Chapter – VI

Summary, Conclusions and Educational Implications
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SUMMARY, CONCLUSIONS AND EDUCATIONAL IMPLICATIONS

In the preceding chapters, introduction to the problem, objectives, hypotheses, review of literature, development of the tools, method of the study, analysis of data and results were discussed. The present chapter has been devoted to a brief summary, conclusions and implications of the study.

In popular usage, the term “peer group” refers to a cohort of persons close in age, most often the term usually indicates student cliques, but not gangs (Hill, 1995). Tutoring is a method of teaching in which one student (or a small group of students) receives personalized and individualized instruction (Medway, 1995).

In tutoring, the person providing remedial or supplemental instruction is called a tutor, while the student receiving the same is called a tutee. Tutoring most often supplements traditional classroom instruction which is typically conducted in large groups for those students who require remedial help and those who have difficulty learning by conventional methods. Tutoring also is used for students with special need of life circumstances who are unable to participate in a regular instructional program. Tutoring is widely used with learners of all ages. It most often is used with learners in primary and elementary school settings; however, tutoring also is practical in secondary education, higher education, adult education and vocational education settings (Medway, 1995).

In most cases, tutoring refers to instruction not provided by a student’s regular teacher. The tutor may be a paid private instructor, a volunteer, a school aide, a parent or guardian, another student, a computer or other teaching machine. The tutor may or may not be similar to the learner in age, ability, background, or personal characteristics. The tutor may or may not be trained as an instructor; he or she may focus on one or several subject matter areas; and, like a large group instructor, the tutor may or may not reinforce, encourage, and counsel the student. Another usage of the word tutor is a college or university
official who advises undergraduates, maintains discipline standards and teaching assignments (for example, at many colleges and universities in the United Kingdom, Australia and at some United States Colleges) (Medway, 1995).

In this approach, a child trains another child in skills and subject matter that the first child has mastered. Because the first child has greater information or competence than the second child, the two do not begin the relationship with equal status: rather, the first child is considered an expert and the second child a relative novice. Moreover, the unequal status of the two children is often compounded by other factors as well. Most attempts at peer tutoring pair an older child with a younger child, or a bright child with an educationally disadvantaged one. Peer tutoring, in fact, is then called "cross-age" tutoring, since the tutor is usually two or more years older than the tutee (Damon, 1995).

6.1 NEED OF THE STUDY

In most classrooms the teacher is perceived as the knowledgeable one, but the existing teacher student ratio limits the teacher's ability to instruct with each learner's Zone of Proximal Development (ZPD). Further discussions tend to be dominated by an I-R-E discourse pattern in which the teacher Initiates the conversation (frequently by asking a question), a student Responds, and then the teacher Evaluates the response (Carden, 1988; Mehan, 1982). Because only one student can talk at a time and the pattern actually leads to more teacher than students talk, such discourse patterns limit students' opportunities to talk and restrains the teacher's ability to hear all students' responses; these constraints, in turn, restrict the potential to work within each learner’s ZPD. Because the teacher-student ratio is not likely to change, some educators argue that increased small-group discussions may enable greater student participation and growth (Webb, 1992).

One way to address the issue of student decision making within small-group discussions is to provide opportunities for them to lead their own groups. Instruction is a key component of the program because an important aspect of the teacher’s role as the knowledgeable other is to provide continued support for new interactional patterns and goals and to facilitate increased student
responsibility for learning (Au, 1993). At the same time, students are expected to interact in small groups in which no teacher is present; therefore, they must assume responsibility for the content and help one another to participate. Initial research on student-led discussions about literature has provided encouraging results but this work needs to be expanded to understand better how students can actively help one another participate effectively in discussions about the texts they read.

The research so far supports the notion of small-group interactions related to literature and argues for increasing student responsibility for the content, direction and flow of discussions. Provision for student led groups seems to be a promising step, but little is known about how students might help their peers participate in such a group. Therefore, to modify current practice to include provision of additional support for learning, either the teacher-student ratio needs to be lowered or instruction must provide opportunities for peers to assist one another in their learning. This second option seems more realistic.

