

Strategies for Interactive Teaching

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Abstract

Education is a prerequisite for meaningful and sustained national economy. Education is not just storage of information but it is the development of habits, attitudes and skills which helps a man to lead a full and worthwhile life. Many students have difficulty in school not because they are incapable of performing successfully but because they are incapable of believing that they can perform successfully thus facing the crises of confidence. Small group learning is well suited for many individuals and is especially effective for the very groups not currently enchanted by our current pedagogy. The idea of co-operative learning is based on the assertion that an individual can only achieve his/her goals, if other members of the group with whom he/she is learning can equally attain their goals. Co-operative Learning techniques have also been shown to increase student motivation and retention of the learning material. This paper highlights on the effectiveness of interactive co-operative learning.

Introduction

Education is the vital and vibrant instruments in carving the personality of every individual so as to lead a better life in the knowledge society where he or she lives and it finally navigates them to transform the society. Education is the soul of a society as it passes from one generation to another. It is not constrained only to school text-books. It is a holistic process and continues throughout an individual's life so as to be the quintessence of universal values and it is the gradual and incessant process of his/her all round development – physical, mental, aesthetic, moral, spiritual, social and economic aspects of human life. Education is to assist individuals to maximize their potentials for optimal self and national development.

Education according to Indian tradition is neither merely a means of earning a living; nor it is only a nursery of thought or a school for citizenship. It is initiation into the life of spirit and training of human souls in the pursuit of truth and the practice of virtue. It is the creation of sound mind in a sound body. It develops man's faculty specially his mind so that he may be able to enjoy the contemplation of supreme truth, goodness and beauty. Education is a prerequisite for meaningful and sustained national economy. Education is not just storage of information but it is the development of habits, attitudes and skills which helps a man to lead a full and worthwhile life. Education cannot be of quality without effective teaching. Teaching does not mean simply pouring a lot of information into the head of the learners. Throughout the growth of human civilization education play vital role in conserving, transmitting and creating the knowledge, belief and values to be internalized by the society.

Need and Importance of Active Learning

The instructional method employed by teacher plays an important role in the acquisition of instructional contents for meaningful learning and development of necessary skills. Teacher-centered instructional methods make students passive with less interaction with each other in doing tasks. Lack of active participation of students is one of the factors responsible for students' poor performances. Various teaching methods that can be adopted create an amiable learning environment in the teaching learning situations. The learner centered teaching methods are the co-operative endeavors to be followed both by the teacher and students. Such approaches remove passivity, dullness, nonperformance of the students. Without much difficulty, the teacher can shift his/her teaching strategy from lecturing to the learner- centered approaches. Teachers must have accurate knowledge of the subject, ability to bring the subject matter to the level of student understanding, self-confidence, ability of expression, knowledge of evolution techniques, ability in questioning and respect for students opinion (Vijayarathi, Pramila & Sengamalaselvi, 2013).

Many students have difficulty in school not because they are incapable of performing successfully but because they are incapable of believing that they can perform successfully thus facing the crises of confidence. Small group learning is well suited for many individuals and is especially effective for the very groups not currently enchanted by our current pedagogy. Classroom environment is characterized with students of varying pattern of thought. These differences occur due to variation in the individuals' information processing mechanism. While some children are concrete thinkers and some are formal thinkers, teachers can do nothing to increase student's mental capacity; they can modify their instructional strategies to make concepts easier to comprehend. It is therefore pertinent for the teachers to have an understanding of the levels and modes of reasoning of their students and adopt a strategy that will tailor these differences in the students' pattern of thought in order to promote effective learning. A variety of teaching strategies have been advocated for use in classroom, ranging from teacher-centered approach to more students-centered ones. Mastery learning takes place when a teacher changes his teaching method towards a more students-centered approach.

Active learning is the leading one among new education strategies. Problem based learning, inquiry based learning, project based learning and co-operative learning models rank as part of active learning. One of active learning strategies is co-operative learning model (Yusuf, 2014). The idea of co-operative learning is based on the assertion that an individual can only achieve his/her goals, if other members of the group with whom he/she is learning can equally attain their goals.

