A Study of Comparative Effectiveness of Cooperative Learning and Traditional Approach of Teaching Islamic Studies at Elementary Level

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F. A.
A STUDY OF COMPARATIVE EFFECTIVENESS OF COOPERATIVE LEARNING AND TRADITIONAL APPROACH OF TEACHING ISLAMIC STUDIES AT ELEMENTARY LEVEL

Researcher: Fareed Ahmad
Supervisor: Prof. Dr. Iftikhar Ahmad Baig

ABSTRACT

Cooperative learning is being used throughout the world. It is gaining international popularity. On the basis of theory and practice, cooperative learning methods have been used and tested in different cultures and classroom situations. Therefore, a study has been conducted in order to examine the “comparative effectiveness of cooperative learning and traditional approaches of teaching Islamic Studies at Elementary level in Pakistan”. Pretest posttest experimental design was used. Students of class six were equally divided into two groups on the basis of teacher made pretest scores. As a treatment cooperative learning method Student-Teams- Achievement-Division (STAD) was provided to experimental group, while control group was taught by using traditional methods of teaching, and kept under traditional classroom situation for the period of 12 weeks. At the end of the treatment, teacher made posttest was administered to measure the achievement scores of students. Significance of difference between the mean scores of both groups was tested by applying t-test at 0.05 level of significance. Findings of the study revealed that both the groups were equal in the beginning of the experiment. The experimental group showed better results on posttest scores, showing the obvious preeminence of cooperative learning method over traditional methods of teaching. High and low achievers of experimental group showed better result as compared to control group, and also helpful in developing creative thinking. Results of the study indicate that cooperative learning is more effective teaching method for Islamic Studies as compared to traditional methods. It revealed that it was more
favorable for low and high Achievers as well. The results of the study provide support to apply cooperative learning in the subject of Islamic studies, and to conduct further research in cooperative learning for other grades and subjects as well.
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CHAPTER I
INTRODUCTION

Learning is the basic instinct of living organisms on the earth. Survival of species is due to learning in order to fight with environmental problem, to adjust with environment and to capture the source of nature. Better learning may improve their life on the earth. Development and prosperity are the end result of learning. It has always been a problem for human beings to know how better learning can be attained. For this purpose they have struggled to achieve high rate of learning, and still the process is going on.

One of the major concerns of educators and parents alike is the poor learning achievement of students. There is no doubt that this age is a revolutionary age. Explosion of knowledge has changed teaching learning theories. Countries, like Pakistan, consider education as a key factor to their development and prosperity. There are some hurdles that affect learning of students, for example, late admission, late commencement of the academic session and less duration for instruction. On other hand, in Pakistani school system, most of the knowledge is still transferred to the students through printed material such as text-books while the text-books cover a large amount of topics superficially (Kneedler, 1993). This needs the nourishment of the students to their optimal potential.

The quality of education provided to students is dependent upon the method of teaching that teachers use in the classroom (Zakaria & Iksan, 2007). The present situation of quality of teaching learning is not satisfactory. Students are taught by using traditional approaches of teaching. This is only memorization of content and information. Students just memorize, take part in the examinations and forget all the knowledge. It does not become a part of thinking and personality. Ideas do not run in their blood; they are not directing their actions.
Researchers in the field of education provided new research based teaching learning strategies for teachers to employ and modern technology has developed different types of tools which are best suited to classroom teaching. Therefore, we have to develop a tradition to adopt new technologies and approaches (Siddique, 2001). By using video discs and video tapes we can transfer more knowledge and information to the students as compared to other sources such as text-books (Helms & Helms, 1992). Similarly, cooperative learning approaches may also bring and create better results. Students may be able to get comprehension, they may be able to apply and analyze the problems. Their knowledge may be more effective and may help them to use it in their daily life (Angela & Walmsly, 2003).

Cooperative learning is a process of group activities in which individuals are accountable. Encouraging interdependence, interpersonal and social skills face to face interchange of ideas are also required in this technique of learning. They work face to face to accomplish a given task collectively (Zakaria & Iksan, 2007). It encourages students to be active participants in the development of their own knowledge (Webb, Troper, & Fall, 1995). It also encourages students to interact and to communicate with peers in harmony. In this way, cooperative learning promotes values such as sincerity, teamwork, mutual respect, accountability, patience, and willingness to sacrifice a consensus. Performance of different responsibilities in cooperative learning can extend self-confidence in students (Zakaria, Solfitri, Daud & Abidin, 2013).

Cooperative learning is one of the most broadly investigated approaches of teaching. In this technique, students work in pairs or small groups to help each other and to master their concepts and skills. Research on cooperative learning has found that cooperative learning improves learning when students work in small groups (Slavin, 2009; Rohrbeck, Ginsburg-Block, Fantuzzo, & Miller, 2003; Topping, Kearney, McGee, & Pugh, 2004). Eva, Elisabeth,
Bart, Fran, Filip and Eduardo (2013) stated that cooperative learning has shown to suggest clear positive impact on different variables. Johnson and Johnson (2005) found that in group learning students have more chances to work together, therefore, they have more opportunities of quick and efficient learning and they feel more constructive about their knowledge and understanding. Slavin and Lake (2008) and Slavin, Lake and Groff (2009) stated that cooperative learning approaches provide extensive professional development to teachers on means of engaging and motivating students and helping them to take an active role in their own learning.

Pakistan is an ideological state and Islamic Studies is an important subject to teach to its future citizens. In each educational policy of Pakistan, some aims are stated to achieve i.e. to produce citizens those are completely familiar with the movement of Pakistan and its ideology, foundation, deep and abiding loyalty to Islam and Pakistan, to develop and inculcate the Islamic values in students according to the Holy Quran and Sunnah. It is also expected that a true Muslim will have sound character and fair conduct and fully motivated. The curricula of Islamic Studies at elementary level can enable the students to become responsible citizens. All the desired values and universal aims of education can be achieved by teaching it effectively.

It is the need of hour that required and desired abilities should be produced in students. However, it seems that the traditional approaches of teaching are not creating the abilities of creative, critical, and logical thinking. Personality of the students is not flourishing. In this situation, new teaching learning techniques, methods and approaches must be adopted. Cooperative learning approach may be helpful in this purpose.

For the last thirty years, researchers and practitioners have investigated cooperative learning methods in a different context. Though there seems some contradictions among the researchers, yet cooperative learning methods have a hopeful impacts on learners’ sympathy,
patience for disparity, feelings of recognition, friendship, self-confidence and self-assurance and even school attendance. Despite the strong and widely replicated experimental evidence supporting the use of cooperative learning, little of this research has taken place in South East Asia, especially in Pakistan. Most of these researches on “cooperative learning” have been conducted in the United State and other western countries in their cultural and educational system (Slavin & Lake, 2008; Slavin et al., 2009). Only a few studies have been carried out in South East Asia and its culture. Johnson, Johnson and Stanne (2000) stated that more than 900 studies have been conducted on cooperative learning methods and only a few studies have been conducted in South East Asia.

This scenario of research on cooperative learning invites the attention to use, to test, and to implement cooperative learning in South East Asian countries especially in Pakistani school system and culture. Moreover, to bridge the gap between religion and society, and to help the educators in building the character of the students, and to make the world peaceful, beautiful, and lovable place urging to explore the effectiveness of “cooperative learning”. Therefore, a study has been designed to validate the application of cooperative learning particularly in the subject of Islamic Studies that is very important and has been ignored by the teachers and students as well. The main purpose of this study was to explore the comparative effectiveness of cooperative learning and traditional approaches of teaching Islamic Studies at elementary level. This study may be beneficial for curriculum planners, teachers and students for improving teaching learning process.

1.1 Statement of the Problem

The researcher intended “to investigate the comparative effectiveness of cooperative learning and traditional approaches of teaching in the subject of Islamic Studies at elementary level”.

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1.2 Objectives of the Study

Following were the main objectives of the study:

1. To compare the effect of cooperative learning and traditional methods of teaching with respect to academic achievement of students in Islamic Studies.

2. To study the effectiveness of cooperative learning in Pakistani educational and cultural environment.

3. To determine the effect of cooperative learning on the academic achievements of high achievers in the subject of Islamic Studies.

4. To examine the effect of cooperative learning on the academic achievement of the low achievers in the subject of Islamic Studies.

1.3 Significance of the Study

At elementary level, different methods are being used to teach Islamic Studies. Any new approach may be a cause of change in teaching learning process. The present study may be a major breakthrough in the hard crust of a tradition developed over the years and may be a change agent at elementary level.

1. It may be helpful for the teachers who are teaching Islamic Studies at elementary level. At this stage, students learn habits and develop their personalities. As a matter of fact, elementary education provides a strong foundation for the development of personality and better higher education. New methods need to be used at elementary level. Cooperative learning may be one of them and it may facilitate the teachers.
2. It may be helpful for curriculum developers and planners while they select content and aims in the area of Islamic Studies. Fundamental change in education system comes about through comprehensive change in curriculum; it may be closely tied to change in instructional methods. An instructional method is one of the main components of curriculum. Cooperative learning methods may be incorporated as an instructional method to teach all kinds of content to students.

3. It may be helpful for teacher trainers when they provide training to teachers. As a new technique and by its nature, cooperative learning may be helpful for the trainers. Cooperative learning method has application in all subjects and grades.

4. It may also be helpful in reducing dropout rate at elementary level. We should use such methods at elementary level that enhance love for learning and fulfill psychological needs of the students. New methods, techniques approaches and learning styles have the potential that can create positive attitude towards school and subjects. Cooperative learning may be one of them. So it may be helpful to reduce dropout rate at elementary level.

5. It may also open new horizons for research in future because the process of development never stops. It may be helpful for the researchers to conduct research in the field of science and other subjects as well. It may also guide the researcher towards a new world of methods.

1.4 Hypotheses of the Study

The study was conducted to test the following null hypotheses:

H₀₁ There is no significant difference between the mean scores achievement of students taught by traditional method and taught by cooperative learning.
$H_02$ There is no significant difference between the mean scores achievement of high achiever of the control and experimental groups on post test.

$H_03$ There is no significant difference between the mean scores achievement of low achievers of the control and experimental groups on post test.

$H_04$. There is no significant difference between mean score of creative thinking developed by cooperative learning and mean score of creative thinking developed by traditional methods.

1.5 Delimitations of the Study

Keeping in view the time and resources constraints on the part of researcher the study was delimited to the:

- Students of grade six of Government secondary schools of Punjab province;
- Subject of Islamic Studies and
- 12 weeks duration for instruction in experimental and control group
CHAPTER 2

REVIEW OF RELATED LITERATURE

This chapter deals with the review of related literature. There is a lot of material on cooperative learning in the form of books, and on internet, covering different aspects of cooperative learning. However, in this study, following areas of cooperative learning were covered to review the related literature.

- Introduction to cooperative learning
- Psychological foundation of cooperative learning
- Brief history of cooperative learning
- Rationale of cooperative learning
2.1 **Introduction to Cooperative Learning**

Cooperative learning is a modern method and approach of teaching. It was discovered in mid 1970’s. In this technique, students work together in pairs or small groups to help each other and to master their concepts and skills. Throughout the history of teacher, society and other walks of life have allowed and encouraged their members to work together to perform some task. If we go through the history we will come to know when people began to live together, they stood to work together and cooperatively. The results of their collective efforts were clear and remarkable. So educationists also considered that cooperative work of students could produce better output.

Cooperative learning has been an ancient pedigree. Teachers have allowed or encouraged their students to work collectively on occasional group projects, in group discussions, or debates or in other kind of work groups or peer tutoring dyads. These methods were typically informal,
understructure and only used on rare occasions (Slavin, 1995). Effectiveness of group work and peer tutoring was obviously clear, and new disciplines were introduced. In the last twenty years of the 20th century, for the first time, particular cooperative learning strategies started to be developed and even more importantly, to be evaluated, in a wide variety of teaching content. It is now possible for teachers to select from a large numbers of cooperative learning techniques (Slavin, 1995).

Among other teaching methods, cooperative learning method is very important and useful. It is being used in the field of education. It is very rich area for research and practice. It takes place when students work in groups to achieve their common learning goal (Johnson & Johnson, 1999). In this method, students have to make efforts for their teams as well as for themselves. It is a teaching method in which students are engaged actively to achieve the objectives of a lesson through their group as well as individual efforts. What distinguishes cooperative learning from other activities that involve working in small group is a combination of features that weave through an academic task limited.

Many researchers are working on cooperative learning and have invented many models of cooperative learning. They have defined it in different ways. Roger (1992) states that “cooperative learning is a group learning activity organized in such a way that learning is based on the socially structured change of information between learners in groups in which each learner is held accountable for his or her own learning and is motivated to increase the learning of others” According to Hornby (2009, p 161), a very basic definition is that “cooperative learning is the instructional use of small groups in which students work together to maximize their own and each other’s learning”.

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Students work in groups and they cooperate with each other in learning. They are individually accountable for their learning outcomes. “Cooperative learning is the instructional use of small groups so that students work together to maximize their own and others learning” (www.clcr.com). According to this definition students work in groups and each group consists of four members. First, teacher teaches the lesson and guides them and then students work together in their groups on their assignment and fully comprehend the lesson.

Many other scholars and proponents (Slavin 1983, 1985; Johnson & Johnson 1989, 1990; Taylor, 1989) have either offered definitions or provided the basic essentials of cooperative learning. However, it is Slavin (1983) who defines the cooperative learning as “a set of alternative to the traditional instruction systems, or, more specifically techniques in which students work in heterogeneous groups of four to six members and earn recognitions, rewards, and some time grades based on the academic performance of their groups”. Slavin (1996) described cooperative learning as teaching methods in which students work together in small groups to help one another learn academic content. Johnson, Johnson and Smith (1991) outlined several central elements comprising cooperative learning including positive interdependence, individual accountability, face-to-face promotive interaction, appropriate use of collaborative skills, and group processing.

Mix ability groups are made, each group has mix ability group members; there is no group that is superior in ability. After completing learning goal groups receive rewards of different kinds on the basis of their performance, as it is their team work and collective effort. Johnson and Johnson (2000, p. 43) define cooperative learning as a,

“relationship in a group of students that requires positive interdependence (a sense of sink or swim together), individuals accountability (each of us has to contribute and learn)
interpersonal skills (communication, trust decision making and conflict resolution), face to face promotive interaction, and processing (reflecting how well the team is functioning and how to function even better)”.

Cooperative learning requires both group and individual goals accountability. Each group member has to participate in achieving group goals, and has to play the role assigned to him. To work in groups, is not a cooperative group. Only cooperative group works when each member takes responsibility. Students try to achieve group and individual goal. Artz and Newman (1990) defined cooperative learning as “small group of learners working together as a team to solve a problem, complete a task, or accomplish a common goal”. Johnson, Johnson and Smith (1991) suggested that cooperative learning is more than simply “working in groups,” and should include the following:

- positive interdependence where team members are reliant on one another to achieve a common goal, and the entire group suffers the consequences if one member fails to do his or her work.
- Individual accountability where each member of the group is held accountable for doing his or her share of the work.
- face-to-face promotive interaction where, although some of the group work may be done on an individual basis, most of the tasks are performed through an interactive process in which each group member provides feedback, challenges one another, and teaches and encourages his or her group mates;
- appropriate use of collaborative skills where students are provided with the opportunity to develop and implement trust-building, leadership, decision-making, communication, and conflict management skills; and
- group processing in which team members establish group goals, the assessment of their performance as a team occurs periodically, and they often identify changes that need to be made in order for the group to function more effectively (Tsay & Brady, 2010, p 80).

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equal participation as no student should be allowed to dominate a group either socially or academically (Parveen et al. 2011, p 951).

2.3 Difference between Small Groups and Cooperative Learning

2.3.1 Traditional Small Groups

In traditional small groups, the instructor merely tells class participants to form groups to complete a class assignment. There is no structured interdependence, no individual accountability, and communication skills are either assumed or ignored. Sometimes the group or the instructor may appoint a single leader. The emphasis is on the task to be performed and there is no process for group processing. In the end, each person is responsible only for themselves. Often the instructor sets the groups and then leaves them to work on their own until the time allotted to the task is completed.

2.2.2 Cooperative Learning Teams

In cooperative learning teams positive interdependence is structured into the group task activities and members are responsible for each other’s success. Individual accountability is an expected outcome. Communication skills are identified, directly taught, and expected to be used by all group members. There are designated roles with shared leadership, assigned and monitored by the group and the instructor. The group regularly processes how they are working together and adjusts their personal and group behaviors accordingly. Both task and maintenance roles and outcomes are emphasized. The instructor observes and intervenes if necessary to ensure that the process is followed.