The topic of peer tutoring was chosen because such a program can become an important and integral part of any school program. Peer tutoring can be one of the several instructional opportunities that can be used to help meet the needs of students. It has become apparent that any school environment needs to offer a variety of strategies to help meet the unique and different needs of each child. One must not forget that strapped economic times have led to reduced spending and fewer professionals to help meet the needs of students. The implementation of a successful peer tutoring program can increase the learning opportunities offered to students when these opportunities would otherwise be reduced because of budget restraints.

Although numerous anecdotal reports and a number of researches have investigated these beneficial instructional components that contribute to academic gains by both tutors and tutees, few methodologically sound empirical studies have been conducted in this area in India. Instructional treatment influences not only the achievement, retention or attitudes of students, but also the classroom learning environment.
So, the investigator proposed to study the effect of teacher directed instruction followed by peer tutoring on achievement in science and classroom learning environment of high school students.

6.2 STATEMENT OF THE PROBLEM

The present research study was entitled as follows:

EFFECT OF TEACHER DIRECTED INSTRUCTION FOLLOWED BY PEER TUTORING ON ACHIEVEMENT IN SCIENCE AND CLASSROOM LEARNING ENVIRONMENT OF HIGH SCHOOL STUDENTS.

6.3 OBJECTIVES OF THE STUDY

1. To compare the mean gain on achievement scores of the two groups of class IX students taught science through teacher directed instruction followed by peer tutoring and traditional instruction.
2. To study the effectiveness of the two instructional treatments for high and low intelligence groups.
3. To study the effectiveness of the two instructional treatments for high and low intelligence groups at knowledge and comprehension categories of objectives.
4. To compare the retention scores of the two groups of class IX students taught science through teacher directed instruction followed by peer tutoring and traditional instruction.
5. To study the effectiveness of the two instructional treatments for high and low intelligence groups with respect to retention.
6. To study the effects of two instructional treatments for high and low intelligence groups at knowledge and comprehension categories of objectives for retention scores.
7. To study the attitudes of students of the experimental group towards peer tutoring.
8. To study the effect of instructional treatment on learning environment of the classroom as perceived by high and low intelligence students.
6.4 HYPOTHESES

Hypotheses for analysis of gain scores on achievement in science

\( H_1 \) The two instructional treatments yield comparable mean gain on achievement scores in science.

\( H_2 \) The high and low intelligence groups yield equal mean gain on achievement scores.

\( H_3 \) Comparable mean gain on achievement scores are yield by the students at knowledge and comprehension categories of objectives.

\( H_4 \) There is no significant interaction between instructional treatment and levels of intelligence.

\( H_5 \) There is no significant interaction between instructional treatments and categories of objectives.

\( H_6 \) There is no significant interaction between levels of intelligence and categories of objectives.

\( H_7 \) The two instructional groups attain comparable mean gain on achievement scores with both the levels of intelligence at knowledge and comprehension categories of objectives.

Hypotheses for analyses of retention scores

\( H_8 \) Retention is independent of instructional treatment.

\( H_9 \) Retention is independent of levels of intelligence.

\( H_{10} \) Retention is independent of categories of objectives.

\( H_{11} \) Students taught through different instructional treatments attain comparable retention scores at knowledge and comprehension categories of objectives.

\( H_{12} \) Students of high and low intelligence retain comparably when taught science through different instructional treatments.

\( H_{13} \) Students of high and low intelligence retain comparably at knowledge and comprehension categories of objectives.

\( H_{14} \) Students of high and low intelligence retain comparably at knowledge and comprehension categories of objectives when taught through different instructional treatments.
Hypotheses for analysis of attitude scores

H15 High and low intelligence groups exhibit comparable attitude towards peer tutoring.

Hypotheses for analysis of learning environment scores

H16 The two instructional treatments yield comparable mean gain scores on learning environment inventory.

H17 High and low intelligence groups exhibit comparable mean gain scores on the learning environment inventory.

