) Attitude towards chemical kinetics
3. There is no significant interaction effect of treatment and mathematical ability on students.
   (a) Achievement in chemical kinetics
   (b) Attitude towards chemical kinetics

Sample of the study
The researcher selected a sample of 300 students (110 males and 190 females) from six senior secondary schools in Epe division of Lagos State, Nigeria

Tool of the study
The researcher used Student’s Mathematics Knowledge Test (SMKT) to collect the data. This was made up of thirty (30) multiple choice items with four options. The questions are on prerequisite Mathematics concepts for the understanding of chemical kinetics. The concepts are integration, differentiation, surds, factorization, indices and logarithms, Achievement-test on chemical kinetics, twenty-item questionnaire rated on a four-point likert type intervals scale ranging from strongly agreed (SA) to strongly disagreed (SD).

Research Design
The researcher used pre-test, post-test control group quasi experimental design for the study.
Techniques of the study
The data was analyzed using Analysis of Covariance (ANCOVA) with pre-test scores as covariates in order to adjust for the initial differences in the sample. Multiple Classification Analysis (MCA) was also used to examine the magnitude of the differences among the groups.

Major Findings of the study
The findings of the research study revealed that there were significant main effects of treatment on students achievement and attitude (F=190.58; P <0.05) and (F=379.275, P<0.05) respectively. Mathematics ability had significant main effects on achievement (F=12.971; P <0.05) and on attitude (F=3.678; P <0.05). The interaction effects of treatment and mathematics ability was significant for achievement (F=8.146; P <0.05) and also for attitude (F=7.578; P <0.05). Based on the findings, it was recommended that mathematical background of students should be taken into consideration before allowing them to enroll for chemistry at the senior secondary level. Students with very low mathematical ability should not be allowed to enroll for chemistry. Students Teams-Achievement Divisions strategy should also be used to teach chemistry at this level.

Objectives of the study
To study the effects of the jigsaw technique used in collaborative learning and that of classical learning method on the academic performance of the students, on the learning of the concepts in the principles and methods of teaching course.

Sample of the study
The researcher selected 80 second year students of the Ataturk University. 40 students were in control group and 40 were in the experimental group.
Tool of the study
The researcher collected data using programme development success test.

Research Design
The researcher adopted pre-test post-test equivalent group experimental design for the study.

Techniques of the study
The researcher analyzed data using t–test.

Major Findings of the study
The findings of the research study revealed that Jigsaw technique has more favorable findings on the academic performance of students than the traditional learning method.

Article: 15
Name: John G. Duxbury and Ling-ling Tsai
Title: The Effects of Cooperative Learning on Foreign Language Anxiety: A Comparative Study of Taiwanese and American Universities

This article was published in International Journal of Instruction, (Vol.3, No.1 January 2010, ISSN: 1694-609X). It was a research article published in the journal.

Objectives of the study
To identify how motivation, student beliefs, student personality, teacher interactions, student-background in the language, and cooperative learning influenced levels of foreign language anxiety among foreign language students at a university in the United States (the University of South Dakota) and three colleges in Southern Taiwan. Selected cooperative learning attitudes and practices were analyzed in relation to foreign language anxiety.

Research Questions of the study
The following were the research questions before the researcher.
1. What is the level of anxiety in foreign language classrooms?
2. What is the relationship between students’ foreign language classroom anxiety and cooperative learning attitudes?
3. What is the relationship between students’ foreign language classroom anxiety and their perceptions of the use of cooperative learning practices?

Sample of the study
The researcher selected sample consisted of 385 students in one American university and in three Taiwanese universities. There were 152 foreign language students from classes at the University of South Dakota during spring 2006, and 233 foreign language students from classes in 3 colleges in Southern Taiwan during the fall of 2007 (54 students at Wen Zao University, 76 students at Kun Shan University, and 103 students at Far East University).

Tool of the study
The researcher collected data using two instruments (The Foreign Language Classroom Anxiety scale by Horwitz et al., 1986 and the Style Analysis Survey by Oxford et al., 1999a)

Techniques of the study
The researcher analyzed the data using descriptive and inferential statistics, including item means, standard deviations, t-tests, and the Pearson product-moment correlation coefficient.

