CHAPTER – IV

Methodology

Experimental Design

In order to assess and measure the impact of Cooperative T-BL, Competitive T-BL, and TLM on the target groups, this study focused on the following dependent variables:

1. Reading comprehension in English;
2. Language learning strategies;
3. Attitudes towards English language learning and the select teaching methods, and
4. Retention of information

All these objectives were addressed with respect to different-level achievers of the target group with the help of field studies and experiments in Iran and India.

In order to control as many internal and external variables as possible, the Comparative Pretest-Posttest Intervention Design was selected at the initial stages of the study as the blueprint of the procedure. But after a number of discussions with some experts in the field, some disadvantages of this design were noted. It was pointed
out that this design considered only one sample of subjects to be exposed to different teaching methods and that could be a major problem for the present study because the effects of teaching methods had to be investigated with the same groups of subjects in each country. In other words, the select sample in each country would have to have the same course three times in order to investigate the effects of the select teaching methods on the dependent variables of the study: once for TLM, once for Cooperative T-BL, and once for Competitive T-BL. Consequently, a number of problems could arise. To cite an example, the first CL method which was applied would certainly have an influence on the results of the second method in the sense that the participants would have better known the teacher, each other, and the material, and would have better adapted themselves with the nature of group work. Therefore, to avoid such problems, Randomised Pretest-Posttest Control-Group Design was applied to serve the present study (see Figure 6).
As it could be noticed in Figure 6, whereas TLM, Cooperative T-BL, and Competitive T-BL were the independent variables, the participants’ reading
comprehension, language learning strategies, attitudes, and retention of information were the dependent variables of the study. The experimental groups received intervention programs while the control groups did not. Pretests were administered to all the groups prior to the experiments. Posttests were conducted to realize and compare the effects of the interventions on the dependent variables.

The Randomised Pretest-Posttest Control-Group Design was selected because it generally controls the sources of internal validity. Likewise, randomisation process, inherent in this design, practically assures equivalency in many ways. Some internal variables like contemporary historical events, and pretest effects were controlled. For example, pretest effects were controlled because all groups experienced equal effects of the tests. In other words, the effects were equalized, and thus the possibility of mistaking the effect of the select teaching methods was eliminated. Inter-session developments -- extraneous variables that arise between pretest and posttest -- were also balanced out due to the presence of randomised groups. And in order to control intra-session conditions (i.e., differences that control and experimental groups might experience when they are tested and treated separately), variables such as time, teacher, teaching process, and administration of tests were tried to be equal for all the groups.

**Participants**

One hundred and ninety two second-year Engineering majors from two different colleges in Iran and India (96 from Mashhad Islamic Azad University, Iran and 96 from Mahajana First Grade College, Mysore, India) were the final sample who
served the present study for nine weeks in each country. The mean age of the select sample was 21.0 years. As indicated in Table 2, both groups had almost the same average of educational background before entering colleges in their respective countries.

Table 2. Educational Background of the Participants in Iran and India

<table>
<thead>
<tr>
<th>Country</th>
<th>Primary</th>
<th>Upper-Primary</th>
<th>Secondary</th>
<th>Higher-Secondary</th>
<th>Graduate (Bachelor)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iran (Khorasan)</td>
<td>5 years</td>
<td>3 years</td>
<td>3 years</td>
<td>1 year</td>
<td>4 years</td>
</tr>
<tr>
<td>India (Karnataka)</td>
<td>7</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

The target groups had studied English, in their pre-university levels, for an average of eight years (range 7–9 years), and the departments of English in the respective colleges considered them to be intermediate learners of English. Factors like ethnic affiliation and mother tongue were not taken into account in the selection of the participants either in Iran or India. Their mother tongue differed from each other but the medium of instruction in the field-study experimental classes of the present study was English. The reasons for the selection of undergraduate learners have been stated in the section on the rationale of the study.

To finalise the target group, this researcher went through the following procedures. One month prior to the experiment in India, he selected Mahajana First Grade College, which is within the jurisdiction of the University of Mysore in Mysore, at random from the list of colleges in the city, in order to select a group of students who were deemed to be more or less as representatives of Indian second-year
Engineering majors for this study. He selected Mahajana College in Mysore because in the course of his research-work at Mysore University, he got familiar with the locality. Later, he randomly selected three classes of 50 to 58 students in each. He conducted the IELTS reading section for them. Based on their scores on the test, only average scorers who fell between 25th and 75th percentile were considered in each class to serve the study. This researcher excluded extreme scores on either side in order to have a homogeneous sample of 32 participants to the extent possible, in each class (17 men and 15 women in each). The three classes were then randomly considered as control and experimental groups to serve the study. This researcher used random assignment because it mirrored better the nature of routine classes also. He decided on 32 participants for each group because he found it as the minimum acceptable number for this kind of studies. He distributed equal numbers of boys and girls in groups in an attempt to minimize the gender effect.

