CHAPTER-I
INTRODUCTION

The present study was experimental in nature. It was designed to find the effectiveness of Cooperative learning (Jigsaw Method) on Critical Thinking (CT), Social Competence and Achievement in Social Science. During this process an attempt was made, by making an Achievement test and CT Skill test; to assess Achievement in Social Science and Critical Thinking skill of school students. Through this research, an attempt was made to answer questions such as: What is Cooperative learning and its various strategies, Which one is more suitable for Social Science?, Is the strategy superior to traditional method in teaching Social Science to students?, What is Critical Thinking?, What is the effect of Jigsaw method on Critical Thinking, Social Competence and Achievement in social science of school students? Likewise, answers of many other questions were sought through this study. In the present chapter the details related to Cooperative Learning, Different strategies/methods of Cooperative Learning, Jigsaw method of Cooperative Learning, CT skills and dispositions, Social Competence, Achievement in Social Science, Rationale of the study, Statement of the problem, Objectives, Hypotheses and Delimitations of the study are given under separate captions.

1.1 COOPERATIVE LEARNING (CL)

“......let us unite, not in spite of our differences, but through them. Differences can never be wiped away, and life would be so much the poorer without them. Let all human races keep their own personalities, and yet come together, not in a uniformity that is dead, but in a unity that is living.”

Tagore (1937)

Human efforts to enquire more and more about the universe and foster cultural, social and economic needs have resulted in an extensive educational system. Every society, every nation and every race is geared up to build up its educational system on deep basis of knowledge or wisdom. At present, a nation with advanced educational system is considered as superior and dominant. Educational system of each and every nation is based on two prominent questions “What to teach and How to teach”? The answer of the first question is ‘the learning material’. The range of learning material and the choice of content from multifarious branches of knowledge
is subject to societal needs. The pursuit “How to teach?” implies the teaching methodology. Education cannot be made effective without effective transaction of the curriculum. There are many methods, devices and skills developed over the time which lead to effective teaching. The decision of selection of an effective teaching strategy becomes more difficult in a diverse society like ours (Indian) and this diversity is increasing day by day with the effect of globalization. Children come to the classroom with almost as many different expectations as we cannot imagine. They have different personalities, skills, abilities, different cultural backgrounds, self esteem, interest, attitudes, emotional needs and many more diverse needs. Moreover, with the popularization of the concept of inclusive education, every school is bound to have diverse classrooms. All of these students must be accommodated (at least to some extent) for an efficient learning on part of every child. For this purpose, we have to create conducive environment in the classroom.

In recent times, there have been substantial interests shown and investigations undertaken into the use of a variety of alternative modes or strategies of teaching apart from the traditional modes of teaching. All alternative modes have emphasized that there is a dire need to create conducive environment in the classroom. Conducive environment can make our classrooms a place of learning and constructing new knowledge instead of cramming rooms. As the concept of teaching has changed from bi-polar (in traditional time) to a tri-polar process, now a student is pivot of all the educational activities of teaching learning process. Modern pedagogy seeks to help learners become more independent and keen to become lifelong learners. Thus promoting learner autonomy means that learners have a role in all the activities related to teaching learning process.

Looking to the other side of the picture, sometimes, teachers view many students as unprepared for learning when they first arrive at school, parents point to the school as incompetent to educate their children, politicians blame educational policies and there is now a public acknowledgement that the current system of schooling imposes remarkable burden on our children. This burden arises from an incoherent curriculum composition that is often dissociated from the personal and social surroundings of children as also from the inadequate preparation of teachers who are unable to relate with all sorts of children and respond to their needs in their
own imaginative ways. Teachers need to recognize and value what children learn from their home, social and cultural environment and create opportunities for children to discover, learn and develop their potentialities. Educationists are also of the view that the burden arises from treating knowledge as ‘given’, as an external entity existing outside the learner and embedded in textbooks. We need to understand that neither education is a mechanical activity of information transmission and nor the teachers are mere information dispensers. Teachers need to be looked at as crucial mediating agents through whom curriculum is transacted and knowledge is co-constructed along with learners. Textbooks by themselves do not help in developing knowledge and understanding it. Learning is not confined to the four walls of the classroom (NCFTE 2009). So, NCFTE defines a teacher to be a facilitator of children’s learning in a manner that helps children to construct knowledge and meaning. The teacher thus is a co-constructor of knowledge. Such roles demand that teachers should be equipped with an adequate understanding of curriculum, content and pedagogy, as well as the community and school structures. Teacher should be competent to involve students actively in the teaching learning process. We know that there can be mainly three types of interactions in the teaching learning process i.e. teacher-student interaction, teacher-students interaction and student-student interaction. The student-student interaction depends on the type of interdependence the teacher structures among students, which is a neglected aspect of instruction in the present times. Much training time is devoted to how teachers should interact with students, but how students should interact with each other is relatively ignored (Agarwal and Nagar, 2011).

In all the above points center of attention is to make student an active learner in the classroom; they should be able to construct the knowledge actively by interacting with each other instead of just cramming the given facts in a mechanical way. It is also mentioned in NCF (2005) that, “children’s voices and expression do not find an expression in the classroom - often the only voice heard is that of the teacher. When children speak, they are usually only answering the teacher’s questions or repeating the teacher’s words they rarely do things, nor do they have opportunities to take initiatives.”
These points have forced us to think out of the box to find some student-centered modes as compared to the teacher-centered authoritative modes of transacting the curriculum. These modes of delivery place major emphasis on the use of innovative teaching-learning activities or student-centered learning strategies. Cooperative Learning, Constructivist and Active Learning approaches can be considered as examples of such student-centered learning strategies. Common to these approaches is the construction of knowledge by the learners rather than knowledge being transferred from teacher to student. Construction of knowledge is possible through the collective efforts of all the students. The truly committed cooperative learning group is probably the most productive tool humans have. Cooperative learning is one of the main active group learning pedagogies. Co-operative learning means “Cooperation, a form of collaboration, is working together to accomplish shared goals” (Johnson and Johnson, 1989). Cooperative learning can be regarded as a philosophy and not just a classroom strategy. In all situations where people come together in groups, it suggests a way of dealing with the people which respects and highlights individual group member’s abilities and contributions. The underlying premise of cooperative learning is based upon consensus building through cooperation by group members in contrast to competition in which individuals rule out other group members (Agarwal and Nagar, 2011). Cooperative Learning has been defined as “a body of literature and research that has examined the effects of cooperation in education. It offers ways to organize group work to enhance learning and increase academic achievement.” (Olsen and Kagan, 1992). Initially it was used as a means to reduce competition in American schools. Cooperative learning has also been described as one of the most widely investigated educational approaches (Slavin, 1996). Hundreds of studies have cited its benefits, and Johnson and Johnson (1989, 2000), Slavin (1990) and Sharan (1990) have produced extensive reviews of these. Despite the well documented benefits of cooperative learning, implementing this pedagogical practice in classrooms, or indeed any of the structured peer-mediation programs, is a challenge that many teachers find difficult to accomplish. (Cohen, 1994, cited in Gillies, Ashwell and Terwel, 2008). Such challenges are, however, not insoluble and, CL can be implemented provided effective support mechanisms are in place. One of the key factors in implementing CL is the need to ensure that teachers have a clear understanding of the research and theoretical perspectives behind this approach (Johnson and Johnson, 2008).
1.1.1 THEORETICAL ROOTS OF COOPERATIVE LEARNING

Theory, research, and practice are genuinely intermingling, each with an existence of its own but connected inseparably to the others. The interrelationship among theory, research, and practice makes cooperative learning more authentic. Theories are causal explanation of how things work which guides and improves practice. Theory is to practice what the soil is to plant life. If the soil is appropriate and the circumstances are right, the plant will grow up and flourish. In the same way, if the theory is valid and the circumstances for effective implementation are identified, practical procedures are developed and continuously improved according to the needs, then you are on right path. Without an appropriate theory, practice becomes static and stagnant. Cooperative learning gets support on various theoretical backgrounds and is central to a wide range of social science theories. Cooperative learning is based on a variety of theories in Anthropology (Mead, 1932), Sociology (Coleman, 1961), Economics (Von Mises, 1949), Political Science (Smith, 1759), psychology and other social sciences. In psychology where cooperation has received much attention, it is based on following four major theoretical perspectives: Motivationalist, Social cohesion, Cognitive-developmental and Cognitive-elaboration identified by different researchers (Slavin, 1995, 2009; Slavin, Hurley, and Chamberlain, 2001). The details of these four perspectives are given below

1.1.1.1 Motivational Perspectives

Motivational perspectives on cooperative learning focus primarily on the reward or goal structures under which students operate (Slavin, 1977, 1983a, 1995). From a motivationalist perspective (Johnson and Johnson, 1992; Slavin, 1983a, 1983b, 1995), cooperative incentive structures create a situation in which the only way the group members can attain their own personal goals is if the group is successful. Therefore, to meet their personal goals, group members must help their group mates to do whatever help the group needs to succeed and, perhaps even more importantly, to encourage their group mates to exert maximum efforts. One intervention that uses cooperative goal structures is the group contingency (Slavin, 1987), in which group rewards are given based on group members’ behaviors. The theory underlying group contingencies does not require that group members be able to actually help one another or work together. The fact that their outcomes are dependent
on one another’s behavior is enough to motivate students to engage in behaviors which help the group to be rewarded, because the group incentive indues students to encourage goal-directed behaviors among their group mates (Slavin, 1983a, 1983b, 1995). A substantial literature in the behavior modification tradition has found that group contingencies can be very effective at improving students’ appropriate behaviors and achievement (Hayes, 1976; Litow and Pumroy, 1975). Motivational theorists build group rewards into their cooperative learning modules. The theoretical rationale for the group rewards is the success of the group; they will encourage and help one another to achieve the common goals in contrast to the traditional competitive classroom.

1.1.1.2 Social Cohesion Perspectives

This theoretical viewpoint is related to the motivational viewpoint and holds that the effects of cooperative learning on achievement are mediated by the cohesiveness of the group i.e. students will help one another learn because they care about each other and want to succeed. This perspective is similar to the motivational perspective as it emphasizes primarily motivational rather than cognitive explanations. Motivational theorists hold that students help their group mates learn because it is in their own interest to do so. In contrast, the Social cohesion theorists emphasize the idea that students help their group mates learn because they care about the group. A hallmark of the social cohesion perspective is an emphasis on team-building activities. For example, Cohen (1986) states, “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.” Cohen’s (1994a) work, as well as that of Sharan and Sharan (1992) and Elliot Aronson (Aronson, Blaney, Stephan, Sikes, and Snapp, 1978) and their colleagues, may be described as social cohesion theories. Cohen, Aronson et al. and Sharan and Sharan all use forms of cooperative learning in which students take on individual roles within the group, which Slavin (1983a) calls “task specialization” methods. Main purpose of the task specialization used in Jigsaw Group Investigation is to create interdependence among the group members. If students value their group mates and are dependent on one another, they are likely to encourage and help one another
to succeed. The Johnsons’ (1989, 1994) work emphasize development of group cohesion through teambuilding, group self-evaluation, and other means more characteristic of social cohesion theorists.

1.1.1.3 Cognitive Perspectives

The above two viewpoints on cooperative learning focus primarily on group norms and interpersonal influence, in contrast the cognitive viewpoint holds that interactions among students will increase mental processing of information rather than motivations. Cooperative methods developed by cognitive theorists involve neither the group goals nor the group cohesiveness. However, there are several perspectives, which are similar in theoretical viewpoints but have developed on largely parallel tracks. These are described in the following sections.

1.1.1.3 (a) Developmental Perspectives

One widely researched set of cognitive theories is the developmental perspective (Damon, 1984; Murray, 1982). The fundamental assumption of the developmental perspective is that interaction among children around appropriate tasks increases their mastery of critical concepts. Vygotsky (1978, p. 86) 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”. In his view, growth is promoted in collaborative activity among children because children of similar ages are likely to be operating within one another’s proximal zones of development, modeling in the collaborative group behavior is more advanced than those they could perform as individuals. Vygotsky (1978) described the influence of collaborative activity on learning as follows: Functions are first formed collectively in the form of relations among children and then become mental functions for the individual. Research shows that reflection is spawned from argument. Similarly, Piaget (1926) held that social-arbitrary knowledge—language, values, rules, morality, and symbol systems—can only be learned in interactions with others. Peer interaction is also important in logical-mathematical thought in dis-equilibrating the child’s egocentric conceptualizations. The interaction among students on learning tasks leads itself to improved student
achievement. Students learn from one another because through discussions of the content, cognitive conflicts arise, inadequate reasoning is exposed, disequilibration occurs and higher-quality understandings emerge. From the developmental perspective, the effects of cooperative learning on student achievement are largely due to the use of cooperative tasks.

1.1.1.3 (b) Cognitive Elaboration Perspectives

A cognitive perspective on cooperative learning, quite different from the developmental viewpoint, is one which might be called the cognitive elaboration perspective. Research in cognitive psychology has long held that if information is to be retained in memory and related to information already in memory, the learner must engage in some sort of cognitive restructuring or elaboration of the material (Wittrock, 1986). One of the most effective means of elaboration is explaining the material to someone else. One interesting development in recent years which relates to the cognitive elaboration perspective on cooperative learning is Reciprocal Teaching (Palinc-sar and Brown, 1984). In this technique, students formulate questions for one another around narrative or expository texts. In doing so, they learn how to focus in on the essential elements of reading passages.

The four theoretical perspectives discussed above have deep-rooted rationales. All are applicable in some situations, but none is probably both necessary and sufficient in all circumstances. Research related to each of the perspectives tends to establish setting conditions favorable to that perspective. For example, most of the research on cooperative learning models from the motivational and social cohesiveness perspectives takes place in real classrooms over long time periods, because both extrinsic motivation and social cohesion take time to show their effects. In contrast, studies undertaken from the developmental and cognitive elaboration perspectives tend to be very short. These latter paradigms also use pairs, rather than groups; pairs involve a much simpler social process than groups, which may need time to develop ways of working well together. Developmental research uses young children trying to master conservation tasks, which bear little resemblance to the “social-arbitrary” learning that characterizes most school subjects; whereas cognitive elaboration research mostly involves college students. Despite all these contradictions, these alternative perspectives on cooperative learning should be seen
as complementary.

1.1.2 HISTORY OF COOPERATIVE LEARNING

To understand the development of cooperative learning and its structure we need to be familiar with the concept of cooperative learning from its historical standpoint. Cooperation among equals is not a new idea. According to Johnson and Johnson (1999), the educational ideas of academic figures of the past such as Seneca (when you teach, you learn twice), Quintillion (1st century) and Comenius (17th century) resemble some of the principles underlying the “cooperative learning” methods. The timeline given below is an attempt to show the history of cooperative learning from early 1800s:

Table 1.1: History of Cooperative Learning

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early 1800s</td>
<td>Lancaster School was established in the United States (Joseph Lancaster and Andrew Bell used cooperative learning groups extensively in Europe and brought the idea to the United States in 1806, New York) Common School Movement in the United States: Strong emphasis on cooperative learning</td>
</tr>
<tr>
<td>Late 1800s</td>
<td>Colonel Frances Parker: Promoted cooperative learning, democracy, devotion to freedom in the public schools</td>
</tr>
<tr>
<td>Early 1900s</td>
<td>Progressive Education Movement: John Dewey and others. Dewey promoted cooperative learning groups as a part of his famous project method of instruction; Social Interdependence Theory and Group Dynamics: Kurt Koffka and Kurt Lewin, Gestalt Psychologists</td>
</tr>
<tr>
<td>1940s</td>
<td>Theory and research on cooperation and competition: Morton Deutsch</td>
</tr>
<tr>
<td>1950s</td>
<td>Cognitive Learning Theory: Jean Piaget, Lev Vygotsky Applied Group Dynamics Movement, Deutsch, National Training Laboratories, Deutsch research on trust, individualistic situations; Naturalistic studies</td>
</tr>
<tr>
<td>1960s</td>
<td>Stuart Cook: Research on Cooperation ; (Kagan) Research on Cooperation and Competition in Children; Bruner, Suchman : Inquiry (Discovery) David and Roger Johnson began training teachers in cooperative learning at the University of Minnesota; Morton Deutsch (Nebraska Symposium): Cooperation and Trust, Conflict Robert Blake and Jane Mouton: Research on Intergroup Competition</td>
</tr>
<tr>
<td>1970s</td>
<td>David Johnson wrote Social Psychology of Education; Robert Hamblin: Behavioral research on cooperation/competition; First Annual Symposium of APA (Presenters included David and Roger Johnson, Stuart Cook, Elliot Aronson, Elizabeth Cohen, and others); David and Roger Johnson research review of cooperation/competition; David and Roger Johnson: Learning Together and Alone; Robert Slavin began development of cooperative curricula; Shlomo and Sharan, Small Group Teaching (Group Investigation); Elliot Aronson, Jigsaw Classroom; Cooperation issue of the Journal of Research and Development in Education; First International conference on cooperative learning, Tel Aviv, Israel</td>
</tr>
<tr>
<td>1980s</td>
<td>David and Roger Johnson, Meta-Analysis of Research on Cooperation; Elizabeth Cohen, Designing Groupwork; Spencer Kagan developed Structures Approach to Cooperative Learning; David and Roger Johnson wrote, Cooperation and Competition: Theory and Research; David DeVries and Keith Edwards: Combined Instructional Games Approach with Intergroup Competition, Teams-Games-Tournament</td>
</tr>
<tr>
<td>1990s</td>
<td>Cooperative learning gains popularity among educators in higher education. First Annual Cooperative Learning Leadership Conference, Minneapolis. David and Roger Johnson and Karl Smith adapted cooperative learning to the college classroom, and wrote: Active Learning: Cooperation in the College Classroom</td>
</tr>
</tbody>
</table>

Source: Adapted from Johnson and Johnson (1992) And Johnson et al. (1998a)

Along with above historical details one non-profit organization International Association for the Study of Cooperation in Education (IASCE), established in 1979, is in operation to organize various seminars, workshops to promote studies on cooperative learning. IASCE provides a forum to share research and lessons about the practice of cooperative learning. IASCE supports the development and dissemination of research, particularly educator research and inquiry that foster the understanding of cooperative learning.
The above sources clearly depict that Cooperative learning is one of the most notable and fertile areas of theory, research, and practice in education. As the timeline given above shows, CL is not new; it has been around since the early 1800's. During the 1950's, educators moved away from cooperation and towards a model of individualization and competition which resulted into learners deficit in the skills necessary to work effectively with one another, accept each other's differences, resolve conflicts, and pool their resources to solve complex problems. In contemporary society, business and industry are finding a need to return to the concept of cooperation and team building among their employee, if they are to be competitive in today's global economy. Millions of dollars annually are being spent in the re-training of employees to take more initiative, assume more responsibilities in the day-to-day business operations, and be more cooperative with the fellow workers. All these skills can be developed in cooperative learning groups. Creating and maintaining committed cooperative groups, however is a challenging task. Mostly, cooperative groups are rare because many individuals are confused about what is (and is not) a cooperative group and lack the discipline required to implement the basics of cooperative efforts in a rigorous way.

