



Cooperative Learning: An Effective Means for Teaching in Classroom

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Abstract

Cooperative learning is based on constructivist philosophy. It gives the scope to the learner to learn in a group to achieve a common goal. Cooperative learning is especially based on the theory of social constructivism; therefore, it stresses the construction of knowledge through peer interaction in the classroom. This paper explains cooperative learning and what are the main characteristics of cooperative learning. This paper also focuses on why cooperative learning is important for classroom teaching and some methods used under the umbrella of cooperative learning. This paper also discusses how teachers can implement cooperative learning in the classroom.

Keywords: *Cooperative learning, social constructivism, Group learning.*

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Introduction

Our country is a developing country. The development of the nation depends upon the quality of education. It is a quintessential component of human civilization. Quality education has a concern with the transactional strategies and instructional procedures in the classroom. These all things float around the learner. The development of the learner is affected by many factors such as diet, physical, environmental, academic, and social. According to Vigotsky, the social environment plays a crucial role in the development of the learner. But nowadays, joint families have been replaced by nuclear families, and peers are mobile phones. In the classroom, the teachers also practice the lecture method (Ormrod, 2010); all these things hamper the development of higher order cognitive abilities in students; therefore, the development of the learner is adversely affected. Under these considerations, the National Education Policy-2020 advocates the adaptation of those instructional strategies which can develop educational competencies as well as the cognitive arena with social skills and abilities. On the other hand, we think about cooperative learning, which emerged from the social constructivist philosophy; it may fulfil the desire for better cognitive and social development of the learner.

Cooperative learning-

The theory of cooperative learning is immersed in social constructivism. Constructivism is a current development in sociology, psychology, education, philosophy (epistemology), and other social sciences disciplines. It has a wide range of philosophical, psychological, sociological, and educational foundations (Driscoll, 2000). Constructivism has several different variations, including Piaget's Cognitive Constructivism, Lev Vygotsky's Social Constructivism (Socio-Cultural Context), and Von Glaserfeld's Radical Constructivism. The central tenet of constructivism is that "human learning is created" and that students create new knowledge by incorporating what they have already learned. In other words, knowledge is something that students build for themselves through experiences; a teacher is not always expected to provide it. In short, learning is an 'active' process in which learners construct new ideas or concepts based on their current or past knowledge. Constructivism philosophy was considered to have given a number of insightful methods of teaching-learning

such as 'Collaborative learning', 'Problem-based Learning' and 'Cooperative learning. In all these three theories, learners are considered as 'active persons' of the task and not just passive recipients of knowledge from the teacher.

Cooperative learning comes into existence from the social constructivist theory of Vygotsky as well as the philosophical works of John Dewey, who emphasized the social component of learning and Kurt Lewin's studies of group dynamics. Vygotsky's theory (1978) postulated 'learning' as a "social process", contrary to that general view of 'learning' as merely a personal or individualistic one. Cooperative Learning was directly influenced by socio-cultural and socio-cognitive constructivist theories by Piaget, Vygotsky and Dewey and many other theorists like Chomsky, Skinner, Bruner, Ausubel, Kurt Lewin and Paulo Freire. ("Theoretical foundations of Cooperative Language learning", Hosseini, 2008; as cited in Vania, 2020)

Definition of Cooperative learning

Cooperative learning is a collection of procedures that enable individuals to work together to achieve a particular objective or create a final output, which is typically focused on a particular piece of knowledge. Cooperation is much more than just having students sit together and talk to one another; it also includes exchanging knowledge, debating topics, and assisting other students. It fosters a profound comprehension of the subject matter covered. As a teacher-controlled system of governance, it is more directive than collaborative. The core method is teacher-oriented, whereas collaborative learning is more students based, even though there are many mechanisms for group analysis and introspection (Pintriz).

According to Johnson and Johnson, (1999) cooperative learning is a teaching-learning process which used in a small group of students. They work together in a group to maximize their own and other peers' learning. While Parker, (1994) describes cooperative learning as a classroom environment in which students work together with, we feeling attitude. Students interact and discuss an academic topic and achieve a common goal. In cooperative learning, each and every individual is responsible for the progress of the group with personal accountability. Cooperative learning term is used interchangeably with various methods of teaching used in the classroom (Johnson et al., 2000). Cooperative learning focus on group performance as well as individual accomplishments are rewarded, and group members help, assist, encourage, and support each other's efforts to learn (Johnson and Smith, 1991). further, cooperative learning is an arrangement in which students work in groups with heterogeneous ability possessing students and are rewarded on the basis of the success of the group as a whole (Woolfolk, 2001). Therefore, we can conclude that cooperative learning is a group learning in which students interact with each other with we feeling attitude and progress toward achieving a common result with individual accountability. Cooperative learning promotes positive interaction among students and develops good social ability.

