



## INTRODUCTION TO CO-OPERATIVE LEARNING

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### Abstract:

Cooperative learning is the learning process in which individuals learn in a small group with the help of each other. Cooperative learning gives importance to cooperation as against our present educational system, which is based on competition. Cooperation rather than competition is the predominant characteristics of human beings. People are bonded together by love and cooperation and it is this quality on which the survival of human kind is based. The present paper discusses the concept and salient features of cooperative learning.

**Key-words:** Cooperation, Competition, Cooperative Learning, Characteristics

### INTRODUCTION:

*Without the cooperation of its members society cannot survive, and the society of man has survived because the cooperativeness of its members made survival possible.... It was not an advantageous individual here and there who did so, but the group. In human societies the individuals who are most likely to survive are those who are best enabled to do so by their group (Montagu, 1965).*

One of the legacies inherited to the scientists of the twentieth century from Charles Darwin has been the thesis of the inherent naturalness of human striving for superiority. Adopted by the "Social Darwinists", this qualified biological observation became a credo of those arguing for instinctive competition in human kind in all social and economic interactions. That is why our present educational system is mainly based on competition and this is reflected in almost every aspect of it. Students have to compete with their fellow students, right from the stage of admission to nursery class up to the highest level. Excessive competition robs of childhood from children and youth from the young adolescents. Competition is against the spirit of creativity also because it favours convergent thinking in place of giving children a chance to develop divergent ideas.

We humans have been so successful as a species because of our ability to apply our intelligence to cooperate with others to accomplish group goals. It is difficult to think of adult activities in which the ability to cooperate with others is not important. Human society is composed of overlapping cooperative groups: families, neighborhoods, work-groups, political parties, clubs, teams etc. Because schools socialize children to assume adult roles, and because cooperation is so much a part of adult life, one might expect that cooperative activity would be emphasized in schools. However, this is far from truth.

Traditional classroom environment is competitive most of the time, students work independently, and they are continually in competition with one another for grades, praise and recognition. Such competition does have some negative effects. Even high achievers may not achieve their best because they know that they will be near the top anyway. Further, the competition for grades and recognition may set up a pecking order in the classroom, with high performing students at the top (Ames *et al.*, 1977). This process further alienates low-performing students, who may turn to delinquency or withdrawal as a means of maintaining positive self-esteem in the face of what they perceive as a hostile school environment.

How students perceive each other and interact with one another is a neglected aspect of instruction. Much training time is devoted to helping teachers arrange appropriate interactions between students and materials (i.e., textbooks, curriculum programmes) and some time is spent on how teachers should interact with students, but how students should interact with one another is relatively ignored. How teachers structure student-student interaction patterns has a lot to say about how well students learn, how they feel about school and the teacher, how they feel about each other, and how much self-esteem they have.

There are three basic ways students can interact with each other as they learn. They can compete to see who is "best", they can work individualistically toward a goal without paying attention to other students, or they can work cooperatively with a vested interest in each other's learning as well as their own. Of the three interaction patterns, competition is presently the most dominant. Research indicates that a vast majority of students view school as a competitive enterprise where one tries to do better than other students. This competitive expectation is already widespread when students enter school and grow stronger as they progress through school (Johnson & Johnson, 1991). Cooperation among students-who celebrate each other's successes, encourage each other to do homework, and learn to work together regardless of ethnic backgrounds or whether they are male or female, bright or struggling, disabled or not, is still rare.

An alternative to traditional competitive classroom is cooperative learning. Cooperative learning is the learning process in which individuals learn in a small group with the help of each other. Cooperative learning gives importance to cooperation as against our present educational system, which is based on competition. Cooperation as a human characteristic has been seen until fairly recent years as the relative absence of competition. The more competition in a person, necessarily then, by logical and biological argument, there is less cooperation in the person. Notable resistance to the idea of mutual exclusiveness of cooperation and competition came from Margaret Mead, who, at the level of total culture, was able to show that a human society is a functional blend of both cooperation and competition. As with all such blends, the balance between the two varies from one culture to another (some cultures being markedly cooperative and some markedly competitive). This coexistence does not necessarily diminish the cohesion nor reduce continuance of the culture.

