



Cooperative Learning as a Tool to Manage Large Science Classrooms

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Abstract

Science is an important subject as it shapes the mind of students and prepares them to compete in globalized world. Therefore, students should learn Science to develop in depth knowledge and understanding. It is a compulsory subject in India up to the secondary school level. In most of cases, it is seen that teacher student ratio in classroom is not ideal. One teacher has to manage a large class (up to 60 students). In this condition, teacher has to face various problems related with large mathematics classroom. The management of the large class is a very tedious and time taking task. Cooperative learning can be used as a tool to manage large classroom. It provides opportunities to students for expression of views and ideas, students involves in learning process so they learn in an effective and active learning environment.

The paper was an attempt to discuss on conceptual background of the study. It flashed on various problems of large classroom faced by teachers. It also emphasized on the implementation of cooperative learning in large Science classroom to manage it. Study was descriptive and secondary data used in it.

Key words: Science, large classroom, cooperative learning, classroom management.

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Introduction

Today we are living in the era of globalized world where science and mathematics are integral part of any education system. *Science* has a vital role in the curriculum because it prepares students for reasoning and thinking. It develops abstract thinking, problem solving and decision making skills in students. It offers rationality to our thoughts. It is cradle of all creations which are essential for the proper movement of the world. Science becomes more interesting and enjoyable subject if it includes different games and activities but if teacher fails to make it interesting, it becomes a burden for the students.

India is a nation where schools are the foundation of the development of social life. In this context, Kothari Commission (1966-68) also said that “The future of or India is being shaped in our classrooms” which clearly indicated the importance of schools in society. Teacher and students both are inseparable part of it. There should be ideal teacher- students’ ratio in class i.e. 1:40 but unfortunately, this is not follow by maximum Indian classrooms. Large classrooms are a major issue in present schools. Actually, large classroom is not any coined term; it is a classroom which has number of students more than 60. Teacher has to face many management related problems in large classrooms which affect the quality of teaching learning process. The only remedy to manage the large class is to engage all students in activities by which they learn together at their own pace and abilities. It will also helpful in the construction of knowledge by them. National curriculum framework (2005) focuses on the construction of knowledge by the students and teacher will act as a facilitator only. Involvement of learners in teaching learning process is a remedy to manage large classroom so cooperative learning can be used for large classroom management. By the use of cooperative learning strategies, teacher can engage students in activities which will automatically solve many management related problems.

Objectives of the study:

Present paper has following objectives:

1. To find out the major problems faced by teachers in large Science classrooms.
2. To know about the concept, strategies and benefits of cooperative learning.
3. To suggest cooperative learning as effective tool to manage large Science classrooms.

Design of the study

The paper was prepared to focus on the theoretical background of the problem so the study was descriptive in nature. Researcher has used secondary resources to collect the data related with the problem. Books, journals, survey reports, encyclopedia and online resources were used for data collection.