Component of Cooperative learning

According to Johnson & Johnson (1995), cooperative learning is an instruction that involves groups of students working together to achieve a common objective. Cooperative learning has all six of the following criteria-

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In positive interdependence, all students believe that they interdependent on each other for their own learning. Their contribution is fruitful for all group members and for the progress of the group. Students participate actively in group tasks and share learning materials with their peers. In face-to-face Promotive interaction, students interact with each other and appreciate for the contribution in group and motivate to each other for the further contribution. In this element students discuss the learning task in their group. Under the social skills element, students start to establish a rapport with peers through effective communication. Students show responsibility like a leader and negotiate tasks in right direction and participate in decision making process in the groups. In individual accountability each and every students take responsibility of the given learning task and contribute equally. During the task each students try to achieve mastery in the learning task or topic. In group processing element, students analyse the given learning tasks and ensure how it will be accomplished in fruitful way. Students also analyse their own progress as well as group progress.

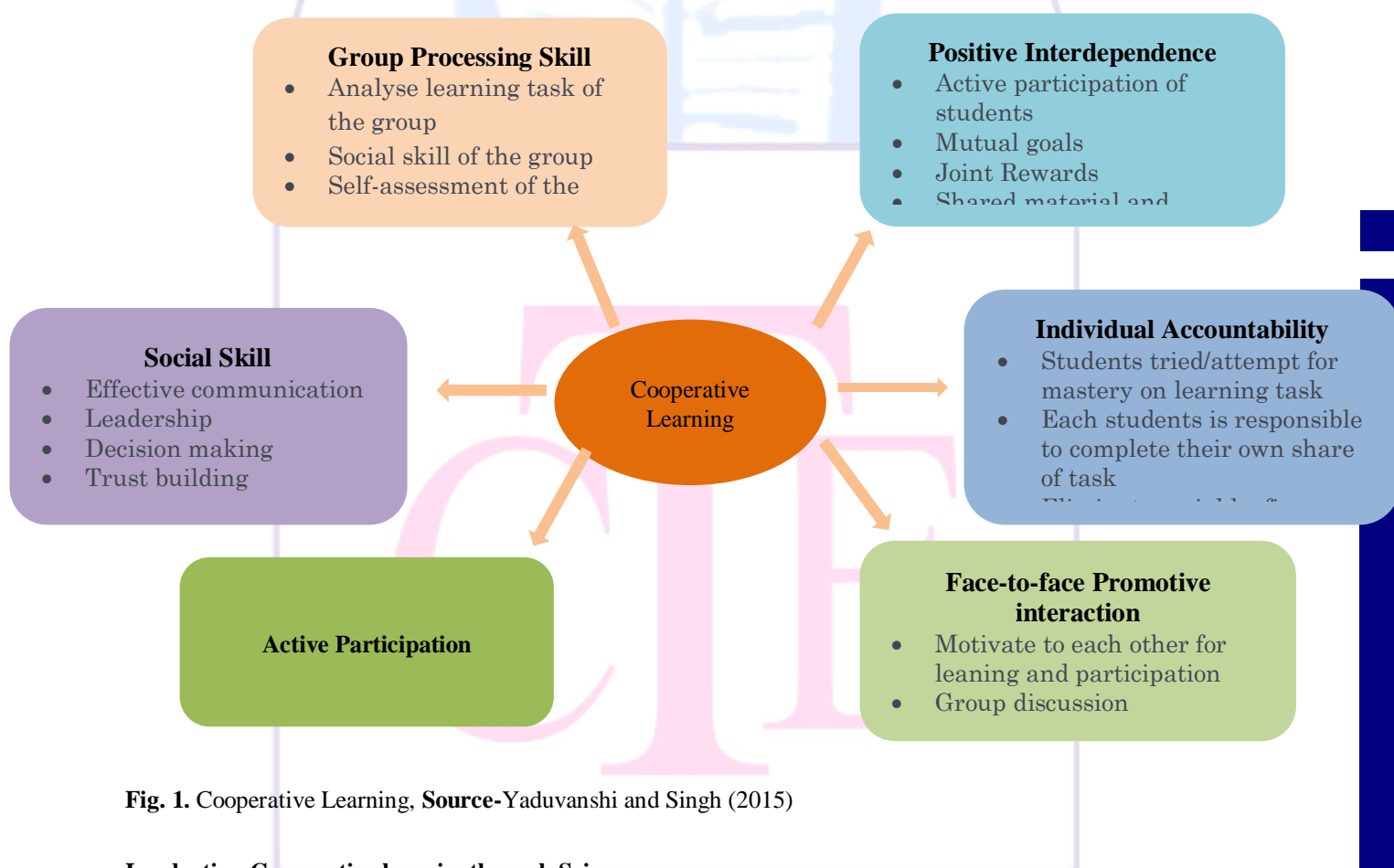


Fig. 1. Cooperative Learning, **Source-**Yaduvanshi and Singh (2015)

Inculcating Cooperative learning through Science

The objective of science teaching is the development of practical ability, observation skills, decision-making skills, and scientific temperament among the students. Attainment of these objectives can be possible through effective science teaching; for this, different commissions and committees recommended revamping the teaching method and embracing a process-oriented teaching method. National Curriculum Framework (2005) and National Education Policy (2020) also recommended adopting a constructivist approach to teaching and

learning. These policies also stressed the development of social ability in students. Cooperative learning provides a good opportunity for students to work in a group as this method is helpful in the development of capabilities in the students. Sapon-Shevin and Schniedewind (1994), stated that "cooperative learning is necessary for any teaching-learning situation because this particular strategy can foster educational excellence for all experience and expectations of active participation in controlling and changing the spheres of their lives."