H18 High and low intelligence groups for different instructional treatments yield comparable mean gain scores on learning environment inventory.

6.5 DELIMITATIONS

➢ The study was limited to studying the effectiveness of only two instructional strategies, viz., teacher directed instruction followed by peer tutoring and traditional instruction.

➢ The study was conducted on class IX students of Kalapani Higher Secondary School, Kalapani, Assam.

➢ Only six units of science syllabus of class IX, affiliated to SEBA, Guwahati (Assam) were selected as content matter for the instructional treatment.

➢ The experiment was limited to about 50 days of the academic session.

6.6 TOOLS USED

For the present investigation following tools were used:

1. Raven's Advanced Progressive Matrices (APM).
2. Development of the Criterion Test (Developed by the investigator).
3. Development of the Achievement Test (Developed by the investigator).
4. Development of the Formative Tests (Developed by the investigator).
5. Development of Instructional Material for Teacher Directed Instruction (Developed by the investigator).
6. Scale to measure Attitude Towards Peer Tutoring (Developed by the investigator).
7. Learning Environment Inventory (LEI) by Walberg and Anderson.
6.7 SAMPLE

In the present study, APM was administered to 200 students of class IX from the Kalapani Higher Secondary school of Dhubri district in Assam in August 2002, as per the instructions given in the manual. Time limit for the test was 40 minutes. Separate answer sheets were provided to the students. Scoring was done with the help of the scoring key. The raw scores obtained were used as such in the study.

The intelligence scores of the students on APM were arranged in an ascending order. The 27 percent higher and 27 percent lower scoring subjects were selected and the middle group was dropped. Each one of the selected groups was randomly allocated to the two sub-groups. One sub-group from the high scoring and another from the low was allotted to experimental group and similar matching group to B control group. So, the final sample comprised of 108 students. The study followed purposive cum random sampling procedure. It was purposive because Kalapani Higher Secondary School of Dhubri district in Assam, which was easily approachable, was selected. It was random because class IX students selected for experimentation were randomly allocated to the two groups viz., one experimental and another control group. Each group consisted of randomly allocated high and low intelligence level students. The two groups were as similar as the availability permitted. Their average age was 13 years.

In this district of Assam approximately 90% of the population is of Muslims. So, in Class IX, 95% of the students were from Muslim families. There were 122 boys and 78 girls out of 200 and 87 boys and 21 girls out of 108. The students belonged to lower and middle socio-economic status.

6.8 DESIGN OF THE STUDY

Educational research is described as experimental when the researcher has firstly, specified a set of researchable hypotheses and secondly, has established a systematic program of data gathering under precisely defined conditions in an effort to test these hypotheses. The hypotheses provide a network of statements relating the impact of an independent variable or a set of
independent variables on some outcome variable or dependent variable(s) (Ingersoll, 1984).

In the present study, 2x2 factorial design combined with ANOVA (Campbell and Stanley, 1963) was employed. The factorial design was used as it permits to evaluate the combined effect of two or more experimental variables when used simultaneously.

Information from factorial design experiment is more complete than that obtained from a series of single factor experiments in the sense that evaluation of interaction effects can be made. Also, the population to which inference can be made is more inclusive than the corresponding population for a single factor experiment (Winer, 1971). ANOVA was preferred to increase the precision of analysis of the experimental data which utilized both the pre-test and post-test scores. The present study employed two replications of 2x2x2 factorial design with three fixed variables of which the measures on one variable were repeated for mean gain on achievement scores and the retention scores.

Also, sixteen replications of 2x2 factorial design were employed for analyzing mean gain scores on Learning Environment Inventory (LEI).

The model was a fixed one because all the levels of the variables in each of the designs were determined on a logical basis and were not selected by sampling (Guilford and Fruchter, 1976). Computational procedure was followed according to the technique given by Winer (1971). When a factorial design follows a fixed model in the technique of ANOVA, the error term is always the “within treatment mean squares” (Edwards, 1971).