Concept of Co-operative Learning

Cooperative learning is an organizational structure in which a group of students pursue academic goals through collaborative efforts. Students work together in small groups, draw on each other's strengths, and assist each other in completing a task." Johnson, Johnson, and Smith (1991) states "Cooperative learning is the instructional use of small teams so that learner's work together to take advantage of their own and each other's learning." Co-operative learning is a teaching strategy which provides opportunity for students to develop skills and knowledge in group interactions and teamwork (Sharan, 2010). According to Laguador (2014), the term co-operative learning (CL) refers to students working in teams on an assignment or project under conditions in which certain criteria are satisfied, including that the team-members be held individually accountable for the complete content of the assignment or project. Co-operative learning promotes thought provoking and interactive environment for the students. The instruction and activities based on co-operative learning are creative, thought provoking and interactive and offer ideas for how the children can live the value in practice and find the answers from within themselves. Co-operative learning can be utilized to enhance and promote higher student achievement. Co-operative learning offers a pleasant learning situation for all students, all students have equal opportunity, competition is amended as friendship, the spirit of cooperation and participation is reinforced, and all students are entitled to be thoughtful and creative (Lavasani & Khandan, 2011). Co-operative learning is a learning situation in which two or more students work together to complete a common task. It refers to an instructional technique in which students work in small groups or as a team to solve a problem, complete a task or accomplish a common goal (Oludipe & Awokoya, 2010).

Slavin defines co-operative learning as instructional programs in which students work in small groups to help one another master academic content. Slavin suggests that co-operative learning has the potential to capitalize on "the developmental characteristics of adolescents in order to harness their peer orientation, enthusiasm, activity, and craving for independence within a safe structure." Slavin explains that there are various methods for implementing co-operative learning techniques into classes of all subject areas and grade levels; however, the underlying concept requires all students to work together and be responsible for each other's learning.

Co-operative learning is a teaching method where students of mixed levels of ability are arranged into groups, and rewarded according to the group's success, not the success of an individual member. Co-operative learning is an instructional method in which students work together in small, heterogeneous groups to complete a problem, project, or other instructional goal, while teachers act as guides or facilitators. This method works to reinforce a student's own learning as well as the learning of his or her fellow group members. Co-operative learning, when instituted and successfully practiced, creates a microcosm of equity in a group. When striving to teach students to create, monitor, and evaluate the equity in their co-operative group, teachers teach them how to begin to create a just society. Cooperation thus is humanity's strongest asset and hope (Cohen, Brody & Shevin, 2004). It also fosters tolerance and acceptance in the community, which improves quality of everybody's life (Laguador, 2014).

The Effectiveness of Co-operative Learning (CL)

Co-operation is not assigning a job to a group of students where one student does all the work and the others put their names on the paper. On the contrary, CL is a teaching strategy in which small teams, each with students of different levels of ability, use a variety of learning activities to improve their understanding of a subject. Each member of a team is responsible not only for learning what is being taught but also for helping team-mates learn, thus creating an atmosphere of achievement. Students work through the assignment until all group members successfully understand and complete it. Teachers are faced with many different options while choosing a specific Co-operative Learning. As teachers incorporate CL strategies into the classroom teaching, the characteristics such as positive interdependence, individual accountability, face-to-face interaction, social skills, and group processing are developed which can lead to increased understanding and acceptance of all members of society.

Co-operative Learning techniques have also been shown to increase student motivation and retention of the learning material. While, more research needs to be done, Co-operative Learning can have a positive impact on the classroom. Integrating Co-operative Learning strategies have proven to be effective in increasing student achievement across all grade levels and subject areas (Johnson & Johnson, 1989). The use of CL is an effective teaching and learning strategy and inculcates self confidence among the students.

