



CHAPTER-II
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2.1. INTRODUCTION

Research takes the advantage of the knowledge which has accumulated in the past as a result of constant human endeavour. It can never be undertaken in isolation of the work that has already been done on problems which are directly or indirectly related to a study proposed by a researcher. A careful review of the research journals, books, dissertations, theses and other sources of information on the problem to be investigated is one of the important steps in the planning of any research study.

The review of related literature helps the researcher to delimit and define his problem. It brings the researcher up-to-date on the work which others have done and thus to state objectives clearly and concisely. It helps the researcher avoid unintentional duplication of well-established findings. It gives an understanding of the research methodology which refers to the way the study is to be conducted. It helps to know about the tools and instruments to be used and also provides insight into statistical methods through which validity of results is to be established. The final and important specific reason for reviewing related literature is to know about the recommendations of previous researchers for further research which they have listed in their studies.

2.2. COOPERATIVE LEARNING AND ACADEMIC ACHIEVEMENT

On one side as studies were being conducted on how to make teaching- learning process effective by using multiple media and computers, it was being realized by some other researchers abroad that for making teaching- learning process effective student-centred group activities are also needed. They felt that peer directed small group work give students an opportunity to learn from each other. Thus, cooperative learning came into focus.

Johnson et al. (1987) conducted a Meta analysis of 122 studies of cooperative learning done between 1924 and 1981. It was found that cooperative learning tends to promote higher achievement than does competition or individual work, with this finding holding for all age levels, all subject areas, and a variety of tasks.

Slavin (1991) identified seventy studies that evaluated various cooperative learning methods for periods of four week or longer. Here also it was reported that cooperative learning was found to be effective at all grade levels in the same degree, in all major subjects and in urban, rural and suburban schools. Effects were equally positive for high, average and low achievers.

2.3. COOPERATIVE LEARNING IN SCIENCE

With the effectiveness of cooperative learning being proved in various disciplines researchers started studying on cooperative learning in science.

Humphreys, Johnson & Johnson (1982) conducted a study on grade nine students using the Learning Together model with individual accountability. Students were taught physical science for six weeks. CL was found to have a significant effect on physical science achievement of students.

Similar results were obtained by **Okebukola (1985) and Okebukola (1986)** using the STAD, TGT, Jigsaw and Learning Together models of CL in teaching science for grade eight and grade seven students.

Okebukola (1986) investigated effect of cooperative work on students' attitudes towards science laboratory in ninth grade. Results indicated that students in experimental treatment held significantly more favourable attitudes towards laboratory work than did students in the control group.

Newmann & Thompson (1987) reviewed 27 reports of high-quality research on cooperative learning at secondary level. These studies involved cooperative learning techniques like Jigsaw, STAD, TGT, Learning together and group Investigation. Science was the subject in most of the studies. Cooperative learning was favoured by majority of them.

Conwell et al., (1988) interviewed 28 students who worked in cooperative learning groups in intermediate science classrooms in an urban system. The researchers reported that students perceived science achievement positively. Nearly two third rated their level of self- esteem as high.

Kinney (1989) studied the effects of cooperative learning on achievement of ninth grade students in a multicultural general biology class. All students in experimental group had a significant increase on chapter test scores. There were however few other studies which indicated results contradicting those above.

Johnson et al., (1985) found no significant difference in science achievement of fifth and sixth grade students taught using cooperative learning and using individualistic learning.

Lazarowitz et al., (1985) also reported the same for tenth and twelfth grade students taught Biology using Jigsaw Method. Significant effects favouring control group were revealed in studies by Okebukola (1984), Sherman & Zimmerman (1986) and Sherman (1988).

Okebukola (1984) studied the effect of Learning Together model of cooperative learning lacking individual accountability on grade nine students.

Agashe (2000) studied the effect of group investigation technique in cooperative learning to teach two topics in science to students of grade-VIII in India. It was found that this technique of learning was effective, enjoyable and interesting for students. It had a positive impact on their achievement. Results of review indicated that cooperative learning improves student achievement in science.

Results of a study by **Wachanga, Kokero & Mbugua (2010)** also showed that there was a statistically significant difference between achievement means of secondary school students in Kenya who were taught using cooperative project-based model and those taught through regular teaching methods. It indicated that cooperative method facilitates the students' achievement in science than regular teaching methods. The experimental design was used for the study and data was analysed using **t-test** at $\alpha = 0.05$. When all the above studies indicated effectiveness of cooperative learning in

science one study was such that it reported the follow up of effectiveness of cooperative learning in science from primary to high school. It proved to be effective.

Reddy & Ramar (1997) focused on slow learners and use of multimedia instructional strategy in teaching science to slow learners. Here we can see that only very few studies have been done in the field of science education particularly in science teaching. More research is needed on varied teaching strategies that can be used in effective science teaching. This calls for more serious research in science teaching has led to the present study.

2.4. CONCLUSION

In this review three studies were related to positive effects of CL on relationships between students and at enhancing interpersonal and communication skills. Another major outcome of CL as seen from review is self-esteem. Three studies supported the significant effect of CL on self-esteem. Two studies relating to CL and group peer norms were also reviewed and findings were in support of CL. Similarly, there were two studies that reported CL to increase students' ability to understand and accept someone else's perspective. There was a study supporting CL's contribution to an enhanced sense of psychological health and wellbeing. Apart from this, there was also one more study that reported that CL experiences are crucial to preventing and alleviating many of the social problems related to children, adolescents and young adults. Another study provided evidence that CL is a more effective model for delivering interpersonal and communication skills than simple group learning.