There were different sets of dependent variables. The first 2x2x2 factorial design was computed by ANOVA for the mean gain on achievement scores. Here instructional treatment, intelligence and category of objectives were independent variables. Gain on achievement scores was the dependent variable which was calculated as the difference in post-test and pre-test scores for each subject.

The variable of instructional treatment was studied at two levels namely experimental group (T1) which was taught by teacher directed instruction.
followed by peer tutoring and control group (T2) which was taught by traditional instruction. The variable of intelligence was studied at two levels viz., high intelligence (I1) and low intelligence (I2) levels. The third variable of categories of objectives was studied at knowledge (O1) category and comprehension (O2) category.

The second 2x2x2 factorial design was for retention score. Here, the variable of instructional treatment was studied at two levels namely experimental group (T1) and control group (T2). The variable of intelligence was studied at two levels viz. High intelligence (I1) and low intelligence (I2). The variable of categories of objectives was studied at two levels, viz. knowledge category (O1) and comprehension category (O2).

The third 2x2 factorial design was analyzed with the help of ANOVA for gain scores on learning environment inventory. Here, instructional treatment and levels of intelligence were the independent variables and gain scores on learning environment inventory was the dependent variable. The variable of instructional treatment was studied at two levels viz., experimental (T1), control group (T2). The variable of intelligence was studied at two levels, viz. high intelligence (I1) and low intelligence (I2) levels.

6.9 PROCEDURE

Procedure of the experiment comprised of two main stages which are selection of the sample and conducting the experiment.

Stage I: Selection of the Sample

The present study was conducted on 108 class IX students from the Kalapani Higher Secondary School, District Dhubri in Assam. Class IX students were selected for experimentation after administration of APM to 200 class IX students (as explained under the sub-heading sample in the present chapter). Each group consisted of randomly allocated high and low intelligence level students.

The investigator was trained in using teacher directed instruction followed by peer tutoring sessions for experimental treatment involved in the present
study after meeting with the guide and some experts at Department of Education, Panjab University, Chandigarh and Gauhati University, Guwahati.

**State 2: Conducting the Experiment**

The experiment was conducted in four phases as given below:

Phase 1: Administration of the pre-test.
Phase 2: Conducting the instructional program.
Phase 3: Administration of the post-test.
Phase 4: Administration of the retention test.

**Phase 1: Administration of the pre-test.**

This phase involved the administration of the following tests to the students of the experimental group and control group i.e.

- Criterion test
- Learning Environment Inventory

Separate response sheets were provided. The answer sheets were scored with the help of scoring key. The scores indicated the previous knowledge possessed by the students and their perceptions about learning environment of their classroom.

**Phase 2: Conducting the instructional program.**

To find out the efficacy of the independent variables, the instructional treatment was manipulated in the form of teacher directed instruction followed by peer tutoring.

The instructional treatment was given for about 50 days to the two groups. Students were motivated to learn through the novel method of instruction and were encouraged to participate in the experiment by explaining its objectives.

Students of the experimental group were explained the steps of instructional treatment as follows:

- Unit 1 is taught by teacher directed instruction.
- Administration of unit 1.
- Feedback to students.
- Formation of peer groups followed by peer tutoring.
- Administration of unit test 1 again to determine the level of mastery of the tutors and the tutees.
- Feedback and retutoring by peers.
- Similarly, the remaining units will be taught by teacher directed instruction followed by the above mentioned activities.

**Instruction to the Peer Tutors**

The students who were selected to be peer tutors (on the basis of their mastery in the unit test) were given specific instructions:

The control group was taught the same topics by traditional instruction for the same duration of time.

**Phase 3: Administration of the post-test.**

Immediately after the instructional treatment was over, the subjects were assessed on criterion measures to know the effect of the treatment. The following tests were administrated to both the experimental and control groups.

- Criterion test.
- Learning Environment Inventory.
- Scale to measure attitude towards peer tutoring (only to students of experimental group).

**Phase 4: Administration of the retention test**

Fifteen days later, the same criterion test was administered to the students to get a measure of retention. The time limit was 40 minutes. Again the obtained answer sheets were scored with the help of scoring key.