Cooperation rather than competition is the predominant characteristics of human beings. People are bonded together by love and cooperation and it is this quality on which the survival of human kind is based. People develop their attitudes and values from social interaction. Although we learn much about the world from various sources, discussing what we know or think with others develops majority of our attitudes and values. This exchange shapes our views and perspectives. It turns cold, lifeless facts into feelings, and then to attitudes and values that guide our behaviour over longer periods of time. These values and attitudes very often are left untaught in our schools. Our classrooms rely solely on formally acquired knowledge, with learners competing for grades and reinforcement; yet, these are our attitudes and values that are one of the most important outcomes of schooling, because they alone provide the framework for guiding our actions outside the classroom. Keeping in view the drawbacks of the most commonly used traditional methods of presentation cum recitation radical changes are needed and have been advised in our instructional strategies. Cooperative learning is one such strategy.

Between 1988 and 2000, Johnson and Johnson (2000) conducted seventeen studies on the effectiveness of conflict resolution training through cooperative learning strategy in eight different schools in two different countries. Students involved were from kindergarten through ninth grades. Two approaches to peer mediation were studied--total student body and school cadre. The studies were conducted in rural, suburban, and urban settings. The training programmes lasted from 9 to 15 hours in length. Eleven of the studies involved control groups. In seven of the studies, classrooms and/or controls were selected randomly from the school; in four studies students were assigned randomly to conditions. In nine of the studies teachers were rotated across conditions. The findings indicated that students learn the conflict resolution procedures taught, retain their knowledge throughout the school year, apply the conflict resolution procedures to actual conflicts, transfer the procedures to non-classroom and non-school settings, use the procedures similarly in family and school settings, and, when given the option, engage in problem-solving rather than win-lose negotiations. The results further demonstrated that conflict resolution procedures can be taught in a way that increases academic achievement and that the adults in the school perceive the conflict resolution program to be constructive and helpful.

Tripathy (2004) advocated that when the cooperative group situation is used, it could create a non-threatening environment in which students can more readily take academic risks. They find it much less threatening to make a mistake in front of their group members. The verbalization and feedback from peers help to reinforce all those skills that the teacher has taught. Students who are working in groups are more likely to stay on task and remain motivated because of

peer support and encouragement. Working together, provided that the students have a clear view of the task at hand and with potential strategies can bridge the gap between computational skills and problem solving. Another big gain is the idea that working together is good. It does a lot to increase self-esteem and reduce normal peer's rejection, which is so important for our students. Cooperative group learning induces cooperative attitude in the learners, which in long run, has the potential of carry over into other areas of our competitive world.

### **What is Cooperative learning**

According to Johnson *et al.* (1991), cooperative learning is an educational tool in which small groups of students work together to increase individual, as well as, group member learning. Cooperative learning exists when students work together to achieve joint learning goals (Johnson *et al.*, 1992, 1993). Any assignment in any curriculum for any age student can be done cooperatively. There are three ways that cooperative learning may be used. Formal cooperative learning groups may last for one class period to several weeks to complete any course requirement (such as solving problems, reading complex 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 students the materials they need to complete the assignment, and assigns students roles. The teacher explains the task, teaches any concepts or procedures the students need in order to complete the assignment, and structures the cooperation among students. Students work on the assignment until all group members have successfully understood and completed it. While the students work together the teacher moves from group to group systematically monitoring their interaction. The teacher intervenes when students do not understand the academic task or when there are problems in working together. After the assignment is completed the teacher evaluates the academic success of each student and has the groups process how well they functioned as a team. In working cooperatively, students realize they (a) are mutually responsible for each other's learning and (b) have a stake in each other's success.

Informal cooperative learning groups are temporary, ad-hoc groups that last from a few minutes to one class period that are used during a lecture, demonstration, or film to focus student attention on the material to be learned, set a mood conducive to learning, help 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. Cooperative base groups are long-term cooperative learning groups (lasting for one semester or year) with stable membership that give each member the support, help, encouragement, and assistance he or she needs to make academic progress (attend class, complete all assignments, learn) and develop cognitively and socially in healthy ways.