Students of Mashhad Islamic Azad University in Mashhad, Iran, were selected to represent correspondingly Iranian second-year Engineering majors. This University was randomly selected from among the universities in Mashhad because the researcher was familiar with the area. The procedure for selecting the sample of the study was the same as it was for Indian sample. Each of the final three select groups consisted of a homogeneous group of 32 participants with the same distribution of men and women, as it was done in India (17 men and 15 women in each group).

The IELTS reading pretest was also helpful in assessing the participants’ reading comprehension, in testing the initial equivalence among groups in the two
countries. After conducting the pretest, an F test was applied to verify the pretest results for both the groups in the two colleges. As it is disclosed in Table 3, the target groups’ scores on IELTS pretest in both the countries proved that the select groups were homogeneous enough for the present study.

Table 3. Means and Standard Deviations of the Groups in Pretest on Reading

<table>
<thead>
<tr>
<th>Methods</th>
<th>Means</th>
<th>SDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLM</td>
<td>13.88</td>
<td>4.20</td>
</tr>
<tr>
<td>Coop T-BL</td>
<td>13.42</td>
<td>3.96</td>
</tr>
<tr>
<td>Comp T-BL</td>
<td>12.86</td>
<td>2.51</td>
</tr>
<tr>
<td>Total</td>
<td>13.39</td>
<td>3.64</td>
</tr>
</tbody>
</table>

Note. F = 1.446; P < .238 (NS)

As Table 3 shows, F value of 1.446 was not significant (NS), and therefore, randomisation was confirmed and the groups were matched.

Materials and Instrumentation

Instructional Materials

Considering the nature of the study as comparative in two different contexts, in Iran and India, “Passport to IELTS” textbook (Hopkins & Nettle, 1995) was selected in consultation with some language teaching experts as well as the respective English language teachers in both the target colleges in the two countries to serve the present study as instructional material. The significance of this textbook for the study was that, as Hopkins and Nettle, authors of the book, have corroborated, it specifically aims at preparing learners for IELTS test. One version of IELTS test has been used in the
present study for assessing the target groups’ reading comprehension before and after the interventions (see Tools of the Study for this test). The textbook entailed two kinds of texts: general and academic. As Hopkins and Nettle asserted:

This book [Passport to IELTS] is designed to help you if you are planning to study in English and need to take the IELTS test. This [book] is suitable for both Academic and General Training candidates. Each unit of this book gives you practice for each module of the test, as well as giving you a chance to develop specific skills that will help you both in the test and in your use of English generally. (Ibid. p. 2)

After consulting some specialists in ELT, five texts from among 10 units of the textbook (from units two, four, seven, and ten) were selected (see Appendices B, C, D, E, and F). Lest there should be a culture shock emanating from texts, texts were selected carefully keeping in mind the idea that they should be familiar and interesting to the participants. For example, the theme of the text in unit three was about the relationship between diet and diseases, which met this criterion. The text demonstrated a review on the two major studies, supported by World Health Organization (WHO), on two critical diseases of modern man: heart disease and cancer. Like other texts, this text motivated the participants to share their ideas enthusiastically.

All the groups in Iran and India were subjected to this material, with the same schedule of instruction. As this researcher has been familiar enough with CL principles and strategies as the result of his long experiment with the approach in the last decade in his classes (see Appendix A for his educational experience), he decided to manage the classes on his own. This decision also brought the teacher effect under control. He knew the value of his Ph.D study and so he tried to be fair and unbiased.
Likewise, he did not let the participants know about the experiment in the course of the implementation of the study because he felt that they might show prejudice and their prejudice, as an external variable, might have negative effects on the outcomes of the study. This strategy was in view of minimizing the reactive effect of the experimental procedure.