2.3 Psychological Foundations of Cooperative Learning
Each methodology has its own research and psychological foundation and without psychological foundations, no method can work properly. Cooperative learner has a sound psychological basis. Constructivism has major contributions in the development of cooperative learning methods.

Constructivism emphasizes that the individual actively construct and understand knowledge. In the constructivist view, teacher should not allow simply to pour information into students’ mind. Teacher must encourage and motivate students to discover their world, explore information and reflect critically (Ambrose, 2004). Constructivism also emphasizes teamwork and cooperation of children working together to understand and be familiar with each other (Santrock, 2006).

Some constructivists are interested in individual knowledge, beliefs, self concept, or identity, so they are sometimes called individual constructivists (Woolfolk, 2007). Piaget’s theory of cognitive development and Vygotsky’s theory of social learning are the basic origin of constructivism theory, and cooperative learning is derived from these theories. Vygotsky’s theory of social learning has an impact on cooperative learning. According to this theory learning is the internal relationship among behavior, environment and personal elements. It also presents the hypothetical structure for group learning applied to build up both constructivism and cooperative learning. According to this theory personal characteristics and experiences of the student are major sources of obtaining knowledge and information.

In cooperative learning, the focus moves from teacher to student centered education. This changes all scenarios of education, student’s psychology, teacher’s methodology and learning outcomes of the students. In this method students are assigned a task or problem and are encouraged to explore feasible solution of this problem themselves or with the help of their
colleagues. Teacher does not provide direct information to the students but he/she should work as a guide who guides and supports the students to locate the sources of information.

Cooperative learning has also philosophical foundations which are embedded in democracy and education. Dewey (1916) stated that the whole school should be designed as a small democracy. Students should develop social system through their participation and gradually becoming skilled at applying the scientific method to improve the human society. It is the way of preparation for citizenship in a democracy. Joyce, Weil and Calhoun (2000) are the dominating figure in the effort to develop models for democratic process.

Nearly all the theories dealing with reflective thinking since that time, in teaching learning have acknowledged their debt to him. Thelen drew the basic principles from Dewey’s philosophy of education (Chauhan, 2006). Thelen has emphasized an experienced based learning situation conducive to the scientific method and highly transferable to later life situation. In his book “Education and the Human Quest”, he wrote about education that it has to come from a conception of a social man, “a man who builds with other men the rules and agreements that constitute social reality.” Man is social by nature. A man cannot harmoniously develop without reference to his fellows. Social, political, economic and religious norms have been established and modified by human beings and transmitted to next generation in the form of culture. The mutual negotiation of the social order is the essence of the democratic process. The classroom is a miniature form of the big society.

Students gain intellectual knowledge which ultimately connects them with the social problem solving (Chauhan, 2006). It is the goal of education to equip the students with knowledge and skills that will let the students build their future social and physical environments in constructive manner. Students must be trained in organizing and reorganizing their societal
environment and learning experiences. Some teachers want to make students cooperative while some want to make students more competitive. It is appropriate that the students become flexible (Kagan & Madsen, 1971). In old methods of teaching, teacher dominates the teaching while students are supposed to be empty pots awaiting the information of teacher. But cooperative learning theory gives importance to students, recognizes the significance of his current knowledge and puts it to work.

The roots of the constructivism can be traced in the same cognitive psychology that lies behind social cognitive theory. This theory is built on two main principles. First, the students do not obtain knowledge without interest and they learn it actively and second, the students develop new concepts and ideas on their existing and previous knowledge. Constructivists also believe on the notion that students continually utilize their current knowledge which helps them to connect the known knowledge with unknown knowledge. Therefore, students require such knowledge that would be a little bit above their capability level. There are three types of skill performing: first a student can perform skills, second a student might not be able to perform these skills and third, a student might be able to perform these skills with the help of others. In cooperative learning, students work with cooperation and there are chances to learn all three skills categories.

Cooperative learning method is based on Piaget and Vygotsky’s theory of social learning and it is derived from the constructivism. In a constructivist view, Piaget emphasized that students learn more when they are active and find the solutions of problems their own (Santrock, 2006). The basic assumption behind the notion of cooperative learning is that the students work together and interact with each other on a specific task which ultimately increases their level of critical thinking and they fully comprehend the concepts. Vygotsky (1978) defines the zone of proximal development as, “the distance between the actual developmental level as determined by
independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers.”

Keeping in view above statement, it is clear that psychological foundation of cooperative learning lies in constructivism that is based on Paget’s theory of cognitive development and Vygotsky’s theory of social development. Developmental theories of Piaget and Vygotsky provide psychological foundation to the cooperative learning. According to Vygotsky, first of all the functions are shaped in a group in the form of relationships among students and then intellectual functions develop into the individual person. Piaget also was of the view that collective knowledge, language, ethics, rules and regulations, principles and morality can only be gained through exchange of ideas with each other (Slavin, 1995).

Developing constructivist viewpoints about learning have increased attention in teamwork and collective learning. Two unique features of constructivist teaching are complicated, actual life learning situations and societal interaction. Several constructivist viewpoints support “cooperative learning” on various bases. The supporters of the “information processing theories” highlight the importance of team dialogue in assisting and supporting the learners’ practice and enlarge their understanding. As members of group asking questions and giving explanation, they have to manage their knowledge and information, build relations and appraise all procedures that maintain data processing and memory. In Piaget’s point of view the exchange of ideas in groups may construct the mental difference and disequilibrium that guide a person to inquire his/her knowledge and test near concepts. Woolfolk (2001, p. 44) states that “social interaction is important for learning because higher mental functions such as reasoning, comprehension, and critical thinking originate in social interactions and are then internalized by
individuals. Children can accomplish mental tasks with social support and scaffolding that students need to move learning forward”.

Slavin (2000, p. 256) states that modern constructivist beliefs describe more strongly on Vygotsky’s which have been used to support classroom instructional methods that emphasize cooperative learning, project based learning and discovery. Four important principles resulting from Vygotsky’s thoughts, two of them are essential for “cooperative learning”. First one is that it emphasizes on the shared environment of learning. Students learn by mutual exchanges of ideas with mature and more competent colleagues. Vygotsky highlighted that effective problem solvers have a discussion themselves through a variety of difficulties. In teamwork, students may find out the techniques and approaches of effective problem solvers. The second significant notion is the concept that students can gain better knowledge of the ideas that are in their zone of proximal development. Slavin (2000) further states that, “when students are doing work jointly, every student is expected to have a stare performance on a particular assignment at somewhat higher intellectual level, just inside the learner’s zone of proximal development”.

2.4 Theoretical Foundations of Cooperative Learning

Recent age is an age of research and exploration knowledge. Psychologists are working on learning and developing theories. Most of the prominent researchers have described that cooperative learning has four theatrical aspects or perspective.

- Motivational Perspective
- Social Cohesion
- Cognitive Perspective
- Development Perspective
2.4.1 Motivational Perspective

There are two types of motivation that include: intrinsic motivation and extrinsic motivation. Ryan and Deci (2000) define intrinsic motivation as “a natural tendency to seek out and conquer challenges as one pursues personal interest and exercise capabilities”. In the state of intrinsic motivation, we do not want any kind of reward or we have no fear of punishment. Our satisfaction is itself a reward of that activity. Intrinsic motivation state is created when we work to achieve a high and noble goal. In this state, he or she loves those activities he or she is going to perform. On the other hand, extrinsic motivation means that a task is performed to achieve a grade or status, satisfy the teacher, evade punishment and/or for any other cause that has very small to perform with the task itself (Woolfolk, 2006). In this state of motivation, we have to avoid some unpleasant situation or we can say fear of losing something. We are competing someone or to gain something. Cooperative learning has impact of these two types of motivation. Students are competing and cooperating simultaneously as they are helping their group members and contesting the other groups. Help students take appropriate responsibility for their successes and failures. Students need to be taught. They cannot excel in all activities, and students who do not adequately perform in one area can improve with effort and also excel in other areas. Build on the strengths of students; work around their weakness through support and encouragement (Ornstein, 1995). Here are four general approaches to motivation.

2.4.1 (a) Behavioral approaches to motivation

According to this approach, an understanding of student motivation starts with a cautious examination of the rewards and incentives that are given to the students during the classroom instruction. Furthermore, habits or tendencies to perform in positive manners may be developed through continuous reinforcement for positive behaviors.
2.4.1 (b) Humanistic approaches to motivation

According to this approach, motivation means “to encourage people’s inner resources, their range of competences, self esteem, autonomy, and self actualization” (Woolfolk, 2006). Maslow presented a theory of human needs that is called hierarchy of needs that is as under:

- Lower level needs
- Higher level needs

Furthermore he divided lower level needs in to these four categories:

- Survival
- Safety
- Belonging
- Self esteem.

He states that when these lower level needs are fulfilled, the motivation level for satisfying them decreases. Then he categorizes higher level needs into three types that include:

- Intellectual achievement
- aesthetic appreciation
- self actualization

From students’ point of view their physical, intellectual and emotional needs are all interrelated.

2.4.1 (c) Cognitive approaches to motivation

According to this theory behavior is established by our thoughts and feelings instead of rewards and punishments which have been given for our previous behavior (Stipek, 2002). In cognitive theory people’s interpretation about events like physical conditions as hunger is more important than their responses. People are active to seek information to solve their own problem. This approach gives emphasis to intrinsic motivation and the best example of this is the Attribution theory which explains the individual’s clarification, explanation and apologizing about themselves as well as others (Weiner, 2000).
2.4.1 (d) Socio-cultural concept of motivation

Participating in societies of practice public engages in actions to sustain their individualities and their interpersonal relationships within the society. Consequently learners may be motivated to study if they are involved in school activities and they think themselves as the member of school community. This notion of individuality is vital in socio cultural view of inspiration. All the identities are the result of involvement in the society. They are inspired and encouraged to learn the principles and practices of the society to maintain their individuality as society member (Woolfolk, 2006).

Slavin (1987) describes two main hypothetical perceptions regarding cooperative learning that are motivational and cognitive. According to him the motivational theories are of different types and psychological background. One type of theory emphasizes incentives that are of different kinds. The motivational theories of cooperative leaning also emphasize incentives while the cognitive theories focus on the results of doing work collectively.

Motivational theories related to cooperative learning emphasize incentive and target achievement. The main aspect of cooperative learning is affirmative interdependence because students work collectively within their group and they recognize that their success or failure lies within their group (Johnson, Johnson & Houlubec, 1986). From a motivational point of view, cooperative learning target setting generates a condition in which only group members are able to achieve their individual targets, if the group is successful (Slavin 1990). So, to achieve their individual targets, students encourage and support their team members. They provide help to achieve group goals. Bases of cooperative learning can be traced in two different learning theories; these are behavioral theory and humanistic theory of learning. Cooperative target structure is the team possibility, in which incentives are presented on the basis of team member’s
behavior. The basic philosophy of team contingencies does not demand that team members be competent to really assist and support each other’s assignment collectively. Only the interdependent activities and behavior is sufficient to stimulate students to connect in activities that support the team to be given rewards, as the team rewards stimulate team members to support target directed behavior amongst their group mate (Slavin 1995). Vicarious reinforcement is that by which individual is inspired by observing others behavior that is reinforced again and again, he himself wants to exhibit such type of behavior that is being reinforced.

Cooperative learning provides opportunities for students to be motivated. In cooperative learning, there are several models for cooperative learning which offer reward on performance, motivate students for hard work and to get rewards by showing performance. There are two types of motivation i.e., intrinsic and extrinsic motivation. The most appropriate is extrinsic motivation, as it is not easy to maintain the level of motivation throughout the year. Motivation can be decreased by observing other students or by some other factors. Every year students are provided teaching approximately 900 hours. So it is idealistic to anticipate that intrinsic interest and internal inspiration will stay them excitedly doing work day in and day out (Slavin 1987).

Evidently, motivational theories developed group rewards in cooperative learning methods. Human psychology is a changing subject. Human beings need change. Intrinsic and extrinsic motivation have some important method developed by Slavin in which students can get certificate and/or more rewards, if the standard scores of their team on a quiz or projects go above from a pre-determined criteria. Similarly models presented by Johnson and Johnson and their associates use extrinsically motivational techniques, and students are offered grades based on performance and achievements. If children give importance to group achievement they will
assist and support each other, encourage, and cooperate for success. The theoretical rationale for this team rewards is that the children give importance to the team achievement, will help to accomplish a lot as compared to the usual or competitive class room environment (Slavin, 1996).

Motivation in cooperative learning models is necessary. Extrinsic motivation, is constantly provided by the teachers, teacher provides the student social skills and trained the students for cooperation. The teacher’s role in cooperative learning is that of a motivator and supporter.

2.4.2 Social Cohesion Perspective

In this point of view of motivation, the important thing is group cohesiveness. The effectiveness of cooperative learning on accomplishment is powerfully intervened by the cohesiveness of team members. Learners will support each other as they think about each other and wish for each other’s success. This point of view is alike to the motivational viewpoint in that it lays emphasis mainly on motivational instead of cognitive justifications for the success of cooperative learning method.

The presenters of social cohesion theories lay emphasis on the notion that learners support their group mates (Slavin, 1996) as they collectively think about the team. Another characteristic of the social cohesion viewpoint is the focus on team building actions in training for cooperative learning or team self-assessment throughout and/or after the team activities. This theory, a little bit, neglects the team rewards and personal responsibility and accountability detained by the motivational theorists to be necessary. Cohen (1986) asserts that “if the task is challenging and interesting, and if students are sufficiently prepared for skills in group process, students will experience the process of group work itself as highly rewarding—never grade or evaluate students on their individual contributions to the group product”. Another researcher on
cooperative learning (Johnson & Johnson 1999) has discussed social Cohesion theory with the perspective of social interdependence theory. According to him “interaction with other people is essential for human survival.” Cooperative learning techniques, learning together (Johnson & Johnson 1999) and Jigsaw are main techniques vividly based on social cohesion.

2.4.3 Cognitive Perspective

Woolfolk (2006) states that “cognitive development is gradual orderly changes by which mental processes become more complex and sophisticated information processing skills such as attention, memory capacity, and learning strategies”. The way we process information and think is cognitive development. Motivational and social cohesiveness perceptions on cooperative learning both emphasize mainly team norms and values and interpersonal effect is the cognitive perception, which grasps that exchange of ideas among learners who themselves are willing to raise the accomplishment of students because they have to do with intellectual processing of knowledge instead of with inspirations.

According to motivationalists group goals are important; and according to social cohesiveness group building is important while cognitive perspective is different in some way and has developed largely parallel tracks (Slavin, 1996).

2.4.4 Developmental Perspective

According to Piaget, children use schemas. A Schema is a concept that is present in a person’s mind to systematize and understand the information. Assimilation and accommodation are two processes that are accountable for how learners apply and adjust their schemas. Children cognitively organize their experiences. Organization is an inherent part of development. Organization occurs within stages of development as well as across them. The next stage is equilibration. Santrok (2006) defines equilibration as “a mechanism that is used to explain how
children shift from one stage of thought to the next. The shift occurs as children experience cognitive conflict or disequilibrium, in trying to understand the world”.

There is another stage between equilibrium and disequilibrium that is assimilation and accommodation which is concerts to produce cognitive change. Here are four stages of cognitive development. Psychologists have developed teaching strategies for each stage. The educational implication of Piaget’s theory is that learners may gain knowledge and learn most excellent through discoveries, innovations, reflections and discussion instead of copying the teacher or working by rote. According to him when students are active and searching for solutions of the problems of their own, they gain and learn more efficiently. Vygotsky’s three assumptions are:

- The child’s cognitive skills can be understood, when these are developmentally analyzed and interpreted.
- Cognitive skills are mediated by words language, and forms of discourse which serve as psychological tools for facilitating and transforming mental activity.
- Cognitive skills have their origins in social relations and are embedded in a socio cultural background.

Vygotsky’s theory has stimulated considerable interest in the view that knowledge is positioned and shared (Rogoff, 2003) that is knowledge is distributed among people and environment, which include objects, artifacts, tool books, and the communities in which people live. This highlights that knowledge may be increased through exchanging ideas with others in cooperative actions. There is a relation between learning and development. This view reflects that cognitive functioning has social origins.