It is important to highlight the distinctions between cooperative learning, individualistic learning, and competitive learning. In individualistic learning, students learn independently, without working in conjunction with their classmates. In competitive learning, students also learn independently, but are especially concerned about outperforming their classmates. In cooperative learning, students work with one another in small groups, in a non-competitive fashion to accomplish a goal. Examples of goals may include learning a concept in science, practicing the application of a formula or procedure, or solving a complicated science problem over the course of several days. It is also important to distinguish cooperative learning from simple group work. It is a common misconception that the two are the same, or similar. In simple group work, it is possible, and perhaps very likely, for students to continue working individually or competitively, despite the fact that they are physically clustered together. In cooperative learning, students work together non-competitively to accomplish a shared goal.

Researchers agree that for cooperative learning to be successful, students should be divided up into small, face-to-face groups, but there are differences of opinion as to be the best size for a group. The suggested sizes proposed by researchers range from two (i.e., pairs) to six. Group size may vary depending upon the particular activity being worked on, or the academic or social ability of the class. Some researchers feel that it is acceptable at times to randomly assign students to groups, or, to allow students to pick their own groups, but most believe it is best if the teacher creates groups that are academically heterogeneous. Most researchers also suggest that in addition to creating heterogeneous groups based on academic ability, groups should also be created such that there is diversification of gender, race, or ethnicity. For cooperative learning to be successful, students should be assigned specific roles within their group. Different researchers suggest different roles, but all of the roles fall into three main categories: academic, social, and group processing. Examples of academic roles include researcher, problem-restater, and checker. Social roles include encourager, motivator, and praiser. Group processing roles include facilitator, observer and direction-giver. The primary reason for assigning roles is to ensure that no group member dominates the group, or contributes nothing. Assigning roles also serves to create interdependence among group

members. Johnson and Johnson (1994) recommend that within a group, the assigned roles should be complementary and interconnected.

Slavin (1996) defines cooperative learning as "instructional programs in which students work in small groups to help one another master academic content...." He adds that most methods of cooperative learning involve students working in groups in which they are responsible not only for their own learning, but that of their fellow group members. Slavin (1990) believes the goal of cooperative learning is to encourage students to assist one another to maximize learning. To accomplish this, students must work together to complete a project or master material as a group. Therefore, cooperative learning fosters a collaborative atmosphere as opposed to a competitive environment. Slavin (1983) explains the two most important aspects of cooperative learning that increase student achievement are group rewards and individual accountability. Slavin (1996) cites Johnson and Johnson, in which they stated that individual mastery of material is one of the goals of cooperative learning. According to literature research conducted by McManus and Gettinger (1996), additional goals of cooperative learning include assuming leadership responsibilities, equal and active participation in the group process, positive interaction, increased learning and improved self-esteem.

What makes cooperative learning different from most instructional methods is that it is based on social interdependence theory and the related research. Social interdependence theory provides educators with a conceptual framework for understanding how cooperative learning may be (a) most fruitfully structured, (b) adapted to a wide variety of instructional situations, and (c) applied to a wide range of issues (such as achievement, ethnic integration, and prevention of drug abuse etc.).

### **Characteristics of Cooperative Learning Groups**

Cooperative learning is a method of promoting learning through students' cooperation rather than competition. It is a method of effectively using students' groups in a classroom. It is only under certain conditions that cooperative efforts may be expected to be more productive than competitive and individualistic efforts. Those conditions are: positive interdependence on the feeling that individual goal-attainment relies on performance of all group members, individual accountability, face-to-face interaction with peers, use of pro-social skills and group processing of a given academic task. Johnson *et al.* (1991) have presented following six characteristics of cooperative learning groups-

1. Positive Interdependence: Team members are obliged to rely on one another to achieve their goal.
2. Individual Accountability: All students in a group are held accountable for doing their share of the work.
3. Face-to-Face Promotive Interaction: Group assignments should be constructed so that the work cannot be simply parcelled out and done individually. Assignments must include work that has to be done interactively.
4. Appropriate Collaborative Skills: Students are encouraged and helped to develop and practice trust building, leadership, decision-making, communication and conflict management.
5. Group Processing: Team members set up group goals, periodically assess whether they are doing well as a team, and identify changes they will make to function more effectively in the future.
6. Heterogeneous Groups: Individuals benefit the most from working with people different from themselves.

