

## **Sustainable Development and Cooperative Learning in the Formal Education System in India**

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### **Abstract**

For the effective implementation of education for sustainable development (ESD), appropriate teaching-learning strategies need to be carefully selected and used. Cooperative Learning (CL) is a well-studied strategy that has been found effective across various academic levels and subjects. CL refers to a method of instruction whereby students work together in groups to reach common goals. In contrast to the conventional method where students work individually or competitively, with CL students help one another and benefit from sharing ideas. CL subsumes a large variety of techniques suitable for different educational situations. This paper presents an account of an action research where CL was found effective in teaching science in a school. Many research studies and a meta-analysis show that the wide-ranging benefits of CL include improved individual achievement and the development of social skills among learners. In developing countries like India, a land full of diversities, purposive use of CL can help strengthen the base of democracy. This in turn can help the initiation and sustenance of ESD. In India the use of group learning methods has long been advocated, but its implementation is subject to the choices of individual teachers and institutions.

This paper puts forth the case for intentional and systematic inclusion of CL strategies in the formal education system for the better implementation of ESD in India.

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## **Introduction**

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

Rabindranath Tagore

Only responsible citizens can bring about sustainable development. Hence, ESD includes education for responsible citizenship. Responsible citizens are members of the society who value the common good. The education system should provide positive learning experiences so that learners become responsible citizens. The CL approach has the potential to become an effective strategy for ESD.

## **Cooperative Learning (CL)**

CL is a teaching strategy involving students' participation in group learning that emphasizes positive interaction. It is a strategy by which small teams, each with students of different levels of ability, are engaged in learning activities to improve their understanding of a subject. The participation of every student in the group and cooperation among group members is considered important. The students are rewarded for their individual and collective efforts.

There is a difference between simply having students work in a group and structuring groups of students to work cooperatively. Putting students into groups does not necessarily gain a cooperative relationship; it has to be structured and managed by a teacher or professor.

CL is actually a generic term that refers to numerous methods for organizing and conducting classroom instruction. Almost any teacher can find a way to use CL that is congruent with his or her philosophies and practices. (Johnson, Johnson, Stanne, 2000). There are many forms or techniques of CL. But all these techniques are most effective when they include a careful use of certain elements. The essential elements of CL are well studied and laid down.

## **Key Elements of CL**

It is only under certain conditions that cooperative efforts may be expected to be more productive than competitive and individual efforts. These conditions are:

- Clearly perceived positive interdependence
- Considerable motivational (face-to-face) interaction
- Clearly perceived individual accountability and personal responsibility to achieve the group's goals
- Frequent use of the relevant interpersonal and small-group skills

- Frequent and regular analysis of the functioning of the group, to improve its future effectiveness

### **Research support for CL**

Research in CL is varied. It includes different theoretical aspects, different subjects, academic levels and forms of CL. Over the last decade, CL has emerged as the leading new approach to classroom instruction. One important reason for its advocacy is that numerous research studies, in very diverse school settings and across a wide range of content areas, have revealed that students completing CL group tasks tend to have higher academic test scores, higher self-esteem, greater numbers of positive social skills, fewer stereotypes of individuals of other races or ethnic groups, and a greater comprehension of the content and skills they learn. (Johnson et al, 2000). The consistency of the results and the diversity of the CL methods provide strong validation for its effectiveness. Johnson's methods only became more successful than individual methods in increasing achievement when group rewards were included.

### **Benefits of CL**

“Drops in separation could only fade away, drops in co-operation made the ocean, which carried on its broad bosom the ocean greyhounds. “

Mahatma Gandhi

The diverse and positive outcomes that simultaneously result from cooperative efforts have sparked numerous research studies on CL focused on preventing and treating a wide variety of social problems such as those of diversity (racism, sexism, inclusion of the handicapped), antisocial behavior (delinquency, drug abuse, bullying, violence, incivility), lack of pro-social values and egocentrism, alienation and loneliness, psychological pathology, low self-esteem, and many more. For preventing and alleviating many of the social problems related to children, adolescents, and young adults, CL is the instructional method of choice (Johnson et al, 2000).

The widespread use of CL is due to a number of factors. Three important factors are that CL is clearly based on theory, validated by research, and operationalized into clear procedures that educators can use. This combination of theory, research, and practice makes CL a powerful learning procedure. CL can have far reaching results when properly implemented.

### **Sustainable Development, the Environment and Education**

According to UNESCO's recent documents, SD is the ultimate goal of the man-environment relationship. The inclusion of Environmental Education (EE) in the broader scope of education for the development of responsible societies is being considered. EE is about education for, education through and education about the environment.

Development and Environment are interlinked challenges. Development cannot subsist on a deteriorating environmental resource base; the environment cannot be protected when growth leaves out of account the costs of environmental destruction. The WCED therefore argued for an approach to development that would take into account the relationship between ecological, economic, social and technological issues. The WCED called this approach 'sustainable development' defining it as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.