1.1.3 TYPES OF GROUPS

1.1.3.1 Pseudo groups are groups whose members have been assigned to work together but they have no interest in doing so. A pseudo group is one that takes part in the larger social life but chiefly for its own gain and not primarily for the larger good (Taj, 2007). Members may pursue unhealthy competition and block each other's achievement, communicate and coordinate poorly, mislead and confuse each other, loaf away and seek a free ride. As a result, the product of the whole group work is less than the potential of the individual members.

1.1.3.2 Traditional groups are groups whose members agree to work together, but see little benefit from doing so. Members interact with each other to share information and clarify how to complete the tasks. Then they do the work on their own and their achievements as well are individually recognized and rewarded. As a result, some members benefit, but others may be more productive working alone.
1.1.3.3 Cooperative groups have members who commit themselves to the common purposes of maximizing their own and each other's success. Its defining characteristics are a compelling purpose to maximize every member’s productivity and achievement. Members hold themselves and each other accountable for contributing their share of the work to achieve the group’s goals and for promoting each other's success by sharing resources and providing each other the needed support and encouragement. They use social skills to coordinate their efforts and achieve their goals and to analyze, how effectively they are achieving their goals and working together. As a result the product of the whole group is greater than the potential of the individual members.

1.1.3.4 High-performance cooperative groups meet each and every criterion for a cooperative group and outperform all reasonable expectations.

Not every group is an effective one and all group work done is not always productive. Almost everyone has been part of a group that wasted time, was inefficient, and generally produced poor work. Pseudo and traditional groups are characterized by a number of dynamics that impair their effectiveness (Johnson and Johnson, 1997), such as group immaturity, uncritically and quickly accepting other members' dominant responses, social loafing, free-riding, and group-think. Such hindering factors are eliminated by carefully structuring into the group The Johnson and Johnson Model (1999) includes five criteria that define true cooperative learning groups.

1.1.4 FIVE ELEMENTS OF COOPERATIVE LEARNING GROUPS

1.1.4.1 Positive interdependence: Positive interdependence exists when one perceives that one is linked with others in a way so that one cannot succeed unless they do (and vice versa) and/or that one must coordinate one's efforts with the efforts of others to complete a task (Johnson and Johnson, 1989). The discipline of using cooperative groups begins with structuring positive interdependence and letting the group members know that they "sink or swim together," that is, they have two responsibilities: to maximize their own productivity and to maximize the productivity of the group (members). There are two major categories of interdependence: outcome interdependence and means interdependence (Johnson and Johnson, 1989). When
persons are in a cooperative or competitive situation, they are oriented toward a desired outcome. No outcome interdependence (goal and reward interdependence) means that there is no cooperation or competition. The means, through which the mutual goals or rewards are to be accomplished, specify the actions required. Means interdependence includes resource, role and task interdependence (which are not independent from each other). Positive interdependence has a lot of effects on individuals' motivation and productivity, not the least of which is to highlight the fact that the efforts of all group members are needed for group success. When members of a group see their efforts as dispensable for the group's victory, they may reduce their hard work (Kerr and Bruun, 1981). When group members recognize their potential contribution to the group as being distinctive, they increase their hard work (Harkins and Petty, 1982).

1.1.4.2 Individual accountability: After positive interdependence, the prime variable mediating the effectiveness of cooperation is a sense of personal responsibility for contributing one's efforts to accomplish the group's goals. This involves being responsible for completing one's share of the work and facilitating the work of other group members while minimally hindering their efforts. Personal responsibility is promoted by individual accountability. Certainly, lack of individual accountability also reduces the feeling of personal responsibility. Members will reduce their contributions to goal achievement when the group works on tasks where it is difficult to identify members' contributions, when there is an increased likelihood of redundant efforts, when there is a lack of group cohesiveness, and when there is lessened responsibility for the final outcome (Harkins and Petty, 1982; Ingham, Levinger, Graves, and Peckham, 1974; Kerr and Bruun, 1981; Latane, Williams and Harkins, 1979; Petty, Harkins, Williams, and Lantane, 1977; Williams, Harkins, and Latane, 1981).

1.1.4.3 Promotive interaction: Promotive interaction may be defined as individual’s encouraging and facilitating each other's efforts to complete tasks and achieve the group's goals. Promotive interaction is characterized by student’s (a) providing other with efficient and effective help and assistance, (b) exchanging needed resources such as information and materials and processing information more efficiently and effectively, (c) providing each other with feedback in order to improve their
subsequent performance on assigned tasks and responsibilities, (d) challenging each other's conclusions and reasoning in order to promote higher quality decision making and greater insight into the problems being considered, (e) advocating exerting efforts to achieve mutual goals, (f) influencing each other's efforts to achieve mutual goals, (g) acting in trusting and trustworthy ways, (h) being motivated to strive for mutual benefit, and (i) feeling less anxiety and stress (Johnson and Johnson, 1989).

1.1.4.4 Group processing: Groups reflect on their own collaborative efforts and decide new ways to improve effectiveness. Effective group work is influenced by periodical evaluation on how well they are functioning and plan how to improve their work processes. A process is an identifiable sequence of events taking place over time, and process goals refer to the sequence of events instrumental in achieving the final goals. Group processing is defined as reflecting on a group session to (a) describe actions that were helpful or unhelpful and (b) make decisions about what actions to continue or change. Group processing is meant to clarify and improve the effectiveness of the members in contributing to the joint efforts to achieve the group's goals.

1.1.4.5 Development of small group interpersonal skills: Skills such as giving constructive feedback, reaching consensus, and involving every member, are necessary for effective group functioning. These skills must be taught and practiced before the groups tackle a learning task. Placing socially unskilled students in a learning group will obviously not be successful. Students must be taught the interpersonal and small group skills needed for high quality cooperation. Coordinating efforts in order to achieve mutual goals, students must (1) get to know and trust each other, (2) communicate accurately and unambiguously, (3) accept and support each other, and (4) resolve conflicts constructively (Johnson and Johnson, 1997).

Grouping based on the above five elements is essential for cooperative learning. The most widely used group formation comprises of heterogeneous teams, containing one high, two middle, and one low achieving student and having a mix of gender and other diversities that reflect the classroom population. The rationale for heterogeneous groups argues that these produces the greatest opportunities for peer tutoring and support as well as improve cross-race and cross-sex relations and integration. Occasionally, random or special interest teams could be formed to maximize student talents or meet a specific student need (Kagan, 1994). There are mainly three ways through which groups can be formed in cooperative learning.
1.1.5 THREE WAYS TO FORM COOPERATIVE LEARNING GROUPS

1.1.5.1 Formal cooperative learning groups may last from one class period to several weeks to complete tasks such as solving problems, reading complete text material, writing an essay or report, conducting a survey or experiment, learning vocabulary, or answering questions at the end of a chapter. The teacher introduces the lesson, assigns students to groups (two to five members), gives the materials they need to complete the task, and assigns students’ roles. The teacher explains the task, teaches any concepts or procedures needed to complete the task and structures the cooperation among students. Students work on the task assigned until all the group members have successfully understood it completely. While the students work together the teacher moves from one group to another systematically monitoring their interaction. The teacher intervenes only when students do not understand the academic task or when there are problems in working together. After the task is completed the teacher evaluates the academic success of each student and the group’s process as to how well they functioned as a team. In working cooperatively, students realize their mutual responsibility for each other’s learning and that they have a stake in each other’s success.

1.1.5.2 Informal Cooperative Learning Groups are temporary, ad-hoc groups that last from a few minutes to one class period. These are used during a lecture, demonstration, or film to focus student’s attention on the material to be learned. These help to set expectations as to what will be covered in a class session, ensure that students cognitively process the material being taught and provide closure to an instructional session.

1.1.5.3 Cooperative Base Groups are long term cooperative learning groups (lasting for one semester or year) with stable membership that gives each member the required support, help, encouragement, and assistance to make academic progress. We can also compare the characteristics of traditional groups and cooperative learning group as given in following table:
Table 1.2: Comparison of Traditional and Co-operative Learning Groups

<table>
<thead>
<tr>
<th>Traditional Groups</th>
<th>Co-operative Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low interdependence</td>
<td>High positive interdependence</td>
</tr>
<tr>
<td>Member takes responsibility only for self</td>
<td>Members are responsible for own and other's learning</td>
</tr>
<tr>
<td>Only individual performance is the main Focus</td>
<td>Focus is on joint performance</td>
</tr>
<tr>
<td>Only individual accountability is considered</td>
<td>Both group and individual accountability</td>
</tr>
<tr>
<td>Assignments are discussed with little commitment to each other's learning</td>
<td>Members promote each other's success doing real work together, helping and supporting one another's efforts to learn</td>
</tr>
<tr>
<td>Team-work skills are not directly taught</td>
<td>Team-work skills are emphasised</td>
</tr>
<tr>
<td>A leader is appointed to direct member's participation</td>
<td>Leadership is shared by all members</td>
</tr>
<tr>
<td>No group processing of the quality of its work</td>
<td>Group processes quality of work and how effectively members are working together</td>
</tr>
<tr>
<td>Individual accomplishments are rewarded</td>
<td>Individual as well as group accomplishments are rewarded</td>
</tr>
<tr>
<td>More prejudice, stereotyped and withdrawal / observation from the situation</td>
<td>Less prejudice, more self confident, greater involvement</td>
</tr>
</tbody>
</table>
From the table 1.2 we can see that Cooperative learning approach seems to be better than the Traditional approach because students work better in co-operative groups. This view is also supported by previous researches in the field of cooperative learning. A variety of outcomes of cooperative learning can be seen from the figure 1.1:

![Figure: 1.1 Outcomes of Cooperative learning](source)


**Why use Cooperative learning?**

Research has shown that cooperative learning techniques promote student learning and academic achievement, increase students retention, enhance student satisfaction with their learning experience, help students to develop skills in oral communication, develop students' social skills, promote student self-esteem, and help to promote positive race relations and positive results on other variables (Johnson-Meta Analysis) These findings substantiate the reason to use co-operative learning in the classrooms.

**1.1.6 DIFFERENCE AMONG COMPETITIVE, INDIVIDUALISTIC AND COOPERATIVE APPROACHES**

We mainly follow three approaches to handle a task in every field of life i.e. competitive, individualistic and cooperative approach. The following table clearly depicts the superiority of cooperative approach over the others.
Table 1.3: Differences among competitive, individualistic and co-operative approaches

<table>
<thead>
<tr>
<th>Competitive Approach</th>
<th>Individualistic Approach</th>
<th>Co-operative Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Negative correlation involving goal attainment</td>
<td>1. No correlation involving goal attainment.</td>
<td>1. Positive correlation involving goal attainment.</td>
</tr>
<tr>
<td>2. Focus is on individual performance and others are a threat to one’s success</td>
<td>2. Focus is on individual performance and others are irrelevant</td>
<td>2. Focus is on individual performance and others are potential contributors</td>
</tr>
<tr>
<td>4. Teacher sets up competition and directs flow.</td>
<td>4. Teacher is primary source of instruction</td>
<td>4. Teacher’s role is of helper/consultant/manager etc</td>
</tr>
<tr>
<td>5. Students work against each other.</td>
<td>5. Students work themselves</td>
<td>5. Students work together</td>
</tr>
<tr>
<td>7. Oppositional interaction</td>
<td>7. No interaction</td>
<td>7. Positive interaction</td>
</tr>
<tr>
<td>8. Commitment to getting more than others</td>
<td>8. Commitment to one’s own self</td>
<td>8. Commitment to own and other’s success</td>
</tr>
<tr>
<td>9. Outcome is psychological illness</td>
<td>9. Outcome is psychological pathology</td>
<td>9. Outcome is psychological health</td>
</tr>
<tr>
<td>11. Goal is Winning not learning</td>
<td>11. Goal is higher achievement</td>
<td>11. Goal is mutual learning not only winning</td>
</tr>
<tr>
<td>12. Bad effect on Mental health of slow learners</td>
<td>12. No effect on Mental health of others</td>
<td>12. Positive effect on Mental health of slow learners</td>
</tr>
<tr>
<td>13. Happiness in one’s win and other’s defeat</td>
<td>13. Happiness is personal and relevant to oneself only</td>
<td>13. Happiness is associated with other’s success</td>
</tr>
<tr>
<td>14. Evaluate as compared to others performance.</td>
<td>14. Evaluated as compared to present criterion.</td>
<td>14. Evaluated as compared to present criterion.</td>
</tr>
</tbody>
</table>

1.1.7 ROLE OF THE TEACHER

Cooperative learning does not diminish the teachers’ role in their classrooms; the Teacher must control students' behavior, physical movement and socialization. Soar, 1970, as cited in Brophy and Good, 1986, found that, “students learn more in a classroom where teachers establish structure that limit pupil freedom of choice,
physical movement, and disruption, and where there is relatively more teacher talk behavior.” The main job of a teacher in the cooperative learning classroom is to help students understand the value of working together and learn. The cooperative group provides opportunity to the students to learn from each other, share ideas, and decide strategies for solving the learning tasks assigned or taking unanimous decisions. The pre-requisite is that the students must adopt social skills with which to attain cooperative learning skills so that the cooperation approximates adult life, providing a good reason to prompt children to work together towards common goals. The role of teacher in cooperative learning is elaborated through the following table.

Table 1.4: The role of teachers in Cooperative learning and Traditional class

<table>
<thead>
<tr>
<th>Cooperative Learning</th>
<th>Traditional Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select and divide the lesson for group work</td>
<td>Follow the course profile</td>
</tr>
<tr>
<td>Train students in cooperative skills</td>
<td>Ignore teamwork skills</td>
</tr>
<tr>
<td>Arrange the classroom and assign Roles</td>
<td>Try to keep students in their seats</td>
</tr>
<tr>
<td>Observe and intervene</td>
<td>Ignores functioning group</td>
</tr>
<tr>
<td>Play more sophisticated instructional role like</td>
<td>Provide detailed instruction</td>
</tr>
<tr>
<td>asking high order questions, extending the group’s thinking on its activities</td>
<td></td>
</tr>
<tr>
<td>Being a facilitator of learning</td>
<td>Provide detailed instruction</td>
</tr>
<tr>
<td>Assess student’s contribution</td>
<td>None</td>
</tr>
<tr>
<td>Provide feedback to groups and analyze group effectiveness</td>
<td>None</td>
</tr>
</tbody>
</table>

Source: Johnson, Johnson & Holubec, 1991

1.1.8 COOPERATIVE LEARNING METHODS

As we know that Cooperative learning is not a new method of teaching; it existed even when human learning started. Early uses of cooperative learning certainly occurred in one room schoolhouses, where one teacher was forced to teach students with a range of abilities. Cooperative learning, one kind of student-centered learning approach, has been documented throughout the literature as effective in
helping students obtain practical learning skills, abilities for effective communication and proficiency in term of understanding knowledge, and it promotes positive student attitudes towards their own learning (Johnson and Johnson, 2008; Slavin, 2011). Cooperative learning comprises “instructional methods in which teachers organize students into small groups, which then work together to help one another learn academic content” (Slavin, 2011). During the 1960s specific cooperative learning methods began to be developed and evaluated in a wide variety of teaching contexts. In a historic overview (Johnson and Johnson, 1999) nine methods of cooperative learning are listed and Slavin (1995) summarized the most extensively researched and widely used cooperative learning techniques as Learning Together and Alone, Teams-Games-Tournaments (TGT), Group Investigation, Constructive Controversy, Jigsaw Procedure, Student Teams Achievement Divisions (STAD), Complex Instruction, Team Accelerated Instruction (TAI), Cooperative Learning Structures and Cooperative Integrated Reading and Composition (CIRC).

Table 1.5: Different Cooperative Learning Methods and Their Main Features

<table>
<thead>
<tr>
<th>Methods</th>
<th>Contributors</th>
<th>Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student team learning (in common:</td>
<td>TGT: Teams-Games-Tournaments. (De Vries and</td>
<td>Teams compete with other teams to get points for their group</td>
</tr>
<tr>
<td>group rewards and opportunities of</td>
<td>Edwards, 1973)</td>
<td></td>
</tr>
<tr>
<td>success for all)</td>
<td>STAD: Student Teams-Achievement</td>
<td>Students learn new material in teams but take individual test weekly to</td>
</tr>
<tr>
<td></td>
<td>Divisions. (Slavin, 1978)</td>
<td>ensure individual accountability</td>
</tr>
<tr>
<td></td>
<td>TAI: Team-Assisted</td>
<td>Implemented in math. Each student in each group works in a different</td>
</tr>
<tr>
<td></td>
<td>Individualization. (Slavin, Leavy and Madden,</td>
<td>unit and changes unit when exercises are correct. Other members help.</td>
</tr>
<tr>
<td></td>
<td>1982)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CIRC: Cooperative Integrated Reading and</td>
<td>Heterogeneous groups work with different reading levels: reading to each</td>
</tr>
<tr>
<td></td>
<td>Composition. (Stevens, Madden, Slavin and</td>
<td>other, predicting, practicing spelling and vocabulary</td>
</tr>
<tr>
<td></td>
<td>Farnish, 1987)</td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------------------------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Jigsaw. (Aronson, 1978)</td>
<td>The task is divided into as many parts as members in the teams.</td>
<td></td>
</tr>
<tr>
<td>Group Investigation. (Sharan and Sharan, 1976)</td>
<td>Based on three components: investigation (analyzing the problem from different points of view), interaction (activities and skills) and interpretation (presentation of findings in front of the class)</td>
<td></td>
</tr>
<tr>
<td>Complex Instruction. (Cohen, Lotan, Scarloss and Arellano, 1999)</td>
<td>Students work in heterogeneous groups to achieve a common task</td>
<td></td>
</tr>
<tr>
<td>Cooperative Learning and Teaching Scripts</td>
<td>Dansereau (1987)</td>
<td>Students work in pairs on two different texts. Students read them aloud and summarize them in turns.</td>
</tr>
<tr>
<td>Learning Together</td>
<td>Johnson and Johnson (1987)</td>
<td>Importance of cognitive conflicts and controversy. Face-to-face promotive interaction; interpersonal and small group skills and group processing are its basic components</td>
</tr>
</tbody>
</table>

Above writings and literature related to cooperative learning shows that there are a number of methods under the umbrella term cooperative learning. Some of them are discussed below:

Source: Adapted from Casal, 2005
1.1.8.1 Student-Teams Achievement Divisions (STAD)

Student-Teams Achievement Divisions (STAD) method was founded by Slavin in 1978. In STAD students are assigned to four-member learning teams heterogeneously mixed along performance level, ability, sex and ethnicity. It has five components:

(a) **Class Presentation:** The material to be learnt is initially presented by the teacher to the whole class or in an audio-visual presentation.