Major Findings of the study
The major findings of the research study revealed that there is some anxiety in foreign language classrooms. However, while there was a relationship between students’ foreign language classroom anxiety and their perceptions of the use of cooperative learning practices, a similar relationship between students’ foreign language classroom anxiety and cooperative learning attitudes was not found.

Article: 16
Name: Ghazi M. Ghaith
Title: Relationship Between Reading Attitudes, Achievement, And Learners Perceptions Of Their Jigsaw II Cooperative Learning Experience
Objectives of the study
To investigate the relationship between reading attitudes, achievement, and learners' perceptions of their Jigsaw II Cooperative Learning (CL) experience.

Sample of the study
The researcher selected One hundred eleven (n = 111) eighth grade students of English as a Foreign Language (EFL) enrolled in four sections in two branches of a middle school in Lebanon.

Tools of the study
The researcher collected data using questionnaire, pre-test, post-test and semantic differential scale.

Techniques of the study
The researcher analyzed data using descriptive statistics and correlation coefficients. Two Multivariate Analysis of Covariance (MANCOVA) tests were conducted in order to address the questions raised in the study.

Major findings of the study
The findings of the research study indicated reading attitudes and reading achievement were positively internally related, but not related to the perception of the Jigsaw II cooperative experience. Furthermore, the results revealed certain statistically significant differences between high and low achievers and between males and females across the variables of reading attitudes, achievement, and perception of the Jigsaw II cooperative experience. The results are discussed in light of previous research findings and with reference to the cultural context of the present study.

Article: 17
Name: Sunayna J Kadle
Title: Effect of Cooperative Learning Strategies on Two Areas Pertaining to the Social Skills of the students.
This article was a research published in Quest in education (volume XXXIV No-2 April 2010). It was a research article published in the journal.

Objectives of the study
1. To develop lessons in science for STD VII of secondary school of SSC based on cooperative learning strategies.
2. To study the effect of the lessons based on cooperative learning strategies on the 2 areas pertaining to social skills of emotional intelligence of the students

Hypotheses of the study
1. There is no significant difference in the social skills of the students taught using the cooperative learning strategies and the students taught by the traditional methods reflected in the scores of the student of the students in the areas of recognizing emotions in others and handling relationships of emotional intelligence scale after treatment (Post-tests)
2. There is no significant difference in the social skills of the students taught using the cooperative learning strategies as reflected in the scores of the students in the area of recognizing emotions in others and handling relationships of emotional intelligence scale before and after treatment (Pre-test – post-test)
3. There is no significant difference in the social skills of the students taught by the traditional methods as reflected in the scores of the students in the areas of recognizing emotions in others and handling relationships of emotional intelligence scale before and after treatment (Pre-test – Post-test)

Sample of the study
The researcher selected students of the VII STD of one school.

Tool of the study
The researcher collected data using emotional intelligence scale pertaining to the areas social skills domain.

Research Design
The researcher adopted experimental design for the study. The pre-test post-test one group design was used for the study.

Techniques of the study
The researcher analyzed data using t–test.
Major Findings of the study
The findings of the research study revealed that the self developed lesson plans based on cooperative learning strategies had made a significant impact on the social skills of the students.

Article:  18
Name:  Kiran Akhtar, Qaisara Perveen, Sidra Kiran, Mehwish Rashid, Amna Khatoon Satti
Title:  A Study of Student’s Attitudes towards Cooperative Learning

This article was published in International Journal of Humanities and Social Science (Vol. 2, No. 11, 2011). It was a research article published in the journal.

Objectives of the study
To understand the concepts of cooperative learning in global context.
To find out the Statistics and Economics students views about cooperative learning.

Sample of the study
The researcher selected 66 graduate students of Statistics and Economics of Pir Mehr Ali Shah Arid Agriculture University Rawalpindi.

Tool of the study
The researcher collected data using questionnaire.

Research Design
The researcher adopted experimental design.

Techniques of the study
The researcher analyzed data using quantitative and qualitative analysis (Percentage of Respondent).

Major Findings of the study
The finding of the research study revealed cooperative learning as effective teaching approach as per views of student of both statistics and economics groups.

and Rima, K. (2013), Efandi, Z. and Lu chung, C. (2010) all these studies indicate that Cooperative Learning Approach have a positive impact on students’ performance in terms of students’ achievement.