Vygotsky’s concept of zone of proximal development is the series of activities which are not easy for learners to comprehend fully without help of others but with the help and support of
other experienced adults and learners, the students can get mastery over it. The difference between the learner’s intellectual level and the level of performance level they attain in association with an adult define the zone of proximal development. Another idea is scaffolding, a method of modifying the level of support. The amount of guidance decreases when competence level of student increases. The significant instrument of scaffolding in the zone of proximal development is the exchange of ideas (John-Steiner & Mahn, 1996).

Both children and adults engage in learning activities in a collaborative way. Peers, teaches, parents, and other adults work together in a society of learner’s instead of the child learning as an isolated individual (Rogoff, Turkanis, & Bartpett 2001). Students benefit from the support and guidance of more skilled students peers. Firm association with more competent colleagues is only possible in cooperative learning. Damon (1984) and Murray (1982) agreed that exchange of ideas among learners on learning task may lead in itself to enhance students’ achievements. Learners will gain knowledge from one another because when they discuss the content, their intellectual arguments will take place, insufficient interpretation will be bared, dis-equilibration will arise and excellence understanding will appear.

A practical cooperative learning method is very much related to the developmental viewpoint group discovery method. Slavin (1995) says that “concepts of development perspective are as important as mediating variables to explain the effect of group goals and group tasks on student’s achievement”. Nowadays, developing constructivist perspective on learning increase attention in teamwork and cooperative learning and there is discriminating concentration on the situations where explanation, understanding, rationalization and argumentation are essential to the action of the group and where learning is assisted by other personnel.
2.4.5 **Cognitive Elaboration Perspective**

O’Donnel & O’kelly (1994) discovered cognitive elaboration theory assuming that elaboration provides for rehearsal and cognitive restructuring which produce and enhance learning. A cognitive perception regarding cooperative learning is relatively dissimilar from developmental perspective.

If some information or facts are to be preserved in memory and interrelated to facts that exist in memory, the student is required to keep in some kind of cognitive reforming or elaboration of the objects. One of the important and valuable means of elaboration is to clarify the objects to someone else. Johnson & Johnsons and Holubec (1986) stated that “cooperative learning activities enhance elaborative thinking and more frequent giving and receiving of explanations, which has the potential to increase depth of understanding, the quality of reasoning and the accuracy of long term retention”.

Peer tutoring is a method from both the tutor and tutee get benefit. If peers elaborate the lesson, many of the things or ideas will be easy to understand by the peers. This can be done in cooperative learning, because the mental level or the development level of the peers is same, the words used are easily understandable. Cooperatively working is effective. Webb (1982) highlighted that the learners who achieved much from cooperative learning activities were those who gave detailed explanation to other. It is said that teaching is two time learning, similarly elaborate is a kind of teaching. Learners who are given detailed explanation learned more as compared to those learners who tried to seek of their own while the explainer also gained more.

One of the most influential techniques that a teacher uses throughout lesson delivering is questioning technique. Questioning keeps students engaged in thinking, providing solution of the problems. It keeps the learners mentally busy and that is where competent and skillful tactics of
questioning are particularly successful. Questions also rouse long term interest and attention, commence intellectual arguments and encourage the disequilibrium that consequences in changed knowledge construction (Woolfolk, 2006). Both high level and low level questions can be effective and it is the question prompts detailed explanations, which can definitely affect the performance of both students providing the help and the students receiving the help (King, 1999; Sadkers & Sadker, 2003).

Cooperative learning theories emphasize incentive and target settings. One of the important aspects of cooperative learning is productive dependence on one another, where learners recognize that the success or failure of their group lies within their working jointly as a whole (Johnson & Johnson & Holubec, 1986). In cooperative learning students interact and assist one another with learning tasks. It also permits learners to do their work openly with one another, to exchange their opinions and thoughts, to come to shared understandings and to promote teamwork to make sure every member’s achievement and recognition (Orlich, Harden, Callahan, & Gibson, 1988). In face to face interaction students share ideas, problems, and solve problems. This elaboration enhances their understanding and retention. Good peer relations might be necessary for normal development.

Another interesting development related to the mental elaboration viewpoint regarding cooperative learning is mutual and shared teaching (Palincsar & Brown, 1984). It is a teaching technique for reading comprehensive skills. In this method, learners are asked to prepare questions for each other about narrative or expository materials. In this way the learners have to pass through the whole text themselves and as a result they learn how to emphasize the important aspects of the reading passages. Santrok (2006) describes reciprocal teaching method as “in which students take turns leading a small group discussion. Reciprocal teaching requires students
to discuss complex passages, collaborate and share their individual expertise and perspectives on a particular topic”. This technique is used in cooperative learning Jigsaw. Reciprocal teaching is used to improve reading comprehension. All these perceptions have well recognized justifications and supporting proofs. Cooperative learning techniques from the motivational and social cohesiveness perspective occur in actual classrooms over unlimited time because both extrinsic motivation and social cohesion take time to demonstrate their results. Developmental and cognitive elaboration perspectives require short time interaction in pairs or groups. In short, these perspectives are complementary not contradictory. These all support each other but do not contradict.

2.5 Brief History of Cooperative Learning

The root of cooperative learning may be looked back in the history a thousand year ago. But the literature shows that the term “cooperative learning” appears in 1970’s. At this time a growing flow of research and practical work started simultaneously. The idea of having learners do their work collectively to achieve their instructional goals has a long history. Early advocates of cooperative learning include Parker, Devey, Mead, and Deutsch. Dewy argued that classroom life should embody the idea of a democratic society. An important part of that idea is that people work together to solve common problems (Bransford & Stein, 1993).

In education cooperative learning has a long history. In the beginning of 1900s Dewey condemned the exercise of contest in education and encouraged and supported the teachers to construct educational institutions as democratic learning societies. During 1940’s and 1950’s this concept fell from support and was substituted by a renaissance of contest in institutions. Then in 1960, a wave arose back to individualized and cooperative learning arrangements, motivated and
encouraged in part by concern for civil rights and interracial relationships (Webb & Palincsar, 1996).

The idea is rooted in Dewey’s notion of group activity and group projects, and was rarely used in American class rooms before 1980s. Dewey maintained that “prepare students for democratic living”. Cooperative learning was reintroduced in the 1960’s by Japanese educators to promote the idea of team work and group effort; cooperative learning was popularized by Slavin and Johnson and Johnson in the 1970 in the United States (Allan, 1995). Psychologically roots of cooperative learning roots can be found out in Piaget and Vygotsky theory of constructivism. First research study was conducted on cooperative learning in 1898 (www.clrc.com).

Research on social psychology on cooperation and collaboration can be traced back in 1920’s but investigation of particular application of cooperative learning to the classroom started in the early 1970’s. The concept of cooperative learning in education is not the latest idea, but it was used by the teachers for limited purposes. Dewey, Piaget, Montessori, Bruner, and Vygotsky worked on this aspect and gave historical precedent for the followers of constructivism. Then constructivism exemplifies a paradigm move from education on the basis of behaviorism to education based on cognitive theory. Behaviorist epistemology emphasizes mental power, domain of objective, level of understanding and reinforcement.

Researches on cooperative learning began to be conducted in 1960’s by Johnson & Johnson. Major contributors in research on cooperative learning are Devries & Edwards early 1970’s and Sharan in mid 1970’s. Aronsons and Associates in late 1970’s Slavin and associates, and Cohen in early 1980’s Kagan mid 1980’s Stevens, Slavin, all these developed models of cooperative learning. They gave specific shape to cooperative learning, and investigated different
dimensions of cooperative learning. At present, several cooperative learning techniques exist for teachers to employ them in the classroom vary from tangible and approved to vary theoretical and flexible. Nowadays, so many researchers are working on different models, grades, subjects, and environments. Many cooperative learning training centers and websites are in operation, and hundreds and thousands of net pages are available on internet. Prominent researchers in the field of cooperative learning are Slavin, Johnson and Johnson and Kagon.

2.6 Rationale for Cooperative Learning

To increase the learning outcome of the student is a main objective of the recent psychology. Educationists are adopting researches that have been done in other fields. In recent years, researchers have explored new teaching methods to accelerate learning outcomes of the students. Cooperative learning is being used frequently in class rooms. Researches show that cooperative learning enhances learning outcomes, better communication skills, and successful societal and academic group interactions (Angela & Walmsley, 2003; John, 1997). Students’ achievement in cooperative learning environment is higher. Its effect on students is very impressive (Slavin 1991; Stevens, Slavin & Farnish, 1991). Eva, Elisabeth, Bart, Fran, Filip and Eduardo (2013) also found a positive effect of cooperative learning on achievement and attitudes.

In cooperative learning, students do work with others to accomplish a shared and common target. Compared with the traditional individually competitive class room, cooperative learning experiences promote higher level of self esteem for the students (Johnson & Johnson, Holubee & Roy, 1984). Students working cooperatively believe that their class mates like them. This belief that they are accepted by others allows the students to believe that they are more successful academically. This perception of success increases students’ self esteem.
Cooperative learning strategies are strengthened by their reliance on the social aspect of learning. Students like to be socialized. Acquiring academic competence often involves skills better nurtured in groups where modeling and feedback occur more frequently than in independent work (Cooper, 2006). This strategy can enhance creativity by structures that facilitate shared work and responsibility. Problem solving, sharing ideas, common discussions, explanations and equal level of thinking help the students develop creative thinking. A regular problem solver can produce creative work. According to Slavin (1990), “when cooperative learning methods are used, achievement effects are consistently positive as compared to traditional methods”. Cooperative learning has been linked to other constructive societal or emotional outcomes. Augustine, Gruber, and Hanson (1990) found that “cooperative leaning increases social skills of the students who participate in group work, by working together; students learn to be tactful, to manage conflicts effectively and to respect the opinions of others”.

Robyn (1990) states that, “research has demonstrated that students derive numerous benefits from working in small, cooperative groups. The benefits are better attainments in reading comprehension, problem solving in mathematics and conceptual understanding in science”. Cooperative learning promotes social acceptance, positive student interaction and improve learning attitude. In addition, it completely influences the societal recognition of learners with disabilities and improves small group relations and teaching for those students. According to Orstein (1995) teamwork and collaboration among group members help build:

- Positive and coherent personal identity
- Self-actualization and self-esteem
- Knowledge and trust of others
- Communication
• Acceptance and support of others
• Wholesome inter group relationships
• Reduction of conflicts

Ferguson-Patrick (2010, p. 387) states that “in cooperative groups students are more likely to demonstrate the ability to provide explanations and instructions and develop implicit understanding of the needs of other group members than in other types of groups” The Melbourne Declaration (2008) also states that “successful learners should be able to plan activities independently, collaborate in work in teams and communicate ideas” (Ministerial Council on Education, 2008, p.8). Baker and Clark’ (2010, p 258) study has also concluded that “students who learn in groups develop increased intercultural understanding, improved interpersonal skills and that they are better prepared for the modern participative workplace”. Tsay and Brady (2010, p 79) stated that “cooperative learning became a commonly used form of active pedagogy in the 1980’s, and continues to be a valuable tool for learning in academic institutions today” (Johnson, Johnson, and Smith, 2007), as it provides benefits for both students and instructors (Shimazoe & Aldrich, 2010).

Cooperative learning is one of the most widespread and fruitful areas of theory, research and practice in education. Johnson &Johnson and Stamne (2000) conducted a meta-analysis and found 164 research studies that examined eight cooperative learning techniques. They compared the effect of cooperative learning methods with traditional teaching methods and found that all eight cooperative learning methods had a significant positive effect on students’ learning outcomes. The consistency of the results and the variety of cooperative learning methods present strong justification for its success and usefulness. Keramati (2010) conducted a study to
investigate the effect of cooperative learning on academic achievement of students and found a positive effect of cooperative learning on students’ achievement.

Johnson and Johnson (1989) conducted a review of 193 research studies related to have comparison of cooperative learning methods and other methods of teaching and found that cooperative learning method was more effective and successful as compared to other teaching methods. Smith and Westhoff (1992) searched the ERIC data base and originated about 171 references under the descriptor “Cooperative learning and higher education”. Cooper and Mueck (1990) conducted a research study on a sample of 1000 students who were taught through cooperative learning methods in nine different courses. They asked the students to compare their knowledge and understanding gained through cooperative learning with their understandings obtained through traditional teaching methods. Results revealed that about 70% to 90% participants rated their cooperative learning understanding more successive and effective. There are more than 900 studies that confirmed and validated the effectiveness of cooperative learning methods over other traditional teaching methods (www.clcr.com).

Alghamdi and Gillies (2013) carried out a study to investigate the impact of cooperative learning on students’ academic achievement. As a result, a significant difference in favour of experimental group was found which shows that the students taught by using cooperative learning were performing better as compared to those students who were taught by using the traditional method of teaching. Araban, Zainalipour, Saadi, Javdan, Sezide and Sajjadi (2012) investigated the effects of cooperative learning on self-efficacy and academic achievement of high school students. Results of study indicate in both variables (self-efficacy and academic achievement), a significant difference in favor of experimental group.
More than the last 100 years researchers have been investigating the impact of cooperative learning on students learning outcomes and found varied results such as: accomplishment, higher level understanding, preservation, transition of learning, time on task, captivating interpersonal attraction, motivational perception, societal health, social skills, self-respect, valuing discriminations, stereotypes and chauvinism, internalization of ethics, mental health, the excellence of the learning culture and a lot of other outcomes. Research has identified that there may be no other teaching method that at the same time accomplishes such different results. The dissimilar and constructive results that concurrently consequences from cooperative learning techniques have exploded several research studies on cooperative learning. The powerful effect of cooperative learning on different learning outcomes separates it from other teaching learning techniques and makes this tool more powerful and important.
2.7 Elements of Cooperative Learning

Johnson (1999), Johnson and Johnson (1992), Kegan (1994) and Slavin (1995) state five aspects that describe accurate cooperative learning group. What distinguishes cooperative learning from other activities that involve working in small group is a combination of different features and elements that weave through an academic task. The essential features are as under.

- Face to face interaction
- Positive interdependence
- Individual group accountability
- Development of social skills
- Group processing

2.7.1 Face to Face Interaction

In cooperative learning situations learners interact with each other face to face and collectively. They assist one another with learning task, and promote one another’s success. Cooperative leaning technique allows student to do their work frankly with each other, to share their views and thoughts and to work as a whole to make sure the achievement and recognition of each member of the group. In face to face interaction by distribution of material and provision of support, help, encourage, confidence and appreciate one another’s efforts to accomplish learning task, students verbally explain the solutions of the problem, lessoning one’s understanding to others, examining for understanding and perceptions talk about concepts being cultured, and attach present knowledge with previous knowledge. These actions may be well thought-out into group assignment guidelines and procedures. In this way, they develop support system that means that every member has someone who is ready and committed to help him, and individual
support system means that each learner has someone who is dedicated to help him as an individual. In face to face interaction, group members develop into individually devoted to one another as well as to their common and shared targets.

2.7.2 Positive Interdependence

In competitive classroom, students experience negative interdependence, better students are encouraged to hoard knowledge, and celebrate their achievement at the outlay of others (Robert & Harry, 1998). While positive dependence on each other is effectively planned when team members recognize that they are connected with one another in a way that one cannot succeed until all of the members achieved. So, group targets and tasks should be formulated and communicated to the learners in a way that they make sure that they succeed or fail jointly. Constructive dependence on one another highlights that every member of the group has an exceptional input to compose to the collective attempt because of one’s possessions and responsibility or job is necessary. Responsibility of every individual’s efforts is indispensable and necessary for group accomplishment. It creates devotion and dedication to the achievement of individual as well as group members.

2.7.3 Individual and Group Accountability

In cooperative learning, every member of the group is responsible for his or her individual educational improvement and task achievement. There are two stages of responsibility that are prepared into cooperative lessons. The first is that the group should be answerable for accomplishing its target and every member of the group should be responsible for adding his or her share of the work. Personal accountability subsists when the performance of every member of group is evaluated and the feedback is provided to the group, in order to determine the person
who is needed further help, support and encouragement. The important aim of cooperative learning is to make every member of the group a stronger and more powerful person in his or her rights. The task structure rewards the group for cooperation and at the same time rewards individuals for achieving lesson objective. Researches in this area consistently come up with the result that grading strategies must be based on individual achievement and team rewards.