According to Kagan (1994), the "cooperative learning approach sponsors student learning and educational attainment; strengthens student upkeep; promotes student satisfaction with learning experience; supports students in developing communication abilities; boost students' social skills; self-esteem; helps to promote positive race relations. Cooperative learning exerts a positive effect on the achievement of the students (Pandey, 2004); therefore, it is an essential method for classroom teaching and learning.

Strategies under cooperative learning

There are number of cooperative learning techniques available, few of the widely used strategies are given below:

Jigsaw-Developed by Aronson and associates (1970): The students are divided into small groups of five or six students each. The lesson is divided into five or six parts, and these parts of the lesson are given to each student. Students with similar topics meet together and gather information; this group is known as the "expert" group. Then the students return to their original group, known as the "home" group. Every student will teach their group about the assigned topic. Students are tested on what they have learned from their fellow members.

Students Teams Achievement Division- Developed by Robert Slavin and associates (1978). In this strategy, a group of students with different learning abilities work together to accomplish a common goal. The teacher teaches a lesson to all the students, and then the teacher forms groups of 4-5 students. Then students work in groups and ensure that everyone has mastered the lesson. After this teacher takes an individual quiz on which they cannot help each other. Though the test is taken individually, students are encouraged to work hard to improve the performance of the group.

Think pair-share- Developed by Lyman (1981): There are four steps in this method. In the first step, groups of four students listen to a question that is raised by the teacher. Secondly, individual students are given time to think and write their responses. Thirdly, students read and discuss their responses with their partners. Finally, a few students are called on by the teacher to share their thoughts and ideas with the whole class.

Three-step interview- Developed by Kagan (1992): In this process, the teacher introduces a topic in which different opinions exist and raise several questions for the class to discourse. Then the students form pairs; student A will become the interviewer, and student B will be the interviewee. After the first interview had been completed, the students switched their roles. Student B interviews student A. After each student has their turn, pairs join other pairs and form a group of four or six. Each student in the team shares what they have learned from the interview. After all, the interviews are done, the students write a summary report of the interview result.

Round Table-Developed by Kagan (1992): The round table has three steps to it. In the first step, the teacher raises a question that carries numerous answers. In step two, in the group, the first student writes one answer on

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a paper and passes the paper counterclockwise to the next student. Finally, in step three, teams with the greatest number of correct answers are rewarded.

Group investigation- Developed by Sharan & Sharan (1976): The teacher introduces a broad topic to the whole class. The topic should contain various reactions of the students. Students work on planning what they want to know instead of what they know. Students form groups, and individual students take the task of investigating the subtopics they have selected. Finally, the group synthesizes and summarizes their work and presents their findings to the whole class.

Numbered Head- Developed by Kagan (1992): In this method, groups of three to five members are made, and each member is given a different number. Depending upon the topic, the teacher asks a very specific or very broad question. Students put their heads together to arrive at an answer and make sure that everyone knows the answer. The teacher calls out a number, and the students from each group with that specific number share their answers with the entire class.

Team pair Solo- Developed by Kagan (1994): In this method, groups of four members are made. The team works on a problem till the completion of it and then splits into pairs. Pairs work on a similar problem together and then split into solo students who individually work on the same type of problem.

Researchers and Cooperative Learning methods (Adapted from Laing, 2001)

Developer	Time	Methods
Devries & Edwards	Early 1970s	Team-Games Tournaments (TGT)
Johnson & Johnson	Mid 1970s	Learning Together (LT)
Sharan & Sharan	Mid 1970s	Group Investigation (GI)
Johnson & Johnson	Mid 1970	Constructive Controversy
Slavin & Associates	Late 1970s	Student Teams Achievement Divisions (STAD)
Aronson & Associates	Late 1970s	Jigsaw Procedure
Cohen	Early 1980s	Complex instruction
Slavin & Associates	Early 1980s	Team Assisted Instruction
Kagan	Mid 1980	Cooperative Learning Structure
Stevens, Slavin, & Associates	Late 1980s	Cooperative Integrated Reading & Composition (CIRC)
Kagan	Late 1980s	Inside-Outside Circle

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Kagan	Early 1990	Three-Step Interview Round Table Numbered Head Team pair solo
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Conclusion

Science is considered as an activity centred subject; therefore, it should be taught and learnt in activity centred pedagogy. According to NCF-2005 and NEP-2020, in classroom for the teaching of science such methods should be adopted which can develop critical thinking, observation skill, social skill and scientific temperament among students. (Kagan, 1999) has pointed out cooperative learning. Encourage students to think critically and helps in clarifying ideas through debate and discussion, enrich self-management skills and promote interpersonal relationships. Students are taught to criticize ideas, not people, Nurture students to look at the situation from others view of perspectives.

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Paper Received : 15th Febryary, 2021

Paper Reviewed : 30th May, 2021

Paper Published : 1st June, 2022

CTE