The study by Sunayna Kadle (2010) states that self prepared lesson plans used as the tools help to observe its impact on development of social skills. Further study by Kiran, A. and et.al (2011) revealed cooperative learning as effective teaching approach as per views of student of both statistics and economics groups in developing students attitude towards Cooperative Learning. Moreover, this section suggests that self prepared lesson plans using different cooperative learning strategies have positive student–student interaction that helps in developing social skills and also positive attitude of students towards the subject.
### 3.4.2.2 Review of Research Articles in Online Journal

#### Table 3.4

Summary of Online Journal Articles Reviewed on Cooperative Learning

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Title of the Study</th>
<th>Researcher/s</th>
<th>Journal</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Effect of Cooperative Learning and Traditional Methods on Students’ Achievements and Identifications of Laboratory Equipments in Science-Technology Laboratory Course</td>
<td>Suleyman Aydin</td>
<td>Educational Research and Reviews (Vol. 6(9), pp. 636-644)</td>
<td>2011</td>
</tr>
<tr>
<td>3</td>
<td>Investigating the Effects of Project-Based Learning on Students’ Academic Achievement and Attitudes towards English Lesson This article was published in the Online Journal of, October 2011). It was a research article published in the journal.</td>
<td>Gokhan Baş</td>
<td>New Horizons In Education, (Volume 1, Issue 4)</td>
<td>2011</td>
</tr>
<tr>
<td>4</td>
<td>Effects of Multiple Intelligences Supported Project-Based Learning on Students’ Achievement Levels and Attitudes towards English Lesson</td>
<td>Gokhan Bas, Omer Beyhan</td>
<td>International Electronic Journal of Elementary Education, (Vol. 2, Issue 3)</td>
<td>2010</td>
</tr>
</tbody>
</table>
Article:  1
Name:   E. B. Kolawole
Title:   Effects of Competitive and Cooperative Learning Strategies on Academic Performance of Nigerian Students in Mathematics

This article was published in Educational Research and Review (Vol. 3 (1), pp. 033-037, January 2008). It was a research article published in the online journal.

Research questions
The following questions were postulated:
1. Will those taught with cooperative learning strategy and those taught with competitive learning strategy perform equally in Mathematics?
2. Will girls and boys taught with cooperative learning strategies perform equally in Mathematics?
3. Will girls and boys taught with competition learning strategies perform equally in Mathematics?
4. Will there be any gender difference between those taught with competitive and cooperative learning strategies in Mathematics?

Objectives of the study
1. To compare the academic performance of mathematics students taught with cooperative learning strategy and those taught with competitive learning strategy.
2. To compare the academic performance of girls and boys mathematics students taught with cooperative and competitive learning strategies.

Hypotheses of the study
1. There is no significant difference between the mean academic performance of mathematics students taught with competitive learning strategy and those taught with cooperative learning strategy.
2. There is no significant difference between the mean academic performance of boys and girls taught mathematics with competitive learning strategy.
3. There is no significant difference between the mean academic performance of boys and girls taught mathematics with cooperative learning strategy.
4. There is no significant difference between the mean academic performance of boys and girls taught with cooperative and competitive learning strategies.
Sample of the study
The researcher used purposive sampling technique. The sample selected was Four hundred students randomly chosen from four out of five states in the South West, Nigeria. Five schools were randomly selected from each of the four States. Twenty (20) students of which 12 were boys and 8 were girls, were chosen from the selected schools. On the whole there were 240 boys and 160 girls.

Tool of the study
The researcher collected data using Pre-Test Mathematics Achievement-test and Post-Test Mathematics Achievement-test.

Research Design
The researcher adopted Quasi experimental design.

Techniques of the study
The researcher analyzed data using z- test.

Major Findings of the study
The findings of the study revealed that a) Cooperative learning strategy is more effective than competitive learning strategy in teaching of Mathematics at Secondary School level. b). The male students performed significantly better than their female counterparts in learning Mathematics with cooperative and competitive learning strategies. c). There is a gender influence with respect to performance of Mathematics through cooperative and competitive learning strategies. d). Boys that were taught with cooperative learning strategy performed significantly better than girls taught with competitive learning strategy in Mathematics. e). Cooperative learning strategy is more effective than the competitive learning strategy in the teaching of Mathematics in Nigeria.