2.7.4 Development of Social Skills

Interpersonal skills are developed in cooperative learning for success in school community. These interpersonal skills are understanding, effective decision making, efficient and successful communication, problem solving, admiration of others, conflicts resolution, cooperation, negotiation and conciliation. Cooperative learning is naturally more complicated as compared to other traditional teaching methods because learners have to take on concurrently in assignment work and team work.

Social skills and competencies for successful cooperative job do not delightfully emerge when cooperative techniques are used. It is necessary that students should be trained in social skills just as purposefully and accurately as intellectual skills and competencies. Students are asked to practice these skills within their cooperative group and students have to provide feedback on group interactions and social processes (Abruscato, 1994).

2.7.5 Group Processing

How are we working together? Is every one doing collectively? Group members take time to ask. Group members supervise group process and associations to ensure that the group is doing efficiently and successfully and gaining knowledge about the dynamics of the group. It is necessary that team members talk about the ways and means of accomplishing their targets and retaining efficient and successful working relations. It is needed that group must explain the
actions of members that are useful and unsupportive and decide about the activities and actions that should continue or change. Permanent improvement of the procedures of learning consequences from careful examination of how group members are working jointly and deciding how group efficiency and success can be increased (Johnson, 1993).

The main propose of group processing is to increase individual’s participation effectiveness in mutual skills. These are necessary group goals, to enhance constantly the excellence of the group’s assignment work and team work.

- To assess the quality of the interaction among group members to maximize each other’s learning.
- To give feedback about each learning group about the task work.
- To set goals for to improve effectiveness.
- To process how effectively the whole class is functioning.
- To conduct small group and whole class celebrations (Johnson & Johnson 1999)
2.8 Types of Cooperative Learning Groups

There are three basic types of cooperative learning groups – base groups, formal cooperative learning groups and informal cooperative learning groups.

2.8.1 Base or Home Groups

Base groups are long-term cooperative learning groups with stable membership. Learners are chosen for base groups in a manner that will guarantee a good mix of academic levels in the group. These groups are set up so that members provide support to each other so that all can succeed academically. For example, they may pick up handouts for each other if one of the group members is absent, and they will coach each other to prepare for individual tests. The use of base groups tends to personalize the classroom, improve attendance and also improve the quality and quantity of learning. If you have large numbers of learners in your classes, you should consider using base groups.

Base groups should be set up so that they can remain together for at least a term and longer if possible. The more learners you have in a class and the more complex the subject matter, the more important it is to have base groups organized. The members should be compatible and supportive.

2.8.2 Formal Cooperative Learning Groups

These groups may last from several minutes to several class sessions to complete a specific task or assignment (such as doing a set of problems, completing a unit of work, writing a report, conducting an experiment, or reading and comprehending a story, play, chapter or book). The members are carefully chosen for hetrogenicity to maximize learning and minimize ‘group think’.
2.8.3 Informal Cooperative Learning Groups

These groups are temporary, ad-hoc groups that last for a few minutes, one discussion or class period. The members are often chosen randomly and will rotate on a regular basis. Their purposes are to focus learner attention on the material to be learned, create an expectation set and mood conducive to learning, as well as help organize in advance the material to be covered in a class session. They can ensure that learners cognitively process the material being taught and provide closure to an instructional session. They may be used at any time but they are especially useful during a lecture or direct reading. The length of time that most college learners can attend to a lecture before they begin to drift away is around 20 to 25 minutes. These groups help break up the lecture and allow learners to process the content as they take part in class.

Bookend Process: By breaking up the lecture into several mini-lectures and having learners process the material in cooperative learning groups, you do decrease the amount of lecture time, but you will enhance what is learned and build relationships among the learners in your class. When we are instructing we need to remember all the different learning styles and not go to either extreme and completely eliminate lecture or to give up on group work.

2.8.4 Placing Learners into Cooperative Learning Groups

2.8.4 (a) Group Sizes

The ideal size for cooperative learning groups according to most experts in the field is four learners per group. When you have four in a group, you can have pairs working together at times and four working together at other times. There are six different pair combinations possible in groups of four. There are many ways an instructor can place learners into groups. The following are a few ways this can be done:
• **Instructor Assigned Groups**

The instructor can assign learners to groups to ensure that the groups are heterogeneous. The real advantage in forming groups in this manner is that instructors can see to it that groups are heterogeneous in terms of academic ability, ethnic background, gender, and any other factors that they feel are important. The instructor tries to make sure that best friends and worst enemies are not in the same groups. If they are, communication patterns in the group are not as effective.

• **Randomly Assigned Groups**

The instructor can simply have learners number off, placing all the ones in one group, etc.

• **Social Integration Groups**

The instructor can ask learners to privately name learners they would like to work with and any they would not like to work with in groups, and use this information to construct groups.

• **Subject-Matter Related Groups**

If a group of learners are interested in a particular topic, they could be assigned to the same group to research and present the topic to the rest of the class.

• **Geographic Groups**

Particularly useful for formal or base groups, this allows participants who live near each other to have a greater ease in meeting.

• **Self-Selected Groups**

The instructor can simply ask learners to form their own groups – “Find three other people to work with on this project.” This can work well for short-term groups but can be counterproductive if participants always end up in the same groupings.
2.8.4 (b)  **Most Effective Groups**

The most effective groups are usually the instructor assigned groups because they are more likely to be heterogeneous. Random groups and the others are very useful for short-term assignments, projects, but should not be used all the time or learners miss out on a lot of the advantages of working with heterogeneous groups.

2.8.5  **Working In Groups**

Not everyone likes interdependent group work, which requires cooperation with others to accomplish a task. Part of functioning in a group is to have a common vision, common goals, and a common mission even though you may work independently on a project; and to understand that you and your work represent the group.

Develop group outcomes, objectives and Guidelines (or mission statement, goals and principles – terminology can change) with your learners. These are based on your official course, but give the participants a chance to clarify the intended end product, direction and means of interaction within the course. This needs to include discussions around how each member of the “group” or class will support those intentions. Then, although the participants may work alone at some times and in groups at others, they start to understand that they are responsible to a bigger “collective”. We will always be a part of a group, but we will not necessarily always work in groups.

Team work is a necessary component because it is reflective of how advances are being made in business, science, education, etc. If our learners do not know how to work in groups, and how to function as a group member, we have not adequately prepared them for future work situations.
Learners have a need to be successful. If they question grades and take grades seriously it is as much for their own personal identity as successful, competent persons, as it is for their realization how this will reflect on them later in the “real” world.

2.9 Models of Cooperative Learning

Cooperative learning has certain models. Some models have specific application in subjects. According to Ornstein (1995) there are four general cooperative learning models while according to Leighton (2006), there are three popular families of models of cooperative learning, each with an advocate who is prominent among others. These models are as below;

- Students Teams Achievement Division (STAD)
- Teams Games Tournament (TGT)
- Jigsaw
- Learning together

2.9.1 Student Teams Achievement Division (STAD)

This model was promoted and developed by Slavin, focuses on task structure, team composition and reward system. In most forms of students’ team learning, task structure ensures that every team member participates. Teachers compose learning groups that are microcosms of the class with respect to diversity. Reward system for team work recognizes progress of individual members. Grades for individual achievement are completely determined by individual performance. Drill and practice is stressed in groups, students can engage in discussions and questioning and class quizzes are frequent. Quizzes are scored in terms of progress so that slow performing group has the opportunity to gain recognition and create the wish to go ahead and can get improvement in their performance. Teams are changed after specific time to give an
opportunity to the student to work with rest of the class, and to give a chance of low scoring teams.

Skills of team work and other social skill are taught and nurtured as needed to support the academic work. Among the widely used programmatic versions of this model are:

- Team Accelerated Instruction (TAI)
- Cooperative Integrated Reading and Composition (CIRC)

2.9.2 Teams – Games – Tournament (TGT)

Like Student Teams Achievement Division (STAD), TGT was also developed by Slavin (1995). In this cooperative learning model, weekly “tournament tables” are composed of team members, with each member contributing points to the particular team score. Low achiever with low achiever and high achiever is compared with high achiever for equal points. High performing teams can earn certificate and other rewards on individual performance. Teams are changed weekly. With learning it is fun also, having equal chances to improve their performance.

2.9.3 Jigsaw

Alvarez et al. (2010, p 344) states that in the Jigsaw approach, groups are given topics which have the potential to be subdivided into mini-topics related to the main question guiding the cooperative writing task. Team members become experts in the various mini-topics, and meet with members of the other groups who are studying the same material. After studying the material, the experts return to their ‘home’ groups to re-teach the material, and in doing so, they learn about the other mini-topics. Students are then tested individually on the material learned. Students work in small group on specific academic tasks, assignments, or projects. They depend on each other for resources, information and study assignments. Each member becomes an
“expert” in one area, meets with similar experts from other teams, and then returns to the original group to tech other team members.

2.9.4 Learning Together

Developed by Johnson and Johnson, they are more directly concerned with group process and interpersonal skills (Johnson, Johnson & Holubec, 1994). Students study, practice, and critique their team work skills with a view to improving academic outcomes. The group has only one item for consumption and obtains group score. Team building activities and discussions are emphasized. Members are assigned specific roles and perform tasks that promote team rewards (Johnson & Johnson, 1994). Those models converge on the principle that an effective cooperative task structure has embedded in it features, that support certain kinds and levels of collaborative efforts directed towards achieving a lesson objective.

2.10 Method of Cooperative Learning

To enhance the learning outcome of the learners, research on cooperative learning began since early 1970s. Now it is being used practically over the world. There are some widely used and research based methods. According to Cooper (2006) there are some simple cooperative learning methods, for example, Think-Pair-Share (TPS), and some have complex structure for example Student Teams Achievement Division (STAD).

2.10.1 Student Team Learning Methods

These methods were presented by Slavin at John Hoppkins University. All these cooperative learning methods have a control concept that learners do their work jointly and are answerable to their group members and held responsible for one’s performance. Team learning methods emphasize to achieve lesson objective as a whole, as they swim and sink together, their work will
get recognition as a team work. Individual performance counts, but recognition can be gained as a team.

There are three main concepts in all these methods – group reward, personal responsibility or answerability and equivalent chances for achievement, but in a different way (Slavin, 1994). Team will earn certificate or other rewards if the group reaches a predetermined standard. Personal responsibility means group achievement depends upon group members. Accountability emphasizes the action of the group members on helping each other, understanding and ensures that everyone in the group is prepared for a quiz or another assignment that pupils get without team member’s support. Equivalent participation or chances for achievement means that students contribute to their groups by increasing their personal previous performance. This makes sure that low, average and high achievers are similarly changed to perform their best and that the contributions of all the individuals of group are valued (Slavin, 1999). Slavin (1989) also states that “research on cooperative learning methods has indicated that team rewards and individual accountability are essential for basic skill’s achievement”.

Five major “student team learning methods” have been made and intensively investigated. These methods are generally compliant to a large amount of subject’s matter and grade level:

- Student Team Achievement Division (STAD)
- Team-Games-Tournament (TGT)
- Jigsaw II
- Cooperative Integrated Reading and Composition (CIRC)
- Team Accelerated Instruction (TAI)
Cooperative Integrated Reading and Composition (CIRC) has a broad curriculum, it is developed to apply in specific subject areas at specific grade levels for teaching in grades 2-8, and “Team Accelerated Instruction (TAI)” was designed for teaching Mathematics in grades 3-6. All five methods incorporate group incentives, personal responsibility and accountability, equivalent chances for achievement, but in different way (Slavin, 1995).

2.10.2 Student Teams Achievement Division (STAD)

This model was designed by Slavin which has five basic components:

- Forming heterogeneous learning teams;
- Presenting content;
- Engaging teams in practical or concept development activities;
- Assessing individual student mastery;
- Calculating team improvement scores and recognizing team accomplishments.

Each segment involves some planning (Slavin, 1999). Heterogeneous teams are formed on the basis of ability, race and ethnicity. Material is presented by teacher, and students receive quizzes as persons. Personal scores are added to a team score. The score contributes to the team on the basis of students’ enhancement scores over earlier quiz achievement.

Student Team Achievement Division (STAD) is a common technique of managing the classroom instead of a broad technique of instruction and specific subject matter; teachers utilize their personal lesson and other material (Slavin, 1994).

2.10.3 Team-Games-Tournaments (TGT)

“Teams-Games-Tournaments (TGT)” firstly was designed by Devries and Edwards in John Hopkins university and it was the first cooperative learning method of this university (Slavin,
This method is also presented like STAD in which teacher presents and students work as a team. Furthermore, in this method quizzes are replaced with weekly competitions. In these competitions, students contend with the members of other groups to add scores to their group points. They contend at three-person “Tournament Tables” alongside other with same previous record. It indicates that low achiever competes with other low achiever and high achiever competes with other high achiever, and has the same chances for victory. As in “STAD” better performing groups receive certificates or any other type of group prizes. All the group members support one another for games by reading worksheets and explaining troubles and difficulties to other, but cannot help when they are competing, ensuring individual accountability. TGT is liked due to its fun and activity, many teachers prefer STAD and some combine the two.

2.10.4 JIGSAW II

This method is a revision of Aronson’s Jigsaw method. In this method, students work in groups, heterogeneous teams as in “STAD” and “TGT” and are allotted some chapters of a book or small books to read, generally biography and social studies etc. Every group member is selected at random to become an authority on a number of components of the project. After becoming an expert, all the experts of various groups call a meeting and discuss their topics in this meeting and after that they go back in their groups and teach their topics to their group members. Lastly, a quiz was arranged on all the topics. The process of scoring and group acknowledgment is the similar as in “STAD”.

2.10.5 Team Accelerated Instruction (TAI)

“Team Accelerated Instruction” is the same method as STAD and TGT. Like STAD and TGT, diverse capability learning groups are formed and better performing groups earn certificates, but with a little difference between STAD, TGT and Team Accelerated Instruction (TAI) (Slavin &
Madden, 2001). In TAI teacher applies only one piece of teaching for the whole class and in this method the teacher mixes up the cooperative learning with individualized teaching. This method is particularly developed for teaching of Mathematics. In this method, learners come into an individualized cycle according to a placement test and after that they carry on at their own rates. Group members check each other’s work and assist and support each other to resolve the problems and difficulties. The assessment of learners is done without teammates, assistance and is scored by pupils’ monitors. On every week certificates or other rewards are provided based on unit completed by all team members.

As learners take liability for examining one another’s work and organizing the course of material, the teacher may use majority of the time in delivering lessons to small groups. TAI has same motivational dynamics of STAD and TGT. According to Slavin (1995), “Individualization is the part of TAI, makes it quite different from STAD and TGT”.

2.10.6 Cooperative Integrated Reading and Composition (CIRC)

“Cooperative Integrated Reading and Composition (CIRC)” is a wide-ranging programme for the instruction of reading and writing. In this method, students work in groups to fully comprehend the significant thoughts and to understand skills. They participate in writing workshop, where they write draft, revise it and edit one another’s work. Students pursue a cyclic process that includes: teacher teaching, group exercise, group pre-assessments and quiz. They do not obtain the quiz until their group members have confirmed that they are completely prepared for quiz. On the basis of average performance in reading and writing activities, certificates are awarded to teams. Students have equal opportunities of success. Individual accountability is ensured by independent written composition and their quiz scores.
2.10.7 Group Investigation

This method was designed by Shlomo and Shran. It is common class rooms management sketch in which learners do pieces of work in small groups and follow a series of activities that include: cooperative inquiry, team discussion and shared planning and assignments (Sharan & Sharan, 1992). Students as a group select subject matter from a unit being learned by the entire class then they break this subject matter into individual assignment and carry out the actions essential to organize the report of group for presentation.

2.10.8 Learning Together

This model of cooperative learning was developed by David and Johnson. In this model, students work in heterogeneous groups on project sheets. The groups had a particular piece of sheet and obtain honor and prizes on the basis of group performance (Slavin, 1995). In this method of cooperative learning, the students have to do less work, so they complete it rapidly.

2.10.9 Complex Instruction

Elizabeth Cohen and his colleagues developed this model. This method is used particularly in bilingual class. It is used in Science, Math and Social Studies. Teacher points out the ability of every student how he can help the group to succeed, and student paid respect for others. Assignments in multifaceted teaching have need of different roles and competencies. It is applied in bilingual instruction and in diverse classes containing language minority of the pupils (Slavin, 1994).