WCED, 1987

SD paves the way for a sustainable future. Sustainable future is about 'thinking about forever'. Education for a Sustainable Future (ESF) means committing ourselves to the common good by broadening our perspectives, clarifying what we value, connecting with our neighbours, and providing hope for future generations. Building the capacity to think in terms of 'forever' is a key task of this form of education.

ESF involves a comprehensive approach to educational reform. It extends beyond individual school subjects and requires the attention of teachers, educational administrators, planners and curriculum agencies. Orienting the objectives, concepts and learning experiences of ESF into syllabi and teaching practices is an important part of this reform.

A basic premise of education for sustainability is that just as there is a wholeness and interdependence to life in all its forms, so must there be a unity and wholeness in the efforts to understand it and ensure its continuation. This calls for both interdisciplinary inquiry and action (UNESCO, 1997).

### **The Relation between Education for Sustainable Development (ESD) and Cooperative Learning (CL)**

One of the important objectives of ESF put forth by UNESCO is 'to promote across-the-curriculum approaches to education for a sustainable future'. The CL approach is a generalist teaching strategy. It can be implemented in a variety of forms to suit the requirements of the learners and the content. And therefore, it precisely addresses the need of ESD for 'teaching-learning across the curriculum'.

The relevant UNESCO educational module further states examples of some important skills for SD like, the skills of communication, problem solving, information technology (IT) and study skills, and personal and social skills. ([www.unesco.org/education/tlsf](http://www.unesco.org/education/tlsf)). The development of these relevant skills, attitudes and values can be achieved effectively through the use of CL strategies. UNESCO's Work Programme for ESD seeks to foster the values, behaviour and lifestyles required for a sustainable future.

“Educating for a sustainable future is not so much about a destination as about the process of learning to make decisions that consider the long-term economy, ecology and equity of all communities.... How those choices are made and the information and ethical discernment

used in making them will determine whether our visions of a sustainable future are achieved.“

UNESCO, 1997

A majority of CL strategies have an in-built provision for decision-making by the learner while he/she works on his/her assigned task. Choices made by the individuals are implemented by the group and therefore, usually only the choices aimed at the common good are implemented. Thus the learners learn to consider the common good when making decisions and choices. Making decisions with a consideration for the common good is a step towards a sustainable future.

The table given below illustrates the ways to address the different dimensions of sustainability through CL or in other words how CL can be used to address the different aspects of ESD.

**Table: Linking ESD with CL**

<b>Dimension of sustainability</b>	<b>Value</b>	<b>Principle</b>	<b>Inputs through Cooperative Learning</b>
Social	Peace and equity	Caring for each other, valuing social justice and peace	Direct
Ecological	Conservation	Protecting natural systems and using resources wisely	Possible indirectly through appropriate decision-making
Economic	Appropriate development	Valuing appropriate development and satisfying livelihoods for all	Possible indirectly through appropriate decision-making
Political	Democracy	Making decisions through fair and democratic means	Direct

The following case study illustrates the effective implementation of CL for two important topics at middle school level.

### **Case study**

This case study was an action research carried out by the science teacher to try out a novel method of teaching a class of students who are always seeking activity. The study presents

the implementation of a technique used in CL, viz. cooperative investigation to teach two topics in science to students of grade VIII, and its effects.

*Title:*

Learning through cooperative investigation

*Aim:*

To study the effects of learning two topics through cooperative investigation

*Topic Content:*

Class VIII CBSE syllabus (i) health and diseases (ii) pollution

*Sample:*

Class VIII, the 25 students of LS Academy, Calcutta, of both sexes.

*Method*

Group investigation is a technique of CL. It was developed by Shlomo Sharan (1988). In this method, groups select topics within a unit studied by the entire class. The students break these topics into tasks within the group and carry out the activities necessary to prepare group reports, which are presented to the class as a whole.

After the introductory background to the topics, the two topics were studied by students through a CL approach, viz. group investigation. The method of mixed ability grouping was used. For the first topic each group had to study a different disease—a common, important disease like polio, malaria, leprosy, typhoid and ringworm. Each group was required to collect information about the causative agent, the mode of transmission, the symptoms and measures of prevention.

For the topic of pollution each group had to study one type of pollution—viz pollution of air, water, or land. Each group was required to find out the causes and the effects of pollution (of the type selected by them), and the action taken, with a special note on what the students can do about it. Each group also had to prepare a banner or placard to prevent noise pollution. The placard was displayed in a traffic square in the vicinity since it was a major problem faced by the school.

The students had access to ample information, and sufficient time was provided to carry out these investigations. Each student was given a specific task. Each group was supposed to prepare charts and each student was to present the information verbally to the class. Group performance was judged by the teacher on the basis of (i) content coverage (ii) quality of written and oral presentations (iii) overall group performance and (iv) quality of the placard on noise pollution. Students were informed of the criteria for assessing their work, both individually and within the –group. *Data Collection and Analysis*

(i) Scores were marked both for individuals and the groups. (ii) The responses of the students on various aspects of this approach were sought.