#### **1. Positive Interdependence**

The first requirement for an effectively structured cooperative lesson is that students believe that they "sink or swim together." Within cooperative learning situations, students have two responsibilities: 1) learn the assigned material, and 2) ensure that all members of the group learn the assigned material. The technical term for that dual responsibility is positive interdependence. Positive interdependence exists when students perceive that they are linked with group mates in such a way that they cannot succeed unless their group mates do (and vice versa) and/or that they must coordinate their efforts with the efforts of their group mates to complete a task. Positive interdependence promotes a situation in which students: 1) see that their work benefits group mates and their group mates' work benefits them, and 2) work together in small groups to maximize the learning of all members by sharing their resources to provide mutual support and encouragement and to celebrate their joint success. When positive interdependence is clearly understood, it establishes that:

1. Each group member's efforts are required and indispensable for group success (i.e., there can be no "free-riders").
2. Each group member has a unique contribution to make to the joint effort because of his or her resources and/or role and task responsibilities.

There are a number of ways of structuring positive interdependence within a learning group.

**1.1 Positive Goal Interdependence:** Students perceive that they can achieve their learning goals if and only if all the members of their group also attain their goals. The group is united around a common goal -- a concrete reason for being. To ensure that students believe they "sink or swim together" and care about how much each other learns, the teacher has to structure a clear group or mutual goal, such as "learn the assigned material and make sure that all members of the group learn the assigned material." The group goal always has to be a part of the lesson.

**1.2 Positive Reward:** Each group member receives the same reward when the group achieves its goals. To supplement goal interdependence, teachers may wish to add joint rewards (e.g., if all members of the group score 90% correct or better on the test, each receives 5 bonus points). Sometimes teachers give students: 1) a group grade for the overall production of their group, 2) an individual grade resulting from tests, and 3) bonus points if all members of the group achieve the criterion on tests. Regular celebrations of group efforts and success enhance the quality of cooperation.

**1.3 Positive Resource Interdependence:** Each group member has only a portion of the resources, information, or materials necessary for the task to be completed; the members' resources have to be combined for the group to achieve its goals. Teachers may wish to highlight the cooperative relationships by giving students limited resources that must be shared (one copy of the problem or task per group) or giving each student part of the required resources that the group must then fit together (the Jigsaw procedure).

**1.4 Positive Role Interdependence:** Each member is assigned complementary and interconnected roles that specify responsibilities that the group needs in order to complete the joint task. Teachers create role interdependence among students when they assign them complementary roles such as reader, recorder, checker of understanding, encourager of participation, and elaborator of knowledge. Such roles are vital to high-quality learning. The role of checker, for example, focuses on periodically asking each group mate to explain what is being learned. Rosenshine and Stevens (1986) reviewed a large body of well-controlled research on teaching effectiveness at the pre-collegiate level and found "checking for comprehension" to be one specific teaching behaviour that was significantly associated with higher levels of student learning and achievement. Although the teacher cannot continually check the understanding of every student, the teacher can engineer such checking by having students work in cooperative groups and assigning one member the role of checker.

There are other types of positive interdependence. Positive task interdependence exists when a division of labour is created so that the actions of one group member have to be completed if the next member is to complete his or her responsibility. Positive identity interdependence exists when a mutual identity is established through a name or motto. Outside threat interdependence exists when groups are placed in competition with each other. Fantasy interdependence exists when a task is given that requires group members to imagine that they are in a hypothetical situation.