Article: 2
Name: Suleyman Aydin
Title: Effect of Cooperative Learning and Traditional Methods on Students’ Achievements and Identifications of Laboratory Equipments in Science-Technology Laboratory Course
Objectives of the study
To identify the effects of the cooperative learning method on the academic achievements and laboratory equipment identification skills of students who take the science-technology laboratory applications course.

Research Questions of the study
1. Are the academic achievements of students in the cooperative learning group significantly higher than the academic achievements of students in the traditional laboratory group in the science-technology laboratory applications course?
2. Are the laboratory equipment identification skills of students in the cooperative learning group significantly higher than the laboratory equipment identification skills of students in the traditional laboratory group in the science-technology laboratory applications course?
3. Are the attitudes towards science held by students in the cooperative learning group significantly higher than the attitudes towards science held by students in the traditional laboratory group in the science-technology laboratory applications course?

Sample of the study
The researcher selected participation of a total of 43 sophomores who attended, in two separate groups, the science technology laboratory applications course in the 2010 to 2011 academic year in the Department of Primary Education of the Faculty of Education at Arıbrahim Çeçen University. One of the groups was identified as the cooperative (experimental) group in which the cooperative learning method was used (n = 21), and the other group was identified as the (control) group in which the traditional laboratory method was used (n = 22).

Tool of the study
The researcher collected data using Preliminary Knowledge Test (PKT) for the identification of preliminary knowledge students had prior to the application of the respective methods; the science-technology course attitude scale (STCAS) to gauge
the attitudes they had towards the science-technology course; the science-technology laboratory achievement-test (STLAT) to measure their academic achievements in laboratory applications; and the identification of experimental equipment-test (IEET), to test whether and how much the students could recognize and identify the equipment to be used in experiments. Post-test data were gathered using the “science-technology course attitude scale” (STCAS), science-technology laboratory achievement-test (STLAT), and the identification of experimental equipment-test (IEET).

**Research Design**
The researcher used pre-test post-test control experiment group design.

**Techniques of the study**
The researcher analyzed data using one way MANOVA.

**Major Findings of the study**
The findings of the study indicate that the cooperative leaning method makes a more positive contribution to developing students’ academic achievements compared to the traditional laboratory method.

**Article:** 3  
**Name:** Gokhan Baş  
**Title:** Investigating the Effects of Project-Based Learning on Students’ Academic Achievement and Attitudes towards English Lesson

This article was published in the Online Journal of New Horizons In Education, (Volume 1, Issue 4, October 2011). It was a research article published in the journal.

**Objectives of the study**
The purpose of the study was to investigate the effects of project-based learning on students’ academic achievement and attitudes towards English lesson of 9th grade students.
Research Questions of the study
1. Is there a significant difference between the achievement levels of the students in the experimental group and the students in the control group in terms of the usage of project-based learning?
2. Is there a significant difference between the attitude levels of the students in the experimental group and the students in the control group towards the lesson in terms of the usage of project-based learning?

Sample of the study
The researcher selected 60 students in two different classes in the 9th grade of 2010–2011 education-instruction years in a high school in Nigde, Turkey.

Tools of the study
The researcher collected data using academic achievement-test and English lesson attitude scale.

Research Design
The researcher used pre- and post-test control group research model for the study.

Techniques of the study
The researcher analyzed data using arithmetic means and standard deviations for each group. In order to test the significance between the groups, the independent samples t-test was used.

Major findings of the study
The findings of the research study revealed that the students who were educated by project-based learning was more successful and had higher attitude levels towards the lesson than the students who were educated by the instruction based on student textbooks.

Article: 4
Name: Gokhan Bas, Omer Beyhan
Title: Effects of Multiple Intelligences Supported Project-Based Learning on Students’ Achievement Levels and Attitudes towards English Lesson
This article was published in International Electronic Journal of Elementary Education, (Vol. 2, Issue 3, July, 2010). It was a research article published in the journal.