Based on Hopkins and Nettles’ idea that states, “the units [of the textbook] become progressively closer to a full-length IELTS test, so you should do them in order” (p. 2), this researcher presented the select texts to the participants in the same order they appeared in the textbook, irrespective of vocabulary, syntactic, length of utterances, length of the passages, genre types, and their complexity. It is worth mentioning that in order to intensify the participants’ enthusiasm and motivation for active cooperation during the course of the implementation of the study, this researcher elaborated and somewhat exaggerated the importance of IELTS materials and tests, which was effective.

The first select text “The Grand Embankment”, with 680 words (Appendix B) was polemical in nature. It described a situation, introduced a problem, proposed a relevant solution, explained about the implementation of the solution, and illustrated disadvantages and various criticisms of the proposal. The next text was entitled “Road Technology since the Romans” (Appendix C). This 719-word text was a review in nature. It was a review on the history of roads, explaining how technology had contributed to the development of road building since Romans. And the third text, “A Great Way to Live Longer”, with 751 words (Appendix D); the fourth text, “A
Sprinkling of Herbs”, with 697 words (Appendix E), and the last text, “Planes that fall to Pieces”, with 515 words (Appendix F), were all expository or descriptive, which usually had strings of factual statements to measure or present one concept or to present opposing arguments. These were supported with illustrations and finally ended by the writers’ own opinions or conclusions. The texts with the support of the questions, which accompanied them, aimed at improving the comprehension of main and subordinate ideas, with an emphasis on realization of their relations. Overall, the texts attracted the participants’ attention and promoted considerable discussions and arguments among them, especially in CL classes.

Tools of the Study

Four different tools were used to find out the effectiveness of the select teaching methods on the different dependent variables of the present study:

- International English Language Testing System Test;
- Strategy Inventory for Language Learning Survey;
- Language Learning and Class Structure Questionnaire, and
- Delayed Free-Recall Test.

International English Language Testing System Test

International English Language Testing System (IELTS) is an internationally recognized test, developed by Cambridge University, which aims at measuring the English proficiency of college-bound students who study English as a FL (as in Iran)
or a L2 (as in India). The reading section of “IELTS 2” textbook (Kohonen, 1992, pp. 62-72) was employed to serve the present study as the pretest and posttest in order to measure the effectiveness of the select teaching methods applied in the study on the reading comprehension in English of the participants (see Appendix G for this test). This selection was done in close consultation with some language testing specialists and the target groups’ English language teachers in Iran and India. The reading section of the test was a good test to be applied in the present study inasmuch as it has been designed to test learners’ abilities for comprehension of main ideas, paragraph meanings, and making inferences of things that have not been directly stated in the text, the improvement of which were the objectives of the reading course in this study.

The reading section of the test contained 40 items for three passages. Passage one, “Absenteeism in Nursing: A Longitudinal Study” (678 words), included seven yes/no/not given questions and six short-answer questions (one- or two-word answers). Passage two, “The Motor Car” (825 words), was followed by six matching questions and seven yes/no/not given questions. And passage three, “The Keyless Society” (621 words), was preceded by seven matching questions and again followed by seven other matching questions.

This test (IELTS) was selected to serve the present study by virtue of the fact that it is unbiased and respects international diversity, and thereby, is fair for administration in any part of the world. Moreover, the test is popular both in Iran and India. The significance of this test to the present study was that it was comparable and parallel to the instructional material which was applied in the study. As noted earlier,
the textbook, which was used as the instructional material in this study, has been developed for IELTS candidates.

As regards the reliability of the test, Cronbach alpha was used after the pretests in both the countries to calculate its internal reliability coefficients (see Table 4).

Table 4. Reliability Coefficients and Significance Levels of the IELTS Reading Test Administered

<table>
<thead>
<tr>
<th>Tool</th>
<th>IRAN AC</th>
<th>IRAN Sig.</th>
<th>INDIA AC</th>
<th>INDIA Sig.</th>
<th>Overall AC</th>
<th>Overall Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>IELTS R.</td>
<td>.6843</td>
<td>HS</td>
<td>.6116</td>
<td>HS</td>
<td>.6189</td>
<td>HS</td>
</tr>
</tbody>
</table>

Note. AC = Alpha Correlation  Sig. = Significance    HS =Highly Significant

As Table 4 displays, the reliability levels of .6843 and .6116 were obtained for the groups in Iran and India respectively, which were found to be highly significant. The overall reliability coefficient of the test for the two countries was obtained .6189, which was found to be highly significant.