A series of studies have been conducted investigating the nature of positive interdependence and the relative power of the different types of positive interdependence (Hwong *et al.*, 1993; Johnson *et al.*, 1991; Johnson *et al.*, 1990; Lew *et al.*, 1986a, 1986b; Mesch *et al.*, 1986, 1988). The research indicates that positive interdependence provides the context within which promotive interaction takes place. Group membership and interpersonal interaction among students do not produce higher achievement unless positive interdependence is clearly structured. The combination of goal and reward interdependence increases achievement over goal interdependence alone and resource interdependence does not increase achievement unless goal interdependence is present also.

## **2. Individual Accountability/Personal Responsibility**

### **What children can do together today, they can do alone tomorrow. (Lev Vygotsky, 1962)**

Among the early settlers of Massachusetts there was a saying, "If you do not work, you do not eat." Everyone had to do his or her fair share of the work. The second essential element of cooperative learning is individual accountability, which exists when the performance of individual students is assessed, the results are given back to the individual and the group, and the student is held responsible by group mates for contributing his or her fair share to the group's success. It is important that the group knows who needs more assistance, support, and encouragement in completing the assignment. It is also important that group members know they cannot "hitchhike" on the work of others. When it is difficult to identify members' contributions, when members' contributions are redundant, and when members are not responsible for the final group outcome, they may be seeking a free ride (Harkins and Petty, 1982; Ingham *et al.*, 1974; Kerr and Bruun, 1981; Latane *et al.*, 1979; Moede, 1927; Petty *et al.*, 1977; Williams, 1981; Williams *et al.*, 1981). This is called social loafing.

The purpose of cooperative learning groups is to make each member a stronger individual in his or her own right. Individual accountability is the key to ensuring that all group members are, in fact, strengthened by learning cooperatively. After participating in a cooperative lesson, group members should be better prepared to complete similar tasks by themselves. To ensure that each student is individually accountable to do his or her fair share of the group's work, teachers need to assess how much effort each member is contributing to the group's work, provide feedback to groups and individual students, help groups avoid redundant efforts by members, and ensure that every member is responsible for the final outcome. Common ways to structure individual accountability include:

1. Keeping the size of the group small. The smaller the size of the group, the greater the individual accountability may be.
2. Giving an individual test to each student.
3. Randomly examining students orally by calling on one student to present his or her group's work to the teacher (in the presence of the group) or to the entire class.
4. Observing each group and recording the frequency with which each member contributes to the group's work.
5. Assigning one student in each group the role of checker. The checker asks other group members to explain the reasoning and rationale underlying group answers.
6. Having students teach what they learned to someone else. When all students do this, it is called simultaneous explaining.

There is a pattern to classroom learning. First, students learn knowledge, skills, strategies, or procedures in a cooperative group. Second, students apply the knowledge or perform the skill, strategy, or procedure alone to demonstrate their personal mastery of the material. Students learn it together and then perform it alone.

## **3. Face-to-Face Promotive Interaction**

Positive interdependence results in promotive interaction. Promotive interaction may be defined as individuals encouraging and facilitating each other's efforts to achieve, complete tasks, and produce in order to reach the group's goals. Although positive interdependence in and of itself may have some effect on outcomes, it is the face-to-face promotive interaction among individuals fostered by the positive inter-relationships, and psychological adjustment and social competence. Promotive interaction is characterized by individuals providing each other with efficient and effective help and assistance; exchanging needed resources, such as information and materials, and processing information more efficiently and effectively; providing each other with feedback in order to improve their subsequent performance; challenging each other's conclusions and reasoning in order to promote higher quality decision making and greater insight into the problems being considered; advocating the exertion of effort to achieve mutual goals; influencing each other's efforts to achieve the group's goals; acting in trusting and trustworthy ways; being motivated to strive for mutual benefit; and maintaining a moderate level of arousal characterized by low anxiety and stress.