(b) **Teams:** Teams are composed of 4 or 5 students, carefully selected to represent a cross-section of the class. The teams are heterogeneous with regard to sex, ethnic background and ability level of the students. The team members work together in a peer-tutoring format to master the material provided for learning. Most often, the team members quiz each other, working from worksheets and information to be mastered.

(c) **Quizzes:** The students are evaluated via individual quizzes that assess individual achievement on the material presented in the class and practiced in the teams.

(d) **Individual Improvement Scoring System:** A detailed scoring system is maintained that allows the students to earn points for their teams based on their improvement over already existing past scores. The scoring system is based on a periodically readjusted "base score" for each student.

(e) **Team Recognition:** The teachers use newsletters, bulletin boards or other forms of social recognition and rewards for teams showing high individual weekly performance. Recognition is given to individuals who perform exceptionally well or those who have improved maximally.

This method can be used in a wide variety of subjects from Mathematics to language, arts to social studies and from grade II through college. It is useful for teaching well-defined objectives with single right answers, such as mathematical computations and applications, language usage and mechanics, geography map skills and science facts and concepts.

1.1.8.2 Student-Team Games Tournament (TGT)

This method is associated with DeVries and Edward, 1973. It uses the same teacher presentations and team work as in STAD, but replaces the quizzes with weekly tournaments in which students compete with members of other teams to contribute points to their team scores. The winner at each tournament table brings the same number of points to his or her team, regardless of which the table it is. Thus, low
achievers (competing with other low achievers) and high achievers (competing with other high achievers) have equal opportunity for success.

1.1.8.3 Teams Assisted Individualization (TAI)

Teams Assisted Individualization (TAI) (Slavin et. al., 1982) combines cooperative learning with individualized instruction. Like STAD and TGT the use of four-member mixed ability learning teams and rewards for high performing teams are given. TAI was designed to teach mathematics to students in Grades 3-6. In TAI, a student enters an individualized sequence according to a placement test and then proceeds at his/her own pace. In general, team members work on different units. Team-mates check each other's work through answer-sheets and help one another to address their problems. Final unit tests are taken without team-mates' help and are scored by the student monitors. Each week, teachers total the number of units completed by all team members and give certificates or other team rewards to teams which exceed a criterion score based on the number of final tests passed.

1.1.8.4 Cooperative Integrated Reading and Composition (CIRC)

CIRC is developed by Stevens, Madden, Slavin and Farnish (1987). In CIRC, groups are of heterogeneous type and students are with different capabilities. Students co-operate with each other in reading, summarizing, practicing spellings and vocabulary, etc. Evaluation is done on the basis of performance of the whole group and certificates are given to team according to average performance of all team members.

1.1.8.5 Learning Together

‘Learning together’ method was developed by Johnson and Johnson in 1987. It gives importance to cognitive conflicts and controversy. Face-to-face promotive interaction; interpersonal and small group skills and group processing are its basic components. It involves students working in four-or-five member heterogeneous groups on assignments. The groups complete a single assignment and receive praise and rewards based on the common group product. This method emphasizes team building activities before students begin working together and engage in regular discussions within groups about how well they are working.

1.1.8.6 Group Investigation

Group Investigation method (developed by Sharan and Sharan, 1976) was structured to emphasize higher order thinking skills like analysis and evaluation. It is based on three components: investigation (analyzing the problem from different points of view), interaction (activities and skills) and interpretation (presentation of
findings in front of the class). The students work in small groups using cooperative inquiry, group discussion and cooperative planning projects. In this method, students choose their own two to six member groups. After choosing sub-topics from a unit being studied by the entire class, the groups break their sub-topics into individual tasks and carry out activities necessary to prepare group reports. Each group prepares a presentation to communicate its findings to the entire class.

1.1.8.7 Jigsaw

Elliot Aronson, (Social Psychologist) born in January 1932, is best known for his Jigsaw Classroom experiments in 1970’s, cognitive dissonance research, and bestselling Social Psychology textbooks. He won major awards for distinguished writing, teaching, and research. Jigsaw Strategy first came into limelight with the experiments of Elliot Aronson. It was developed to help students to build up their social and cooperative skills. Aronson did a great deal of research on interpersonal relations. Aronson, Blaney, Stepan, Sikes and Snapp (1978) developed jigsaw as one of the important learning strategy of cooperative learning. Jigsaw helps the students to break the learning materials into manageable learning pieces and then teach others the piece they have mastered and lastly they combine these pieces into one whole. Jigsaw learning is based on the perspective that each student will first become “an expert” in a small part of the learning material provided and then teach other students in his group this part of the material. This method is appropriate for students from 3rd to 12th Grade. The strategy is an efficient teaching method that also encourages listening, engagement, interaction, peer teaching and cooperation by assigning each member of the group an essential part to play in the academic activity. Both individual and group accountability are built into the process.

Jigsaw is a structured cooperative learning strategy which provides the role and task structures for each member of the group of four to five students. Once students are in their original groups they are given a specific task to research. A specific task is assigned to each member in the perspective expert group to teach and learn. Students with same learning task gather in the expert group. They share and learn information from researching their specific task and then return to their original groups to teach the task they have mastered. In Jigsaw the task structure is designed to (a) incorporate individual accountability by having each member become an expert in one learning issue of the problem (Aronson, Blaney, Stephan, Sikes, and Snapp, 1978; Johnson et al., 1994) and (b) creating positive interdependence (Johnson et al., 1994) through the sharing of learned knowledge within the group.
Students of a class are divided into competency groups of four to six students to resolve a task or class project. Each member of the Home Group is assigned a portion of an assignment by allocating one member to each Expert Group. Each member must research the material pertaining to their section. Individual members of each group then break off to work with the "experts" from other groups, researching a part of the material being studied, after which they return to their starting body in the role of instructor for their subcategory.

- Students are organized like pieces in a jigsaw to form different kind of groups, to be a part of the solution of the overall project (jigsaw puzzle).
- Each student on the team becomes an "expert" on one topic by working with members from other teams assigned the corresponding expert topic. Upon returning to their teams, each one in turn teaches the group; and all students are assessed on all aspects of the topic.
- Students meet with those students from other groups who have the same material, to discuss what was most important and what needs to be taught to other members of their groups. Then, students meet with their small groups to share what they’ve learnt, following with whole group discussion of the most important points. The Jigsaw learning lays emphasis on cooperation and shared responsibility within groups. The success of each group depends on the participation of every individual in completing the task. This means that Jigsaw strategy effectively increases the involvement of each student in the activity.
- Group members must work together as a team to accomplish a common goal; each person depends on the others and no student can succeed unless everyone works well together as a team. This "cooperation by design" facilitates interaction among all students in the class, leading them to value each other as contributors to their common task.

1.1.8.7.1 Comparison of Jigsaw I, Jigsaw II, Jigsaw III, Jigsaw IV and Reverse Jigsaw

Jigsaw strategy has evolved over the time from Aronson et. al. (1978) to Heeden (2003) in a lot of ways. Following Table highlights the main features of different types of Jigsaw.
Table 1.6: Comparison of Jigsaw I, Jigsaw II, Jigsaw III, Jigsaw IV and Reverse Jigsaw

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>---</td>
<td>---</td>
<td>Brief Introduction of topic</td>
<td>---</td>
</tr>
<tr>
<td>2 Expert sheets assigned to each member of expert group</td>
<td>Same as Jigsaw I</td>
<td>Same as Jigsaw I</td>
<td>Same as Jigsaw I</td>
<td>Same as Jigsaw I</td>
</tr>
<tr>
<td>3 Group members answer expert questions prior to returning to home teams</td>
<td>Same as Jigsaw I</td>
<td>Same as Jigsaw I</td>
<td>Same as Jigsaw I</td>
<td>Same as Jigsaw I</td>
</tr>
<tr>
<td>4</td>
<td>---</td>
<td>---</td>
<td>Written Quiz</td>
<td>---</td>
</tr>
<tr>
<td>5 Students return to home teams sharing their information with team mates</td>
<td>Same as Jigsaw I</td>
<td>Same as Jigsaw I</td>
<td>Same as Jigsaw I</td>
<td>Students do not return to home teams, they teach to whole class</td>
</tr>
<tr>
<td>6</td>
<td>---</td>
<td>---</td>
<td>Quiz on material shared checking for accuracy</td>
<td>---</td>
</tr>
<tr>
<td>7</td>
<td>---</td>
<td>---</td>
<td>Review process by Whole group through Jeopardy or Quiz Bowl, etc.</td>
<td>Same as Jigsaw III</td>
</tr>
<tr>
<td>8</td>
<td>---</td>
<td>Individual assessment and grade</td>
<td>Same as Jigsaw II</td>
<td>Same as Jigsaw II</td>
</tr>
<tr>
<td>9</td>
<td>---</td>
<td>---</td>
<td>Re-teach any material missed on assessment as needed</td>
<td>---</td>
</tr>
</tbody>
</table>

Source: adapted with some modifications from Jansoon, N., Somsook, E. and Coll, K. R (2008)

In present study jigsaw IV was used with two modifications:

1. A very short interaction in the form of oral quiz by teacher with each expert group to check accuracy and clarify doubts (if any) instead of written quiz suggested in fourth row of above given table.
2. There is no quiz after performing the task of fifth row (teaching by experts in their home group)

1.1.8.7.2 Steps of Jigsaw method:

Aronson’s (2007) list of Jigsaw steps (with some modifications) explains the process in more detail:

1. Depending on the size of the class, assign a number to students to their jigsaw group.

2. Appoint leader, secretary, time keeper from each group.

3. Brief introduction of the topic by teacher to whole class

4. Divide the lesson into segments to match the number of people in each group.

5. Assign one member of each group to learn each lesson segment and provide them expert sheets.

6. Give students time to work on step 5.

7. Gather students into ‘Expert groups’. After one student from each jigsaw group joins other students assigned the same topic, again give them time to discuss their findings of step 5

8. Teacher will observe the whole process and move from group to group as a facilitator wherever needed. Oral questioning by teacher to assess accuracy of content in each expert group.

9. Bring the students back into their main groups. Once each presenter is ready, the jigsaw groups reassemble in their original Home Group and share what they’ve learnt in the expert group.

10. Each student will present a well-organized report to the Home Group. The expert in each group educates the group by teaching what they have learnt within the specialty group.

11. Secretary of the each group will present concluding report to the whole class.

12. At the end of the session, students are then tested through a quiz or a test

13. Teacher will conclude the lesson by re-teaching the material which he thinks has been misunderstood based on the individual assessment process.

Movement of students in Jigsaw groups can be depicted in the Figure 1.2 given below:
1.1.9 JIGSAW AND SOCIAL SCIENCE

At school age students are not completely indoctrinated to the existing competitive process and have not yet developed deep seated distrust for people of various groups of the society. So, it would be of great value if the basic process of learning through competition could be replaced to make youngsters learn to like and trust each other - not as an extra-curricular activity but as an integral part of the course of learning in the teaching learning process. In general, in Indian educational institutions, lecture-based and teacher oriented teaching is commonly employed. Thus, the need to explore more modern and effective approaches to teaching and learning has been identified as important. Recently, efforts have been made to implement student-centered approaches to provide students with an interactive approach, to try and make the learning environment more stimulating. Although there is a view that the learning styles of students are determined by their cultures (Neuman and Bekerman, 2000), yet the benefits of cooperative learning in western contexts reported in literature suggest that this kind of learning may not be culturally but contextually-based. In the traditional learning setting, the majority of interactions are teacher–student. This can create a competitive environment and produce a passive attitude towards learning as students vie for the teacher’s approval (Killen, 2007; Harman and Nguyen, 2010).
The cooperative learning methods which are the most successful in terms of academic achievement are STAD, TGT, TAI and JIGSAW. They have been evaluated in 23 studies with 17 significantly positive findings in favor of experimental group. STAD and TGT have been most successful in mathematics, language and arts. JIGSAW was found to be effective in social studies achievement (Slavin, 1982). Along with above results we can see method wise evaluation reported in meta-analysis on cooperative learning, given in table 1.7.

Table 1.7: Rating of Direct-Conceptual Nature of Cooperative Learning Methods

<table>
<thead>
<tr>
<th>Method</th>
<th>Learn</th>
<th>Initial Use</th>
<th>Maintain</th>
<th>Robust</th>
<th>Adaptability</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Together</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>TGT</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Group Investigation</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>Academic Controversy</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>Jigsaw</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>STAD</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>TAI</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>CIRC</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Complex Instruction</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>Cooperative Structures</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: Cooperative Learning Methods: A Meta Analysis by Johnson et al. (2000)

Methods of cooperative learning were evaluated on five dimensions: (a) ease of learning the method, (b) ease of initial use in the classroom, (c) ease of long-term maintenance of use of the method, (d) robustness of the method (applicability to a
wide variety of subject areas and grade levels), and (e) ease of method's adapting to changing conditions.

The method that is recommended most for social studies is the Jigsaw series (Slavin, 1990). The rationale behind this strategy is that in social studies there may not always be one answer to a question. Other strategies (such as STAD and TGT) usually are looking for only one correct answer and are therefore more suitable to math and sciences. Jigsaw is primarily used in social studies and other subjects where learning from text is important (Mattingly and Van Sickle, 1991). The claims made by Slavin (1982) confirmed that an alternative method to lecture-based teaching is jigsaw method of cooperative learning. This approach has been claimed to minimize the competitiveness in the learning environment by encouraging students to work together. In addition, it is claimed to promote more positive student attitudes towards their own learning, enhance more positive relationships between participants, develop self-esteem and cohesiveness, and improve learning skills (Johnson and Johnson, 2005; Sahin, 2010). The results of Jigsaw are more than just students’ learning the content material. It helps to motivate and teach them to enjoy learning to increase self-esteem and self-efficacy. Mendguo and Xiaoling (2010) concluded that, “The Jigsaw classroom reduces students’ reluctance and anxiety to participate in the classroom activities while increasing self esteem and self confidence.” This method is crucial at the high school level because students are preparing for their future and need to learn to participate in group activities. Efe and Efe (2011) analyzed how students assigned as group leader in the jigsaw helped to motivate rest of the group. Results show that with the title of group leader students worked to motivate other students to complete their work. Education is not only learning the content matter of different subjects of curriculum viz social science, math, science, language etc, it also includes learning how to interact in the society and be a productive citizen. In addition to helping students to learn new material, the jigsaw method helps to build social skills. Anderson and Palmer (2001) reported that the jigsaw approach is backed by research showing it to motivate students to work together, share ideas, pursue common goals and develop self esteem. Positive attributes needed to succeed at the work place include learning the material, being able to work in groups, and knowing how to motivate people. The jigsaw method can be utilized to help students in learning material, building self esteem or knowing how to motivate others.

1.2 CRITICAL THINKING

The aim of Education is to make students capable of becoming responsible, productive and useful members of society. It is the most powerful weapon for
eradicating (reducing) poverty and inequalities and increase India’s competitiveness in the global economy. Schools provide education in order to develop required knowledge, skills and attitudes among students through learning experiences. The classrooms provide the environment to enable the learners to analyze and evaluate their experiences, learn to doubt, question, investigate and think independently. The aims of education also includes to satisfy the current needs and aspirations of a society as well as to retain its lasting values and human ideals. The main focus of the present day education is to inculcate the key life skills among the students beside the three R’s. World Health Organization (WHO) 1993 defined Life Skills as “abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life”. The life skills include the abilities that facilitate the physical, mental and emotional well-being of individuals. ‘Adaptive’ means that a person is flexible in approach and always ready to adjust to different circumstances. ‘Positive behaviour’ implies that a person is forward looking and tries to find solution and opportunities even in the most difficult situations. Life skills also include the psychosocial and interpersonal skills which help people to make informed decisions, solve problems, think critically and creatively, communicate effectively, maintain healthy relations, empathize with others, and cope with managing their lives in a healthy and productive manner. WHO has given a list of life skills as shown in figure 1.3

![Life Skills by WHO](image)

**Figure 1.3: Life Skills given by World Health Organization**

India is going to have the biggest work force as compared to all other major countries of the world in the future because a major part of Indian population comprises of the youngsters. This lends to a growing need to develop life skills to
make them productive members of the society. Life skills help in strengthening the survival capacities of individual by providing him an orientation to the basic education. Life skills prune the abilities of an individual with the changing environment and empower him to make informed and rational choices about the future. Life skills are not a substitute for, but are complementary to any educational/training/organizational system. These skills can be incorporated among the children at any level of education. UNICEF defines Life Skills as “a behavior change or behavior development approach designed to address a balance of three areas: knowledge, attitude and skills”. Life skills promote mental well-being and competence among young people as they face the realities of life. Life skills are needed to win every game of life- whether you choose to succeed in life, gain mastery, or attain happiness. Mainly three components of life skills i.e. Thinking Skills, Emotional Skills and Social Skills are needed to be incorporated in a child from the very early stage of life. Unlike the factual skills which tend to be forgotten once the students leave the classroom, the skill of thinking will never be outdated (Quinby, 1985). Thus, thinking skills are often perceived as a survival skill for society as a whole as well as for individuals (Newmann, 1990; Michael, 1991). The contribution made by such learning will keep the society abreast of global technological advancements.