**6.10 STATISTICAL TECHNIQUES**

The following statistical techniques were employed to analyse the data obtained from the experiment to test the hypotheses:

1. Graphical representations.
2. Qualitative analysis of criterion scores.
3. Descriptive statistical techniques like mean, S.D.’s of achievement scores.
4. Factorial design 2x2x2 Analysis of variance for mean gain on achievement scores.
5. Factorial design 2x2x2 Analysis of variance for retention scores.
6. Factorial design 2x2 Analysis of variance for gain scores on LEI.
7. For further investigation, t-test was employed, whereever F-ratios were found to be significant.

6.11 MAJOR FINDINGS
The findings of the study have been given in the following paragraphs and all findings pertain to a segment of science at secondary level:

Findings pertaining to achievement in science
- Students taught by teacher directed instruction followed by peer tutoring exhibited better gain in achievement scores as compared to those taught by traditional instruction.
- High intelligence group performed better than the low intelligence group.
  - Treatment and intelligence interacted with one another.
- For high intelligence group, students taught by teacher directed instruction followed by peer tutoring yielded better mean gain scores on achievement than those taught by traditional instruction.
- For low intelligence group, students taught by teacher directed instruction followed by peer tutoring attained better mean gain scores on achievement than those taught by traditional instruction.
- When taught by teacher directed instruction followed by peer tutoring, the high intelligence students performed better than the low intelligence students.
- When taught by traditional instruction, the high intelligence students performed better than the low intelligence students.
- The high intelligence group taught by teacher directed instruction followed by peer tutoring performed better than the low intelligence group taught by traditional instruction.
The low intelligence group taught by teacher directed instruction followed by peer tutoring performed comparably with the high intelligence group taught by traditional instruction.

Treatment and categories of objectives interacted with one another.

At knowledge category of objectives, the students taught by teacher directed instruction followed by peer tutoring attained better mean gain scores than their counterparts taught by traditional instruction.

At comprehension category of objectives, the students taught by teacher directed instruction followed by peer tutoring performed better than those taught by traditional instruction.

Students taught by teacher directed instruction followed by peer tutoring yielded more mean gain scores at knowledge than at comprehension category of objectives.

Students taught by traditional instruction yielded better gain scores at knowledge than at comprehension category of objectives.

Students taught by teacher directed instruction followed by peer tutoring at knowledge category of objectives performed better than those taught by traditional instruction at comprehension category of objectives.

Students taught by teacher directed instruction followed by peer tutoring yielded better mean gain scores at comprehension category than their counterparts taught by traditional instruction at knowledge category of objectives.

Intelligence and categories of objectives interact with one another.

At knowledge category of objectives, the high intelligence group attained better mean gain scores than low intelligence group.

At comprehension category of objectives, the high intelligence group attained better mean gain scores than low intelligence group.

High intelligence group performed better at knowledge than at comprehension category of objectives.

Low intelligence group performed better at knowledge than at comprehension category of objectives.
Treatment, intelligence and categories of objectives did not interact with one another.

**Findings pertaining to retention in science**

- Students taught by teacher directed instruction followed by peer tutoring exhibited better retention as compared to those taught by traditional instruction.
- High intelligence students retained more than low intelligence students.
- Students retained comparably at knowledge and comprehension category of objectives.

→ Treatment and intelligence were found to interact with one another

- For high intelligence group, students taught by teacher directed instruction followed by peer tutoring retained better than those taught by traditional instruction.
- For low intelligence group, students taught by teacher directed instruction followed by peer tutoring retained more than those taught by traditional instruction.
- When taught by teacher directed instruction followed by peer tutoring, the high intelligence students performed better than the low intelligence students.
- When taught by traditional instruction, the high intelligence students retained better than the low intelligence students.
- The high intelligence group taught by teacher directed instruction followed by peer tutoring retained better than the low intelligence group taught by traditional instruction.
- The low intelligence group taught by teacher directed instruction followed by peer tutoring retained better than the high intelligence group taught by traditional instruction.