2.10.10 Structured Dyadic Methods
Most cooperative learning methods use four member groups who have freedom in deciding how they will work together, but in this method pairs of students help each other. One method is called class wide peer tutoring. Tutors present problems to their tutees. If they respond correctly the tutees earn points. If not, tutors provide the answer. Even ten minutes the tutors and tutees switch roles. Dyads earning the most points are recognized in the class each day. A similar method, reciprocal peer tutoring, also alternates tutors and tutee roles with in dyads: but gives tutors specific prompts and alternate problems to use if tutee makes errors.

2.10.11 Informal Methods

There are some formal methods of cooperative learning; some teachers use some techniques while they are presenting lessons in STAD, TGT or using other cooperative method. Some of the most useful informal cooperative methods are:

2.10.11 (a) Spontaneous Group Discussion

If students are sitting in teams, it is easy to ask them at various times during a lecture or presentation to discuss. Why do they work or how a problem might be solved. This simple cooperative learning structure complements a traditional lesson, and the group work can vary from a few minutes to a full class session (Slavin, 1995a).

2.10.11 (b) Numbered Head Together

Each student in a group has a number and the student knows that only one student will be called on to represent the group. Numbered heads together is varied in group discussion; the twist is having only one student represents the group but not informing the group in advance who its representative will be. This twist ensures total involvement of all the students. This method is a way to add individual accountability to a group discussion.
2.10.11 (c) **Team Product**

Do student teams make a learning centre, write an essay, work on a work sheet, make a presentation to the class, list possible solutions to a social problem, or analyze a poem? To maintain individual accountability, assign team member specific roles or individual areas of responsibility (Slavin, 1995b).

2.10.11 (d) **Think-Pair-Share**

It is very useful and simple method and it was developed by Lyman. In this method during the presentation of a lesson, team sits in pairs. The teacher asks question to the groups. Students are instructed to think alone and then they share their thinking in pair with their teams to reach an agreement on an answer. Finally, the teacher asks the learners to discuss their decided answer with the rest of the group (Slavin, 1995).

2.11 **Shortcomings of Cooperative Learning**

There is always a space for improvement in all the methods, and all the methods will not work properly if they are not implemented properly. Similarly cooperative learning has some shortcomings as identified by Slavin (1995); Oakley et al. cited in Baker and Clark (2010) state that cooperative learning groups need some preparation before beginning their initial task and teachers cannot just assume that students have the skills to readily behave in a group- ‘Unless the instructor takes steps to assure that the groups develop the attributes associated with high-performance teams, the group learning experience is likely to be ineffective and may be disastrous. Students who do not receive enough training about how to behave in a cooperative
team frustrate their team members who feel they are not able to deal with “the problems of lazy or slack group members and the resultant unfair workload distribution (Baker and Clark, 2010, p 261).

Language barriers can also make cooperative learning difficult for groups. Baker and Clark (2010, p. 261) state that “the language barriers can be too difficult to overcome. The cultural reluctance of international students to contribute verbally, let alone disagree. Language difficulties can limit the effectiveness of face-to-face interaction in student groups and affect the use of relevant interpersonal and small group skills “. Equality is usually also a challenge for those working in cooperative learning groups- Teachers are often confronted with resistance and hostility from students who believe they are being held back by slower teammates (Shimazoe & Aldrich, cited in Tsay and Brady, 2010, p. 86). In addition, such negative reactions come from the other side where weaker and less assertive students complain of being belittled or ignored by more responsive students. Some other barrier and shortcomings of cooperative learning are as under:

2.11.1 Free Rider

If groups are not appropriately made, cooperative learning techniques can permit for the “Free Rider” impact, in which a few members of the group perform all or most of the activities and gain knowledge while other members go alongside for the ride. The free rider effect occurs when group has a single task, not motivated, not properly taught the social skills or students take it an easy job. It can also occur when they have to complete a single worksheet, the task is not challenging or learning environment is not supportive.

2.11.2 Diffusion of Responsibility
It is a state of affairs in which learners are ignored due to less skillful or poor performance. It also occurs when social skills are not taught or they are not trained to work together. Students are less motivated or ignored and take no responsibility (Slavin, 1995). If a group solves a complex math difficulty, the thoughts or assistance of learners believed to be weak at math might be overlooked or brushed off, and there is insignificant reward for the more energetic participation in the problem solving activity to take time to make clear about the actions they are performing to the fewer energetic members of team. These dangers are automatically controlled in some method of cooperative learning and also be controlled by teaching social skills to the groups using motivational techniques by implementing cooperative learning methods effectively. This difficulty may be resolved by using different methods simultaneously.

2.12 **Assessment in Cooperative Learning**

Different perspectives of cooperative learning recommend different ways of assessing students; for example those using the motivational perspective would favour assessing the group’s efforts or end result as a whole as a whole, whereas instead the focus could be on the interactions and the students reflective responses to the task.

- Peer assessments may be biased; it’s not always evident who does what’ (Baker & Clark, 2010, p. 263).

- Group assessments- can pass students likely to fail or make above average students get average marks (Baker & Clark 2010, p. 263).

- Assessing the individual contributions that students made to the group project.

- Feedback from both the instructor as well as immediate feedback from the group is important forms of evaluation (Rushatz, 1992; Webb, 1985).
2.13 Research in Cooperative Learning

The educationists and the psychologists who are investigating the phenomena of educational psychology are going ahead discovering new world of methodology. New techniques, methods and strategies have been introduced. In the field of education, cooperation is not a new concept. Teachers have been using this technique for a long time ago. At first, Dewey presented the idea of cooperation to make the students democratic. Most of the researches in cooperative learning are being conducted in USA, Israel, Germany, Australia, and some countries of Asia as well. Although rarely used in American class rooms before 1980s, in Japan it was reintroduced in 1960 by Japanese educators to promote the idea of team work and group effort. Cooperative learning was popularized by Slavin and Johnsons and Johnsons in the 1970s in the United States (Allan, 1995). In recent year, this technique has been recognized and has fascinated many of research attention in different countries, like United States (Slavin, 1996). On other hand, in United Kingdom and other countries, this technique is still applied in teaching learning process (Muijs & Reynolds, 2006).

Johnson et al. (1989) appraised 122 research studies which were carried out between 1924 and 1981. Effect size method and Z-score methods were used in these studies. All the results show positive effect of cooperative learning techniques. Cooperative learning was more effective and successful as compared to other traditional and individualized teaching methods. Many problem based methods work best when pupils work collectively in little learning groups. Cooperative learning is an ideal frame work for problem based learning (Bransford & Slavin, 1997).

Johnson, Maruyama, Johnson, Nelson and Skon (1981) reviewed 122 research studies related to cooperative learning used academic achievement as the outcome measure and found
collaboration and teamwork as the most influential element in generating achievement as compared to the other communication patterns. These wide-ranging conclusions have been replicated by many other researchers who examine diversity of mental and attitudinal assessment (Slavin, 1983). Johnson and Johnson (1989) conducted a survey of 193 research studies in which the effect of cooperative learning was compared with traditional methods of teaching. Findings revealed that the cooperative learning approaches were more efficient and successful as compared to the traditional methods of teaching in over half of the cases.

As far as concerned with the attitude towards people, Johnson and Johnson’s (1989b) study revealed that the cooperative learning methods created better interpersonal relationships in 60% of the cases while competitive and individualized methods generated higher levels of interpersonal relations only in three percent of the cases. Johnson, Johnson and Stanne (2006) also reviewed 164 research studies which were carried out on eight cooperative learning methods. They found that all the cooperative learning techniques had a significant positive effect on students learning outcomes. The cooperative learning methods, like “Student-Team-Achievement-Division (STAD)”, “Team Games Tournament TGT|”, “Group Investigation (GI)”, “Jigsaw”, “Team Assisted individualization (TAI)”, and “Cooperative Integrated Reading and Composition(CIRC)”, were compared with individualistic methods and showed higher impact on students’ achievements.

The reason for the extensive apply of cooperative learning is that cooperative learning is undoubtedly based on theory, authenticated by research, and operational into understandable actions which a teacher can apply. Cooperative learning has its bases in collective interdependence, intellectual development and behavioral learning theories. It is exceptional that an instructional procedure has a base of such a broad variety of social sciences theories. More
than nine hundred research studies authenticated the efficiency and success of cooperative as compared to traditional and distinctive methods of teaching (www.clrc.com).
2.14 Research in Cooperative Learning in Pakistan’s Perspective

Cooperative learning is a useful teaching method it is gaining popularity and interest throughout the world. New researches are being conducted to improve its procedures. With the passage of time, its new applications and dimensions will be discovered.

In Pakistan the implementation of cooperative learning is under process. Curriculum based cooperative learning instructions and applications are yet to be developed. The “Lahore University of Management Sciences” and the “National University of Science and Technology” are using cooperative learning as a mode to accelerate learning of their students, but no higher level work or meta-analysis has been done to compare and assess the effectiveness of cooperative learning in Pakistan. Teachers are using some components of cooperative learning in their teaching strategies. They are using small groups in a huge class and ask students to help each other.

Arbab (2003), a student of Pakistan Air Force College of Education for Women, conducted a master level research, in which she probed the impacts of “cooperative learning” on general science results of 9th class students. A short term experiment of two weeks was arranged in which pretest, posttest design was used. Findings of study revealed that “cooperative learning” had more positive impact on learners as compared to usual method of teaching general science.

Another research study at master level titled “An Experimental Study on Effects of Cooperative Learning on Social Studies Achievement among 7th Class Students” was conducted by Kosar (2003). The sample size of the study was 40 students of 7th class those were equivalently distributed in experimental and control group based on the achievement scores gained in social studies in the yearly exam of 6th grade. The duration of the experiment was two
weeks. Findings indicated that cooperative learning showed better results as compared to traditional teaching techniques.

Similarly, a study titled “An Experimental Study on the Effects of Cooperative Learning on Social Studies Achievement among 8th Grade Students” was conducted by Parveen (2003). Experimental group was consisted of 18 students, while control group was comprised of 17 students. Distribution of the students in experimental and control group was made based on annual examination achievement scores in social studies of grade 7th. Length of the experiment was two weeks. Cooperative learning was not found effective as compared to traditional teaching method.

Iqbal (2004) conducted a study on “Effect of Cooperative Learning on Academic Achievements of Secondary School Students in Mathematics”, a research at PhD level in University of Arid Agriculture Rawalpindi. Pre-test, post-test design was used for the study. The population of the study was 10th class students and they were distributed in experimental and control group based on teacher made pre-test achievement scores. Cooperative learning model “Student Team Achievement Division (STAD)” was used to teach the experimental group. Duration of the study was ten weeks. After experiment, teacher made post-test was used to assess the effect of cooperative learning on the academic achievement of pupils in Mathematics. To assess the retention of the learners after six weeks, again the same posttest was administered. The t-test was applied to check the impact of “cooperative learning” on high achiever and low achiever. Findings of the study were that the students of control and experiment groups were same in the beginning of the experiment, gain mean sores of high achiever of experimental and control group was same on posttest scores, there was no significant difference, but there was a significant difference between mean scores of low achiever of experimental and control group.
Low achievers of experimental group were performing better, when they were taught by using cooperative learning method.

Another significance of cooperative learning was observed on retention test, high achiever of experimental and control group were not different significantly, but low achievers of experimental group showed better results as compared to low achiever of control group. All the findings of the study showed that “cooperative learning” method could perform better if used properly.

2.15 Cooperative Learning in Islamic Studies

Pakistan is an ideological state which was founded on the basis of Islam. Islam is the state religion of Pakistan. It was the vision of founders of Pakistan that Islamic teachings would be implemented in its letter and spirit, and in its constitution a basic principle was determined that there would be no legislation against the teachings of Islam. The people of Pakistan will be provided opportunities to live their lives according to the teachings of Islam. All the people of Pakistan are equal before law. There will be no discrimination on the basis of race and color. Faith, justice, fair play and impartiality are the basic rules for a citizen of Pakistan.

Religious Education is a main source for students’ character building. Religion is providing continuous guidance and assistance to the teachers and parents to develop positive attitude, positive thinking, character and personality development. All the educationists admit the services of religion towards youth’s character and personality development. Education, whatever be its goals and objectives, involves learning. Learning is modification of behavior as a result of past experience or prior activity. Behavioral modification arising out of learning may be cognitive, affective, sensory motor or an amalgam of all these in different proportions. To develop affective domain, religious education is necessary. The subject of Islamic studies is
taught at every level in Pakistan which is put at the end in the time table, and ignored. It is not being taught well as other subjects are being taught. So the students take it easy. It is not taught properly. At the end of the term, students memorize its content within night and get through. That is why undesired characteristics are incorporated in youth’s character.

2.16 Trend to Use Cooperative Learning

The uniqueness of “cooperative learning” is that it is based on theory and research. Theories have provided it a strong foundation, and research is constantly supporting it. It is an emerging method of teaching over the world. Its popularity is increasing day by day. Johnson and Johnson (2005) have established a “cooperative learning” centre. They are providing training to American teachers, as well as in abroad. In 2005, they conducted training in America, Hong Kong, China, Columbia, Mexico, and other countries. They have launched a website (www.co-operation.org) also. They are discovering new areas for research such as conflict resolution and cooperative learning, democracy and cooperative learning.

Cooperative learning is being used in several parts of the world to teach children, adolescents and young adults. In 2005, over 2500 teacher educators and administrators were trained in America. Cooperative learning method is gaining popularity over the world. United Nations has adopted “cooperative learning” to prepare lawful experts and teachers in Turkey. Cooperative learning centre of University of Minnesota, USA is working for the development of cooperative learning. The worldwide concentration in “cooperative learning” is increasing continuously. Japan, Germany, Italy, Australia, Pakistan and other countries are doing research on “cooperative learning” method.

There are a lot of international institutions of “cooperative learning” like, “Cooperative Learning Center of University of Minnesota”, Cooperative Learning Centre of John Hopkins
University, Cooperative Learning Centre of University of Mary Land, headed by Johnson and Johnson, Slavin and Rymarn respectively. There are many other prominent researchers like Kagan and Panitz busy in providing training and research in different area. There are so many websites on internet, containing a lot of material on cooperative learning. Online courses of cooperative learning are also available. Use of “cooperative learning” in education, particularly, and other walks of life generally, is growing day by day in the world because of its effectiveness. Research on cooperative learning is going on, and is being supported by education department, private sector and public sector throughout the world. New problems are being observed and the researchers find their solution in cooperative learning, for example, to prevent students and others people from bullying, and other anti social behaviors. Bullying is a competitive activity. The bully person is contesting for domination over another individual or for higher position in their group, in students this behavior occurs at the age of eleven to fourteen. Students are required to engage in pro social behaviors. This technique makes sure that every learner is collectively incorporated into network of constructive peer relations (Johnson & Johnson & Holubec, 2008).

2.17 Students Teams Achievement Division (STAD)

There are so many models and methods of “cooperative learning”. Kagan states that there are more than 50 methods of “cooperative learning” (www.kagon.com). Some methods are formal method, some are simple, and some methods have complex procedures. Different schools of thoughts propose different ways to name and number these features, but they converge on the basic idea that the structure of the learning task engages students in productive and mutually supportive ways so that all achieve mastery of the lesson objective.
Vaughan (2002) states that, “cooperative learning has been widely researched and used in classroom around the world since 1970”. Cooperative learning encompasses a variety of social objectives; it also aims at improving student performance on important academic task (Arends, 1998). Cooperative learning has a wider acceptance of people who are different by virtue of their race, culture, social class and ability. It is known that more face to face interaction among different racial or ethnic groups or low I.Q. children are required to reduce prejudice and stereotyping. Cooperative learning presents opportunities for students of varying backgrounds and conditions to work independently on common tasks and through the use of cooperative reward structures learn to appreciate one another.

In “cooperative learning”, learners are to teach skills of cooperation and collaboration. Societies are becoming more culturally diverse and global in their composition. Cooperation is the need of the time to avoid violence in the society. The learning culture for cooperative learning is exemplified by democratic procedures and energetic responsibilities for students in deciding what and how they should be studied. Slavin and his colleagues created an elementary school based on the concept of cooperation and cooperative learning. After the second year of implementation students in cooperative elementary school achieved appreciably higher in reading language and understanding, language appearance, and math calculation and application than their colleagues in a traditional elementary school did (Slavin, 1995).