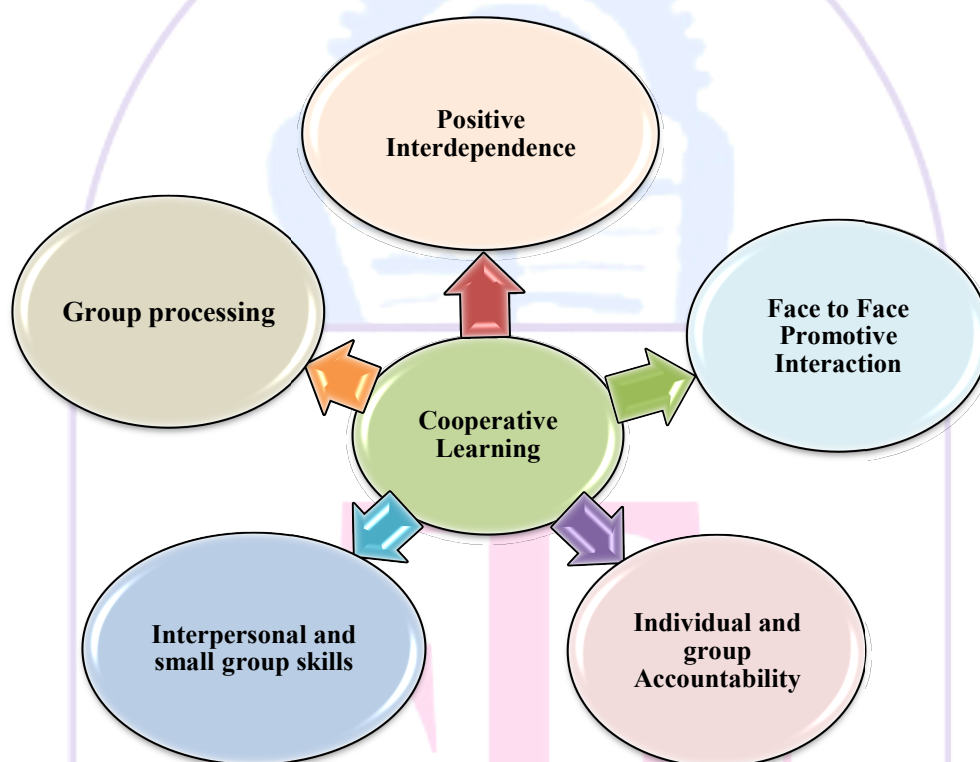
Problems of Large mathematics classroom

While a class has more than 50 students is called a large class. It is understood that learning only occurs effectively when class has limited number of students. It doesn't mean that large class has less opportunities of learning. Large and small class both can learn equally but still there are some problems in large classes. Teaching in large Science class is a challenge for teacher but on the other hand, it provides opportunities for him to manage and organize their skills and make learning more comfortable and enjoyable. There are some basic problems of large classroom which are faced by teachers as weak relationship between teacher and students, lack in delivery of available resources, limited range of teaching methods used during teaching learning process etc. some problems are as follows:

- Decrease students' performance in class due to less attention of teacher.
- Inconveniency in implementation of innovative teaching methods and approaches
- Class management related problems (Indiscipline, intolerance, disputes etc.)
- Insufficient use of effective and innovative teaching strategies
- Academic pressure on teacher to complete the syllabus first instead to make students learn.
- Lack of team work and empathy in students in large class.
- Excessive load on teacher to manage various things like assignments, home work checking, time to time assessment etc.
- Lack of physical space and resources in the classrooms.
- Monitoring of attendance is also a tedious task in large classrooms.
- Lack of individual attention on each student.
- Reduced feedback to each student of the class.

Cooperative learning

Cooperative learning is an educational approach which mainly focuses on the organization of academic and social learning experiences. In active learning process, students involved in activities, they think about it and then learn rather than passive listeners. Students are engaged in discussion, analysis, critically thinking and solving problems of their content. It is also known as 'Exchange of knowledge' method. It is a way to empower students to builds their understanding of topics and concepts. There are five main aspects of Cooperative learning as-



There are four basic characteristics of cooperative learning which are essential for it as-

1. Students always effectively learn with two to six members in the group.
2. Learning takes place when students are mutually and positively dependent on each other to do the task.
3. Proper learning environment encourages students to share their views and ideas with their peer group.
4. Members of the group have individual accountability to do work in the group.

Teacher can use various Cooperative learning strategies to engage the students in teaching- learning process. It will not only enhance their understanding about concepts but

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helpful to manage large classroom management related problems also. Following cooperative learning strategies may be useful as-