Concerning the validity of the test, the target groups’ English language teachers in Iran and India and some language testing specialists as well asserted that the test was suitable to the target groups of the study in their reading course. Likewise, they confirmed that the test was seen to be fair and unbiased regardless of nationality, background, gender or lifestyle of the target groups of the study. Furthermore, because the test is international, its validity was already confirmed.
Strategy Inventory for Language Learning Survey

To garner the data for determining the effectiveness of the select teaching methods on the language learning strategies of the participants, the Strategy Inventory for Language Learning (SILL) survey (Appendix H), developed by Oxford (1990, pp. 293–300), was used before and after the experiments in the present study. The SILL survey consisted of six categories of language learning strategies:

1. memory strategies (statements 1 to 9)
2. cognitive strategies (statements 10 to 23)
3. compensation strategies (statements 24 to 29)
4. metacognitive strategies (statements 30 to 38)
5. affective strategies (statements 39 to 44)
6. social strategies (statements 45 to 50)

The survey included 50 close-ended statements answerable within a modified five-point Likert scale ranging from 1 (‘Never or almost never true of me’) to 5 (‘Always or almost always true of me’), repeated after each stem. The first nine statements in the first category of the survey assessed memory strategies of the participants. A typical example of this category is: ‘I remember new English words or phrases by remembering their location on the page, on the board, or on a street sign’. The second category consisted 14 strategies (10–23) representing cognitive strategies. ‘I make summaries of information that I hear or read in English’ can be considered as a typical example for these strategies. The next six (24–29) strategies in the third category sampled compensation strategies the ideal example of which is: ‘I try to guess what the other person will say next in English’. The fourth category of strategies
(30–38) represented metacognitive strategies (e.g., ‘I try to find out how to be a better learner of English’). ‘I try to relax whenever I feel afraid of using English’ is a typical example for affective strategies, which can be realized out of the six strategies (39–44) mentioned in the fifth category of the survey. And ‘If I do not understand something in English, I ask the other person to slow down or say it again’ is a good example for social strategies in the last category.

This researcher used the SILL survey because it best suited the nature of this study in the sense that one intention was to investigate into the effectiveness of social scaffolding on the transference and acquisition of different learning strategies, which have been proved to be favourable to SLA in language classes.

Internal reliability coefficients of the SILL survey were obtained using Cronbach alpha, after the pretests in both the countries (see Table 5).

Table 5. Reliability Coefficients and Significance Levels of the SILL Survey Administered

<table>
<thead>
<tr>
<th>Tool</th>
<th>IRAN</th>
<th>INDIA</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AC</td>
<td>Sig.</td>
<td>AC</td>
</tr>
<tr>
<td>SILL S.</td>
<td>.8727</td>
<td>HS</td>
<td>.8088</td>
</tr>
</tbody>
</table>

As the table indicates, the survey reliabilities were .8727 and .8088 for the groups in Iran and India respectively, which were found to be highly significant. The overall reliability coefficient for the two countries was obtained .8723.

To find the validity of the survey, once the SILL pretest was conducted, correlations among scores on each category of the survey and the total score and inter-
correlations among categories were obtained using Pearson product-moment correlation coefficient (see Table 6).

Table 6. Correlations-Validity of the SILL Total Scores with the Subcategories

<table>
<thead>
<tr>
<th>Categories</th>
<th>Total SILL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.582</td>
</tr>
<tr>
<td>2</td>
<td>.910</td>
</tr>
<tr>
<td>3</td>
<td>.753</td>
</tr>
<tr>
<td>4</td>
<td>.897</td>
</tr>
<tr>
<td>5</td>
<td>.787</td>
</tr>
<tr>
<td>6</td>
<td>.837</td>
</tr>
</tbody>
</table>

As Table 6 reveals, correlation coefficient between categories and total score varied from .582 to .910, which showed a marked relationship between the categories with the inventory.

**Language Learning and Class Structure Questionnaire**

Keeping in mind the fourth objective of the present study, this researcher developed the Language Learning and Class Structure Questionnaire (Appendix I). The questionnaire was developed in an attempt to measure the effects of the select teaching methods on changes in the attitudes of the target groups towards English language learning and individualistic, cooperative, and competitive learning environments or, in effect, the select teaching methods applied in the present study. A number of questionnaires in the related literature were studied and compared before developing this questionnaire. The ‘Perception of Peers Scale’ of Garibaldi (1979) was one of the sources which served as a model in developing the questionnaire of this
The scale was made available from Shumway (1999). The first block of the questionnaire of the present study was adapted from this scale. However, this researcher effected some minor modifications in this block in order to fit the objectives of his study. To make it clear, the four statements of the block of the scale had been developed for measuring the participants’ attitudes towards ‘learning activities’ in ‘science classes’ which were modified in such a way to measure the attitudes of the participants of this study towards ‘English language learning’ in ‘language classes’.