Student-Team-Achievement Division (STAD) is a simpler and applicable method that was designed by Slavin et al. at John Hopkins University. It is the most broadly investigated of all “cooperative learning methods”. It is also very adaptable. It has been used in Mathematics, Science, Social Studies, English, Industrial Arts, and many other subjects and at levels from second grade to college.
The most important purpose of STAD is to inspire and stimulate students to give confidence and assist one another to fully comprehend the expertise offered by the teacher. Students have to help their team mates to become skilled at the material. They should be encouraged to perform their best, and communicating beliefs that learning is imperative, important and enjoyable, if they want that their team earns rewards (Slavin, 1994). The principal goal of STAD is to accelerate the achievement of all the students (Slavin, 1990).

2.17.1 Element of Student-Team-Achievement Division (STAD)

There are five basic elements of STAD.

- Present Content
- Have teams discuss and practice
- Assess individuals student Mastery
- Team improvement Scores
- Recognize Team Accomplishments.

2.17.1(a) Present Content

Teacher presents a lesson in the class. It is mainly suitable for instruction well understandable goals for example arithmetic computation and application geography and map skills, and science concepts. It is necessary that objective must be stated in behavioral term, and they can be measurable. Effective presentation in the class increases motivational level of the students and helpful to accelerate learning rate. While presenting content different methods and STAD technique are used.
2.17.1(b)  Have Teams Discuss and Practice

Mixed ability in performance teams are made. In teams, student study together, they help and encourage so that the skill taught be practiced. It is the pre-requisite of the cooperative learning without teaching and practice social skills, any method or team will not work properly. Teams work on worksheets, all the members get mastery over the material and to get this objective they help their peers.

2.17.1(c)  Assess Individuals’ Student Mastery

After getting mastery in the learning material, quizzes are taken. In quizzes students may not help each other. Every student must know the material. This individual accountability motivates the students to show good performance. Team can earn reward if all the members of team have mastered the knowledge or expertise being trained. The achievement scores of the team are given on the basis of pupil’s development scores over their own previous records. This is called equal opportunities for success, all students have the chance to be the team “Star”, either by scoring well above their past record or by getting a perfect paper, which always produces a maximum score regardless of students past averages. Perfect paper means zero mistakes. There is important role of quizzes in this cooperative learning method. Quizzes provide the equal chance to show their performance contribution, and individual accountability. Here is a quiz score sheet that is used to maintain the record.

**Quiz Score Sheet**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>Date:</td>
</tr>
<tr>
<td>Base Score</td>
<td>Quiz</td>
</tr>
</tbody>
</table>

lxxxii


2.17.1(d) Team Improvement Scores

Teams are formulated on past performance of the students. Teams are reformulated after specific time or at the end of some topic. Then quizzes are taken and improvement scores are awarded keeping in view specific criteria that has been developed to motivate the students. Team improvement Score plays an important role to motivate, and help the team in earning rewards. It also provides equal chances to the team members to learn more, to encourage teammates, and to get recognition.

Improvement scores: - pupils receive scores for their team on the basis of the grade to which their quiz score go over their base score. Formula for improvement scores is also developed.

lxxxiii
## Score of Quizzes

<table>
<thead>
<tr>
<th>Score of Quizzes</th>
<th>Scores of Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 10 scores less than base point</td>
<td>5</td>
</tr>
<tr>
<td>10 scores lower than to 1 score lower than base point</td>
<td>10</td>
</tr>
<tr>
<td>Base score to 10 score more than base point</td>
<td>20</td>
</tr>
<tr>
<td>Above 10 scores more than base score</td>
<td>30</td>
</tr>
<tr>
<td>Perfect paper in spite of base point</td>
<td>30</td>
</tr>
</tbody>
</table>

### 2.17.1(e) Recognize Team Accomplishments

To keep the students motivated and to put them on the right job, keep them cooperative. Teams are recognized if their average score exceeds a certain criteria. They feel proud of their cooperation and celebrate their performance and success. Recognizing group achievements three stages of prizes are presented. These are given on the basis of average teams points. Team consists of four members.

<table>
<thead>
<tr>
<th>Team Average Criteria</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Good Team</td>
</tr>
<tr>
<td>20</td>
<td>Great Team</td>
</tr>
<tr>
<td>25</td>
<td>Super Team</td>
</tr>
</tbody>
</table>

### 2.18 Procedures of Implementing “Student- Team – Achievement- Division (STAD)”
Cooperative learning method has been used by more than a hundred thousand teachers throughout the world, in every subject and grade level. Among cooperative learning methods, Student Team Achievement Division (STAD) techniques are unique in several ways. First it is practical and applicable to a broad range of curriculum. This method does not require a different set of objective or a new curriculum, intension is to help students to do a better job. This method is extensively researched among cooperative learning methods (Slavin 1994). STAD consists of five major components:

2.18.1 Classroom Presentation

Teacher introduces material in class. Teacher uses direct instruction or a lecture – discussion method, but can also include audio-video presentation. Class presentation on STAD varies from normal instruction simply in that, they should undoubtedly emphasized the “STAD unit”. Purpose of this difference is that student realize, they have to give concentration throughout the class presentation, and it will support them to perform fine on the quizzes during team study. To make class presentation effective STAD techniques are used.

2.18.2 Work on Worksheets / Group Work

Teams are comprised of four or five members of mixed ability group who characterize across section of the class in term of intellectual presentation. The most important task of the group is to ensure that all the members of team are learning, and more specifically, to get ready its members to perform well on the quizzes. After giving the material by the teacher, the members of team meet up to reading work sheet or material delivered to them. The majority of the time is spent in talking about the difficulties collectively, evaluating responses, and correcting any
misunderstandings if team members do any mistake. During study in teams, team mates help each other; they encourage their team mates to get mastery over the material. Team members choose the name of their team and the team is the most significant aspect of STAD. At every point, importance is given to the members of team who perform their best for their group, and on the better performing of the group to support its members. The group offers the peer support and help for instructional performance that is significant for learning and learning outcome. It offers shared concern and self-esteem that is imperative for such results as inter-group relationships, respect and recognition of majority of the students.

2.18.3 Quizzes / Assessment

The learners get individual quizzes after approximately one or two periods of the presentation of teacher and one or two periods of team exercise. Quizzes are teacher made test, based on the curriculum and are according to the examination system. In quizzes pupils are not allowed to support and assist each other in the quizzes. Therefore, all the learners are personally accountable for learning the material. Team members stand individually accountable for their performance on quizzes.

2.18.4 Improvement Scores of Individual and Teams

The main purpose of the individual improvement scores is to provide every pupil a performance task that may be attained if he/she does work hard and executes batter as compared to his/her previous performance. Every learner can add maximum scores to the group in point scheme; however, any learner cannot perform accordingly without doing best work. Every pupil is provided a “base” point resulting from the student’s average previous achievement on the same
quizzes. After that team members get scores for their groups on the basis of the degree to which their quiz points go above their base points.

2.18.5 Recognition of Team

Teams receive certificates or other awards if team points go above the predetermined criteria. This team points can also be utilized to decide up to 20% of their scores. Certificates are awarded to groups as “super team” “great team” or good team.

**Team Summary Sheet**

<table>
<thead>
<tr>
<th>Team Members</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ali</td>
<td>30</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Aslam</td>
<td>30</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tamoor</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Javeed</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Team Scores</strong></td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Team Average</strong></td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Team Award</strong></td>
<td>Super Team</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.19 Preparation to Implement STAD in Classroom

In STAD activities, curriculum material is specifically designed for Student Team Achievement Division or it can be used with material adapted from text book or other published scores or with teacher made material. It is quite easy to develop material according to the need of STAD, simply develop worksheets according to examination requirement with answer sheet, and then develop a quiz sheet based on the unit to be taught or on the basis of worksheets.
2.19.1 Assigning Students to Teams

In STAD mix ability, groups are formed. Teams consist of four or five members. There would be a person who showed good performance, one person who performed low and two persons who performed at average level. Students are not allowed to select themselves their team, as they will certainly select others like their own. Instead, pursue the steps mentioned below.

- Make copies of team summary sheets.
- Make copy of a team summary sheet that will be for every team in class.

2.19.2 Students’ Rank

Categorize the students of the class from highest to lowest on the basis of previous achievement that may be the previous examination scores. Use available data for this purpose, achievement scores of the test are best, grades are good, however your personal opinion is excellent. It is not easy to be accurate in ranking, however make the best you can.

2.19.3 Decide the Number of Teams

After taking decision about the numbers of teams, divide the digit of pupils by four or five. If the division is uneven, the remaining one or two members will be included in one or two teams. For instance, if there are 30 pupils in total, the numbers of teams will be seven, five teams consisting of four members while two will be comprised of five members.

2.19.4 Assign Students to Teams

Basic need is to develop balanced groups. For this, performance level will be kept in view. Allow the teams to choose teams names. Procedure is as under.
(a) Each team is composed of student whose performance level ranges from low to average to high.

(b) The average performance level of all the teams in the class is almost equal. Using the list of the subject ranked by performance, assign team leader to each team.

After doing this activity, following steps will be taken:

- Fill out team summary sheet;
- Fill in the names of the students on each team on team summary sheets leaving the team name space blank;
- Determine initial base score

Base scores represent student’s average scores on pervious quizzes. In STAD three or more quizzes are taken, average quiz score will be used as base score, or final grades from the previous examination.

2.19.5 Team Building

It is suggested that before using any cooperative learning method use team building exercises. Give a chance to teams to do some fun and to acquire to recognize each other. For this, give them a chance to create team logo, choose team names, or develop some song. Set rule for teams. Each member will contribute in each activity. These activities will help the students to get them familiar with each other, also will be helpful to develop working relationship and increase level of interaction.

Student-Team-Achievement-Division comprised of standard series of teaching learning activities. This cycle consists of four activities:

- Teach – Teacher presents a lesson
- Team Study – students work on work sheets in their teams to master the material
Test – Students take individual quizzes

Team Recognition – Team scores are computed based on team member’s improvement scores. Team recognition is celebrated by awarding individual certificates, issuing a class newsletter, or displaying name of high scoring team on a bulletin board.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter deals with method and procedure of the study. It describes the research design; population, sampling, description of instruments and data collection.

3.1 Research Design

The present study was aimed at “investigating the comparative effectiveness of cooperative learning method and traditional methods of teaching Islamic Studies at elementary level”. The study was experimental in its nature as it required manipulation of the independent variable (cooperative learning) and see its effect on dependent variable (student behavior). The pre-test, post-test control group design was employed to conduct this study.

3.2 Population of the study
3.2.1 Target Population

All students of grade six studying in Government Boys High Schools of Punjab province were the target population of the study.

3.2.2 Accessible Population

All students of grade six studying in Government Boys High Schools Pasrur District Sialkot were the accessible population of the study.

3.3 Sample of the Study

For the purpose of experiment, one secondary school was selected and similarly one secondary school was selected for the pilot testing of the instrument. The Govt. High School No.2 Pasrur District Sialkot was selected for experiment and the Govt. High School No.1 Pasrur was chosen for pilot testing of the instruments. Experimental and control groups consisted of 80 subjects.

3.4 Training Program

Two teachers, teaching Islamic Studies at elementary level from Government Secondary School Pasrur No.1, having equivalent qualification (M.A. Islamiat/ B.Ed) and teaching experiences (8-10 years) and significantly having the same teaching latent were chosen for teaching to the experimental and control group. The teachers were voluntarily ready to teach the experimental and control group. Twelve sessions were carried out to train the teachers in cooperative learning. Six days for theory and six days for practice to implement the cooperative learning in classroom. Following areas were covered in training.

- Concept of cooperative learning
- Components of cooperative learning
• Developing classroom climate for cooperative learning
• Team building techniques
• Social skills – to be taught to students
• Lesson Planning and Lesson Sharing.
• Introduction of Student Team Achievement Division (STAD).
• Components of STAD.
• Developing STAD Lessons / Worksheet / Quizzes.
• Implementation of STAD

Six days for theory and six days for practical training were provided to the teachers to implement STAD into classroom. Schedule of activities was followed as under:

Session One: the teacher assigned the students to cooperative team under the supervision of researcher and focused on the training of pupils in the following areas:

• Idea of cooperative learning / cooperation
• Components of STAD
• Zero noise signals
• How to perform STAD activities
• Classroom arrangement for STAD activities

Session Two: The teacher revised first day’s activities by questioning techniques and by demonstration method. A chance of rehearsal was provided to the teacher to get arrangement in the cooperative teams and demonstrate performable activities of previous day and then teacher trained the student in following areas:

• Social skill for team work.
• A lesson was taught from the book of Islamic Studies.
• How to solve worksheet together and how to help each other.

• How to solve quizzes.

• Marking of quizzes, improvement scores.

• Decision how a team will become a super team, great team and good team.

• How to celebrate team recognition.

**Session Three:** Teachers prepared worksheets and provided to the both groups. Worksheets were developed from the lesson, taught on previous day. Students were asked to work on worksheets. Students were working in teams while teacher started to take round in the class and watched social skills, level of cooperation, level of interaction, level of participation, and roles of the team members. The teacher guided and taught about these social skills. After watching the team showing better performance, the teacher asked the rest of the groups to watch that team. Teacher told the students about quiz for the next day. Pattern was also told.

**Session Four:** Students were arranged for quiz. Quiz sheets were delivered to them, and they were asked not to help each other, and solve independently. Students solved the quiz and returned them to the teachers. Seating plan was according to their roll numbers, not according to teams.

**Session Fifth:** Marked papers were returned to students and each group was provided a blank team score sheet. Students filled these sheets cooperatively then the teacher told, and was trained in the following area

• Achievement Score

• Total achievement score

• Improvement score

• Criteria for super team, great team, and good team
A practical rehearsal was made, to make the exercise complete.

Session Sixth: The teacher assigned homework. The activities continued in a cycle.

- Instruction with guided practice first day.
- STAD practice on worksheet (Work in Groups) day second.
- Quiz, (Day Third) and process of cooperative learning going on in this way.

3.5 Instruments of the Study

Pre-test was conducted to make equal the experimental and control group prior to assigning the students to the experimental and control group. Students were equated and equally distributed based on pre-test achievement scores. Pre-test was developed by the researcher after review of related literature and techniques of test construction. It was developed from the units had already taught to the students. Opinions of experts and test developers for the Boards of Intermediate and Secondary Education, Gujranwala and concerned teachers were also weighted in the construction of test. Similarly, post test was developed by the researcher on the same parameters with equal difficulty level.

To avoid any kind of subjectivity the whole pre-test and post test were constructed as objective type. Sixty questions were developed carrying equal marks each. The distribution of the type of questions was as under;

- Multiple choice 15 items;
- Fill in the blanks 11 items;
- True false 14 items;
- Matching 11 items;
- Short answer 9 items;

Reliability of the pre-test and post-test was calculated by Split Half method.
3.6 Validation and Reliability of the Instruments

Validity of the instruments (pre-test, post test) was ensured through experts’ opinions and pilot testing. After development of instruments, these were presented to three relevant professionals for their expert opinions (Appendix-C). They pointed out some ambiguities in the format, sequence and language of the items which were discussed improved accordingly.

After improving these instruments, pilot study was carried out on a group of 20 students in Govt. High School No.1 Pasrur to determine the reliability of the instruments. However, these students were not included in the real sample of the study. Reliability of the pre-test and post-test was calculated by Split Half formula by using Statistical Package for Social Sciences (SPSS) program that was found 0.856.

3.7 Procedure of the Study

The study was conducted on 160 students, divided into two groups consisting of 80 students in the control group and 80 students in the treatment group. Treatment group comprised of 20 small groups (each group of four members). Treatment groups were exposed to STAD cooperative learning model, while the control group was given the traditional teaching method. One week prior to the treatment, pre-test was administered as a measure of homogeneity. After scoring the pre-test, students were ranked based on their performance and then cooperative learning groups were formed. In this regard, twenty students who scored highest on the pre-test were identified as high achievers and twenty students who scored lowest were considered as low-achievers. The remaining students were identified as average-achievers. The students were assigned to groups using the following formula: one high-achiever was grouped with one low-achiever and two average-achievers. The rationale for this type of grouping was that it would provide opportunities
for learners to peer tutor and help each other to accomplish the learning goals. After grouping the
students, the procedure was explained and three passages were read and modeled.