Elements of Co-operative Learning

Ross and Smyth (1995) describe successful co-operative learning tasks as intellectually demanding, creative, open-ended, and involve higher order thinking tasks. Co-operative efforts are expected to be more productive under certain conditions. Five essential elements are identified for the successful incorporation of co-operative learning in the classroom. The followings are the five basic elements of co-operative learning.

a. Positive Interdependence: The first prerequisite for an effectively structured Co-operative Learning environment is that students believe they “sink” or swim together. (Johnson, Johnson & Stanne, 2000). Co-operation occurs only when students perceive that the success of one depends on the success of the other. Whatever task students are given to perform, each group member must feel that his or her contribution is necessary for the group's success. Students have to learn to work together in order to accomplish tasks. This is why learning task must be designed in a way that makes them believe, “they sink or swim together.” Through the assigned material, students learn to achieve the goal. Therefore, a number of ways of structuring positive interdependence are carried out such as reward, resources, or task responsibilities to supplement goal interdependence.

b. Face-to-Face Interaction: The second element of Co-operative Learning requires face-to-face interaction among students within which they promote each other's learning and success. It is necessary to maximize the opportunities for them to help, support, encourage, and praise each other.

c. Individual and Group Accountability: The third element leads to the belief “What students can do together today, they can do alone tomorrow.” The main reason that students are put in co-operative learning groups is so they can individually achieve greater success than if they were to study alone. Thus, each student must be held individually responsible and accountable for doing his or her own share of the work and for learning what needs to be learned. As a result, each student must be formally and individually tested to determine mastery and retention of the targeted learning outcomes or training objectives. The group knows who needs more assistance, support, and encouragement in completing the job. Johnson & Johnson (1991) suggest some common ways to structure individual accountability. These include giving an individual test to each student, randomly selecting one student to represent the entire group, or having students teach what they have learned to someone else.

d. Interpersonal & Small – Group Skills: Students must be taught the social skills and be motivated to use them. Social skills which are needed for both teamwork and task work include leadership, decision-making, trust-building, communication, and conflict-management skills. (Johnson, Johnson, & Holubec, 1993)

e. Group Processing: Group members should think about how well they have co-operated as a team and how to enhance their future co-operation. Some of the keys to successful processing are allowing sufficient time for it to take place, emphasizing positive feedback, maintaining student involvement in processing etc. To be co-operative, group members must promote each other’s learning and success face-to-face, hold each other personally and individually accountable to do a fair share of the work, use the interpersonal and small group skills needed for co-operative efforts to be successful, and process as a group how effectively members are working together. These five essential components must be present for small group learning to be truly co-operative. There needs to be an accepted common goal on which the group will be rewarded for their efforts (Johnson & Johnson, 1991).

Instructional Techniques of CL

Any form of peer interaction can be co-operative if it adheres to two basic principles: positive interdependence and individual accountability (Millis & Cottel, 1998; Slavin, 1996). Here are a few instructional techniques which are considered to be effective in the process of teaching and learning environment.

a) **Reading-Writing-Presentation:** In this technique, students are divided into heterogeneous groups that consist of 2-6 members in class taking into account the physical condition of the class where the course is processed, the number of students, and students’ academic achievements (Simsek, 2013). Reading-Writing-Presentation method consists of three stages. In the reading stage, all groups in the class read the topic of course using different sources that each student had brought during one lesson. In the writing stage, groups completed reading stage pass the stage of writing removing all sources. Students in all groups make a report of what they have learned during the class hours. Reports are evaluated by the author. As a result of evaluation the groups of low-grade return to the stage of reading. The groups of high-grade pass the stage of presenting. In the presentation stage groups makes presentations in the classroom about 20 minutes. After the presentation the points that wondering and unclear in the relevant subject are discussed.

b) **Group Investigation:** Group investigation (GI) is learning strategy that involves task specialization (Slavin, 1995). In this method, the class is divided into several groups that study in a different phase of a general issue. Working in small co-operative groups, students investigate a specific topic. The study issue is then divided into working sections among the members of the groups. Students pair up the information, arrangement, analysis, planning and integrate the data with the students in other groups. The information collected is then compiled into a whole and presented to the entire class (Sharan & Sharan, 1992).