This researcher tried to put the blocks of the questionnaire in a logically sound sequence. While the first block sought to measure the participants’ attitudes towards language learning as a whole, the last block intended to gauge their attitudes towards Competitive T-BL. The individual blocks of the questionnaire were developed to measure the participants’:

1. attitudes towards English language learning (statements 1 to 4)
2. attitudes towards individualistic class structures (statement 5)
3. attitudes towards CL (statements 6 to 18)
4. concerns with regard to CL settings (statements 19 to 28)
5. attitudes towards Cooperative T-BL (statement 29)
6. attitudes towards Competitive T-BL (statement 30)

In addition, three open-ended questions were added to the end of the questionnaire for the participants to voice their views concerning their likes and dislikes about the CL settings. The language of the directions and statements were tried to be plain and simple so as to facilitate the respondents’ thorough understanding of what they were
supposed to do. To ensure the appropriateness and comprehensibility of the questionnaire’s directions and statements, four instructors were consulted. The questionnaire was also piloted with a sample of 25 students in both the countries, who were corresponding to the samples of the study. Based on their comments as well as the comments given by the English language teachers of the two colleges about the fluency of the directions and statements and the kind of vocabulary applied, the questionnaire was modified and finalized for the large-scale data collection. The questionnaire was administered, as pretest and posttest, to the target groups after a three minutes break time at the same sessions they completed the SILL.

The questionnaire encompassed six blocks with 30 close-ended statements answerable within a modified seven-point Likert scale ranging from one to seven, reiterated after each stem. This researcher decided on seven-point Likert scale to give the participants a broader freedom so as to decide on their choices more accurately.

The purpose of statements in the first block (1–4) was to obtain the participants’ attitudes towards English language learning. A typical statement for this block is number 3: ‘English language learning is....

Not enjoyable  1  2  3  4  5  6  7  Enjoyable’

The second block, statement 5 (‘In my English language courses, I would like to learn English INDIVIDUALLY’), aimed at measuring the participants’ attitudes towards individualistic class structures or, in fact, their inclination towards TLM. Statements 6 to 18, in block three, were developed to gather their attitudes towards CL. Statement 10 is a typical example for this category: ‘I better understand the
material by working with a partner than by working alone’. This researcher was especially interested in knowing the general attitudes of the participants towards CL in this category. The participants’ concerns in regard to CL settings were obtained in block four, statements 19 to 28. Statement 21, which says that ‘effectiveness of learning in groups’ is their main concern in CL settings, is a good example for this category. Statement 29, in block five, (‘I would like to learn English in cooperative learning classes in which all teams COOPERATE with one another’) was an attempt to measure the participants’ attitudes towards Cooperative T-BL. And their attitudes towards Competitive T-BL were obtained through the last block, statement 30: ‘I would like to learn English in cooperative learning classes in which all teams COMPETE against one another’. And finally, ‘Do you have any comments or any other concerns about the idea of working in teams? If yes, please explain’ could be a good example for the three open-ended questions which were included at the end of this questionnaire as optional.

To calculate the internal reliability coefficients of the questionnaire, Cronbach alpha was used, after the pretests in both the countries (see Table 7).

<table>
<thead>
<tr>
<th>Tool</th>
<th>IRAN AC</th>
<th>IRAN Sig.</th>
<th>INDIA AC</th>
<th>INDIA Sig.</th>
<th>Overall AC</th>
<th>Overall Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude S.</td>
<td>.6847</td>
<td>HS</td>
<td>.6187</td>
<td>HS</td>
<td>.7199</td>
<td>HS</td>
</tr>
</tbody>
</table>

As the table displays, overall reliability levels of .6847 and .6187 were obtained for the groups in Iran and India respectively. And, the overall reliability coefficient of the questionnaire for the two countries was obtained .7199.
After the attitude pretest was conducted, correlations among scores on each category of the questionnaire and the total score and inter-correlations among categories were obtained using Pearson product-moment correlation coefficient to find the validity of the attitude questionnaire (see Table 8).