In STAD, students were assigned to four-member learning teams. The teacher presented a
lesson, and then students worked within their teams to make sure that all team members have
mastered the lesson. Finally, students took individual quizzes on the material, at which time they
could not help one another. Students’ quiz scores were compared to their own past averages, and
points based on the degree to which students met or exceeded their own earlier performance
were awarded. These points were then summed to form team scores, and teams that met the
assigned criteria were rewarded. Then, they sat for weekly quizzes and their quiz performance
was added to their final performance. Upon completion of instruction, post-test was conducted to
determine the difference between the groups. The teacher who implemented the STAD
cooperative learning went through the training on the use of cooperative learning in order to
ensure that it was implemented as planned.

3.8 Treatment

As a treatment “Student -Team -Achievement -Division (STAD)”, the simplest “cooperative
learning method” was used. The activities were observed as under.

- **Classroom Presentation:** The content of text book was presented to the students.
- **Team Study:** Teacher made worksheets were distributed among students in their teams to
  master the material. They worked cooperatively and observed social skills.
- **Quiz:** Students solved quiz individually and obtains improvement marks.
- **Team Recognition:** Improvement scores were computed on the basis of Quiz Scores,
  high scoring teams were recognized in the class as super team.

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The section that was declared experimental group was divided into twenty heterogeneous teams of four subjects. For experimental group following procedures was adopted to deliver the content to the class.

The teacher delivered the lessons using methods they were already using such as lecture, text book etc. for 40 minutes, and provided proper guidance for exercise according to the plan. (One day).

- Worksheet was provided to the by researcher teacher covering the content of the lesson taught to the class yesterday.
- The teams worked on worksheet for 40 minutes to master the material. They worked cooperatively and observed all the norms and social skill.
- Next day, students took individual quizzes for 20 minutes. In next 20 minutes test was marked and improvement scores were awarded to the teams. High scoring team was recognized in the class, as super team.

The treatment continued in three days cycle for 12 weeks. The researcher regularly visited the class during the teaching and implementing STAD during experiment to ensure that teachers were teaching according to the relevant approaches.

3.9 Data Collection

Data were collected by administering teacher made pre-test and post-test. In the beginning, pre-test was conducted while at the end of the treatment, post-test was administrated to assess the achievement scores of the both groups.
3.10 Data Analysis

The descriptive and inferential statistics were employed to analyze the difference in achievement scores. The descriptive statistics analyzed the pre-test and post-test based on the mean, standard deviation and percentage whereas the inferential statistics analyzed the difference in the mean achievement scores of the performance in the pre-tests and post-tests. In this regard an independent sample t-test and one way analysis of variance (ANOVA) was applied to see the difference between the mean scores of experimental and control group on post-test achievement scores at 0.05 level of significance. The effect of experiment on higher achiever and lower achiever of the both groups was also measured by using one way ANOVA.
CHAPTER 4

ANALYSIS AND INTERPRETATION OF DATA

Students of experimental group and control group were equated by using pre test scores. Both the groups were approximately equal based on pre-test achievement scores. Pre test was scored and their group wise means were computed and compared. The result revealed that there was no significance difference at 0.05 levels on pre test scores. At the end of the instructions and exercise on 20 lessons plans and work sheets containing the five chapters, post-test was taken after 12 weeks from both the experimental and control group to assess the academic performance of the pupils. The results of analysis are being presented in this chapter in the form of tables which are followed by their interpretation.

Table 4.1  Comparison of composite scores of pre-test and post-test

<table>
<thead>
<tr>
<th>Test</th>
<th>Min Score</th>
<th>Max Score</th>
<th>M</th>
<th>SD</th>
<th>% of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>3</td>
<td>42</td>
<td>23.43</td>
<td>6.11</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>12</td>
<td>49</td>
<td>36.88</td>
<td>4.43</td>
<td></td>
</tr>
<tr>
<td>Difference/Increase</td>
<td>9</td>
<td>7</td>
<td>13.45</td>
<td>2.19</td>
<td>36.98</td>
</tr>
</tbody>
</table>

Table 4.1 shows the composite performance of students in the pre-test and post-test. Overall, results indicate that the students performed better in the post-test as compared to the pre-test. The range of marks for the pre-test was between 3 to 42 whereas for the post-test, the range of marks was between 12 to 49. This shows that there was a notable difference between the minimum scores and the maximum scores. The increase in the minimum score was 9 marks (22.5%) whereas the increase in the maximum score was 7 marks (17.5%). This shows that after the incorporation of cooperative learning, the students were able to perform better in their
learning based on the increase in the minimum score and the maximum score. The mean score for the post-test was also higher as compared to the pre-test scores. In the post-test the mean score was 36.88 whereas for the pre-test the mean score was 23.43. This shows that there was a 13.45 (36.98%) increase in the mean score of the post-test. This indicates that the students’ performance has enhanced after the inclusion of cooperative learning in their teaching.

<table>
<thead>
<tr>
<th>Respondents</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>80</td>
<td>23.34</td>
<td>6.22</td>
</tr>
<tr>
<td>Control Group</td>
<td>80</td>
<td>23.52</td>
<td>6.00</td>
</tr>
<tr>
<td>Total</td>
<td>160</td>
<td>23.43</td>
<td>6.11</td>
</tr>
</tbody>
</table>

Table 4.2 indicates the results of achievement scores of experimental group and control groups on pre-test. Students in the experimental group have a mean score of 23.34 with a standard deviation of 6.22 while students in the control group have a mean score of 23.52 with a standard deviation of 6.00. Results showed that the groups’ means were approximately similar on the pre-test though the degree of dispersion a little bit varied among the groups.
To assess the statistically significant difference between experimental and control groups on pre-test, an independent simple t-test was applied. The results of t-test can be seen in Table 4.3.

**Table 4.3** Comparison of scores of experimental and control group on pre-test by applying t-test

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>SE</th>
<th>t-value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>80</td>
<td>23.34</td>
<td>6.22</td>
<td>0.701</td>
<td>.182</td>
<td>0.856</td>
</tr>
<tr>
<td>Control</td>
<td>80</td>
<td>23.52</td>
<td>6.00</td>
<td>0.675</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.3 shows the results of t-test computed for comparison of experimental group and control group on pre-test. It revealed a t-value 0.182 with p-value 0.856, which indicates that there was not a statistically significant difference between experimental group and control group on pre-test at 0.05 level of significance. It means that the students of control group and experimental group are performing the same at the time of pre-test.
Further, to find out the significant difference between and within groups, one-way analysis of variance (ANOVA) test was used, as can be seen in Table 4.4.

**Table 4.4 ANOVA results of experimental and control group on pre-test**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Level of significance (0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>.865</td>
<td>1</td>
<td>.865</td>
<td>0.615</td>
<td>0.152</td>
</tr>
<tr>
<td>Within the groups</td>
<td>221.940</td>
<td>158</td>
<td>1.405</td>
<td>0.615</td>
<td>0.152</td>
</tr>
</tbody>
</table>

Table 4.4 indicates the results of one-way analysis of variance (ANOVA) which revealed a score of 0.615 with p-value 0.152. It shows that the difference between the groups and within groups was not statistically significant at 0.05 level of significance. It means that the students of control group and experimental groups were performing the same at the time of pre-test.

**Table 4.5 Comparison of mean scores of high achievers of experimental and control group on pre-test**

<table>
<thead>
<tr>
<th>Respondents</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>43</td>
<td>27.77</td>
<td>3.51</td>
</tr>
<tr>
<td>Control Group</td>
<td>43</td>
<td>27.72</td>
<td>3.55</td>
</tr>
<tr>
<td>Total</td>
<td>86</td>
<td>27.74</td>
<td>3.56</td>
</tr>
</tbody>
</table>

The results presented in table 4.5 shows the performance of high achievers of experimental and control groups on pre-test. It was revealed from the findings that students in the experimental group have a mean score of 27.77 with a standard deviation of 3.51 while students in the control group have a mean score of 27.72 with a standard deviation of 3.55. It indicates that the groups’ means and degree of dispersion were approximately similar on the pre-test.
To assess the statistically significant difference between the high achievers of control and experimental groups on pre-test, an independent simple t-test was applied. The results of t-test can be seen in Table 4.6.

**Table 4.6 Comparison of scores of high achievers of experimental and control group on pre-test by applying t-test**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>SE</th>
<th>t-value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Achiever of the</td>
<td>43</td>
<td>27.77</td>
<td>3.51</td>
<td>0.546</td>
<td>.0651</td>
<td>.948</td>
</tr>
<tr>
<td>Experimental Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Achiever of the</td>
<td>43</td>
<td>27.72</td>
<td>3.55</td>
<td>0.542</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.6 shows the comparative results of high achievers of experimental and control groups on pre-test. An independent sample t-test was conducted to compare the achievement scores of experimental group and control group. It was revealed from the findings that there was not a statistically significant difference between high achievers of experimental group and control group on pre-test at 0.05 level of significance, as t-value was 0.0651 with p-value 0.948.
Further, one-way ANOVA was conducted to compare the achievement scores between and within groups which can be seen in Table 4.7.

**Table 4.7 ANOVA results of high achievers of experimental and control group on pre-test**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Level of significance 0.05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>1.319</td>
<td>1</td>
<td>1.319</td>
<td>.300</td>
<td>0.398</td>
</tr>
<tr>
<td>Within the groups</td>
<td>692.782</td>
<td>158</td>
<td>4.385</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.7 shows that analysis of variance (ANOVA) revealed a score of F= 0.300 with p value 0.338, which indicates that there was not a statistically significant difference between control group and experimental group on pre-test for high achievers. It means that high achiever students of control group and experimental group were performing almost the same at the time of pre-test.

**Table 4.8 Comparison of mean scores of low achievers of experimental and control group on pre-test**

<table>
<thead>
<tr>
<th>Respondents</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>37</td>
<td>18.06</td>
<td>4.27</td>
</tr>
<tr>
<td>Control Group</td>
<td>37</td>
<td>18.50</td>
<td>4.18</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>18.28</td>
<td>4.23</td>
</tr>
</tbody>
</table>

Table 4.8 shows the results of low achievers of experimental and control group on pre-test. Students in the experimental group have a mean score of 18.06 with a standard deviation of 4.27 while students in the control group had a mean score of 18.50 with a standard deviation of 4.18. It indicates that means and degree of dispersion of both groups were approximately similar on pre-test.
To assess the statistically significant difference between the low achievers of control and experimental groups on pre-test, an independent simple t-test was applied. The results of t-test can be seen in Table 4.9.

Table 4.9  Comparison of scores of low achievers of experimental and control group on pre-test by applying t-test

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>SE</th>
<th>t-value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Achiever of the Experimental Group</td>
<td>37</td>
<td>18.06</td>
<td>4.27</td>
<td>0.713</td>
<td>.442</td>
<td>0.66</td>
</tr>
<tr>
<td>Low Achiever of the Control Group</td>
<td>37</td>
<td>18.50</td>
<td>4.18</td>
<td>0.698</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.9 shows the results of low achievers of experimental and control group on pre-test. To compare the mean scores of experimental and control, an independent sample t-test was applied. The t-test results (t-value = 0.442, p-value = 0.66) show that there was not a statistically significant difference between control group and experimental group on pre-test for low achievers at 0.05 level of significance. It means that the low achiever students of control group and experimental group were performing approximately the same at the time of pre-test.

To compare the mean scores of experimental and control groups between and within groups, one way ANOVA test was applied, as shown in Table 4.10.
Results presented in table 4.10 reveals that the ANOVA test was not statistically significant at 0.05 level of significance, as it revealed a score of 0.279 with p-value 0.66. It indicates that the difference between control group and experimental group on pre-test for low achievers is not significant. It means that the low achiever students of control and experimental group were performing almost the same at the time of pre-test.

Table 4.11 shows the comparison of mean scores of experimental and control group on post-test achievement scores. Students in the experimental group have a mean score of 41.61 with a standard deviation of 7.99 while students in the control group have a mean score of 32.14 with a standard deviation of 8.57. It indicates that the post-test mean scores of the experimental groups are higher than the post-test mean scores of the control groups. This is attributable to application of STAD cooperative learning strategy to experimental groups.
An independent sample t-test was performed to see the significant difference between control group and experimental group on post-test. This difference can be seen in Table 4.12.

Table 4.12 Comparison of scores of experimental and control group on post-test by applying t-test

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>SE</th>
<th>t-value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>80</td>
<td>41.61</td>
<td>7.99</td>
<td>0.899</td>
<td>7.17</td>
<td>0.000</td>
</tr>
<tr>
<td>Control Group</td>
<td>80</td>
<td>32.14</td>
<td>8.57</td>
<td>0.965</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.12 shows the significant difference between experimental group and control group on post-test achievement scores. An independent sample t-test revealed a score of 7.17 with the p-value 0.000 which indicates that there was a statistically significant difference between control group and experimental group on post-test. It means that the students taught by “cooperative learning method” was performing better as compared to those students who taught by traditional methods of teaching. Therefore, Null Hypothesis that there is no significant difference between the mean scores of students taught by traditional method and the students taught by using cooperative learning method is rejected at 0.05 level of significance.

Further, one way ANOVA test was performed to compare the performance of control group and experimental group between and within group on post-test, as shown in Table 4.13.

Table 4.13 ANOVA results of experimental and control group on post-test
<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>Df</th>
<th>MS</th>
<th>F</th>
<th>Level of significance 0.05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>16.229</td>
<td>1</td>
<td>16.229</td>
<td>5.219</td>
<td>0.000</td>
</tr>
<tr>
<td>Within the groups</td>
<td>487.677</td>
<td>158</td>
<td>3.086</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As shown in table 4.13, one way ANOVA test revealed a score of 5.219 with the p-value 0.000, which indicates that there was a statistically significant difference between and within groups on post-test at 0.05 level of significance. The findings of the study revealed that the students taught by “cooperative learning method” was performing better as compared to those students who taught by traditional methods of teaching. It means that the cooperative learning method has a significant effect on students’ achievement. Therefore, the Null Hypothesis that there is no significant difference between the mean scores of students taught by traditional method and the students taught by using cooperative learning method is rejected at 0.05 level of significance.
Table 4.14 Comparison of mean scores of high achievers of the experimental group and control group on post-test

<table>
<thead>
<tr>
<th>Respondents</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>60</td>
<td>47.70</td>
<td>6.44</td>
</tr>
<tr>
<td>Control Group</td>
<td>43</td>
<td>41.49</td>
<td>7.70</td>
</tr>
<tr>
<td>Total</td>
<td>103</td>
<td>44.60</td>
<td>7.07</td>
</tr>
</tbody>
</table>

Table 4.14 reveals the comparative results of high achievers of experimental group and control group on post-test. Analysis indicates that the students in the experimental group have a mean score of 47.70 with a standard deviation of 6.44 while students in the control group have a mean score of 41.49 with a standard deviation of 7.70. It shows that the post-test mean scores of high achievers of experimental groups are higher than the post-test mean scores of the control group.

Further, to see the significant difference between high achievers of experimental group and control group on post-test, an independent sample t-test was applied. The results of t-test presented in Table 4.15.
Table 4.15  Comparison of scores of high achievers of the experimental group and control group on post-test by applying t-test

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>t-value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Achiever of the Experimental Group</td>
<td>60</td>
<td>47.70</td>
<td>6.44</td>
<td>0.994</td>
<td>4.31</td>
<td>0.000</td>
</tr>
<tr>
<td>High Achiever of the Control Group</td>
<td>43</td>
<td>41.49</td>
<td>7.70</td>
<td>0.983</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.15 reveals the results of high achievers of experimental and control group on post-test. An independent sample t-test was conducted to compare the performance of high achievers of control group and experimental group on post-test. The results indicate that test was statistically significant at .05 level of significance. The t-test revealed a score of 4.31 with the p-value 0.000. It shows that there was statistically significant difference between high achievers of control group and experimental group on post-test. It means that performance of experimental group was higher as compared to control group. Therefore, the Null Hypothesis that there is no significant difference between high achiever students of experimental group and control group is rejected at 0.05 level of significance.

Further, one way ANOVA test was conducted to compare the performance of high achievers of control group and experimental group on post-test between and within groups. The results indicate that test was statistically significant at the alpha level of .05, as shown in Table 4.16.
Table 4.16  ANOVA results of high achievers of the experimental group and control group on post-test

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Level of significance 0.05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>4.969</td>
<td>1</td>
<td>4.969</td>
<td>2.956</td>
<td>0.000</td>
</tr>
<tr>
<td>Within the groups</td>
<td>265.690</td>
<td>158</td>
<td>1.681</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results presented in table 4.16 show that one-way ANOVA test revealed a score of 2.956 with the p-value 0.000, which shows a statistically significant difference between high achievers of control group and experimental group on post-test. It means that the performance of high achievers of experimental group was higher as compared to the high achievers of control group. Therefore, the Null Hypothesis that there is no significant difference between high achiever students of experimental group and control group is rejected at 0.05 level of significance.