CT is one of the major constituent of thinking skills which are considered as imperative in the field of academics because it enables an individual to analyze, evaluate, explain, and restructure their thinking, thereby decreasing the risk of adopting, acting upon, or thinking with, a false belief. CT is one of the major Life Skill among the seven non-statutory ‘cross curriculum dimensions’ incorporated by the National Curriculum, Fourth Report (2008–09), New Secondary curriculum .

Tracing back the lane of time from Socrates to contemporary concerns about an educated citizenry and a quality work-force, the ability of critical thinking has been regarded as an important and necessary outcome of education. John Dewey (1933) pointed out that learning to think is the central purpose of education. Educators are not the only ones to recognize the importance of critical thinking, but the demands of employment in a global economy, the survival of a democratic way of life, and personal decision making in a complex and rapidly changing society, all require the people who can reason well and make good judgments. As every country is moving
towards a globalised economy facing world-wide competition, flexibly and analytically thinking persons are being hired by the employers who can integrate information from a variety of sources and perspectives and make profitable decisions. Our society needs citizens who can evaluate objectively the relevance of different viewpoints on multifarious problems. The personal and civic decision making also requires the ability to interpret accurately information filtered by media which emphasizes the promotion and imagery over reason. For every citizen in any profession (teachers, students, parents, workers, policy makers etc), critical thinking is an essential tool for performing effectively in a multifaceted quickly changing world. Critical thinking is the common "buzz phrase" in educational, psychological, and philosophical circles today.

Every day we have to deal with many questions - What to do or not to do? What to believe or not to believe? Buy this soft drink? Eat that food? Vote for congress or BJP? etc. We just ignore some of these questions, some are obeyed unreflectively and some are rejected unreflectively. There are only a few questions for which we try to find the reasons and question ourselves- Why to do this? What will be the result of my decision? There are only a few people who when faced with difficult situations try to think critically, analyze all the pros and cons of the situation and think out of the box to find a solution. All the higher order skills like problem solving, CT, creativity, etc. have been harmoniously integrated into the present day school curriculum with the aim of enhancing thinking skills and making the activities adequately challenging to learners. It (schooling) also involves the task of preparing students for adulthood by making them self-sufficient and self-directed. Thus the framing of educational activities should be done in such a way in which the construction and evaluation of reason is paramount throughout the curriculum.

In the era of information explosion much stress has been laid on the readily available information through continuously developing technologies like search engines (like Google, yahoo etc), which are available at a single click on our computer, laptop or smartphone. On the other hand, little stress is laid on the self thinking aspects of the children. Moreover, the vast amount of information available on the internet has increased the need to teach CT skills to the students to evaluate such information for profitable use. Learning by heart or cramming have no place in the present day society, these should be replaced with high quality learning and
thinking which requires more than just the transmission of facts and the application of routine procedures. CT is an important element of almost all the professional and academic fields, so conditions have to be created in the classrooms to develop CT skills among the students. The process of CT involves a careful acquisition and interpretation of information and its rational use to reach a well-justified conclusion. CT is the important component of cognitive development which leads to the development of the "Human capital" and as a result the economic, social and cultural development of the society. The National Education Goal Panel in the USA has advocated for an increase in the ability to think critically, communicate effectively and solve problems (Vaughan-Wrobel et al. 1997). To be acquainted with the details of the materialization of concept of CT we should begin with derivation of the word critical thinking. Wikipedia had quoted that the word “critic” has its origin from the Greek verb ‘krinein’ (to decide). This derived noun ‘krites’ (a judge) produced in turn kritikos (able to make judgments); ‘one who makes judgments’, which passed via the Latin critics into English (ibid.). Critic-al, as an adjective, is derived from “critic” (ibid.). CT is not a new concept. It has a vast historical background.

1.2.1 BRIEF HISTORY OF CRITICAL THINKING

Socrates’ method of probing questioning 2,500 years ago relates to the intellectual roots of CT. He discovered that the people who claimed to have sound knowledge and insight could not rationally justify the answers to his questions and were deeply confused and irrational. His method of questioning (Socratic Questioning) is one of the best CT teaching strategies. Socrates gave stress on thinking for clarity and logical consistency. After Socrates, Plato, Aristotle, and the Greek philosophers emphasized that things are not what they appear to be and only a trained mind can see through the surface, the deeper realities of life. In the Middle Ages, the writings and teachings of thinkers like Thomas Aquinas reflected the tradition of systematic CT. He scientifically stated, considered, and answered each and every criticism of his ideas. Aquinas promoted among the people awareness about the power of reasoning. In the Renaissance period i.e. during the 15th and 16th Centuries, it was assumed that most domains of life needed analysis and criticism and thus a number of scholars in Europe started thinking critically about society, human nature, art, law, religion and freedom. These thinkers included Colet, Erasmus, and
Moore from England. Francis Bacon in his book *The Advancement of Learning*, emphasized that the natural tendencies of human mind should not be left as such, but it should be trained in the process of gathering information to study the world empirically. His book served as the earliest texts in CT. Our conception of critical thought was taken forward by the next generation of thinkers in the 18th century. The works like *Wealth of Nations*, *Declaration of Independence* and *Critique of Pure Reason* are good examples of critical thought of that period. Comte and Spencer marked the extension of critical thought in the field of human social life in the 19th century. Applied to the problems of capitalism, it produced the searching social and the economic critique of Karl Marx applied it to the problems of capitalism; Darwin’s *Descent of Man* is an example of application to human culture and the basis of biological life and Sigmund Freud used critical thinking to study the unconscious mind. The field of Anthropological studies and Linguistics came into existence as a result of application of critical thinking to culture and language usage. In the 20th century, various thinkers defined CT as a mental habit & power and emphasized the need for training in CT (in life and in education) for welfare of men and women. They put forward that the only way to get away from delusion, deception, superstition and misapprehension of the earthly circumstances is critical thinking. A teacher can cultivate the habit of critical thinking among the students by insisting on accuracy; carrying out the various processes rationally and being open to verification and revision at all times. In this way a teacher/education can produce a society of well developed thinkers and members of such a society can never be stampeded. Those who practice critical thinking do not believe quickly in men and material; can hold things without certainty and pain; wait for and weigh evidence; and can resist appeals to their dearest prejudices.

John Dewey agreed that critical thinking has increased our sense of the pragmatic basis of human thought (its instrumental nature), and also its grounding in actual human purposes, goals and objectives. Hundreds of thinkers and each major discipline have made some contributions to the critical thought.

### 1.2.2 DEFINITIONS OF CRITICAL THINKING

The developments in the field of CT lead to the establishment of varieties of definitions, which are given in table 1.8.

35
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dewey (1933)</td>
<td>CT is Active, persistent and careful consideration of any belief or suposed form of knowledge in the light of the grounds that support it and the further conclusion to which it tends.</td>
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<tr>
<td>Glaser (1941)</td>
<td>The ability to think critically, involves three things: (1) how you perceive a problem, (2) knowledge of the methods of logical inquiry and reasoning, and (3) some skill in applying those methods.</td>
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<td>Scheffler (1973)</td>
<td>CT is important in the conception and organization of educational activities.</td>
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<td>Nickerson, Perkins and Smith (1985)</td>
<td>CT is the ability to judge the plausibility of specific assertions, to weigh evidence, to assess the logical soundness of inferences, to construct counter-arguments and alternative hypotheses.</td>
</tr>
<tr>
<td>Moore and Parker (1986)</td>
<td>CT is the careful and deliberate determination of whether one should accept, reject, or suspend judgment about a claim and the degree of confidence with which one accepts and rejects it.</td>
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<tr>
<td>National Council for Excellence in Critical Thinking (1987)</td>
<td>CT is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. In its exemplary form, it is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth and fairness.</td>
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<tr>
<td>Kurfiss (1988)</td>
<td>CT is an investigation whose purpose is to explore a situation, phenomenon, question or problem to arrive at a hypothesis or conclusion about it that integrates all available information and that can be convincingly justified.</td>
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<tr>
<td>Norris and Ennis (1989)</td>
<td>CT is reasonable reflective thinking that is focused on deciding what to believe or do.</td>
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<tr>
<td>Facione (1990) and Delphi</td>
<td>CT is the purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological,</td>
</tr>
<tr>
<td>Report</td>
<td>Criteria or Contextual Considerations Upon Which That Judgment Is Based.</td>
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<tr>
<td>Pascarella and Terezini (1991)</td>
<td>CT has been defined and measured in a number of ways but typically involves the individual’s ability to do some or all of the following: identify central issues and assumptions in an argument, recognize important relationships, make correct inferences from data, deduce conclusions from information or data provided, interpret whether conclusions are warranted on the basis of the data given, and evaluate evidence or authority.</td>
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<tr>
<td>Schaferman (1991)</td>
<td>CT is the ability to think for one’s self and reliably and responsibly make those decisions that affect one’s life.</td>
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<tr>
<td>Burden and Byrd (1994)</td>
<td>CT is defined as a higher-order thinking activity that requires a set of cognitive skills.</td>
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<tr>
<td>Elder and Paul (1994)</td>
<td>CT is self-guided, self-disciplined, and self-corrective thinking. To be a good thinker, one must be good at effective communication and problem-solving abilities and be ready to embrace new ideas and skills.</td>
</tr>
<tr>
<td>(Facione, Giancarlo, Facione, &amp; Gainen, 1995)</td>
<td>A disposition to think critically can be defined as consistent willingness, motivation, inclination and an intention to be engaged in critical thinking while reflecting on significant issues, making decisions and solving problems.</td>
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<tr>
<td>Paul (1995)</td>
<td>A unique and purposeful thinking in which the thinker systematically and habitually imposes criteria and intellectual standards upon the thinking, taking charge of the construction of thinking, guiding the construction of the thinking according to standards, and assessing the effectiveness of the thinking according to the purpose, criteria, and the standards.</td>
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<td>Halpern (1996)</td>
<td>CT is the use of cognitive skills or strategies that increase the probability of a desirable outcome. It is purposeful, well reasoned and goal directed.</td>
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<td>Rudd, Baker and Hoover (2000)</td>
<td>CT is a reasoned, purposive, and introspective approach to solving problems or addressing questions with incomplete evidence and information and for which an incontrovertible solution is unlikely.</td>
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<tr>
<td>Author(s)</td>
<td>Definition of Critical Thinking</td>
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<td>Browne and Keeley (2001)</td>
<td>CT is an awareness of a set of interrelated critical questions</td>
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<td></td>
<td>CT is an ability to ask and answer critical questions at appropriate times</td>
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<td>CT is the desire to actively use the critical questions.</td>
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<tr>
<td>Marzano et al. (2001)</td>
<td>CT is reflective thinking that is focused on understanding an issue, creating and weighing solutions, and making informed decisions</td>
</tr>
<tr>
<td>Paul and Elder (2001)</td>
<td>CT is that mode of thinking—about any subject, content or program—in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them.</td>
</tr>
<tr>
<td>Astleitner (2002)</td>
<td>CT is higher-order thinking skill which mainly consists of evaluating arguments or propositions and making judgments that can guide the development of beliefs and taking action.</td>
</tr>
<tr>
<td>The Critical Thinking Co.™(2005)</td>
<td>CT is the identification and evaluation of evidence to guide decision making. A critical thinker uses broad in-depth analysis of evidence to make decisions and communicate his/her beliefs clearly and accurately.</td>
</tr>
<tr>
<td>MCC General Education Initiatives (2007)</td>
<td>Critical thinking includes the ability to respond to material by distinguishing between facts and opinions or personal feelings, judgments and inferences, inductive and deductive arguments, and the objective and subjective. It also includes the ability to generate questions, construct, and recognize the structure of arguments, and adequately support arguments; define, analyze, and devise solutions for problems and issues; sort, organize, classify, correlate, and analyze materials and data; integrate information and see relationships; evaluate information, materials, and data by drawing inferences, arriving at reasonable and informed conclusions, applying understanding and knowledge to new and different problems, developing rational and reasonable interpretations, suspending beliefs and remaining open to new information, methods, cultural systems, values and beliefs and by assimilating information.</td>
</tr>
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</table>

It can be concluded by studying the definitions given above that there is no common consensus over the definition of critical thinking, but they do tell us about the various constituents of critical thinking. The main areas of disagreement and
concern include (a) the extent to which critical thinking is subject specific, (b) differences between expert and novice thinking in a discipline and the extent to which novices can learn to think more like experts, (c) difficulties in separating higher order and lower order thinking skills for instructional purposes, and (d) whether critical thinking should be considered a process or a set of skills (Beyer, 1985; Facione, 1984; Johnson, 1996; Perkins, Farady and Bushey, 1991). The major point of distinction among the definitions is due to two different disciplines related to CT viz. philosophy and psychology. In their definitions, Philosophers tried to focus in on the nature and quality of the critical thinking products (e.g. analysis of arguments), whereas the Psychologists centre in on the process of cognition, mention the components and operations being used in an attempt to solve problems. Another point of distinction is that the base of philosophy lies in logical reasoning and that of psychology in the empirical research. While most theorists have continued to base their theories and definitions of critical thinking or higher order reasoning in one discipline or the other, some educators have noted the importance of drawing on both philosophy and psychology to develop a rigorous and encompassing theory of critical thinking and how to teach for it (Kuhn, 1992; Kurfiss, 1988; Marzano et al., 1988; Weinstein, 1995).

1.2.2.1 Philosophy-based theories and definitions: Since the time of Socrates, philosophy has been related to critical thinking. Since the early 1970s, the rise of informal logic along with the development of the discipline of philosophy has lend critical thinking the most central place in the educational reform movement. Informal logic is a branch of logic that concerns itself with interpretation, evaluation, and construction of arguments and argumentation used in natural language; informal logicians have tended to view critical thinking as a broader term that includes and draws upon the findings of informal logic but also benefits from other forms of logic as well as from competencies outside of the field (Johnson, 1996). It has given critical thinking the rigorous theoretical foundation which focused on reasoning and argumentation.

Philosophers have also addressed other components of critical thinking apart from informal logic. Various theories of critical thinking certainly differ in important points, but they also reveal common concerns (Ennis, 1987; Lipman, 1988; McPeck, 1981; Paul, 1993; Siegel, 1988).
Psychology-based theories and definitions: In contrast to philosophers, psychologists have drawn their ideas about critical thinking largely from research in cognitive and developmental psychology and theories of intelligence (Bransford, Sherwood, and Sturdevant, 1987; Halpern, 1996; Sternberg, 1987). They have connected critical thinking to problem solving, in contrast to the philosophers who were trying to relate and even equate critical thinking with problem solving. Halpern (1996), for example, has defined critical thinking as “thinking that is purposeful, reasoned, and goal directed. It is the kind of thinking involved in solving problems, formulating inferences, calculating likelihoods, and making decisions”. While Halpern does use the term critical thinking, most cognitive-based theorists have preferred to use “thinking skills” (or, more narrowly, higher order thinking skills) rather than critical thinking as a generic term for the movement (Sternberg, 1987).

Psychologists have researched and emphasized the components skills of critical thinking mostly ignoring dispositions (inclinations, sensitivities, and values needed to be a good critical thinker) and standards (criteria for evaluating thinking). In spite of that general tendency, in recent years several noted psychologists have begun focusing on the importance of students’ dispositions and have emphasized them in their models for critical thinking (Halpern, 1998; Perkins, Jay, and Tishman, 1993).

Probably the best broad-based systematic inquiry into the state of critical thinking was set in motion by the American Philosophical Association in an attempt to achieve a consensus of opinions by a panel of experts in critical thinking for the purposes of educational instruction and assessment (Facione, 1990). In a multiyear qualitative research project 46 subject experts participated to ponder in their thoughts. Of these scholarly people, 52% were philosophers, 22% were educationists, 20% were psychologists and the remaining 6% were related to the physical sciences. The work resulted in the formation of report, commonly known in the critical thinking literature as the Delphi Report. The Delphi Report identified critical thinking as “one among a family of closely related forms of higher-order thinking, along with, for example, problem solving, decision making, and creative thinking” (Facione, 1990). Facione, who organized and participated in the project, added that the terms used in the definition are overlapping and the relationship among them has to be examined as yet. In its Expert consensus statement, Delphi experts included both cognitive and
affective domains and thus experts were able to reach consensus to come up with an inclusive definition of critical thinking. However, there always remained a deep divide on the issue including a normative dimension, as Paul has insisted in his analysis. After the Delphi experts, many more scholars have defined higher order thinking as combination of a number of skills like critical thinking, problem solving, and decision making. Critical thinking has some overlapping skills with problem solving, but it mainly focuses on reasoning, argumentation, and judgment about ill-structured problems. Critical thinking includes skills of interpretation, analysis, evaluation, inference, explanation, and self-regulation. It also includes affective dispositions (Reed, 1998).

An analysis of the definitions tells us that across the times that the educators could not reach at a common consensus about the definition of critical thinking. However, irrespective of this difference of opinion, the educators do agree about its importance and an urgency to develop CT among the students. Many attempts have been made to give an operational definition of CT, to include in it a set of well-defined and testable skills, rather than some vague dispositions and attitudes. The Delphi Report compiled in 1988-89, gave a definition of CT which became widely known and used for research purposes. It became the basis for the design of CT tests to guide, foster and evaluate the concept of CT. The result is in the form of two well known commercial tests: the California Critical Thinking Skills Test, and the California Critical Thinking Dispositions Inventory. Some attempts have been made since then to design good tests of CT. They seem to agree in identifying the critical thinker as a person who is able to interpret the meaning and analysis of inferences, observations, judgments and arguments; undertake deductive and inductive reasoning; and evaluate the validity of claims and arguments (Ennis, Millman and Tomko, 1985; Facione, 2006; Fisher, 2001; Paul and Scriven, 2004; Watson and Glaser, 1980). Paul has included the idea that the critical thinker has also the ability to evaluate his or her own thoughts (Paul, Binker and Willsen, 1994).