#### **4. Interpersonal and Small-Group Skills**

The fourth essential element of cooperative learning is the appropriate use of interpersonal and small-group skills. In order to coordinate efforts 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 conflict constructively (Johnson, 1990, 1991; Johnson and Johnson, 1991). Placing socially unskilled students in a group and telling them to cooperate does not guarantee that they have the ability to do so effectively. We are not born instinctively knowing how to interact effectively with others. Interpersonal and small-group skills do not magically appear when they are needed. Students must be taught the social skills required for high quality collaboration and be motivated to use them if cooperative groups are to be productive. The whole field of group dynamics is based on the premise that social skills are the key to group productivity (Johnson and Johnson, 1991).

The more socially skillful students are and the more attention teachers pay to teaching and rewarding the use of social skills, the higher the achievement that can be expected within cooperative learning groups. In their studies on the long-term implementation of cooperative learning, Lew and Mesch (Lew *et al.*, 1986a, 1986b; Mesch *et al.*, 1988; Mesch *et al.*, 1986) investigated the impact of a reward contingency for using social skills as well as positive interdependence and a contingency for academic achievement on performance within cooperative learning groups. In the cooperative skills conditions, students were trained weekly in four social skills and each member of a cooperative group was given two bonus points toward the quiz grade if all group members were observed by the teacher to demonstrate three out of four cooperative skills. The results indicated that the combination of positive interdependence, an academic contingency for high performance by all group members, and a social skills contingency promoted the highest achievement.

#### **5. Group Processing**

The fifth essential component of cooperative learning is group processing. Effective group work is influenced by whether or not groups reflect on (i.e., process) how well they are functioning. A process is an identifiable sequence of events taking place over time, and process goals refer to the sequence of events instrumental in achieving outcome goals (Johnson and Johnson, 1991). Group processing may be defined as reflecting on a group session to: 1) describe what member actions were helpful and unhelpful, and 2) make decisions about what actions to continue or change. The purpose of group processing is to clarify and improve the effectiveness of the members in contributing to the collaborative efforts to achieve the group's goals. While the teacher systematically observes the cooperative learning groups, he or she attains a "window" into what students do and do not understand as they explain to each other how to complete the assignment. Listening in on the students' explanations provides valuable information about how well the students understand the instructions, the major concepts and strategies being learned, and the basic elements of cooperative learning.

There are two levels of processing -- small group and whole class. In order to ensure that small-group processing takes place, teachers allocate some time at the end of each class session for each cooperative group to process how effectively members worked together. Groups need to describe what member actions were helpful and not helpful in completing the group's work and make decisions about what behaviours to continue or change. Such processing: 1) enables learning groups to focus on maintaining good working relationships among members, 2) facilitates the learning of cooperative skills, 3) ensures that members receive feedback on their participation, 4) ensures that students think on the metacognitive as well as the cognitive level, and 5) provides the means to celebrate the success of the group and reinforce the positive behaviours of group members. Some of the keys to successful small-group processing are allowing sufficient time for it to take place, providing a structure for processing (e.g., "List three things your group is doing well today and one thing you could improve."), emphasizing positive feedback, making the processing specific rather than general, maintaining student involvement in processing, reminding students to use their cooperative skills while they process, and communicating clear expectations as to the purpose of processing.

In addition to small-group processing, the teacher should periodically engage in whole-class processing. When cooperative learning groups are used, the teacher observes the groups, analyzes the problems they have working together, and gives feedback to each group on how well they are working together. The teacher systematically moves from group to group and observes them at work. A formal observation sheet may be used to gather specific data on each group. At the end of the class period the teacher can then conduct a whole-class processing session by sharing with the class the results of his or her observations. If each group has a peer observer, the results of their observations may be added together to get overall class data.

An important aspect of both small group and whole-class processing is group and class celebrations. It is feeling successful, appreciated, and respected that builds commitment to learning, enthusiasm about working in cooperative groups, and a sense of self-efficacy in terms of subject-matter mastery and working cooperatively with classmates.

## 6. Group Heterogeneity

The size of cooperative-learning groups is relatively small and as heterogeneous as circumstances allow. The recommended size is usually four to five students. At the very least, groups should contain both males and females and students of different ability levels. If possible, different ethnic backgrounds and social classes should be represented as well.

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