Table 4.17 Comparison of means scores of low achievers of the experimental and control group on Post-test

<table>
<thead>
<tr>
<th>Respondents</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>20</td>
<td>21.89</td>
<td>2.55</td>
</tr>
<tr>
<td>Control Group</td>
<td>37</td>
<td>20.69</td>
<td>3.47</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>21.29</td>
<td>3.01</td>
</tr>
</tbody>
</table>

Table 4.17 indicates the comparative results of low achievers of experimental and control group on post-test achievement scores. Results show that the students in the experimental group have a mean score of 21.89 with a standard deviation of 2.55 while students in the control group have a mean score of 20.69 with a standard deviation of 3.47. It shows that there was a little bit difference between the mean scores of low achievers of experimental group and control group on post-test achievement scores.
To measure this difference statistically, an independent sample t-test was conducted, as can be seen in Table 4.18.

**Table 4.18 Comparison of scores of low achievers of the experimental and control group on Post-test by applying t-test**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>t value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Achiever of the Experimental Group</td>
<td>20</td>
<td>21.89</td>
<td>2.55</td>
<td>0.587</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Achiever of the Control Group</td>
<td>37</td>
<td>20.69</td>
<td>3.47</td>
<td>0.983</td>
<td>1.32</td>
<td>.491</td>
</tr>
</tbody>
</table>

Table 4.18 indicates the results of low achievers of experimental and control group on post-test achievement scores. An independent sample t-test was applied to compare the performance of low achievers of control group and experimental group on post-test at 0.05 level of significance. The results of t-test revealed a t-value 1.32 with a p-value 0.491. It indicates that there was no statistically significant difference between the performance of low achievers of experimental group and control group on post-test. Therefore, the Null Hypothesis that there is no significant difference between low achievers of experimental group and low achiever of control group is accepted at 0.05 level of significance.

Further, to assess the performance of low achievers of experimental group and control group between and within groups, one-way ANOVA test was used which can be seen in Table 4.19.
Table 4.19  ANOVA results of low achievers of the experimental and control group on Post-test

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Level of significance 0.05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>.756</td>
<td>1</td>
<td>.756</td>
<td>.636</td>
<td>0.143</td>
</tr>
<tr>
<td>Within the groups</td>
<td>187.888</td>
<td>158</td>
<td>1.189</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results presented in table 4.19 shows that the test was not statistically significant at 0.05 level of significance as results indicate F-value 0.636 with a p-value 0.143. The results reveal that there was no statistically significant difference between low achievers of experimental group and control group on post-test. It means that the performance of low achievers of experimental group and control group is almost the same on post-test. Therefore, the Null Hypothesis that there is no significant difference between low achievers of experimental group and low achiever of control group is accepted at 0.05 level of significance.
Table 4.20 Comparison of mean scores of creative thinking developed by cooperative learning and mean scores of creative thinking developed by traditional methods of teaching

<table>
<thead>
<tr>
<th>Respondents</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>80</td>
<td>33.64</td>
<td>10.14</td>
</tr>
<tr>
<td>Control Group</td>
<td>80</td>
<td>22.16</td>
<td>11.13</td>
</tr>
<tr>
<td>Total</td>
<td>160</td>
<td>27.90</td>
<td>10.64</td>
</tr>
</tbody>
</table>

Table 4.20 displays the comparative results of creative thinking of experimental group and control group. It reveals that the students in the experimental group have a mean score of 33.64 with a standard deviation of 10.14 while students in the control group have a mean score of 22.16 with a standard deviation of 11.13. Results indicate that the mean score of experimental groups was higher than the mean score of control group. It means that the performance of experimental group is significantly higher than control group.
To assess the statistically significance difference between experiment and control groups, an independent sample t-test was used, as shown in Table 4.21.

**Table 4.21  Comparison of scores of creative thinking developed by cooperative learning and creative thinking developed by traditional methods of teaching by applying t-test**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>t value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>80</td>
<td>33.64</td>
<td>10.14</td>
<td>1.25</td>
<td>6.77</td>
<td>0.000</td>
</tr>
<tr>
<td>Control Group</td>
<td>80</td>
<td>22.16</td>
<td>11.13</td>
<td>1.14</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.21 displays the results of t-test which was computed to determine the significance difference between mean scores of control group and experimental group. It revealed a score of 6.77 with the p- value 0.000, which indicates the significant difference between control group and experimental group. It means that the performance of experimental group is significantly higher than control group. Therefore, the Null Hypothesis that there is no significant difference between mean scores of creative thinking developed by cooperative learning and mean scores of creative thinking developed by traditional methods of teaching is rejected at 0.05 level of significance.
Further, to determine the significant difference between and within groups, one way ANOVA test was used which reveals that the test was statistically significant at 0.05 level of significance, as can be seen in Table 4.22.

Table 4.22 ANOVA results of creative thinking developed by cooperative learning and creative thinking developed by traditional methods of teaching

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>4.969</td>
<td>1</td>
<td>4.969</td>
<td>2.954</td>
<td>0.000</td>
</tr>
<tr>
<td>Within the groups</td>
<td>265.690</td>
<td>158</td>
<td>1.682</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.22 indicates that the ANOVA test revealed a score of 2.954 with the p-value 0.000, which indicates the significant difference between and within groups. It means that the creative thinking developed among students by using cooperative learning was greater than the creative thinking developed among the students taught by traditional methods of teaching. Therefore, the Null Hypothesis that there is no significant difference between mean scores of creative thinking developed by cooperative learning and mean scores of creative thinking developed by traditional methods of teaching is rejected at 0.05 level of significance.
CHAPTER 5

SUMMARY, FINDINGS, CONCLUSION, DISCUSSION AND RECOMMENDATIONS

5.1  Summary

Cooperative learning is widely researched teaching method. It is used to enhance learning outcomes, to teach social skills and personal development. The main purpose of this study was to study the comparative effectiveness of cooperative learning and traditional methods of teaching Islamic Studies at elementary level. The study was experimental in nature based on pre-test, post-test control group research design, to compare the effectiveness of cooperative learning and traditional methods of teaching, conducted on 160 students divided into two groups on the basis of pre-test (Appendix-I). Two teachers with the same qualifications, teaching experience and significantly equivalent teaching latent, were chosen to teach the experimental and control groups. Training was provided to both the teachers for twelve (12) working days, one week for theory and one week for practical training. Similar worksheets and lesson plans were exercised for both the groups. Lessons were delivered to control group by using traditional method while the experimental group was taught by cooperative learning method.

The control group remained under controlled conditions and provided usual competitive and routine classroom conditions, while experimental group was offered cooperative learning method-Student Team Achievement Division (STAD) as treatment. Duration of this treatment was 12 weeks. Before the treatment to experimental group pre-test was conducted for all the subjects to equate the experimental and control group. Difference between the mean scores of control group and experimental group was tested by using independent sample t-test and one-way analysis of variance (ANOVA). All the hypotheses were tested at the Alpha 0.05 level
significance. A significant difference was found between the mean scores of experiment and control groups on post-test. It means cooperative learning method has positive impact on students learning outcomes as compared to traditional methods of teaching.

5.2 Findings

The analysis of data revealed the following findings.

1. The mean scores (M=23.34) on pre-test of experimental group and mean score (M=23.52) of control group were not significantly different at 0.05 level of significance. This indicates that both the groups were equal on pre-test scores.

2. The mean score (M=27.77) of high achievers of experimental group and mean score of (M=27.72) of high achievers of control group on pre test were not significantly different at 0.05 level of significance. It shows that both the groups were equal on pre-test scores.

3. The mean score (M=18.06) of low achievers of experimental group and mean score (M=18.05) of low achievers of control group on pre-test were not significantly different at 0.05 level of significance. It indicates that both the groups performed almost the same on pre-test scores.

4. The mean score (M=41.61) of experimental group and mean score (M=32.14) of control group on posttest were significantly different at 0.05 level of significance. It means that the students taught by “cooperative learning method” performed better as compared to those students who were taught by traditional methods of teaching.

5. The mean score (M=47.70) of high achievers of experimental group and mean score (M=41.49) of control group on post test was significantly different at 0.05 level of significance which indicates the treatment effect on experimental group.
6. The mean score (M= 21.89) of low achievers of experimental group and mean score (M=20.69) of control group on post test was not significantly different at 0.05 level of significance.

7. The mean score (M=33.64) of creative thinking developed by cooperative learning in experimental group and mean score (M= 22.16) of creative thinking developed by traditional methods of control group was significantly different at 0.05 level of significance. It shows that the performance of experimental group is significantly higher than control group.

5.3 Conclusions

On the basis of findings of this study, following conclusions were drawn.

1. A significant difference was found between the students of experimental group and control group on posttest achievement mean scores. It was found that the students taught by “cooperative learning method” performed better as compared to those students who were taught by traditional methods of teaching.

2. A significant difference was found between the high achievers of experimental group and high achievers of control group on posttest achievement mean scores. The high achiever students taught by “cooperative learning method” performed better as compared to high achievers students who were taught by traditional methods of teaching.

3. On the basis of posttest achievement scores it was revealed that there was no significant difference between mean scores of low achievers of experimental group and low achievers of control group. However, it was found that there was a decrease in number of low achiever students in experimental group but control group showed consistency in number of students of low achievers.
4. A significant difference was also found between mean scores of creative thinking developed by cooperative learning and creative thinking developed by traditional methods of teaching at significance level of 0.05. The students taught by using cooperative learning methods had higher achievement mean scores than that of students taught by traditional methods of teaching.

5.4 Discussion

This research was designed to study the comparative effectiveness of cooperative learning and traditional approaches of teaching Islamic studies at elementary level. The findings of the study revealed a significant difference between the mean scores of experiment and control groups on posttest. This difference was in favor of experimental group which indicates that the students taught by cooperative learning method performed better as compared to the students who were taught by traditional method of teaching. These findings are in accordance with the results of the previous researches. As many research findings show that the cooperative learning improves academic achievement and self-efficacy of the students (Barrett, 2005; Garduno, 2001; Melihan & Sirri, 2011; Slavin, 1995; Zakaria et al., 2010). Zakaria, Chin, and Daud (2010) found that cooperative learning improves students’ learning achievement. It promotes deep learning of materials and help pupils to achieve better scores (Shimazoe & Al-drich, 2010). Johnson and Johnson (1989) stated that students have a tendency to enjoy teaching in cooperative learning, and this enjoyment motivates them to learn. Melihan and Sirri (2011) also found that the cooperative learning method is more effective than the traditional method of teaching in the academic success of students.

The findings of this study revealed that cooperative learning methods have positive impact on students learning as compared to the traditional methods of teaching. A possible
reason for this may be that, when pupils work in group; they explain and receive explanations from each other in group, they preserve the new concepts much longer in their memory. They may be able to have better understanding what they have learned which results in enhancing their performance. Webb (2008) stated that receiving explanations from each others can help them to fill in gaps in their understanding, to correct misunderstanding, and strengthen links between new information and previous learning. Another possible reason may be that, in cooperative learning, even the weak students have the possibility for learning achievement and observing the successful students can enhance self-efficacy of the weak students. It also has the element of accountability and interdependence embedded in a structure that is not found in the traditional methods of teaching (Zakaria, Solfitri, Daud, & Abidin, 2013).

However the finding that there was no significant difference between mean scores of low achievers of experimental and control group, needs clarification. A base line was determined for low achievers in experimental and control group before the administration of pre-test, same base line was observed in the posttest. It was indicated from the results that on pre-test scores, low and high achiever students were equal in numbers, in both experimental and control groups. After treatment, on post test scores it was revealed that there was a decrease in number of low achiever students in experimental group. It was due to “cooperative learning” but control group showed consistency in number of students of low achievers. The cause of same mean scores in spite of difference in total number of the students in control and experiment group, may be assigned to generally believed observation that Islamic studies is an easy subject, less interest of the students less importance in time table, and neither true competitive nor individualistic situation is found in the classroom. While in cooperative learning situation students work together, help each other, share their ideas, and help their group members to get mastery over the
learning material. Because of this, decrease occurs in total number of students in the experimental group. Although low achievers in experimental group were less in number, but on mean score, were almost same to the control group. The present finding shows that cooperative learning promotes achievement of the students. Student-centered approaches such as cooperative learning improve achievement and attitudes among students. Therefore, teachers in schools, especially teachers who teach need to be aware of the benefits and importance of cooperative learning. After changing the practice of teacher-centered teaching methods to student-centered teaching methods will be attractive for learners. Positive changes take place when teachers change their teaching methods towards a more student-centered approach. Teachers need to master the content to be delivered and plan how to implement cooperative learning in better way. Cooperative learning should be employed especially STAD so that students can help each other in small groups.
5.5 Recommendations

On the basis of findings revealed and conclusions drawn, following recommendations are offered to improve the teaching learning process.

1. The findings of the study revealed that cooperative learning method is significantly more effective than the traditional approaches of teaching Islamic Studies at elementary level. It is, therefore, recommended that teacher education programs may emphasize cooperative learning methods.

2. The teacher educators working at different levels of teacher education programs may also be provided opportunities for understanding and implementation of cooperative learning methods, so that they may be able to educate prospective and in service teachers through effective use of cooperative learning methods.

3. While designing the curriculum for prospective teachers, cooperative learning methods especially STAD be incorporated in teacher training programmes.

4. Teachers should be motivated to use cooperative learning methods in daily teaching, training on cooperative learning methods be provided to in service teachers during in service trainings.

5. Text books in the subject of Islamic Studies for elementary school students are generally written for teaching through traditional approaches. Committee of experts may be appointed to prepare the text books for teaching through cooperative learning method.

6. Cooperative learning centres may also be established in teacher training institutions, to provide training and develop material in the area of cooperative learning.
7. Studies may be conducted to investigate the comparative effectiveness of cooperative learning methods in different subjects at different levels of education.

8. Further studies may be conducted to measure the other outcomes of cooperative learning methods, peer relations, social skills and motivation for different subjects.

9. It is difficult to provide training to all in-service teachers in the field of cooperative learning methods. Non formal approaches may be used for training of teachers for this purpose. Module and computer based instructions or programs may be developed for training of teachers in the field of cooperative learning methods.

10. The finding of such studies may be widely published for teachers, so that teachers may be motivated to learn and use cooperative learning methods. Seminars and conferences may also be organized to disseminate the finding of such studies.

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CXXVI


کلام مبارک حضرت علی (ع) رہو مبارک

کلام

نبرد

واج کخون

فاروق

خرس حائر

یہودیوں

خرس غزال

کئی نفر

برزا سپت

صلح

کہ کبھی ہم ہم کسی ایک کو اک ہر کر سکتے ہیں

خودکار کئی بار ہیں

صلح کا کوئی سالم ان کا سالم جانے والی ہے

کہ کبھی کوئی بھی کوئی بھی نہ ہے

فرود میں کیا کسی کو سکتی ہے?

کہ کبھی کسی کو کسی کو سکتی ہے?

پاکستانیوں اور تمام اس کے لئے

کہ کبھی کسی کو کسی کو سکتی ہے?

وہ جب کہ ہم بحث کر رہے تھے کہ مخصوص کئی بار ہوگیا ہے
کلمات اور کلمات سے ناماس و افکار مختلف کلمات سے ممتنع
کلمات

زروخ

بتخود کی اپلود

سیدال

ادی اور اپنے کتابات

بدیع

سیدال

نوروز

رسل کی کوئی
APPENDIX B
cxxxix
کامپیوٹر کی اسمات کتبیہ کی بھی پیش کریں۔
اس میں کیے گئے تغییرات سے متعلق اہم تعلق ہے۔
کامیاب میں ہیں کہ اس پر مقامی شرکتی ہوں۔
اس کا کام کر سکتا ہے اسی طور سے اہم ہے۔
کام پر آپ کی شرکت اور مزید کیمیاء کے
کام پر
مظاہر
شہری مظاہر
شہری اور مظاہر
فرزخانے
شہری اور مظاہر
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APPENDIX-C

DEFINITION OF TERMS

High Achiever

40% and above achiever students group is termed as high achiever.

Low Achiever

Below than 40% students group is termed as low achiever.

STAD

Student- Team- Achievement- Division