c) **Think-Pair-Share:** It involves a three step co-operative structure. During the first step individuals think silently about a question posed by the instructor. Individuals pair up during

the second step and exchange thoughts. In the third step, the pairs share their responses with other pairs, other teams, or the entire group (Kagan, 1992).

d) **Three-Step Interview:** In this technique, each member of a team chooses another member to be a partner. During the first step individuals interview their partners by asking clarifying questions. During the second step partners reverse the roles. For the final step, members share their partner's response with the team.

e) **Round-Robin Brainstorming:** In this technique, class is divided into small groups (4 to 6) with one person appointed as the recorder. A question is posed with many answers and students are given time to think about answers. After the "think time," members of the team share responses with one another round robin style. The recorder writes down the answers of the group members. The person next to the recorder starts and each person in the group give an answer until time is called.

f) **Three-Minute Review:** In this technique, teachers stop any time during a lecture or discussion and give teams three minutes to review what has been said, ask clarifying questions or answer questions.

g) **Numbered Heads Together:** In this technique, a team of four is established. Each member is given numbers of 1, 2, 3, 4, and so on. Questions are asked of the group. Groups work together to answer the question so that all can verbally answer the question. Teacher calls out a number (two) and each two is asked to give the answer (Klimoviene, Urboniene & Barzdziukiene, 2006).

h) **Team Pair Solo:** In this technique, students do problems first as a team, then with a partner, and finally on their own. It is designed to motivate students to tackle and succeed at problems which initially are beyond their ability. It is based on a simple notion of mediated learning. Students can do more things with help (mediation) than they can do alone. By allowing them to work on problems they could not do alone, first as a team and then with a partner, they progress to a point they can do alone that which at first they could do only with help.

i) **Circle the Sage:** In this technique, first the teacher polls the class to see which students have a special knowledge to share. For example the teacher may ask who in the class was able to solve a difficult math homework question, who had visited Mexico, who knows the chemical reactions involved in how salting the streets help dissipate snow. Those students (the sages) stand and spread out in the room. The teacher then has the rest of the classmates each surround a sage, with no two members of the same team going to the same sage. The sage explains what they know while the classmates listen, ask questions, and take notes. All students then return to their teams. Each in turn, explains what they learned. Because each one has gone to a different sage, they compare notes. If there is disagreement, they stand up as a team. Finally, the disagreements are aired and resolved.

j) **Partners:** In this technique, the class is divided into teams of four. Partners move to one side of the room. Half of each team is given an assignment to master to be able to teach the other half. Partners work to learn and can consult with other partners working on the same material. Teams go back together with each set of partners teaching the other set. Partners quiz and tutor team-mates. Team reviews how well they learned and taught and how they might improve the process.

k) **Peer Editing** When teams turn in written lab reports and/or give oral presentations, the usual procedure is for the instructor to do the critiquing and grading. A powerful alternative is *peer editing*, in which pairs of groups do the critiquing for each other's first drafts (written) or run-throughs (oral). The groups then revise their reports and presentations taking into account the critiquing teams' suggestions and then submit or present to the instructor. This activity lightens the grading load for instructors, who end up with much better products to grade than they would have without the first round of critiquing. If a grading checklist or rubric is to be used for grading the team reports (which is always a good idea), it should be shared with the students before the reports are written and used for the peer editing. This practice helps the students understand what the instructor is looking for and invariably results in the preparation of better reports, and it also helps assure that the peer critiques are

as consistent and useful as possible. If several rounds of peer editing are done and the instructor collects and grades the checklists or rubrics for the first one or two rounds, the students will end up giving much the same rubric scores as the instructor gives, and in good classes the instructor may only have to do spot checks of peer grades instead of having to provide detailed feedback on every report.