→ Treatment and categories of objectives interacted with one another

- At knowledge category of objectives, the students taught by teacher directed instruction followed by peer tutoring retained better than their counterparts taught by traditional instruction.
At comprehension category of objectives, the students taught by teacher directed instruction followed by peer tutoring retained better than those taught by traditional instruction.

Students taught by teacher directed instruction followed by peer tutoring retained more at comprehension than at knowledge category of objectives.

Students taught by traditional instruction yielded better retention scores at knowledge than at comprehension category of objectives.

Students taught by teacher directed instruction followed by peer tutoring at knowledge category of objectives retained better than those taught by traditional instruction at comprehension category of objectives.

Students taught by teacher directed instruction followed by peer tutoring retained better at comprehension category than their counterparts taught by traditional instruction at knowledge category objectives.

Intelligence and categories of objectives interacted with one another.

At knowledge category of objectives, the high intelligence group retained more than low intelligence group.

At comprehension category of objectives, the high intelligence group retained more than low intelligence group.

High intelligence group retained better at knowledge category than at comprehension category of objectives.

Low intelligence group retained better at comprehension category than at knowledge category of objectives.

Treatment, intelligence and categories of objectives interacted with one another.

Through teacher directed instruction followed by peer tutoring:

a) the high intelligence group retained more at comprehension category of objectives than at knowledge category.

b) the low intelligence group retained more at comprehension category of objectives than at knowledge category.
c) the high intelligence group of students retained more than their low intelligence counterparts at knowledge category of objectives.

d) the high intelligence group of students retained more than their low intelligence counterparts at comprehension category of objectives.

➢ Through traditional instruction:

(a) the high intelligence group retained more at knowledge category than at comprehension category of objectives.

(b) the low intelligence group retained more at comprehension category than at knowledge category of objectives.

(c) the high intelligence group retained more than their low intelligence counterparts at knowledge category of objectives.

(d) the high intelligence group retained more than their low intelligence counterparts at comprehension category of objectives.

• At knowledge category of objectives, high intelligence group retained more than the low intelligence group when taught by teacher directed instruction followed by peer tutoring.

• At comprehension category of objectives, the high intelligence group retained more than the low intelligence group when taught by teacher directed instruction followed by peer tutoring.

• At knowledge category of objectives, low intelligence group taught by teacher directed instruction followed by peer tutoring retained comparably with the high intelligence group taught by traditional instruction at comprehension category of objectives.

• At comprehension category of objectives, the low intelligence group taught by teacher directed instruction followed by peer tutoring retained more than the high intelligence group taught by traditional instruction.

Finding pertaining to attitude towards peer tutoring

• The high intelligence group exhibited better attitudes towards peer tutoring than the low intelligence group.
Findings pertaining to classroom learning environment

- Students taught by teacher directed instruction followed by peer tutoring perceived their classroom learning environment on the whole better than their counterparts who were taught by traditional instruction.

- With respect to the fifteen dimensions of learning environment, students of experimental group exhibited more formality and democracy than their counterparts taught by traditional instruction.

- The two treatment groups exhibited comparable mean gains for the remaining thirteen dimensions of learning environment, viz., cohesiveness, diversity, speed, environment, friction, goal direction, cliqueness, diagnosis, satisfaction, disorganization, difficulty, apathy and competitiveness.

- The high and low intelligence groups perceived their classroom learning environment comparably.

- For the fifteen dimensions of learning environment, high intelligence group exhibited better speed and democracy than the low intelligence group. However, for the remaining thirteen dimensions, viz., cohesiveness, diversity, formality, environment, friction, goal-direction, favouritism, cliqueness, satisfaction, disorganization, difficulty, apathy and competitiveness, the high and low intelligence groups yielded comparable mean gain scores.

- High and low intelligence groups for different instructional treatments yielded comparable mean gain scores on Learning Environment Inventory.

- With respect to the fifteen dimensions of learning environment, high and low intelligence groups of students yielded comparable mean gain scores on all the fifteen dimensions of learning environment.