During the conceptual development of the concept of CT and discussions of Delphi Report, it was accepted that there are two major aspects of critical thinking: Critical Thinking Skills and Critical Thinking Dispositions.
1.2.3 CRITICAL THINKING SKILLS

Those abilities which are used to carry out activities involving cognitive, technical or interpersonal functions and can be attained through deliberate, systematic, and sustained training are termed as Skills. The characteristics of a person with well developed critical thinking skills include – clarity of purpose of a task; ability to define the problem accurately and identify the core issues; ability to recognise assumptions, understanding of depth and breadth of the problem; ability to analyse, fair-minded efforts towards solving the problem, ability to sort out, examine and retain the information essential and relevant to the problem; identify and make consistent, reasonable and valid assumptions; in order to obtain logical conclusions follow where evidence and reason lead; ability to draw inferences from data, identify the most significant implications and distinguish probable from improbable implications.

1.2.4 CRITICAL THINKING DISPOSITIONS

Critical thinking is a kind of “reasonable reflective thinking that is focused on deciding what to believe or do” (Ennis, 1987). Critical thinking theorists argue that thinking requires something more fundamental than knowledge or skills, namely a set of dispositions (Beyer, 1987, 1988; Costa and Lowery, 1989; Norris and Ennis, 1989). As far back as 1933, Dewey argued that possession of knowledge is no guarantee for the ability to think well but that an individual must have the desire to think. Thinking dispositions can be defined as the tendencies towards the use of certain patterns of intellectual behaviour. Critical thinking dispositions form the affective part of the critical thinking. These determine whether or not the people use their critical thinking skills when it counts. An ideal critical thinker has these dispositions coupled with the cognitive skills. Critical thinking disposition comprises of consistent willingness, motivation, inclination and drive to carry on with critical thinking while solving problems. These dispositions are classified by Beyer (1987, 1988) into two groups, one as those that relate to thinking in general and the other as those that relate to the specific cognitive operations. Suspended judgment and reflectivity form the General critical thinking disposition and the attitudes that relate to specific cognitive operations are open-ness to consider other’s point of view, desire to gather relevant information before making a judgment, and a willingness to identify additional
solutions even after an apparently acceptable conclusion has been attained. Good thinkers have both the critical thinking skills as well as the critical thinking dispositions. Norris (1994) defined Thinking Dispositions as a tendency to think in a certain way under certain circumstances. In Norris' view, a thinking disposition is not simply a desire or predilection to thinking critically. He says, "...individuals must either have formed habits to use certain abilities, or overtly think and choose to use the abilities they possess. A person with an ability to think critically under certain conditions will do it, only if so disposed". Another group of scholars include numerous dispositions in the advanced taxonomies of high-level thinking dispositions. Ennis (1987) indicated that critical thinking dispositions involve seeking information, precision, and being open-minded. According to Ennis (1996), critical thinkers have a tendency to: be clear about the intended meaning of what is said, written, or otherwise communicated, determine and maintain focus, take the total situation into account, seek and offer reasons, be well-informed, look for alternatives, seek as much precision as the situation requires, try to be reflectively aware of one's own basic beliefs, be open-minded: seriously consider others points of view and be willing to consider changing one's own position, withhold judgments when the evidence and reasons are sufficient to do so, use one's CT abilities and take into account the feelings and thoughts of other people. Halpern (1998) provided the taxonomy of critical thinking dispositions: verbal-reasoning dispositions, argument-analysis dispositions, thinking dispositions, thinking in terms of likelihood and uncertainty, decision-making and problem-solving dispositions. Simpson and Courtneay (2002) identified six characteristics that a critical thinker may have such as open-mindedness, being inquisitive, truth-seeking, analytical to critique evidence and the inferences that can be drawn from the evidence, uses an organized and meticulous approach to problem solving, and self-confident with self-awareness of one’s own ability to utilize and critique available scientific evidence to inform decisions. The definition of American Philosophical Association developed through a Delphi panel of 46 theoreticians from several academic fields is the widely used: Delphi report says that the ideal critical thinker is habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of
criteria, focused in inquiry, and persistent in seeking results which are as precise as the subject and the circumstances of inquiry permit (Facione, 1990).

Researchers have investigated the relationship between the CT disposition and the CT skills and found that in order to develop CT skills, the disposition to think critically is a must. Dewey believed that open mindedness, whole-heartedness and responsibility are the attitudes that are important to develop the habit of thinking. Facione et al. proposed that a person who thinks critically uses dispositions to form and make judgments. For example a student may possess the knowledge to think critically about an issue, but if these dispositional affects do not work in that concern, the student may fail to analyze, evaluate, and synthesize the information to think critically. Giancarlo and Facione (1994); Facione and Facione (1997) reported low positive correlation between scores of CT skills and the dispositions to think critically but Rimiene (2002) reported no correlation between scores of CT skills and the dispositions. Still much more investigations are needed to determine the relationship between CT skills and dispositions. Characteristics of teachers, characteristics of learners and the educational strategies are the three major factors that may affect students' dispositions towards critical thinking. Stewart and Dempsy (2005) identified, benchmarks and guiding principles for best practices that promote CTDs: encourage contact between students and faculty, develop reciprocity and cooperation among students, use active and reflective learning techniques, give prompt feedback, emphasize time on task, communicate expectations and learning outcomes, respect diverse talents and ways of learning.

1.2.5 THE BIOLOGICAL CONCEPT OF CRITICAL THINKING

The miracle organ of human body- the brain is divided into two parts: Right Hemisphere and Left Hemisphere. The Left hemisphere is related to the logical thinking, and has been considered as dominant for long. The other functions of left hemisphere include: Language skills i.e speech, reading and writing abilities, spelling, memorizing facts, names and dates, analytical thinking, literal understanding of words, sequential processing of information, and mathematical capabilities. The most important of the Right Hemisphere is intuition. Perception of non-verbal information, Spatial orientation, Musical ability, Understanding of metaphors, Imagination, Emotions, Sex, Mystics, Dreams, Multitasking and parallel processing of information are the main functions of the right hemisphere.
Both the hemispheres of the brain are indulged in the process of critical thinking. It involves the logical deduction of problems and both - verbal as well as the non-verbal information. Thus, to bring about Higher Order Thinking Skills in the child, both the hemispheres of the brain should be properly groomed.

1.2.6 CREATIVITY AND CRITICAL THINKING

Creative and critical thinking in Bloom’s taxonomy are referred to as the higher level thinking skills. Creativity involves creating something new or original and critical thinking involves logic and reasoning. Creativity is related to right hemisphere of the brain whereas CT is mainly related to the left part. Acc. to Paul and Elder (2007) while Creativity masters a process of making or producing, CT is a process of assessing or judging. Although there is a difference between creativity and critical thinking, but a good thinking process requires both. A critical thinker gathers, analyzes, examines, and evaluates information; a critical thinker can also distinguish between opinion and fact. (Paul and Elder, 2007) Critical thinkers are influenced by straightforward information and detail, and they play a key role in our thought processes. Creative thinkers come up with ideas and look at things from different perspectives, and these types of thinkers make typical connections and look at things in new ways. A creative thinker "takes risks" and goes against the normal viewpoint. A hallmark of critical thinkers is their openness and their disposition to deal with complexity, searching for alternatives that are not readily available, being willing to make errors and try again because their goal is not to have absolute right answers (Ruggiero, 2004). Creative thinking means creation and CT means analysis. Both, when used in conjunction, can create a powerful process of higher order thinking.

1.2.7 INTELLIGENCE AND CRITICAL THINKING

Intelligence is one of the most talked about subjects within psychology. Various definitions have characterized intelligence as adaptability to a new environment, capacity to acquire knowledge and capacity for reason and abstract thought. It also involves, ability to comprehend relationships, ability to evaluate and judge, capacity to produce original thought, reasoning, cognitive ability, ability to learn from experience, capacity to apply knowledge and capacity to engage in abstract reasoning.

The Watson-Glaser test of Critical thinking shows a positive relationship with cognitive ability. The additional information obtained by measuring CT provides
insight into an individual’s ability to put brainpower into practice. It involves attitudes that enhance one’s ability to recognize the existence of problems.

Sternberg, Ennis, and Lipman assert that CT skills are not a fixed entity but a form of intelligence that can be taught. There is a great difference between being intelligent and being a critical thinker. Being intelligent does not imply that a person is a critical thinker. A profound genius may have irrational beliefs or unreasonable opinions, but CT is, how we use our intelligence and knowledge to reach objective and rational goals. Opinions and beliefs based on CT are firmer as compared to those formulated through less rational processes. Critical thinkers are usually better equipped to make decisions and solve problems. CT is a vehicle that is powered by the power of intelligence. Gardner’s Theory of Multiple Intelligence views that CT is not just a feature of “verbal-linguistic intelligence” or “logical-mathematical intelligence.” It comes into play massively in the areas of “visual-spatial intelligence,” “inter/intrapersonal intelligence,” “musical intelligence,” and virtually any other “intelligence” you want to define. CT is of paramount importance in professions like Architecture, Song Writing, Diplomacy or Self-Help.

According to Elder (1996) CT provides the crucial link between intelligence and emotions in the “emotionally intelligent” person. CT enables us to take active command of not only our thoughts, but also of our feelings, emotions and desires. CT provides us with the mental tools needed to explicitly understand how reasoning works and how to steer what we think, feel, desire and do. Despite the fact that cognition, feelings and volition are equally important functions of mind, it is cognition or thinking, which is the key to the other two. If we want to change a feeling, we must identify thinking that ultimately leads to the feeling.

1.2.8 PROBLEM SOLVING AND CRITICAL THINKING

Problem solving is the concluding part of the larger problem process that includes finding and shaping of the problem. Most complex of all intellectual functions, problem solving is defined as the higher-order cognitive process that requires the modulation and control of the fundamental skills. Problem-solving is a mental process that involves discovering, analyzing and solving problems. The ultimate goal of problem-solving is to overcome obstacles and find a solution that best resolves the issue.
### Table 1.9: Similarities and differences among critical thinking and related terms

<table>
<thead>
<tr>
<th>Concept</th>
<th>Similarities</th>
<th>Differences</th>
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</thead>
<tbody>
<tr>
<td>Creativity and CT</td>
<td>Both include thinking process, open mindedness, and have the risk taking capacity. Both are related with blooms taxonomy (CT with evaluation and creativity with synthesis), both are interrelated and complimentary to each other. Diversity of thought can remove some obstacles to CT.</td>
<td>Creativity involves the process of making but CT involves process of judging or assessing. Creativity is generation of thought and CT is processing of thought. CT is related to left brain and creativity with right brain. Creativity involves expansion of ideas and CT is evaluation of ideas. Creative thinking is carried on by violating accepted principles; CT is carried on by applying accepted principles. CT is always goal directed but creativity may not be. Creative thinking can be morally/ethically right or wrong (example of creative activities by militants) but CT should be morally/ethically right.</td>
</tr>
<tr>
<td>Intelligence and CT</td>
<td>Both include purposeful action, logical thought and Higher Order Cognition.</td>
<td>CT is more rational with the point of view of Problem Solving and Decision Making. We can train an individual how to become critical thinker. Intelligence cannot be taught. CT also includes Intelligence</td>
</tr>
<tr>
<td>Problem Solving and CT</td>
<td>Both are based on the principles of logic where clear unbiased thinking is the first order of analysis. They both answer to the question “How” in order to arrive at questions which provide adequate information for problem solving.</td>
<td>Problem solving is a linear process of evaluation, while CT is an overlying set of abilities that allow the inquirer to properly facilitate each stage of the linear problem-solving process.</td>
</tr>
</tbody>
</table>
1.3 SOCIAL COMPETENCE

Social competence is an important ingredient of modern civilization; and an essential attribute of the members of a progressive society. It refers to a person’s ability to get along with other people. A person’s views of self in relation to the family, peers, and the wider world also affect his social competence. The cultural plurality and diversity of India provide enough opportunities to Indian children for the acquisition of higher order social competence, through rich and varied interpersonal interactions.

A young child’s ability to get along with other children contributes much to all aspects of his development. How well a child gets along with others may be “the single best childhood predictor of adult adaptation,” (Hartup, 1992). For example, “Children who are generally disliked, who are aggressive and disruptive, who are unable to sustain close relationships with other children, and who cannot establish a place for themselves in the peer culture are seriously at risk” (Hartup, 1992). Quite a bit of research during the past 20 years suggests that children who do not have a basic level of social competence by the age of 6 may have trouble with relationships when they are adults (Ladd, 2000; Parker and Asher, 1987). The long-range risks for a child who cannot interact well with other children may include poor mental health, low academic achievement and other school difficulties, and poor employment history (Katz and McClellan, 1997). On the other hand, a child is more likely to have better mental health, stronger relationships, and success in school and work if he strengthens his social competence by playing, talking, working out disagreements, and collaborating with peers and adults. It is not necessary that a child be a "social butterfly." Quality matters more than quantity when it comes to a child's friendships. Children who have at least one close friend usually tend to increase their positive feelings about school over time (Ladd, 1999). Some children may simply be more shy, more inhibited, or more cautious than others. Pushing such children to interact with peers can make them very uncomfortable. Unless a child is so extremely shy that she cannot enjoy many of the "good things of life" (parties, picnics, family outings), she will probably outgrow her shyness if adults around her handle it with calm understanding.
Social competence is a complex, multidimensional concept consisting of social, emotional (affect regulation), cognitive (fund of information, skills for processing/acquisition, perspective taking), and behavioral (conversation skills, pro-social behavior) skills, as well as motivational and expectancy sets (moral development, self-efficacy) needed for successful social adaptation. Social competence also reflects having an ability to take another's perspective concerning a situation, learn from past experiences, and apply that learning to the changes in social interactions. (Semrud-Clikeman, 2007)

Social competence plays an important role in reducing the signs of poor adjustment and helps to enhance the psychological and social adjustment. The possession of a suitable level of social competence leads an individual to have the will to face the challenge and lead to interact effectively with others in a way that facilitates in the achievement of personal goals and adaptation to the environment (Berk, 1999). Social competence is also considered as one of the components of social behavior, it is acquired through social interaction and cultural integration in different socio-cultural settings. The success of an individual in the society depends largely upon the extent to which he has acquired the richness and potency of social competence desirable for his self-actualization, growth and development. For a successful interpersonal interaction, a high order social competence is an essential disposition of an individual. Social competence has been defined as the social ability and interpersonal skill of an individual in effectively meeting a person-situation interaction or successfully dealing with ‘an individual’s environmental factors’ (Eisler, 1970). White (1963) developed the concept of social competence to depict a person’s transactions with the social environment, and enable him to acquire successful experience of others that may produce desirable effects. It is a collection of specific social behavior such as differential self-concept, consolidation of identity, habit of personal maintenance and care consistent with common peer group standard differentiations of feelings and implications, positive and affectionate personal relationships, appropriate regulations of anti social tendencies, curiosity and active exploration of the environment, control of attention as a function of situational or task requirements, perceptual skills, fine motor dexterity, language skills, memory flexibility in the application of information processing strategies, quantitative and rational concepts, understanding and skills, general knowledge of health, social environment, consumer behavior etc.
Social competence is a set of complex skills, which determine the efficiency of managing social situations and are gained through social practice. Based upon the type of situation, three elementary components of social competences may be distinguished as effectiveness of behavior in close interpersonal relationships, social exposure and assertiveness.

Schumaker and Hazel (1984) define a social skill as "any cognitive function or overt behavior in which an individual engages while interacting with another person". Cognitive functions include capacities such as empathy or understanding other people's feelings, discriminating and making inferences about social cues, and predicting and evaluating the consequences of social behaviour. Overt behaviours include the non-verbal (eye contact, facial expression) and verbal (speech) components of social expression. Citing Libet and Lewinsohn (1973) and Trower et al. (1978), they go on to define social competence as involving "an individual's generative use of a variety of cognitive and overt social skills that lead to positive consequences for him/her and those interacting with him/her". Social competence is therefore seen as a composite of four sets of skills:

(a) Discriminating situations in which social behavior is appropriate (determining whether someone is ready or too busy to talk),

(b) Choosing appropriate verbal and non-verbal social skills (to fit the age, gender, or authority of the other person),

(c) Performing these social skills fluently (according to current social norms), and

(d) Accurately perceiving the other person's verbal and non-verbal cues and adjusting to this feedback (stopping talking when the other person has tried to speak).

Possession of social skills may be a necessary condition, but fluency in performance of social skills is based not only on proficiency but also the motivation to use such skills, which in turn is an issue of social understanding and valuing the positive consequences of successful social exchanges.

Social competence is not restricted to, effective social communication, it also includes non-communication components like dressing and hygiene, competence in social activities (video games, sports, dancing, and the like), transportation to relevant
social gatherings, impulse control, social problem solving, reading of nonverbal cues, etc. The best predictors of social acceptance in the early grades are the ability to (1) enter into (ongoing) interaction (initiate), (2) maintain social interaction, and (3) resolve conflicts. As the child enters into later childhood and adolescence, other social “plays” become important, including joking, teasing and receiving teasing, complementing and receiving complements, arguing assertively but not aggressively, maintaining conversation about topics popular in relevant social groups, etc.

Social competence is, possessing and using the ability to integrate thinking, feeling and behaviour to achieve social tasks. In other words, Social competence refers to the social, emotional and cognitive skills (behaviours) that children need for successful social adaptations and healthy social development. In a school, one can be socially competent by successfully assessing the school curriculum, meeting his personal, educational, emotional and social needs. Different situations demand different competencies which vary with the age of the child and with the demand of particular situation. Behaviours that are appropriate at one time may be inappropriate at another time in a given situation. The behaviours of a socially competent preschool child is different from those of a socially competent adolescent. The same behaviours (aggressiveness, shyness) have different implications for social adaptations depending on the age of the child and the particulars of the social context. To achieve success or a given objective, a socially competent person may emit or suppress a certain behavior depending upon what the situation demands.

A person’s social competence depends upon factors including social skills, social awareness, and self confidence. Social competence is a broader term which is used to describe a person’s social effectiveness. It enables a person to establish and maintain high quality and mutually satisfying relationships. He is able to avoid the negative treatment and victimization from others. The factors like social skills, emotional intelligence, social confidence and social anxiety can affect his/her social competence. The major part of social competence is a set of component skills or procedures applied conditionally.