l) **Peer-Led Team Learning:** In *peer-led team learning* (PLTL), lectures are supplemented by weekly 2-hour *workshops* in which students work in six to eight person groups to solve structured problems under the guidance of trained peer leaders. The problems must be challenging and directly related to the course tests and other assessment measures. The course professor creates problems and instructional materials, assists with the training and supervision of peer leaders, and reviews progress of the workshops. The materials prompt students to consider ideas, confront misconceptions and apply what they know to the solution process. The peer leaders clarify goals, facilitate engagement of the students with the materials and one another and provide encouragement, but do not lecture or provide answers and solutions. The students are confronted with difficult problems and must rely primarily on one another to develop solutions, which promotes positive interdependence, and face-to-face interaction. Students are tested individually on the knowledge required to solve the problems, and a function of the peer leader is to get team members to explain their understanding to their team-mates, both of which provide individual accountability. There is no formal instruction in teamwork skills in PLTL, but informal instruction invariably occurs as the peer leaders facilitate the group interactions.

m) **Co-operative Learning Loosely Structured (CLLS):** In this CLLS technique, the teacher assigns students to small heterogeneous groups on the basis of their performance in the first achievement test with each group containing three to five members who are high, average or low achievers. In this method short presentation by teacher is followed by students' group work. During the group work, the teacher works as facilitator and ensures that group members are involved in verbal interaction during group work. Individual accountability is ensured by administering verbal or written individual quizzes. However, these quiz scores are not considered for team recognition or certificate distribution. The reason is that the students take the quizzes sitting in their groups not in formal testing conditions. The students are expected to learn the presented material through discussions i.e. asking questions, answering questions, summarizing and drawing conclusions. The teacher will inform about the individual scores on the next day following each quiz. However, there is no group reward.

n) **Student Teams-Achievement Divisions:** Student Teams-Achievement Divisions is a Co-operative Learning strategy created by Robert Slavin in which groups of four works together within their teams to master a lesson presented by the teacher. This phase employed four out of five components of the STAD model i.e. (a) teacher's presentation (b) students' group work (c) individual quizzes (d) team recognition and rewards (Gaith, 2003). In this technique, first the teacher presents the lesson and it is followed by group work. After the group work, students take individual quizzes sitting in formal testing conditions. In the next class, students are informed with both their individual scores and team scores. First three teams are recognized as Super team, Great team and Good team. All members of the winning teams are invited to receive their certificates (teacher made). Each certificate contains a team score and individual scores of team members. Thus, the cycle of each CL (STAD) lesson will be completed. The winners discuss how they won and losers realize about their defeat.

o) **Learning Together:** Learning together (LT) is a Co-operative Learning strategy created by David W. Johnson and Roger T. Johnson. Learning together was originally designed to train teachers how to use Co-operative Learning groups in the classroom at the University of Minnesota in 1966. In the LT strategy, co-operative effort includes five basic elements: face-to-face interaction, social skills, group processing, positive interdependence, and individual accountability (Johnson & Johnson, 1989). During the learning together process, students complete worksheets in groups of four or five. An emphasis is placed on team building and group self-reflection. Team grades are determined by the teacher. Student's growth has

appeared in the literature in regards to the social studies classroom because of the emphasis on the student and the interaction between students. The learning together teaching method had a positive effect on mean scores in the social studies classroom (Slavin, 1995).

p) **Teams-Games-Tournament:** Teams-Games-Tournament (TGT) is a Co-operative Learning strategy developed by David Devries, Keith Edwards, and Robert Slavin. Teams-Games-Tournament is similar to Student Teams-Achievement Divisions except students do not take individual quizzes. Instead, students participate in academic games with members of other teams and contribute points to their team scores. Slavin determined in his research an increase in mean scores through the use of Teams-Games-Tournaments (Slavin, 1991).

q) **Word Chains:** The students had to think of 10 words where the last letter of the word would be the beginning of the following one. The teams had to create a paragraph, employing all the words. The paragraphs were read aloud and the teams were asked to select the best one. Finally, the students had to prove why they have selected one or another paragraph as the best (Klimoviene, Urboniene & Barzdziukiene, 2006).

r) **Jigsaw I & II:** It was first introduced by Elliot Aronson, Stephen, Sikes, Blancy and Snapp in 1978 (Sarah & Cassidy, 2006). It was later modified by Slavin in 1983. The whole class is divided into base groups or home groups with four to six heterogeneous members. Individual members of base groups are then given separate parts of whole academic textual materials. Having learnt something about their parts in their base or home groups, team members who have the similar parts for learning come together in expert's groups to study, discuss and refine their understanding of their shared parts. After that they return their home groups and take turn to teach what they learnt in expert groups to their team mates. Teams are evaluated by the sum of their members' scores on quizzes and tests which they take individually (Simsek, 2012).