Objectives of the study
To investigate the effects of multiple intelligences supported project-based learning and traditional foreign language-teaching environment on students’ achievement and their attitude towards English lesson.

Hypotheses of the study
1. There is a significant difference between the achievement levels of the students in the experiment group and the students in the control group in terms of the usage of multiple intelligences supported project-based learning.
2. There is a significant difference between the attitude levels of the students in the experiment group and the students in the control group towards the lesson in terms of the usage of multiple intelligences supported project-based learning.

Sample of the study
The researcher selected two classrooms of 5th graders from Karatli Sehit Sahin Yilmaz Elementary School, Nigde, Turkey formed the subjects of the study. This study was performed amongst 50 elementary school students. 25 students from the 5-C class formed the experiment group and the rest of the students (25 students) from the 5-A class formed the control group of the study.

Tool of the study
The researcher collected data using attitude scale tests towards English and Academic Achievement-test.

Research Design
The researcher used pre-test post-test control experimental group design.

Techniques of the study
The researcher analyzed data using standard deviation; independent t-test.

Major Findings of the study
The findings of the study showed a significant difference between the attitude scores of the experiment group and the control group. It was also found out that the multiple
intelligences approach activities were more effective in the positive development of the students’ attitudes. At the end of the research, it is revealed that the students who are educated by multiple intelligences supported project-based learning method are more successful and have a higher motivation level than the students who are educated by the traditional instructional methods.

Article: 5
Name: Rosini B. Abu, & Jim Flowere, Gary Moore
Title: The Effects of Cooperative Learning Methods on Achievement, Retention, and Attitudes of Home Economics Students in North Carolina

This article was published in International Electronic Journal of Vocational and Technical Education, (Vol. 13, Issue 2, Spring 1997). It was a research article published in the journal.

Objectives of the study
To determine the effects of the cooperative learning approach of Student Teams-Achievement Divisions (STAD) on the achievement, retention of information and attitudes towards the instructional method of selected home economics students.

Research of the study
The following research questions provided the specific focus for the study:
1. Was there a difference in achievement, as measured by the researcher developed achievement-test for students who have been taught by the cooperative learning method, STAD and those who were taught by traditional method?
2. Was there a difference in retention of information, as measured by the researcher developed retention test administered three weeks after the end of instruction for students who have been taught by the cooperative learning method, STAD, and those who were taught by traditional method?
3. Was there a difference in the attitudes toward the teaching method used for students who have been taught by the cooperative learning method, STAD, and those who were taught by traditional method?
Sample of the study
The researcher selected four schools that offered two or more sections of the food and nutrition course. Total 91 students were in the cooperative learning (STAD) group and 106 students in non-cooperative learning group.

Tool of the study
The researcher collected data using self prepared instrument to measure achievement, retention and attitude.

Research Design
The researcher adopted quasi experimental design for the study.

Techniques of the study
The researcher analyzed data using MANCOVA.

Major Findings of the study
The finding of the study indicates the cooperative learning approach is no more or less effective than the non cooperative learning approach with regard to home economics student achievement or student retention of information. The cooperative learning approach is no more or less effective than the non cooperative learning approach with regard to home economics students’ attitudes toward the method of instruction.

Thus above section comprises of work by Kolawole, E. B. (2008) revealed that Cooperative learning strategy is more effective than competitive learning strategy in teaching of Mathematics at Secondary School level. The male students performed significantly better than their female counterparts in learning Mathematics with cooperative and competitive learning strategies. There is a gender influence with respect to performance of Mathematics through cooperative and competitive learning strategies. Cooperative learning strategy performed better significant Performance of boys than girls taught with competitive learning strategy in Mathematics. Cooperative learning strategy is more effective than the competitive learning strategy in the teaching of Mathematics. Suleyman, A. (2011) indicated that the cooperative leaning method makes a more positive contribution to developing students’ academic achievements compared to the traditional laboratory method. Gokhan, B. (2011) revealed that the students who were educated by project-based learning was more
successful and had higher attitude levels towards the lesson than the students who were educated by the instruction based on student textbooks.

Thus above studies mentioned states that cooperative learning strategy is more effective than competitive learning strategy and traditional method. Moreover project based learning proved successful than the traditional method in terms of students’ academic achievement.