- Treatment did not interact with intelligence, with respect to the fifteen dimensions of learning environment, viz., cohesiveness, diversity, formality, speed, environment, friction, goal-direction, favouritism, cliqueness, satisfaction, disorganization, difficulty, apathy, democracy and competitiveness.
6.12 EDUCATIONAL IMPLICATIONS

- Peer tutoring helps to individualize instruction at no extra cost.
- Using peer tutoring as a method of instruction, can improve the learning outcomes of under achievers.
- Peer tutoring is usually effective when tutees are tutored in groups or individually.
- A tutoring session could also include recreation, games, refreshments etc. for making it more effective.
- Ultimately the participants of peer tutoring sessions, both tutors and tutees, begin to take control of their own learning.
- When students do not understand a teacher’s explanation, peers are often able to provide explanation in words that are more easily understood, i.e., they are able to communicate in comprehensible words.
- Although teacher has an important role in monitoring student discourse and planning instruction that meets emerging needs, students are encouraged to:
  - work together
  - build social skills and develop friendships.
  - adopt leadership role.
  - participate in discussions.
  - facilitate each other’s learning.
  - engage in problem-solving.
- Peer tutoring can be used as a supplement to large group classroom teaching.
- Peer tutoring could reinforce the tutor’s perceptions of the importance of school, improve their perception of how well they thought they were doing in school and decrease feelings of alienation. This will lead to decline in drop-out rate especially in primary schools.
- Truly, one never really knows a subject until one tries to teach it.
- There are no alternative techniques that will replace the need for classroom teachers and the traditional approach to instruction. However, in a classroom of upto 35 students with diverse academic and social
needs, viable techniques must be available to teachers who seek the best education for their students, whether they are regular or learning disabled students. Peer tutoring is one such technique that has been supported by many areas of research.

The traditional model for peer tutoring has employed two students, with an older student tutoring a younger student. Variations on role-taking between tutor and tutee have been demonstrated in recent years, particularly with special education students. Previously, learning disabled students were used only to fill the tutee's role. Recently, however, learning disabled students have been found to be as successful as other peers in the tutor's role. Some researchers found learning disabled students to be successful tutors of non-handicapped peers, and many others also found success with younger disabled students. Positive outcomes can be obtained with learning disabled students acting as either tutors or tutees, as long as training and supervision are adequate.

Mainstreamed or integrated classroom settings are ideal locations for the implementation of peer tutoring. Class rooms that use peer tutoring can facilitate the integration process for both the teachers and the students.

Furthermore, it is clear that we should not assume that teacher-directed instruction has no merits nor that child-centered teaching (in its most liberal form) can do no wrong. Rather we should appreciate that teacher-directed and child-centered teaching are neither all bad nor all good. Finally, based on the present findings and prior research, it is evident that differing instructional approaches have differential effects on diverse groups of children.

Two slogans of advocates of peer tutoring are:

"TOGETHER WE CAN"
AND
"LEARNING BY TEACHING"
6.13  SUGGESTIONS FOR FURTHER STUDIES

Results from previous studies have focused, to a large extent, on the effects of peer tutoring using regular-education students as both the tutors and tutees. Special-education students have even higher needs in self-esteem, responsibility, social skills and attitudes towards school than their regular-education peers. The benefit of peer tutoring could be great with this population, and empirical research is needed for its use with learning disabled and other mildly handicapped students within regular – and special education settings.

Previous findings suggest that peer tutoring is an extremely useful and effective alternative to traditional instruction. Nevertheless, the related issues are so complex that further research into the effectiveness of the various components of peer tutoring remains the next logical step. Effect of peer tutoring on communication skills, learning strategies, self-esteem, motivation of students should be investigated.

- Effectiveness of cross-age tutoring and tutoring for slum children may be investigated.
- Drop-outs peer tutoring of Handicapped students by handicapped students, and students at risk may also be studied.
- Research studies may be conducted on the effectiveness of different types of peer tutoring viz., same age tutor, the monitor system, unstructured peer tutoring, structured peer tutoring and cross-age peer tutoring.