1.3.1 SOCIAL COMPETENCE AND SOCIAL SKILL

We use the term “social competence” rather than the more commonly used term “social skills” because the term “skills” often suggests that practice of certain
socially positive behaviors is all that a person needs to be socially successful (to be accepted in relevant social groups and to have friends). “Skills” in this sense are certainly NOT all that is required for a person to be socially competent and have friends. For example, a person may possess the skills (behaviors), but not use them or not use them on the right occasions. Alternatively, a person may possess the skills (behaviors), but lack the ability to “read” others, correctly interpret social realities, or react in an emotionally appropriate manner, thus failing to act in a socially successful way. Similarly, a person may possess the skills (behaviors), but lack the confidence needed to enter the social “playing field” and play the social game. Finally, a person may possess the skills (behaviors), but simply not be interested in acceptance by peers or having friends.

Haccou (2004) recognises that competence is a broader, more situation specific construct than skill. In general, competence is a person's ability to perform a certain task in a certain context and at a certain moment. However, that performance is defined not only by the person's skill (the ability to emit the behaviour) but also by their attitude (personal traits and motivation), underlying knowledge (information) and experience.

Social Skills are not the same thing as behavior. Rather, they are components of behavior that help an individual understand and adapt across a variety of social settings. Walker (1983) defines social skills as “a set of competencies that allow an individual to initiate and maintain positive social relationships, contribute to peer acceptance and to a satisfactory school adjustment, and allow an individual to cope effectively with the larger social environment”.

Social skills can also be defined within the context of social and emotional learning — recognizing and managing our emotions, developing caring and concern for others, establishing positive relationships, making responsible decisions, and handling challenging situations constructively and ethically (Zins, Weissbert, Wang, and Walberg, 2004). With this understanding, researchers and educators seek to evaluate and build students’ social skills within a variety of social contexts. In addition, the specific skills or behaviors associated with social competence vary from one social context to another and from one social group to another. For example, the social behaviors observed in the science club at school tend to be quite different from
those observed in groups of skate boarders on the street. To be sure, there is a central set of social skills needed to be successful in school (specific interactive competencies with teachers, specific classroom behaviors, etc.) and these skills may need to be taught. However, success with friends and within peer groups varies with the values and expectations of the relevant individuals.

1.3.2 HISTORY OF SOCIAL COMPETENCE

The history of social competence dates back to the early 20th century. A noteworthy discovery was that social competence was related to future mental health, thus igniting research on how children interact with peers and function in social situations. As research developed, different measurement techniques were developed to suit the new findings. In the 1930s, researchers began to investigate peer groups to find out how children's characteristics affected their positions within these peer groups. In the 1950s and 1960s, research established that children's social competence was related to future mental conditions like maladaptive outcomes in adulthood as well as problems in school settings. Research on social competence expanded greatly from this point on, as increasing amount of evidence demonstrated the importance of social interactions. Mid-century, researchers investigated social competence in terms of problem-solving skills and strategies in social situations. Social competence was conceptualized in terms of effective social functioning and information processing. In the 1970s and 1980s, research began focusing on the impact of children's behavior on relationships, influencing the study of the effectiveness of teaching children social skills that are age, gender, and context specific. Many researchers devised social information processing models to explain what happens in a social interaction in an effort to determine why some children were not exhibiting social skills in some interactions. These models concentrated on factors in interactions such as behavior, how people process and judge each other, and how they process social cues. They also focused upon how people select social goals; decide on the best response to a situation and enacting the chosen response. A prominent researcher of social competence in the mid-1980s was Frank Gresham. He identified three sub-domains of social competence: adaptive behavior, social skills, and peer acceptance (often used to assess social competence). Research during this time focused on children not displaying social skills to identify and help these children who were potentially at risk of long-term negative outcomes due to poor social interactions. Gresham proposed
that these children could have one of four deficits: skill deficits, in which children did not have the knowledge or cognitive abilities to carry out a certain behavior, performance deficits, self-control skill deficits, and self-control performance deficits, in which children had excessive anxiety or impulsivity that prohibited proper execution of the behaviors or skills they knew and understood (Semrud-Clikeman, 2007).

Despite all the developments and changes in the conceptualization of social competence throughout the 20th century, there was still a general lack of agreement about the definition and measurement of social competence during the 1980s. (Dodge, 1980) The definitions of the 1980s were less ambiguous than previous definitions, but they often did not acknowledge the age, situation, and skill specificity implicit in the complex construct of social competence. (Pellegrini, 2000).

1.3.3 DEFINITIONS OF SOCIAL COMPETENCE

Social competence is usually defined broadly and its definitions are complicated by a lack of objectivity regarding social skills. What one person believes to be a suitable social skill may seem inappropriate to another. Being able to sit quietly during free time may be imperative to one teacher, yet not a problem for another. Also, different skills are necessary in different situations. The social skills a person exercises with a friend or relative are not the same as with an employer or landlord. According to Bender and Wall (1994), basic social proficiency is reflected in the student’s having the ability to interact appropriately with others in various situations. A major component of the definition is determining appropriate behavior. For example, some children may possess the correct social skill, but may use it at the wrong time or only when it is personally beneficial (Haager and Vaughn, 1995).

Social competence refers to the social, emotional, and cognitive skills and behaviors that children need for successful social adaptation. Despite this simple definition, social competence is an elusive concept, because the skills and behaviors required for healthy social development vary with the age and demands of particular situations. Different social competencies are required and valued in different contexts. Behaviours which are dysfunctional and disapproved in one context might be functional and approved of in another. Through thinking and feeling, the socially competent person is able to select and control, which behaviours to emit and which to
suppress in any given context, to achieve any given objective set by them or prescribed by others.

This relativistic definition deliberately omits any specification of a particular outcome. However, populist conceptions of social competence often assume specific outcomes, implying but not making explicit culturally based value judgments.

Goldfried and D’Zurill (1969) define social competence as “The effectiveness of adequacy with which an individual is capable of responding to various problematic situations which confront him.”

Libet and Lewinsohn (1973) and Trower et al. (1978), define social competence as involving “an individual's generative use of a variety of cognitive and overt social skills that leads to positive consequences for him/her and those interacting with him/her”.

Zigler (1973) defines social competence as, “an individual’s everyday effectiveness in dealing with his environment.”

Ford (1982) defines Social competence as, “an attainment of relevant social goals in specified social contexts, writing appropriate means and resulting in positive developmental outcome.”

Mcfall (1982) defines Social competence as, “a judgment by another that an individual has behaved effectively.”

Schumaker and Hazel (1984) define a social skill as “any cognitive function or overt behavior in which an individual engages while interacting with another person”.

Waters and Gresham (1986) states, “Social competence is the ability to make use of environmental and personal resources to achieve a good developmental outcome.”

Rubin and Rose-Krasnor (1992) define social competence as, “The ability to achieve personal goals in social interaction while simultaneously maintaining positive relationships with others over time and across settings.”

Sheridan and Walker (1999) identified two aspects of children’s social skillfulness. One aspect is to learn a variety of important social skills appropriate in different contexts and the other is to learn to relate and behave in a way that is acceptable to other people. These aspects may be further divided into more specific skills, such as: 1) positive relations with others, 2) accurate social cognition, 3) the
absence of maladaptive behaviours, and 4) effective social behaviours (Vaughn and Hogan, 1990).

Law, Wong and Song (2004) explain that the study of social competence has its roots in Thorndike's (1920) proposition that intelligence has three broad based components. One of three described intelligence in the social arena is the ability to understand and manage men and women, boys and girls—to act wisely in human relations.

Rani and Sharma (2010) explained that Social competence refers to the personal adequacy, interpersonal adequacy and communication skills. Social competence is therefore seen as a composite of four sets of skills:
(a) Discriminating situations in which social behaviour is appropriate (determining whether someone is ready or too busy to talk),
(b) Choosing appropriate verbal and non-verbal social skills (to fit the age, gender, or authority of the other person),
(c) Performing these social skills fluently (according to current social mores), and
(d) Accurately perceiving the other person's verbal and non-verbal cues and adjusting to this feedback (stopping talking when the other person has tried to speak).

1.3.4 IMPORTANCE OF SOCIAL COMPETENCE

According to Myers and Diener (1995), happiness is related to “knowing a person’s traits, whether the person enjoys a supportive network of close relationships, whether the person’s culture offers positive interpretation for most daily events, whether the person is engaged in work and leisure, and whether the person has faith which entails social support, purpose and hope”. Social relationships and work are important elements in this quotation. Social relationships have been found to mediate stress and be positively associated with quality of life (House, 1981; Hughes et al., 1995; Schalock, 2000).

Social competence plays an important part in how well a young person turns into an adult. Without adequate social skills a person may experience trouble in the areas of employment, daily living skills, independent living and participating in the community. Employers often claim that social competence is more important than actual experience in the work place (Mellard and Hazel, 1992). Being able to organize
thoughts and questions, having a sense of humor, dealing with money and successfully communicating with co-workers have been stated by employers to be critical attributes for doing well on the job (Doren, et al., 1996; Mellard and Hazel, 1992). Also, poor peer relationships and low social skills have been linked to drop outs, juvenile delinquency, job termination, suicide, police contacts and dishonorable discharges from the military (Bryan, 1997). Children and adults must display appropriate social skills within the rules of their culture to maintain relationships that will help them to be independent and successful. Those who display inappropriate social behaviors are less appealing to their peers and have been found to have continual problems in life (Pavri and Luftig 2000).

Parents are the primary source of social and emotional support for children through the early childhood, but in later year’s peers begin to play a significant role in the social-emotional development and slowly peers rather than parents become preferred companions, providing important sources of entertainment and support. In the context of peer interactions, adolescents engage in fantasy play that allows them to assume different roles, learn to take another person’s perspective, and develop an understanding of the social rules and conventions of their culture. In addition, relationships with peers typically involve more give-and-take than relationships with adults and thus provide an opportunity for the development of social competencies such as cooperation and negotiation.

When children experience serious difficulties in developing peer relations, the development of social competencies may be threatened. Rejection or victimization by peers may become a source of significant stress to children, contributing to feelings of loneliness and low self-esteem. In addition, peer rejection may result in negative development. That is, when children with poor social skills become rejected, they are often excluded from positive interactions with peers that are critical for learning social skills. Rejected children typically have fewer options in terms of play partners and friends than do accepted children. Observations of rejected children have shown that they spend more time playing alone and interacting in smaller groups than their more popular peers. In addition, the companions of rejected children tend to be younger or more unpopular than the companions of accepted children. Hence, the social competence deficits of rejected children may increase over time, along with feelings of social anxiety and inadequacy.
1.3.5 MODELS OF SOCIAL COMPETENCE

Early models of social competence stress the role of context and situation specificity in operationalizing the competence construct. These models also allow for the organization and integration of the various component skills, behaviors and cognitions associated with social competence. Whereas global definitions focus on the "ends" rather than the "means" by which such ends are achieved, a number of models directly attend to the theorized processes underlying competence. (Goldfried and D'Zurilla, 1969). These process models are context specific and seek to identify critical social goals and tasks associated with social competence. Other models focus on the often overlooked distinction between social competence and the indices (skills and abilities) used to gauge it.

1.3.5.1 Behavioral–Analytic Model

Goldfried and D'Zurilla developed a five-step behavioral-analytic model outlining a definition of social competence.

The specific steps proposed in the model include:

1. Situation analysis: a critical situation is defined on the basis of certain criteria, which include: occurs with some frequency, presents a difficult response decision and results in a range of possible responses in a given population. Situation identification and analysis is accomplished through a variety of methods, including direct observation by self or others, interviews, and surveys.

2. Response enumeration: sampling of possible responses to each situation is obtained. Procedures for generating response alternatives include direct observation, role plays, and simulations in video and/or written formats.

3. Response evaluation: the enumerated responses are judged for effectiveness by "significant others" in the environment. An important element is that a consensus must emerge or the particular item is removed from future consideration.

In the last two steps (4 and 5) a measure for assessing social competence is developed and evaluated.
1.3.5.2 Social Information-Processing Model

A social information-processing model is a widely used means for understanding social competence (Crick and Dodge, 1994). The social information-processing model focuses more directly on the cognitive processes underlying response selection, enactment, and evaluation. Using a computer metaphor, the reformulated social information-processing model outlines a six-step nonlinear process with various feedback loops linking children's social cognition and behavior. Difficulties that arise at any of the steps generally translate into social competence deficits.

The six steps are:

1. Observation and encoding of relevant stimuli: attending to and encoding non-verbal and verbal social cues, both external and internal.
2. Interpretation and mental representation of cues: understanding what has happened during the social encounter, as well as the cause and intent underlying the interaction.
3. Clarification of goals: determining what one's objective is for the interaction and how to put forth an understanding of those goals.
4. Representation of situation is developed by accessing long-term memory or construction: the interaction is compared to previous situations stored in long-term memory and the previous outcomes of those interactions.
5. Response decision/selection
6. Behavioral enactment and evaluation

1.3.5.3 Tri-Component Model

Another way to conceptualize social competence is to consider three underlying subcomponents in a hierarchical framework. (Cavell, 1990).

1. Social Adjustment
2. Social Performance
3. Social Skills

The top of the hierarchy includes the most advanced level, social adjustment. Social adjustment is defined as the extent to which an individual achieves society's developmentally appropriate goals. The goals are conceived of as different "statuses"
to be achieved by members of a society (health, legal, academic or occupational, socioeconomic, social, emotional, familial, and relational statuses). The next level is social performance – or the degree to which an individual's responses to relevant social situations meet socially valid criteria. The lowest level of the hierarchy is social skills, which are defined as specific abilities (overt behavior, social cognitive skills, and emotional regulation) allowing for the competent performance within social tasks.

1.3.5.4 The Quadripartite Model

The essential core elements of competence are theorized to consist of four sets of skills, abilities, and capacities: (1) cognitive skills and abilities, (2) behavioral skills, (3) emotional competencies, and (4) motivational and expectancy sets. (Felner, Lease and Phillips, 1990)

1. Cognitive skills and abilities – cultural and social knowledge necessary for effective functioning in society (academic and occupational skills and abilities, decision-making ability, and the processing of information)

2. Behavioral skills – knowledge of behavioral responses and the ability to enact them (negotiation, role- or perspective-taking, assertiveness, conversational skills, and prosocial skills)

3. Emotional skills – affect regulation and affective capacities for facilitating socially competent responding and forming relationships

4. Motivational and expectancy sets – an individual's value structure, moral development, and sense of efficacy and control.

1.3.6 THE THREE ELEMENTS OF SOCIAL INTERACTION

Stanberry, in his article: “Learning difficulties and social skills: What's the connection?” gives the three basic elements of social interaction

- Social Intake: Reading social cues- noticing and understanding other people's speech, vocal inflection, body language, eye contact, and even cultural behaviors.

  Social interactions require a child to interpret, or "read," what other people communicate. Picking up on spoken and unspoken cues is a complex process. A child may misread the meaning or moods of others.
• Internal process: Making sense of it all—interpreting what others communicate to you as well as recognizing and managing your own emotions and reactions.

Having read another person's social cues, a child must next process the information, extract meaning, and decide how to respond effectively. This ability "emotional intelligence" is a form of social intelligence that involves the ability to monitor feelings and emotions in self and others; discriminate among feelings; and use this information to guide thinking and action. If the child misses or misinterprets another person's words, meaning, or mood, he'll end up processing incorrect or incomplete information. This can lead him to inaccurate conclusions and inappropriate reactions.

• Social output: Responding to others—how a person communicates with and reacts to others, through speech, gestures, and body language.

After a child interprets and internalizes social cues from other people, he then responds. This behavior, social output, is easy to observe. But it can be painful or frustrating to watch if the child's response isn't appropriate. Inappropriate responses can take many forms. If the child didn't understand a question or comment, his response may seem silly (such as nervous giggling) or unintelligent (an irrelevant answer). Another child may overreact with angry words or actions. Finally, if a child has really tuned out, he might not react at all, even when a response is required or expected from him. Understandably, such responses can cause problems and confusion with family members, friends, classmates, and teachers.

1.3.7 THE BUILDING BLOCKS OF SOCIAL COMPETENCE

Building blocks are elements which help a person to be socially competent. A person's social development starts at birth. Even tiny babies begin to interact with the people around them. They recognize voices and cry to let the caregivers know that they need something. They make eye contact and smile at those who feed them, hold them, or play with them.

Adults and older children, intentionally or not, are models for young children of how to behave with other people. In fact, a great deal of children's social behavior is influenced by what they observe other people doing. Most children's social skills increase rapidly during the preschool years. Relationships within the family also affect a child's social behavior. Children from diverse cultural and family
backgrounds may need help in bridging their differences and in finding ways to learn from and enjoy one another.

Gullota et. al. (1990) noted that the major components of social competence consists of (A) internal and cognitive capacities, (B) A balance between sociability and individuality (C) social groups in reference to peers. These components have been explained as

(a) Internal or cognitive capacities include positive self esteem, internal locus of control, social perspective taking and interpersonal problem solving. Sub dimensions were operationalized as

- Self esteem means, how much a person respects, likes and accepts himself overall as a person
- Internal locus of control is a feeling of exercising control over one’s life circumstances (Adams 1983).
- Social perspective taking (i.e. social role taking and empathy) is internal force for social competence that encourages adolescents to understand and become sensitive to feelings, intentions and abilities of others (Adams, 1983; Grotvent and Cooper, 1986 Moore and Eisenberg, 1984).
- Interpersonal problem solving includes (a) becoming sensitive to interpersonal situation (b) generating alternative solutions (c) planning for the attainment of interpersonal goal (d) weighing consequences in terms of their effectiveness and social acceptability and (e) perceiving cause and effect relations in interpersonal events (Shore, 1981).

(b) A balance between sociability and individuality includes the need to make progress towards qualities such as autonomy and achievement while maintaining close parents-youth ties, conforming to parents’ expectations, and developing successful friendship and peer relationships (Bumriad et. al., 1978)

(c) Social skills are specific behaviors’ that an individual exhibits to perform competently on a task (Gresham, 1995.)