### 3.4.2.3 Review of Research Articles in Magazine

#### Table 3.5

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Title of the Study</th>
<th>Researcher/s</th>
<th>Journal</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Effect of Cooperative Learning on Interpersonal</td>
<td>Hemlata Sharma &amp; Savita Sharma</td>
<td>Edutracks (Vol – 7 No.9)</td>
<td>2008</td>
</tr>
<tr>
<td></td>
<td>Relationships of Elementary School Students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Effect of Cooperative Learning on Achievement</td>
<td>Pushpanjali B.S. &amp; Satyaprakash C.V.</td>
<td>Edutracks (Vol – 9 No.10)</td>
<td>2010</td>
</tr>
<tr>
<td></td>
<td>Motivation and Anxiety</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Article:** 1

**Name:** Hemlata Sharma & Savita Sharma

**Title:** Effect of Cooperative Learning on Interpersonal Relationships of Elementary School Students

This article was from the magazine Edutracks (Vol – 7 No.9, May 2008). It was a research article published in the Magazine.

**Objectives of the study**

To find out whether the approach Student – Teams Achievement Division (STAD) with reward is more effective than the traditional approach in enhancing interpersonal relationships among elementary school students.
Sample of the study
The researcher selected sample using purposive sampling technique. The sample of the study comprised of 80 students of class VII studying in S.R.S senior Secondary School, Rohtak. 40 students were in the control group and 40 students were in the experimental group.

Tool of the study
The researcher collected data using cooperative learning exercise based on STAD approach were developed. Mathur's Parasparik Sambandh Prasanawali to measure interpersonal relationship among learners. Catell’s Culture Fair Test by Cattell and Cattell, Socio – Economic Status Scale by S.D. Kapoor and R.N. Singh

Research Design
The researcher adopted pre-test post-test group quasi experimental design for the study.

Techniques of the study
The data was analyzed using t–test.

Major Findings of the study
The finding of the research study proves the great effectiveness of STAD approach in enhancing interpersonal relationships of learners.

Article: 2
Name: Pushpanjali B.S. & Satyaprakash C.V.
Title: Effect of Cooperative Learning on Achievement Motivation and Anxiety

This article was a research article published in Edutracks (Vol – 9 No.10, June 2010). It was a research study published in the magazine.

Hypotheses of the study
1. Cooperative learning strategy would increase achievement motivation.
2. Cooperative Learning Strategy would reduce Anxiety.
Sample of the study
The researcher selected a sample of students of class VI with a mean age of 11 years from three high schools of Bangalore of Karnataka State. Cluster and Random sampling technique were adopted for the collection of data.

Tool of the study
The researcher collected data using Achievement Values and Anxiety Inventory (AVAI) & Sinha’s Anxiety Scale developed by Sinha (1966)

Research Design
The researcher adopted pre-test post-test group experimental design for the study.

Techniques of the study
The researcher analyzed data using t–test.

Major Findings of the study
The findings of the research study were
a) Cooperative Learning Strategy was superior to conventional method in significantly promoting achievement motivation.

b) Cooperative Learning Strategy was effective in significantly reducing the anxiety.

Thus above section comprises of Hemlata, S. and Savita, S. (2008) proves the great effectiveness of STAD approach in enhancing interpersonal relationships of learners. Pushpanjali B.S. & Satyaprakash C.V. (2010) Cooperative Learning Strategy was superior to conventional method in significantly promoting achievement motivation. Cooperative Learning Strategy was effective in significantly reducing the anxiety. Thus STAD approach of Cooperative learning enhanced interpersonal relationships of learners. Moreover Cooperative Learning Strategy was superior to conventional method in promoting achievement motivation and reduces the anxiety.
3.4.3 Review of Seminar Paper / Conference Paper

Table 3.6

Summary of Seminar Paper / Conference Paper Reviewed on Cooperative Learning

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Title of the Study</th>
<th>Researcher/s</th>
<th>Source</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Enrichment the High School Student Academic Achievement in Mathematics via the Project Approach Activity</td>
<td>Kampanat Dounjuntuk, Jittanan Tikul, Pikun Pradabsri, Jessada Tanthanuch</td>
<td>ICER 2011: Learning Community for Sustainable Development: September 9-10, 2011, KKU, Thailand</td>
<td>2011</td>
</tr>
</tbody>
</table>

Name: Kampanat Dounjuntuk, Jittanan Tikul, Pikun Pradabsri, Jessada Tanthanuch (2011)

Title: Enrichment the High School Student Academic Achievement in Mathematics via the Project Approach Activity

This Paper is taken from ICER 2011: Learning Community for Sustainable development: September 9-10, 2011, KKU, Thailand

Objectives of the study
To enrich the high school student academic achievement in mathematics via the project approach activity.