Steps of Jigsaw

The following steps are employed in the Jigsaw technique.

Step-1: Introduction

The lesson will be presented by the teacher with the introduction of about 15 minutes.

Step-II: Focused Exploration

It includes the following steps.

a) **Formation of groups:** The teacher divides the students into 5 or more groups. Each group consists of 5 to 6 members called '**Base Groups**' or '**Home Groups**'.

b) **Task Assigned:** The teacher assigns individual works based on the lesson to each members of each base group.

c) **Working in the Group:** From the base groups those who gets the same topics again forms another groups known as '**Expert Groups**'. In the expert groups they learn and master the area assigned to them with the help of the teacher getting their doubts clarified. While students are working in groups the teacher goes around and observes each group and acts as a facilitator and helps them to attain the mastery level.

Step-III: Reporting and Reshaping

The students return to their original groups and instruct to their team-mates what they learn in their expert groups.

Step-IV: Integration and Evaluation

The groups connect the various pieces of information generated by the individual members and integrate into the whole. To test whether the students learnt the material well or not, the teacher asks review questions and elicits answers with the base groups.

All group members should be given the following instructions:

1. Each student in a group of five should learn and solve the problems assigned to them and check with his or her partners. If anyone is not able to answer a question, then it is the responsibility of the team-mates to answer it.
2. If there is disagreement among team members, they are to present their arguments to solve their problems; they should ask the teacher for help.
3. Students should finish the task only after each member of the group finish her task.
4. If there is any doubt, they have to clarify with the team-mates before asking the teacher.
5. They have to encourage and praise their team-mates.
6. The expert students should patiently explain each concept to weaker students and check whether their team-mates follow the explanation. If not, they should make them understand the concept and encourage them to reach the mastery level.

Advantages of Jigsaw Technique

1. It is an efficient way to learn the material.
2. It builds up deep knowledge.
3. It develops team spirit and co-operative working skills.
4. It facilitates interaction among students.
5. It encourages active participation.
6. Students learn to appreciate and value each other's opinions by sharing and enhancing information.
7. It enables lower level students to learn from others in their expert groups.
8. It builds up interpersonal and interactive skills.
9. Students are held accountable among their peers.

Characteristics of CL

1. Co-operative learning task is designed based on shared learning goals and outcomes.
2. Co-operative behaviour involves trust building activities, joint planning and understanding of team and conduct.
3. It develops group work skills-explicit teaching and small group team building exercises.
4. The teacher should always monitor group activity and answers student's questions and guides discussions.
5. Individual and group assessment is done in all activities.

Advantages of CL

1. Co-operative learning and group activities solve students' problems. It has not only reduced the difficulties of students, to facilitate communication but also to provide for each student to express their ability to meet the development needs of individual students.
2. Co-operative learning develops higher levels of thinking skills.
3. Through co-operative learning, a team spirit of students can be fostered so that students learn from one another.
4. It improves the performance of the weaker students when grouped with high achieving students.
5. It promotes students' learning and academic achievement. It increases students' retention.
6. It enhances students' satisfaction with their learning experiences.
7. Students learn through mutual interpretation, content, and asking to everyone to answer so that they must find a way to organize their thoughts and language to explain their point of view.
8. It develops students' social skills.

Conclusion

Co-operative learning is a successful teaching technique in which small groups, each with students of various levels of ability, use a multiple of learning activities to improve their understanding of a subject. Each member of a team is answerable not only for knowledge what is taught but also for helping other team members to learn, thus developing an environment of success. The co-operative learning approaches take advantage of heterogeneity in classes by encouraging learners to learn from one another and from more and less knowledgeable peers.

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