Rani and Sharma (2010) did extensive research on social competence and on the basis of the components given by Gullota (1990) prepared a tool to assess the social competence of a person with the following component
• Personal Adequacy (i.e. self efficacy and self control)
• Interpersonal Adequacy (i.e. social awareness and social skills)
• Communication skills (i.e. effective communication in various social contexts)

Teachers can help by creating classroom communities that are open, honest, and accept differences. Skills which are essentially the determinants of social competence are like Basic interaction skills (smiling, making eye contact, listening), Entry/approach skills (how to approach an individual socially or join a group), Maintenance skills (how to share, take turns, follow rules, co-operate etc.), Friendship skills (how to show suitable affection, engage others in decision making, be inclusive, etc.), Conflict resolution (how to manage disagreements in a socially acceptable manner), Empathy, Communication of needs and ideas, sense of humour and Assertiveness (how to say no to engaging in dangerous or antisocial behaviour, stand up for oneself, etc.)

1.3.8 INTERRELATION BETWEEN SOCIAL COMPETENCE AND COOPERATIVE LEARNING

Cooperative learning is a teaching technique that promotes learning and socialization. Cooperative learning has social benefits as well as academic. One of the essential elements of cooperative learning is the development of social skills. It enhances social interaction, which is essential to meet the needs of at-risk students. Within the framework of cooperative learning groups, students learn to interact with their peers and increase involvement with the school community. Children learn to take risks and are praised for their contribution. They are able to see other’s points of view. Such benefits contribute to the overall satisfaction of learning and schooling. Students work with classmates who have different learning skills, cultural background, attitudes, and personalities. Heterogeneous groups promote student learning. These differences force them to deal with conflicts and interact with others. Social interaction improves communication skills that become a necessity to functioning in society. Positive interactions do not always occur naturally and social skills instruction must precede and concur with the cooperative learning strategies. Researchers argue that cooperative learning experiences are very important in preventing many social problems related to children and adolescents.
1.4 SOCIAL SCIENCE

Social Science comprises of the understanding of society, person, groups, institutions and the interaction among them. Although there are many differences between Social Studies and Social Sciences, yet the words Social Science and Social Studies are used interchangeably. As NCERT text books are published under the name of Social Sciences at school level, so in the present study the word Social Science is being used. NCSS (n.d) defines social studies as, “Social study is the integrated study of the social sciences and humanities to promote civic competence.” Within the school programme, social studies provides a coordinated and systematic study of anthropology, archeology, economics, geography, history, law, philosophy, political science, psychology, religion and sociology as well as appropriate content from the humanities, mathematics and natural sciences. Social studies enable the youngsters to develop the ability to make informed and reasoned decisions as citizens of a culturally diverse and democratic society in an independent world. Citizenship education encompasses the in-depth pupil learning in history, geography, political science economics and culture.

A dominant and fundamental issue in social studies remains, how best we can prepare citizens for a democratic society in an increasingly independent and culturally diverse world. Much of the discussion centers around, which subject matter is most worthy and how to stimulate students to become active rather than passive participants in the construction of knowledge.(Dash and Murthy, 2009)

1.4.1 DEFINITIONS OF SOCIAL STUDIES/ SOCIAL SCIENCES

Social Studies as the name suggest is a study related to the society or social fabric in which one lives. All that which exists at present in one’s society including its past and prediction about its future can thus make subject matter of Social Studies (Dinesh, 2010).

Commission on Reorganization of Secondary Education Association, U. S. A. (1928): “The social studies are understood to be those studies whose subject matter relates directly to the organization and development of human society and to man as a member of social groups”

Binning and Binning (1952): Social Studies are adapted from social sciences in order to play a part and a very important one in achieving the purpose or objectives
of education. The material of the social studies provide basis for making the world of today intelligible to the pupils for training them in certain skills and habits and for inculcating attitude and ideals that will enable boys and girls to take their places as efficient and effective members of a democratic society.

Barth (1993) provides a simpler definition of social studies: Social studies is the interdisciplinary integration of social science and humanity’s concepts for the purpose of practicing problem solving and decision making for developing citizenship skills on critical social issues.

1.4.2 DIFFERENCE BETWEEN SOCIAL SCIENCES AND SOCIAL STUDIES

Social Studies: Social science word used at school level and Social Science taught at graduation level are two seemingly similar words, but actually are entirely different streams of study. Social Studies deal with the study of the society as a whole, which encompass current and past events, whereas Social Science is a branch of Science that is concerned with the study of the communal life, the evolution of human groups and folks, economics, topography, ancient times, political science, psychology, sociology, religion and so on. The main difference lies between the objective - the study of social studies is to promote a healthy citizenry whereas social science deals with the study of social life of people.

The other differences can be enlisted as below:-

- The curriculum of social studies is framed to be imparted within the four walls of the classroom but social science provides specific and deep knowledge that cannot be gained within the school campus.
- An integrated approach is followed in social studies whereas the different branches of social sciences are studied separately and deeply.
- Geography, Civics, History and Economics are the only parts of social studies, but being a developmental science, social science includes all branches related to the evolution of man, social life and the well being of mankind in present and the future.
- Social studies is meant for younger children whereas social science includes branches such as Anthropology and Psychology, which are studied by adolescents and adults.
Social studies aims at developing special skills in the students to live happily in a society but social science studies the human relations and works to put forth new facts and theories.

Social studies provide some general knowledge to the students and hence is easier as compared to social science which involves research based deeper study.

Social studies apply the theories in real life situations which are researched and put forward by social sciences.

1.4.3 SCOPE OF SOCIAL SCIENCE/SOCIAL STUDIES

The scope defines the parameters of the study like depth, variety, comprehensiveness, etc. of a subject. The life and activities of man in society provided the subject matter for various social sciences, which have been organized into such subjects as History, Geography, Civics, Economics, Sociology etc. The integration of all above said subjects is known as ‘Social Studies’. The subject directly deals with man and society in which he lives (Dash and Murthy, 2009). The scope of social studies is as wide as world and as long as the history of man. The breadth of a social science program should provide for a variety of experiences so that the child’s learning will be rounded and well balanced. It should also be possible to draw upon other fields of learning so that significant problems can be considered in the light of their many ramifications; a narrow compartmentalized program limits social learning (Micheals).

Brown (2013) says that Social studies education helps explain the world in which we live. Much like science teaches children to observe the physical aspects of life, social studies encourages children to open their minds to the many places humans live on this planet. The social studies curriculum teaches not only physical geography, but also about different places, cultural differences of the world’s populations through the study of sociology and anthropology.

The nature of social science curriculum has always remained utilitarian. The developmental issues that are important like, issues of equality, justice, dignity of labor and egalitarian society have always been emphasized. Social sciences have always been linked up to the role of an individual in contributing to the ‘development’ of the society. NCF(2005) for school education clearly points out that the main focus
of social science curriculum should be to emphasize the process of learning and thinking rather than the mere acquisition of facts and figures. Learners need to be given meaningful learning experiences through well planned activities. This will help them acquire basic competencies and skills. The best preparation of a good citizenry has always remained a dominant fundamental issue in Social Studies. This expectation of the society has existed since the time when social studies came into use. Many educators have tried to link social studies to the citizenship education. The improvement of the society occurs through the operation of social, political and economic institution which depends upon, to some degree, the citizen participation. Due to this very reason every society desires to teach the children about their nation’s history, traditions, achievements and aspirations. The study of social studies should teach them responsibility for exercising their rights and duties as citizens. Therefore teaching of social studies requires a three dimensional social studies programme. They are: rationality, skillful behavior and social consciousness. As a result of which social studies can produce reflective, competent and concerned citizens, fulfilling the expectation of Mahatma Gandhi, to provide education for the head, hand and heart. (Dash and Murthy, 2009)

1.4.4 RATIONALE FOR INTRODUCING SOCIAL SCIENCE/SOCIAL STUDIES AS SUBJECT (INTEGRATED APPROACH) IN PLACE OF HISTORY, GEOGRAPHY, CIVICS, ECONOMICS, ETC.

Social Science is a complex whole which comprises the understanding of the society, person, groups, institutions and the interaction among them. Social Sciences encompass diverse concerns of society including a wide range of content including history, geography, political science, economics and sociology of an area (and of world). The disciplines that make up the social sciences often justify the preservation of boundaries, which is needed to be opened up to facilitate interdisciplinary thinking. The Social Sciences carry the responsibility to create and widen the human values, viz. freedom, trust, mutual respect, respect for diversity, etc. Thus, social sciences aim to develop in children moral and mental energy; ability to take initiative; ability to think independently; reflect critically on social issues and deal with the social forces that threaten these values. (Position Paper, NCERT, 2006). All the social sciences have their own importance but they are taught in integrated way in the form of subject
social studies or social science at school level. The main reason behind integrated
approach at school is that subject social studies/social sciences is included in school
curriculum to prepare students to deal effectively in society. They should have
minimum understanding of society (its political, historical, geographical, economic,
sociological and religious aspects) which is not possible by involving school students
into theoretical and deep rooted nature of different social sciences. Social study
contents include concepts from different social sciences, which have practical
implication for students. Moreover, knowledge is always more meaningful and
purposeful in holistic form as compared to analytic approach. The only purpose of
studying social sciences as a separate subject after school education is to get deep
understanding of theoretical aspect by applying analytic approach. The term Social
Studies indicate material whose content as well as aims are predominately social. The
social studies are the social sciences simplified for pedagogical purposes (Wesely and
Wronski, 1956).

1.5 ACHIEVEMENT

Achievement is a learnt motive to strive for success. It is the will power of the
individual to do things as rapidly or as well as possible. It is the intense and persistent
efforts to do everything well, accomplish something difficult and have the
determination to win. Theoretically, the concept of education in India is broad, but
practically major focus of contemporary Indian education is academic achievement of
the pupil. It has always been a vital part and the centre of educational research.
Despite a major change in the modes of assessment and definitions of objectives of
education, the academic achievement of a pupil continues to be the primary concern
and the most important goal of education and research.

Academic achievement in particular subjects plays a very important role in the
attainment of the idea of harmonious development of the child. In this swiftly
changing world and with the increasing advancement, the place of education has
become so crucial that every parent today sets lofty goals for his/her child. Today at
the time of admission, for entrance in jobs, for scholarship, for further studies good
academic record is the chief measure. Whatever one’s interest or attitude may be one
cannot undermine academic achievement in a subject. Possibly, no one would
disagree with the significance of academic achievement in child’s life. The success or failure of a learner is assessed in terms of his/her achievement in particular subject.

1.5.1 DEFINITIONS OF ACHIEVEMENT

Good (1959) in the Dictionary of Education, referred to academic achievement as the knowledge attained or skill developed in the school subjects, usually designated by test scores or marks assigned by the teacher.

Crow and Crow (1969) “Achievement means the extent to which the learner is profiting from instruction in a given area of learning”. In other words, achievement is reflected by the extent to which skill or knowledge has been acquired by the person and specific learning imparted to him; it is the outcome (general and specific) of learning experiences. Therefore, the special acknowledgement of a person’s skill, the range and depth of his knowledge or his proficiency in a designated area of learning or behavior is indicative of the extent of his achievement.

Academic achievement is a multidimensional and multifaceted phenomena. There are numerous factors which effect academic achievement in particular subject viz. motivation, school environment, classroom environment, role of teacher, heredity, methods of teaching, intelligence, home environment, experience of school, interests, aptitudes, personality, learning, family background, socio-economic status of the parents, and many more like these. Apart from other factors, method and learning experiences in a particular classroom are always considered vital one.

1.6 RATIONALE OF THE STUDY

National Curriculum Framework-Teacher Education (NCFTE) 2009 has rightly emphasized that Education is neither a mechanical activity of information transmission and nor the teachers are mere information dispensers. Teachers need to be looked at as crucial mediating agents through whom curriculum is transacted and knowledge is co-constructed along with learners. So a teacher needs to be a facilitator of children’s learning in a manner that helps children to construct knowledge and learning should not be confined to the four walls of the classroom through traditional methods of teaching. For this, we need to shift our focus from these traditional methods (mostly teacher centered) to some innovative teaching learning activities or student centered methods such as cooperative learning methods. Cooperative learning (CL) has been described as one of the most widely investigated
educational approaches (Slavin, 1996). Hundreds of studies have cited its benefits, and researchers like Johnson and Johnson (1989, 2000), Slavin (1990) and Sharan (1990) have produced extensive reviews of these. It has also inspired an international organization to provide a forum for researchers: the International Association for the Study of Cooperation in Education (IASCE). Review of literature shows that large amount of research that has been conducted on Cooperative learning. Many studies on specific cooperative learning methods were found. The studies have been conducted across all the levels of education viz primary, middle, secondary and higher education (Dasan, 2007). The research has been conducted in North America, Asia, Europe, the Middle East, and Africa and has involved minority as well as majority populations. More research on cooperative learning is conducted in the western countries as compared to eastern countries. Most of the studies have revealed positive effect of cooperative learning as compared to traditional method on achievement in different subjects as supported by Tjosvold et al. (1977), Ahuja (1994), Okubukola (1986), Watson (1988), Diemo and Hilton (2005), Kaul (2008), Chester (2009), Ebrahim (2010), Chopra and Gupta (2013) in Science, Coston (1994), Nowak(1996), Whicker (1997), Lucas (1999), Vaughan (2002), Bosfield (2004), Thangarajathi and Viola (2007), Mehra and Thakur (2008), Melihan and Sirri (2011), Bunarashi (2012) and Mbacho and Bernard (2013) in Mathematics, Sharan et al. and Skon et. al. (1979), Wodarski et al. (1980), Humphary et. al. (1982), Johnson et al. (1981), Perrault (1982), Webb (1982), Baseda (1983), Slavin (1983) Bak (1993) Zisk (1993), Hooper et al.(1993), Lickona (1991), Orlando (1991), Slavin (1991), Steevans and Slavin (1995), Lynch (1996), Singh and Rai (2002), Berkely et al. (2005), Hemamalini and Yashodhra (2006), Chen (2006), Ahmad (2008), George (2008), Mehra and Thakur (2008), Sharma and Sharma (2008), Alharbi (2008), Pushpanjali and Satyaprakash (2010) Shimazoe and Aldrich, (2010), Chang (1998), Bertucci et al. (2010) in other school and college subjects. Some studies have been conducted to see the effect of Cooperative learning methods on achievement in Social Science subject (Johnson et al., 1978; Wilderson, 1980; Lang, 1983; Allen and Van sickle, 1984; Natthy, 1986; Mattingly et al., 1991; Dotson , 2001; Sasidharan, 2003; Pandey, 2011; Nederhood,1986) and reported positive effect as compared to traditional methods. So, it was very much clear from review of literature related to cooperative learning that many studies on specific cooperative learning methods have reported positive effects
across all the subjects. Along with other methods of Cooperative learning, **Jigsaw method of cooperative learning** has also shown positive effect on academic achievement in different subject like Social Science, English, Science, Mathematics and other subjects (Aronson et al., 1978; Sharan, 1980; Walker and Crogan, 1988; Mattingly et. al., 1991; Zetty, 1992; Stepka, 1999; Wang, 2006; Rai and Samsudin, 2007; Doymus, 2008; Pereira, 2010; Lin, 2010; Lewis and Tran, 2012). Moreover, Chen, 2004 reported Jigsaw to be more effective as compared to STAD strategy of CL to improve academic achievement. Review of literature also revealed that jigsaw helps, low skilled students to perform as well as their average and high skilled counterparts (Barett 2000); low graders to improve their grades (Beckett, 2009); to make students active in classroom (Oludipe and Awokoy, 2010). A very few studies have reported no positive effect of different cooperative learning methods on achievement (Lang, 1983 (TGT); Abu and Flower, 1997 and Hanze and Berger, 2007) and only one study has reported no significant difference of Jigsaw on achievement as compared to other methods (Niemi, 2009).

Above cited studies confirm positive effects of specific cooperative learning methods on achievement across all the subjects and levels of education. Studies related to science, mathematics and language are more as compared to Social study/social science. It was found that **a few studies** (Ahuja, 1994; Hameed, 1997; Singh and Rai, 2002; Tripathy, 2004; Patnaik and Prakash, 2005; Singh, 2005; Hemamalini and Yeshodhara, 2006; Thakur, 2006; Rai and Samsudin, 2007; Thangarajathi and Viola, 2007; Ahmad, 2008; Kaul, 2008; Mehra and Thakur, 2008; Kishore, 2009; Pushpanjali and Satyaprakasha, 2010 in subjects other than Social Science and Hameed, 1997; Punch and Moriarity, 1997; Pandey, 2011 in Social Science) are conducted on Indian soil to verify the claims of cooperative learning in our classroom at school or college level. Moreover, these studies were not conducted using Jigsaw method of cooperative learning. So, there was a need to fill this gap by conducting a study to know the effect of cooperative learning (Jigsaw) on student’s achievement in social science in Indian classrooms. Review of literatures has also showed that STAD and TGT have reported positive results in Mathematics, Languages and Arts. JIGSAW was found to be more effective in Social studies achievement (Slavin, 1982). So, Jigsaw method of cooperative learning was selected as an independent variable in this study.
Achievement in school subjects is always an important component of school education, but in an ever changing society like ours, only mastery in school subjects does not guarantee a successful living, until or unless the learner has not learned life skills to live a happy life. Adapting the concept of life skills given by WHO, our schools have focused on development of life skills among would be citizens. These life skills are an integral part of evaluation scheme in Indian schools. Critical thinking is a major component of these skills. Critical thinking is always considered as an integral part of school curriculum. Recently implemented Continuous Comprehensive Evaluation system has made it mandatory for students and teachers to understand the concept of critical thinking. Few training programs are launched by the CBSE to train the faculty, but still Teachers are not fully aware about how to develop CT among students and how to evaluate their process. Teachers, students and administrators are in flux to find out the suitable method to develop critical thinking skills. Lee et. al.(2000) and Kawashima and Petrini (2004) has also concluded that CT is a desirable educational outcome; so to develop and practice CT, educators need to re-consider course content and curricular strategies used to develop CT. So, it was need of the hour to study the effect of some innovative methods on critical thinking. Review of literature reveals that Critical Thinking can be taught effectively through various ways like guided discovery learning (Smitha and Rao, 2000), by infusing it into curriculum practice (Eichhorn 2003; Bailin et al.1999), online learning modules (Brahler et al., 2001), inquiry based curriculum (Lampert, 2005), quality instruction with home based remediation (Malhotra, 2006), cognitive-infusion module (Kong, 2007), argument mapping (Ortiz,2007), problem based learning (Lesperance,2008; Kowalczyk, 2011; Lai, 2011), and collaborative activities (Snyder and Snyder, 2008), case study and Socratic Questioning (Meghani, 1999). Apart from these strategies cooperative learning methods are applied by many researchers to develop CT and it was found from the review of literature that learning through cooperative learning methods has positive effect on CT skills (Wesp and Montgomery,1998; Abdulghani, 2003; Joung and Keller, 2004; Klimoviene et al.,2006; Riley and Anderson, 2006; Rumpagaporn and Darmawan,2007; Rashtchi,2007; Brooks, 2009; Raman, 2009; Guvenc, 2010) but two studies have reported that Cooperative learning has no positive effect on CT skills (Bokeoglu,2009; Goyak, 2009). Some Studies in which Small group activities were used also reported significant improvement in critical thinking skills (Baseda
Interactive environment in the classroom improves critical thinking (Wang et al., 2009). Many research studies and writings of various authors stressed on the study of critical thinking skills and critical thinking dispositions instead of looking at one side of critical thinking i.e. either skill or disposition, but there is inconsistency among researchers regarding the relationship between critical thinking skills and critical thinking dispositions (Giancarlo and Facione, 1994; Facione, 1997&2000; Lesperance, 2008). Review of literatures also reveals that there is inconsistency of results of critical thinking in relation to gender (Wilson, 1989 in Claytor, 1997 Kuhn’s, 1992; Baxter-Magolda, 1992; King and Kitchener’s, 1994; Dewey, 1995; Walsh, 1996; Claytor, 1997; Rudd et al., 2000; Alpay et al. 2003; Harish, 2011). Hence, these finding suggest to take gender as a moderator variable in the present study.