Sample of the study
The researcher selected 85 grade 11th level students (Muthayomsuksa 5) at Mueang Yang Suksa School, Mueang Yang Sub- District, Mueang Yang District, Nakhon Ratchasima, Thailand. There were 15 students interested in participating in the activity.

Tools of the study
The researcher collected data using questionnaire and attitude test.

Research Design
The researcher used Pre-test Post-test Control Experimental Group Design.
**Techniques of the study**
The researcher analyzed data using mean, SD and t-test.

**Major findings of the study**
The findings indicated students had better academic achievement significantly after using the module. The students were satisfied by the project approach activity very highly. The students had a very good attitude to mathematics subjects

**3.5 Distinguished Features of the Present Study**
After studying and reviewing the past researches the following distinguished features were contemplated and incorporated in the present study.

1. Past researches include structured group learning mainly Cooperative Learning Approach while in the present study investigator has tried to include structured group learning approach i.e. Cooperative Learning Approach and unstructured group learning approach i.e. Project Based Learning Approach.

2. Almost all the past researches were carried out on either college students or school students at different level. In the present study, the investigator has tried to prepare lesson plans on group learning approaches viz. Cooperative Learning Approach and Project Based Learning Approach for students of STD IX of GSEB

3. Past researches were mainly based on traditional approach and single group learning approach while in the present research the focus was on the traditional approach and two group learning approach which was not found in past researches.

4. The content matter selected by the past researchers was the part of the text book in their respective subjects while the content matter selected for the present research was concepts of the textbook both theoretical & practical of STD IX GSEB.

5. Past researches were based on any strategy, method, model or single approach while in the present research the group learning was based on two approaches viz. Cooperative Learning and Project Based Learning Approach.

6. Past researches were based mainly on social skills, attitude and self esteem, of students only. While in the present research the focus was on the effectiveness of Group Learning Approaches in context to students’ Learning Style (A, V, K), Achievement Level, Gender, Problem Solving and Social Skills.
7. Tasks for students were developed for Group Learning Approaches along with the questions in logical sequence is the peculiarity of this research.
8. Students’ feedback on Group Learning Approaches were collected and analyzed which was not found in past researches.
9. Past researches were based on Cooperative Learning strategies like jigsaw, STAD while present research was mainly based on STAD, Jigsaw, Round Robin Style, Group Investigation, Picture perfect strategies.
10. Effectiveness of past researches was observed between Traditional Approach and Cooperative Learning Approach or Traditional Approach and Project Based Learning Approach while in the present study investigator has tried to observed effectiveness between Traditional Approach, Cooperative Learning Approach and Project Based Learning Approach.
11. Students’ experiences on Group Learning Approaches were collected and analyzed which was not found in past researches.
12. Past researches were mainly based on pre-test post –test design while present study was based on post- test design only.

3.6 Summary

The review of related researches on Cooperative Learning Approach and Project Based Learning approach was proved very helpful to the investigator. Past research reveal that efforts have been made to use different strategies of cooperative learning approach or to evaluate the effectiveness of cooperative learning approach. Investigator couldn’t found any study related to group learning approaches i.e. Cooperative Learning Approach and Project Based Learning Approach together in India. So this research may be helpful for exploring area like measuring and enhancing effectiveness of group learning approaches ( i. e. more than one group). As researches shows that Cooperative Learning Approach and Project Based Learning Approach can be enhanced from early childhood, investigator’s Group Learning Approaches would be helpful for development of Social Skills, Problem Solving and to plan teaching learning process according to the students learning style. Group Learning Approaches would also helpful to teachers for promoting group learning in the classroom. Next Chapter no.4 comprises of planning and procedure adopted for the present research study.