Table 8. Correlations-Validity of the Attitude Total Scores with the Subcategories

<table>
<thead>
<tr>
<th>Blocks</th>
<th>Total Attitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.670</td>
</tr>
<tr>
<td>2</td>
<td>.698</td>
</tr>
<tr>
<td>3</td>
<td>.600</td>
</tr>
<tr>
<td>4</td>
<td>.667</td>
</tr>
<tr>
<td>5</td>
<td>.668</td>
</tr>
<tr>
<td>6</td>
<td>.680</td>
</tr>
</tbody>
</table>

As Table 8 indicates, correlation coefficient between categories and total score varied from .600 to .698, which showed a marked relationship between the categories with the inventory.

**Delayed Free-Recall Test**

A free-recall test which emphasized the ‘idea units’ or meaningful pieces of information of ‘The Grand Embankment’, the first text which was covered in the course, was administered to test the effects of the teaching methods applied in the present study on the retention of information of the participants. This text was selected to serve the study as the source for recall test in view of the fact that it was the first text, which was covered in the reading course. Therefore, it supplied a longer gap in time -- the gap from the time it was taught to the time it was asked to be recalled by
the participants. This feature, longer duration of time, better fitted the fourth objective of the present study.

Prior to the administration of the test, the text was divided into idea units, keeping in mind Chafe’s (1972) description of an idea unit. According to Chafe, an idea unit is a part of the text that conveys meaning. It contains a verb form with any associated agent, patient, and beneficiary. In course of dividing the text into idea units, the length and the accuracy of grammatical structures were not considered as the criteria for a segment to be coded as an idea unit. What counted was whether the unit was meaningful. In other words, the accent was on semantic aspects of the text. For example, the first sentence (‘The great rivers carry soil sediment from the Himalayas which they deposit in a huge, constantly changing delta at the head of the Bay of Bengal.’) of the second paragraph of the text was broken into idea units as below:

1. The great rivers carry soil sediment.
2. The great rivers come from the Himalayas.
3. The great rivers deposit in a huge, constantly changing delta at the head of the Bay of Bengal.

Note: The bold words could also be considered as idea units.

Procedure

After selecting the respective colleges and prior to the experimentations, this researcher submitted his request letter (Appendix J) to the Principal of Mahajana College, and to the Head of the English department of Mashhad Islamic Azad
University for their cooperation for the implementation of the experimental part of the present research study. After discussions with all those concerned, the researcher was scheduled to start the field-study project in the third week of June in India and in the fourth week of October in Iran during the respective academic semesters in 2006. He agreed to meet the classes in 18 sessions of 45 minutes each for nine weeks, on two days a week -- on all working Mondays and Thursdays -- in both the countries. This schedule brought the effects of intra-session condition of time on the results of the experimentation part of the study under control. The procedures in the field study experiment in Iran and India were planned to be as shown in Table 9.

Table 9. Schedule of the Experimentation Part of the Study with the Target Groups in Iran and India

<table>
<thead>
<tr>
<th>Activity</th>
<th>Number of Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breaking the ice</td>
<td>one</td>
</tr>
<tr>
<td>Administering the Pretests</td>
<td>two (one for the IELTS reading test, and one for the SILL survey and the attitude questionnaire)</td>
</tr>
<tr>
<td>Grouping and team formation</td>
<td>one (team formation was for the experimental groups)</td>
</tr>
<tr>
<td>Conducting the Workshop</td>
<td>one (for the experimental groups)</td>
</tr>
<tr>
<td>Conducting the Experiments</td>
<td>ten (for five texts -- one for the presentation and the other for the quiz, for each text)</td>
</tr>
<tr>
<td>Administering the Posttests</td>
<td>Three (one for the IELTS test, one for the SILL survey and the attitude questionnaire, and one for the delayed free-recall test)</td>
</tr>
</tbody>
</table>
Breaking the Ice

To pave the way for the implementation of the select teaching methods, this researcher conducted an introduction session with the target groups of the study, both in Iran and India. In virtue of the fact that most of the select participants were not familiar enough with different types of class structures, he explained about different structures including individualistic learning – as it is in TLM, and CL in general and CL methods in particular. Cooperative T-BL and Competitive T-BL were explicated in detail as they were the major concerns of the research study. The main goal of this brief introduction to different goal structures and CL methods was to enable the participants to answer the attitude questionnaire with sufficient knowledge.