S. N	Name of Cooperative strategy	Specifications
1.	Four Corners	Students are given four choices. 2. Students record their answers. 3. The teacher designates one corner for each choice. 4. Students travel to the appropriate corner. 5. Students pair up and discuss answers.
2.	Cooperative Graffiti	This strategy requires students to think about a topic and write down as many ideas as possible using different-colored pens. To start, divide students into small groups and give each group a large, butcher block piece of paper and a variety of colorful pens. Write down a broad topic on the front board, and on your command "Go!", instruct students to write down as many ideas as they can that correlate with the topic you wrote on the board. Once the time is up (about 5-10 minutes), then have students try and organize their colorful ideas into categories.
3.	Round Table or Rally Table	The roundtable has three steps to it. In the first step, the teacher poses a question that has multiple answers. Step two, the first student in each group writes one response on a paper and passes the paper counterclockwise to the next student. Finally, in step three, teams with the greatest number of correct responses gain some type of recognition. This type of cooperative learning can easily be used in the science classroom.
4.	Carousel	Students are broken into groups of 3-4 and the teacher places chart paper around the room with different questions on them, related to a certain topic. This lesson can be done before starting a new unit to activate prior knowledge, during the unit, or at the end of review. Each group starts at a different poster and is given a different color marker to write with.
5.	Write around	For creative writing or summarization, give a sentence starter (for example: If you give an elephant a cookie, he's going to ask for...). Ask all students in each team to finish that sentence. Then, they pass their paper to the right, read the one they received, and add a sentence to that one. After a few rounds, four great stories or summaries emerge. Give children time to add a conclusion and/or edit their favorite one to share with the class. C

6.	STAD (Student Teams Achievement Division)	. Mixed ability groups of 4 students 2. Teacher presents a lesson 3. Groups work to make sure every member understands the lesson and can complete a demonstration activity. 4. Then, students complete an INDEPENDENT practice activity or quiz for individual accountability. 5. Scores are averaged for each group and compared to a class average. 6. Teams are awarded points for behavior/cooperation and individual are awarded their grades. Teams get bonus points if their subsequent team averages are maintained or improved. 7. Teams work toward a long-term performance goal (month) and weekly behavior goals.
7.	Jigsaw	The jigsaw is a cooperative learning technique with a three-decade track record of successfully increasing positive educational outcomes. Just as in a jigsaw puzzle, each piece--each student's part--is essential for the completion and full understanding of the final product.

Role of cooperative learning as a tool to manage large Science classroom

Cooperative learning is being used today as a powerful tool to manage large Science classrooms. It is said that, “An empty mind is a devil’s workshop” so students should be actively engaged in teaching learning process for effective learning. Cooperative learning provides a platform for it. It is used as a weapon to manage an indiscipline and notorious class and make students engage in teaching learning process. Students discuss and work with one another which are helpful in the development of the sense of community. It also helps to hold students’ attention (a special concern of large classes). Working together promotes dialogue, which is the key to learning. Dialogue enhances understanding when learners interact with each other and share ideas and knowledge. In small groups, students can share strengths and also develop their weaker skills. They develop their interpersonal skills. They learn to deal with conflict. Through cooperative learning, students learn to respect each other; they bear the sense of accountability and positive interdependence on each other. They realize that the success of group is not depended only on a single person; it is a team work or efforts. This sense of individual and group accountability makes them disciplined and well organized/ managed. Cooperative learning is beneficial for large mathematics classroom management because in it-

- Learners actively participate;
- Teachers become learners at times, and learners sometimes teach;

- Respect is given to every member;
- Projects and questions interest and challenge students;
- Diversity is celebrated, and all contributions are valued;
- Students learn skills for resolving conflicts when they arise;
- Members draw upon their past experience and knowledge;
- Goals are clearly identified and used as a guide;
- Research tools such as Internet access are made available;
- Students are invested in their own learning.
- Students actively participate in their education by exploring and learning from each other. They are able to experience a wide range of thoughts and opinions on a subject from working with their peers. More importantly, they arrive at their own conclusions after having done research or exploring a topic thoroughly.
- Students are able to practice and hone social skills such as working in a group, resolving conflict, problem solving, and taking directions from a peer leader to name a few. These important, lifelong skills are needed in the workplace but are rarely practiced in a typical lecture style classroom.
- Cooperative learning is a teaching model that is heavily supported by research as being very effective. It can be used along with a variety of other teaching strategies, which we'll address in a later post.
- The teacher becomes a facilitator instead of a lecturer. They can work with the small groups individually, assisting and intervening when needed.
- A deeper level of understanding can take place within groups as students delve into subjects they are interested in.
- Groups can be assigned topics based on skill level or difficulty. This form of differentiation enables students of all abilities to be successful, even if their subjects or products may be different from their peers.

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