### *Findings and Discussion*

From the observations of the investigator and the responses obtained by the students, it can be stated that this technique of learning was effective, enjoyable and interesting for students. Their achievement ranged between 65 per cent to 100 per cent. It helped the students interact, accommodate and cooperate in a better way. The participation in data collection, oral presentation and preparation helped to develop a sense of involvement and confidence among the students, especially among the low achievers and loners. Prior knowledge of the criteria for assessment helped to clarify individual tasks and focus the efforts. In spite of the undercurrent of competition among the groups, there were instances of cooperation across the groups and an absence of unhealthy competition. The method was able to bring out the best in many participants.

The method highlights a reward for the efforts, the skills of self-study and investigation and presentation, and discourages rote learning.

The results show the achievement of positive individual and social skills in cognitive, affective and psychomotor areas. Most of these effects are significantly related to important aspects of ESD. The results are encouraging for further in-depth studies about interactions between the processes of ESD and CL strategies.

### **The Need for Emphasizing the practice of CL in the Formal Education System in India**

- *To overcome the problems associated with diversity*

India is a land of immense diversity. It has been a challenge for the Indian education system to take into its fold people belonging to different religions, castes, varying economic, linguistic and cultural backgrounds. The differences in gender and physical and mental abilities also add to the diversity of learner groups. CL through formal education can help reduce the problems associated with social disparities.

- *Economic concerns*

The global industry propelling the economy emphasizes the inculcation of cohesive values among its employees. The education system has to provide a workforce that possesses these values.

- *For the development of responsible citizenship*

For solving the interrelated complex problems afflicting Indian society, the development of responsible and active citizens forms a key element. This in turn is also an essential aspect of EE in its broader sense.

- *For improving the retention of students:*

In India, acquisition of cognitive skills and therefore, the study of academic subjects is the major, if not the only consideration for a systematic use of group learning methods. The proper implementation of CL can make learning enjoyable and helps the retention of students.

## **Support for Inclusion of CL in the Formal Education System in India**

- *The latest directive of The Supreme Court of India*

The Supreme Court (18th December, 2003) directed all states and educational agencies in the country to introduce environment as a compulsory subject in all the classes in schools up to the higher secondary level from the academic year 2004-05. Similarly at the tertiary level also, EE is to be included.

The directive of the court clearly indicates the urgent need to educate the masses, who will take appropriate action to alleviate the environmental problems facing the country. The journey of EE from awareness to action cannot be without the active participation of groups, and cooperation among individuals and groups. The strategies of CL suggest effective ways of bringing it into practice.

- *The National Curriculum Framework For School Education in India*

‘Education for a cohesive society’ is given the first place among the curricular concerns in the National Curriculum Framework For School Education, 2000. It mentions the need for the provision of equal opportunities in access as well as in the conditions for success, for the promotion of equality. These equalities should be perceived by the learners in routine classroom transactions. Purposeful use of appropriate methodologies of education can make it happen.

- *Recommendations of the National Advisory Committee set up to suggest ways to reduce the academic burden on school students (1992) and the report of the group to examine the feasibility of implementing the recommendations (1993)*

The first recommendation was ‘to discourage competition among individuals but to encourage and reward group activities to give a boost, to cooperative learning in schools.’ Both the recommendation and the comment clearly favour the use of CL strategies in formal education in India.

- *Benefits of CL*

Apart from the benefits of CL supported by theory and research that are already discussed, one important advantage is the negligible additional resources required for successful implementation of CL. Most techniques of CL need very little extra money and other resources, except space for group work. Inclusion of CL from the primary level to the tertiary level can help the inculcation of desirable skills and attitudes among the learners. Careful implementation of CL may help control the problems of wastage and stagnation and have a positive effect on the retention of students in schools.

## Conclusion

### *Suggesting ways for the Inclusion of CL in the Formal Education System in India*

Considering the generalist nature of CL and its potential for use across the curriculum, CL should be included in the educational system. To be effective, CL needs, over and above inclusion in the syllabus, appropriate changes in the evaluation methods and in teacher education curricula to be made simultaneously.

It can be incorporated in the formal education system in the following manner.

- Inserting exemplary CL action links in the textbooks that provide details like the objectives, prerequisites, procedures of implementation and assessment methods. These details need to be included till the teachers master the basics.
- Arranging in- service and pre-service training of teachers in CL. While many different CL methods are being advocated and used, educators need to know the research basis for various CL methods about the variety of techniques, their characteristics, the procedures of implementation, their effectiveness in specific conditions like subjects, scholastic level, learner groups, etc.
- Incorporation of appropriate assessment techniques for CL outcomes.

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