Administering the Pretests

The IELTS reading test, the SILL survey, and the attitude questionnaire were administered to the three groups in each country (on 26 June and 24 October 2006 in India and Iran respectively) as the pretests. The IELTS reading test was conducted in the second session of the experimentation. In the third session, the researcher asked the participants to complete the attitude questionnaire and then administered the SILL survey. Basic demographic data were elicited at the top of the answer sheets, including name, surname, age, gender, grade level, and the date. Prior to the administration of the reading test, the SILL survey, and the attitude questionnaire, the researcher explained everything clearly to the participants to make sure that they knew the appropriate procedures to respond to different parts of the test, the survey, and the
questionnaire. With regard to the SILL survey, for instance, as per the suggestion from the English language teachers of the respective colleges, the researcher provided the participants detailed explanation and illustration of its individual statements in order to ensure more reliable responses from them. He illustrated and cited examples for each statement so as to ensure that the participants decided on the choices in their answer sheets accurately. He requested them to respond to the 50 statements on a five-point Likert scale ranging from 1 (‘Never or almost never true of me’) to 5 (‘Always or almost always true of me’) as fair as possible.

The time for the completion of the test, the survey, and the questionnaire were also reminded to the participants (90 min, 30 min, and 20 min for the reading test, the SILL survey, and the attitude questionnaire respectively). Likewise, the participants were advised to make themselves comfortable, and after careful reading of the instructions, go through the items and statements. In spite of his initial clarifications, the researcher wanted them to ask about everything they did not understand (e.g., directions and items of the test, statements of the survey and the questionnaire, etc.). With the intention to motivate them to be fair, he promised that all the data they would provide would be kept confidential. He also assured them that their responses would have no influences on their final evaluation in the course and would be applied for only analysis of their educational needs for curriculum development in future.
Team Formation in the Experimental Groups

Based on the presupposition that teams with a range of abilities could better scaffold learning of individual participants, this researcher decided on heterogeneous teams in the experimental groups. To place the participants on appropriate heterogeneous teams of four members, a combination of random assignment, criterion-based selection, and self-selection procedures of forming teams were applied. To put it another way, first, the 32 exam scores of each class (on reading test) were ranked from high to low. Three achievement levels were formed from this ranking with the top eight exam scores (high achievers) in the first level, the next sixteen scores (average scorers) comprising the second level, and the last eight scores (low performers) at the third level so that each team could be composed of equal members of high-, average-, and low- achievers (see Figure 7). Then the participants were given the latitude to shape their teams which were planned to be comprised of two dyads of two members each – one high-average, and one average-low each. This kind of team formation also implied equal share for the teacher and students in the course of making decisions in such classes.
Figure 7. Process of Team Formation in the Experimental Groups

Class List

<table>
<thead>
<tr>
<th>High Achievers</th>
<th>*H: High</th>
<th>*A: Average</th>
<th>*L: Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(H)</td>
<td>(A)</td>
<td>(L)</td>
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<td>2</td>
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<td>8</td>
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<td>(L)</td>
</tr>
<tr>
<td>Average Scorers</td>
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<tr>
<td>9</td>
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<td>12</td>
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<tr>
<td>24</td>
<td>(H)</td>
<td>(A)</td>
<td>(L)</td>
</tr>
<tr>
<td>Low Performers</td>
<td>(H)</td>
<td>(A)</td>
<td>(L)</td>
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<td>25</td>
<td>(H)</td>
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<td>26</td>
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<td>(A)</td>
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<tr>
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<td>(H)</td>
<td>(A)</td>
<td>(L)</td>
</tr>
<tr>
<td>32</td>
<td>(H)</td>
<td>(A)</td>
<td>(L)</td>
</tr>
</tbody>
</table>


Such heterogeneous teams of four members each were believed to endow the participants with more diversity and divergent thinking styles and varied expertise.
which could contribute to the creation of cognitive disequilibrium in pursuance of negotiations among team members. Such atmospheres could enhance higher level and divergent thinking and could help to animate collective decision-making. In view of the fact that such contexts could be conducive to critical and creative thinking, they were probably favourable to more effective language learning and consequently long-term retention of material. On the other hand, teams of four members were not too large to deprive some members from active participation in course of learning. Therefore, as there were 32 participants in the CL groups, eight teams of four members, with two dyads in each, were shaped in order to provide the participants with both greater opportunities and greater obligation to respond. Teams’ members were arranged in specific settings so that each dyad’s members were face-to-face and could easily shift to their counterparts in the other pairs of their teams. Free spaces were made available for both the team members and the teacher so that they could move freely within the settings.