Cooperative learning methods provide structure in which students have an opportunity to raise logical questions, discuss the content with his peer group, and imitate higher order thinking, critical evaluation of idea, etc. in teamwork. Review of literature revealed that when some cooperative learning methods are studied, they have shown positive results but they also reported inconsistency of results in context to gender. Review of Literatures also showed that no study is undertaken to see the effect of jigsaw method of cooperative learning on Critical thinking of school students in India or abroad. So, to fill these gaps investigator selected Jigsaw method of cooperative learning as an independent variable and critical thinking as a dependent variable in the present study.

Schools are miniature form of society to prepare young minds to become an active member of the society and make them able to deal effectively with other members of the society. For successful living in society every individual needs some social competencies. Review of literature revealed that cooperative learning has significant effect on different dimensions of social competence as measured by different test (Lickona, 1991; Nowak, 1996; Lucas, 1999; Tripathy, 2004; Thakur, 2006; Sharma and Sharma, 2008; Gillies, 2008; Ebrahim, 2010; Shimarzo and Aldrich, 2010; Aronson and Patnoe, 2011; Leung, 2012). Cooperative learning improves interpersonal relationships (Sharma and Sharma, 2008); decrease levels of loneliness and social anxiety and increases the levels of happiness among the participants (Kocak and Recep, 2012), social-emotional developments, as well as
cognitive and academic development are affected by child's social experiences with peers and adults (Kinsey, 2000), student acceptance towards other group and decrease prejudice (Walker and Crogan). With application of cooperative learning methods students become more cooperative and helpful to each other (Gillies, 2002; Pahuja and Kaur, 2006; Gillies, 2008; Bertucci et al., 2010; Marhamah and Mulyad, 2013) and positive results are reported on other social variables (McManus and Gettinger, 1996; Nowak, 1996; Whicker, 1997; Fantuzzo et al., 2006, Hanze and Berger, 2007). Application of Cooperative learning also resulted into improvement in Social skills (Jordan and Metais, 1997; Early, 1999; Veenman et al., 2000; Goudas and Magotsiou, 2006; Klimoviene and Statkeviciene, 2006; Shimazoe and Aldrich, 2010; Mohseen and Fauzee, 2011; Hayles and Diana, 2012; Al-Semairi, 2012). Cooperative learning has also shown positive effect on self esteem (Johnson et al., 1978; Slavin, 1980; Veenman et al., 2000; Kalaiyarasan and Krishnaraj, 2004; Tripathy, 2004; Bertucci et al., 2010). Few studies have reported that learning through Jigsaw method of cooperative learning has significant effect on many social variables such as social skills (Aronson et al., 1977 b), self-esteem (Aronson et al., 1977 c), acceptance of classmates (Aronson et al., 1977a; Slavin, 1991), intergroup relations (Aronson et al., 1978), reduces discrimination (Williams, 2004) and positive attitudes about learning (Wang, 2006). Only one study reported no significant effect of Jigsaw on Social competence (White and France, 1991). Cooperative learning has also shown positive results on group interaction and attitude towards group/ cooperative learning (Skon, 1979; Webb, 1982; Hooper et al., 1993, Kinny, 1989; Veenman et al., 2000; Tripathy, 2004), social relations (Lickona, 1991; higher perceived efficacy (Chang, 1998). Liking of others and peer support (Slavin, 1978, Cooper et al., 1980; Tripathy, 2004), race relation by working in groups (Slavin and Madden, 1979), self confidence (Nederhood, 1986) and reduction of anxiety level (Okebukola, 1986). Meta-analysis of different studies on cooperative learning has reported positive effects in all major subjects, all grade levels, in urban and sub-urban schools and for high, average and low achievers {Slavin, 1991 (67 studies) and Johnson et al., 2000 (158 studies)}. Students in cooperative learning groups showed increase in number of friends, liking of others (Slavin, 1980 and Nederhood, 1986), increase in interactive behaviours (Nowak, 1996, McManus and Gettinger, 1996) and increase in group effectiveness and interpersonal interactions (Earley, 1999).
Theoretical basis of cooperative learning and research studies have supported many social benefits of cooperative learning. Most of the above cited research work is done on foreign soil. A few studies (Kalaiyarsan and Krishnaraj, 2004; Tripathy, 2004; Pahuja and Kaur, 2006; Sharma and Sharma, 2008; Pushpanjali and Satyaprakasha, 2010; Chopra and Gupta, 2013) are conducted to see the effect of cooperative learning methods on social variables in Indian conditions. Some studies also revealed that there is an inconsistency of results of social competence in relation to gender (Dhanda et. al. 2008; Yadav and Singh, 2011). Due to paucity of extensive research studies in Indian conditions, investigator was unable to reach at any conclusion regarding the effect of cooperative learning on social competence. So, there was a dire need to study these variables which made the investigator to select social competence as a dependent variable in this study.

Review of literature shows that there is considerable research on specific cooperative learning methods and the research has considerable validity and generalizability on foreign soil. It is an interesting fact that CL is not more commonly used in classroom, as Nath and Ross (1996) commented, “Surprisingly, although cooperative learning is believed to be the most effective among three primary styles of teaching and learning (individualistic, competitive, and cooperative), it remains the least used in classroom settings’ (Johnson and Johnson, 1984, Sarason, 1995).” Few studies are conducted on Indian soil to see the effect of Cooperative learning methods on different subjects and across all the levels of education on wide range of variables. Review of literature guided the investigator to understand the theoretical basis of cooperative learning (Jigsaw) and its effect on cognitive and social variables. Keeping in mind the transitional phase in school education (Teacher-centered to Student-centered) and dearth of research studies on effect of cooperative learning (Jigsaw) on critical thinking, social competence and achievement in social science at school level on Indian soil guided the investigator to select cooperative learning (Jigsaw) as an independent variable and critical thinking, social competence and achievement in social science as dependent variables.
1.7 STATEMENT OF THE PROBLEM
The problem was worded as given below:-

EFFECT OF COOPERATIVE LEARNING ON CRITICAL THINKING
SOCIAL COMPETENCE AND ACHIEVEMENT IN SOCIAL SCIENCE OF
SECONDARY SCHOOL STUDENTS

1.8 OPERATIONAL DEFINITIONS

Jigsaw is a cooperative learning method that enables each student of a “home” group
to specialize in one aspect of a learning unit. Students meet with members from other
groups who are assigned the same aspect, and after mastering the material in ‘expert
group’, they return to the “home” group and teach the material to their group
members, which enables the students to maximize their own and each other’s
learning. Jigsaw IV (with some modification) was used in this study.

Critical Thinking refers to critical thinking skills and critical thinking dispositions.

Critical thinking skills include analogy, evaluating arguments, logical analysis,
interpretation, recognition of assumptions, deduction and inferences which was
assessed with critical thinking skill test (developed by the Investigator).

Critical Thinking dispositions mean the tendencies towards use of certain patterns
of intellectual behavior. It requires reasoning, enquiry, analysis or information
processing, flexibility and evaluation which was assessed by Critical thinking in

Social competence refers to the personal adequacy, interpersonal adequacy and
communication skills of the school students, which were assessed with social
competence scale of Rani and Sharma (2010).

Achievement in social science refers to the level of success or proficiency attained in
social science subject, which was assessed with achievement test (from selected
topics) of social science (prepared by investigator).

1.9 OBJECTIVES OF THE STUDY
The study was conducted to meet the following objectives:
1. To develop and validate a test for critical thinking skill.
2. To develop and validate a test for Achievement in Social science for 9th class
   students.
3. To study the effect of Jigsaw method of cooperative learning, gender and their interaction on critical thinking skills and its dimensions by taking pre-test scores of critical thinking skills as a covariate.

4. To study the effect of Jigsaw method of cooperative learning, gender and their interaction on critical thinking dispositions by taking pre-test scores of critical thinking dispositions as a covariate.

5. To study the effect of Jigsaw method of cooperative learning, gender and their interaction on Social Competence and its dimensions by taking pre-test scores of Social Competence as a covariate.

6. To study the effect of Jigsaw method of cooperative learning, gender and their interaction on achievement in social science by taking pre-test scores of achievement in social science as a covariate.

1.10 Hypotheses

The following were the Hypotheses of the study:

H₀ 1a: There is no significant difference in the adjusted mean scores of Critical Thinking Skill of experimental and control groups when pre-test scores of critical thinking skill are taken as a covariate.

H₀ 1b: There is no significant difference in the adjusted mean scores of Critical Thinking Skill of Boys and Girls when pre-test scores of critical thinking skill are taken as a covariate.

H₀ 1c: There is no significant effect of interaction between group and gender on the adjusted mean scores of Critical Thinking Skill when pre-test scores of critical thinking skill are taken as a covariate.

H₀ 2a: There is no significant difference in the adjusted mean scores of Analogy (1st dimension of critical thinking skill) of experimental and control groups when pre-test scores of analogy are taken as a covariate.

H₀ 2b: There is no significant difference in the adjusted mean scores of Analogy (1st dimension of critical thinking skill) of Boys and Girls when pre-test scores of analogy are taken as a covariate.

H₀ 2c: There is no significant effect of interaction between group and gender on the adjusted mean scores of Analogy (1st dimension of critical thinking skill) when pre-test scores of Analogy are taken as a covariate.
H₀ 3a: There is no significant difference in the adjusted mean scores of Evaluating Arguments (2nd dimension of critical thinking skill) of experimental and control groups when pre-test scores of Evaluating Arguments are taken as a covariate.

H₀ 3b: There is no significant difference in the adjusted mean scores of Evaluating Arguments (2nd dimension of critical thinking skill) of Boys and Girls when pre-test scores of Evaluating Arguments are taken as a covariate.

H₀ 3c: There is no significant effect of interaction between group and gender on the adjusted mean scores of Evaluating Arguments (2nd dimension of critical thinking skill) when pre-test scores of Evaluating Arguments are taken as a covariate.

H₀ 4a: There is no significant difference in the adjusted mean scores of Logical Analysis (3rd dimension of critical thinking skill) of experimental and control groups when pre-test scores of Logical Analysis are taken as a covariate.

H₀ 4b: There is no significant difference in the adjusted mean scores of Logical Analysis (3rd dimension of critical thinking skill) of Boys and Girls when pre-test scores of Logical Analysis are taken as a covariate.

H₀ 4c: There is no significant effect of interaction between group and gender on the adjusted mean scores of Logical Analysis (3rd dimension of critical thinking skill) when pre-test scores of Logical Analysis are taken as a covariate.

H₀ 5a: There is no significant difference in the adjusted mean scores of Interpretation (4th dimension of critical thinking skill) of experimental and control groups when pre-test scores of Interpretation are taken as a covariate.

H₀ 5b: There is no significant difference in the adjusted mean scores of Interpretation (4th dimension of critical thinking skill) of Boys and Girls when pre-test scores of Interpretation are taken as a covariate.

H₀ 5c: There is no significant effect of interaction between group and gender on the adjusted mean scores of Interpretation (4th dimension of critical thinking skill) when pre-test scores of Interpretation are taken as a covariate.
H₀ 6a: There is no significant difference in the adjusted mean scores of Recognition of Assumption (5th dimension of critical thinking skill) of experimental and control groups when pre-test scores of Recognition of Assumption are taken as a covariate.

H₀ 6b: There is no significant difference in the adjusted mean scores of Recognition of Assumption (5th dimension of critical thinking skill) of Boys and Girls when pre-test scores of Recognition of Assumption are taken as a covariate.

H₀ 6c: There is no significant effect of interaction between group and gender on the adjusted mean scores of Recognition of Assumption (5th dimension of critical thinking skill) when pre-test scores of Recognition of Assumption are taken as a covariate.

H₀ 7a: There is no significant difference in the adjusted mean scores of Deduction (6th dimension of critical thinking skill) of experimental and control groups when pre-test scores of Deduction are taken as a covariate.

H₀ 7b: There is no significant difference in the adjusted mean scores of Deduction (6th dimension of critical thinking skill) of Boys and Girls when pre-test scores of Deduction are taken as a covariate.

H₀ 7c: There is no significant effect of interaction between group and gender on the adjusted mean scores of Deduction (6th dimension of critical thinking skill) when pre-test scores of Deduction are taken as a covariate.

H₀ 8a: There is no significant difference in the adjusted mean scores of Inferences (7th dimension of critical thinking skill) of experimental and control groups when pre-test scores of Inferences are taken as a covariate.

H₀ 8b: There is no significant difference in the adjusted mean scores of Inferences (7th dimension of critical thinking skill) of Boys and Girls when pre-test scores of Inferences are taken as a covariate.
$H_0$ 8c: There is no significant effect of interaction between group and gender on the adjusted mean scores of Inferences ($7^{th}$ dimension of critical thinking skill) when pre-test scores of Inferences are taken as a covariate.

$H_0$ 9a: There is no significant difference in the adjusted mean scores of Critical Thinking Dispositions of experimental and control groups when pre-test scores of Critical Thinking Dispositions are taken as a covariate.

$H_0$ 9b: There is no significant difference in the adjusted mean scores of Critical Thinking Dispositions of Boys and Girls when pre-test scores of Critical Thinking Dispositions are taken as a covariate.

$H_0$ 9c: There is no significant effect of interaction between group and gender on the adjusted mean scores of Critical Thinking Dispositions when pre-test scores of Critical Thinking Dispositions are taken as a covariate.

$H_0$ 10a: There is no significant difference in the adjusted mean scores of Social Competence of experimental and control groups when pre-test scores of Social Competence are taken as a covariate.

$H_0$ 10b: There is no significant difference in the adjusted mean scores of Social Competence of Boys and Girls when pre-test scores of Social Competence are taken as a covariate.

$H_0$ 10c: There is no significant effect of interaction between group and gender on the adjusted mean scores of Social Competence when pre-test scores of Social Competence are taken as a covariate.

$H_0$ 11a: There is no significant difference in the adjusted mean scores of Personal Adequacy ($1^{st}$ dimension of social competence) of experimental and control groups when pre-test scores of Personal Adequacy are taken as a covariate.

$H_0$ 11b: There is no significant difference in the adjusted mean scores of Personal Adequacy ($1^{st}$ dimension of social competence) of Boys and Girls when pre-test scores of Personal Adequacy are taken as a covariate.
There is no significant effect of interaction between group and gender on the adjusted mean scores of Personal Adequacy (1st dimension of social competence) when pre-test scores of Personal Adequacy are taken as a covariate.

There is no significant difference in the adjusted mean scores of Interpersonal Adequacy (2nd dimension of social competence) of experimental and control groups when pre-test scores of Interpersonal Adequacy are taken as a covariate.

There is no significant difference in the adjusted mean scores of Interpersonal Adequacy (2nd dimension of social competence) of Boys and Girls when pre-test scores of Interpersonal Adequacy are taken as a covariate.

There is no significant effect of interaction between group and gender on the adjusted mean scores of Interpersonal Adequacy (2nd dimension of social competence) when pre-test scores of Interpersonal Adequacy are taken as a covariate.

There is no significant difference in the adjusted mean scores of Communication Skills (3rd dimension of social competence) of experimental and control groups when pre-test scores of Communication Skills are taken as a covariate.

There is no significant difference in the adjusted mean scores of Communication Skills (3rd dimension of social competence) of Boys and Girls when pre-test scores of Communication Skills are taken as a covariate.

There is no significant effect of interaction between group and gender on the adjusted mean scores of Communication Skills (3rd dimension of social competence) when pre-test scores of Communication Skills are taken as a covariate.

There is no significant difference in the adjusted mean scores of Achievement in social science of experimental and control groups when pre-test scores of Achievement in social science are taken as a covariate.
**Introduction**

H₀ 14b: There is no significant difference in the adjusted mean scores of Achievement in social science of Boys and Girls when pre-test scores of Achievement in social science are taken as a covariate.

H₀ 14c: There is no significant effect of interaction between group and gender on the adjusted mean scores of Achievement in social science when pre-test scores of Achievement in social science are taken as a covariate.

### 1.11 DELIMITATIONS

- The experiment was limited to a sample of 116 students of 9th grade of Government high school, Khasi Kalan, Ludhiana.
- The experiment was limited to only 40 days treatment in an academic session.
- Only 21 topics were selected from 9th class social science book for instructional treatment.
- The study was conducted in one school in Ludhiana district only.

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