**Conducting an Orientation Workshop for Experimental Groups**

Prior to the commencement of the experiments, this researcher introduced the experimental groups to a one-session workshop in order to familiarize them with CL methods and their principles more effectively. First, he gave a comprehensive elaboration about CL and its importance in present world settings. Then, he introduced CL methods in more detail. He talked about their main principles, musts, and basic elements such as positive interdependence, individual accountability, collaborative
skills, and team processing. He prioritized the importance of adherence to a learning culture in the course of working together in collaborative learning settings and tried to bring light to the relevance of these methods to successful living in real life situations. He reminded the participants that CL methods would, in the long run, empower them with the indispensable skills for living in real world. From among the skills that he tried to illustrate were the ability to focus on what is discussed, the ability to listen to others, the ability to ask for clarification, the ability to consider diverse ideas, and the ability to be willing to reconsider one’s own judgments and opinions. One of the main goals of this researcher in holding this kind of workshop was to follow Murphey and Jacobs’ (2000) suggestion for making the participants aware of the long-term benefits of cooperation not only from a personal outlook but also from societal and political perspectives, so as to motivate them for active participation in course of learning in their language classes in the present study. The following is a part of his introduction to CL methods:

… Cooperative Learning is an approach to living. It is working, learning, and growing together, in teams. The belief is that in teams everyone attains more than he or she could otherwise. CL methods are efficient tools not only for promoting effective communication skills and learning strategies and for deepening learning, but also for empowering individual learners with some critical skills and habits of mind, which contribute to their ability to live purposefully, meaningfully, and successfully in the real world. The important thing in group work settings, however, is that when working in a team, participants should consider the idea that they would have a common destiny – they will ‘swim or sink together’. Therefore, passivity and abdicating responsibilities and hitchhiking on the work of others are not accepted in such contexts. Everyone should be active and accountable. Team members are responsible not only for their own contribution to group goals, but also for those of their partners. They should consider the fact that the provision of opportunities for every group member to contribute his or her ideas and information is of crucial importance for the accomplishment of shared goals in
such settings. It is essential to support contributions, challenge assumptions, refocus discussions, and harmonize conflicts in pursuance of arriving at a solution. Otherwise all members will lose together, at least some parts of their grades.

After a thorough discussion and clarification of the participants’ responsibilities in CL classes, the participants were taught, through modelling, to think aloud and practice applying learning strategies during reading group instruction. High achievers were also asked to act as leaders and do whatever possible to double the synergy of group work and make their team members shine. They were reminded that their primary responsibility was to provide their team members with the support, encouragement, and assistance needed for their academic progress and personal growth. They were asked to be patient and elaborate upon the ways they approach the problems in the process of making their inferences based on the text for their teams’ members. They were also told to try to balance the flow of communication among their teams’ members and reflect upon what they knew about what they read in the class and try to guide their team members towards one best interpretation of the text’s theme. In the competitive T-BL classes, they were assured they would be rewarded with high marks as the recognition of their devotion, perseverance, and commitment to their responsibilities and tasks if their team members proved an acceptable progress in comparison to their past performances.
Conducting the Experiments

As mentioned earlier, the whole experiment lasted for nine weeks. Apart from
the preliminary sessions (e.g., for pretests, posttests, and workshop), 10 sessions of 45
minutes each were the actual time during which the three groups in each country were
subjected to the intervention programs. Five texts were taught to each group during
this time. Each text was covered in two sessions, one for the presentation and the other
for the quiz. The procedure for implementation of each teaching method in the field
study and experiment in both the countries, in Iran and India, was tried to be the same
throughout the course.

Traditional Lecture Method (TLM)

The traditional chalk-and-talk system of teaching was followed with the
teaching control groups. In the first session, in an authoritarian manner as it is common in these
classes, the teacher introduced himself and wanted the participants to introduce
themselves one by one. And after an overview on the five units which were to be
covered during the course, he set the goals and explained about his expectations. The
procedure for teaching each text was as below:

Phase I:

1. Pre-reading activities
   A. Introducing the topic – 10 minutes
   B. Introducing the related grammar – 10 minutes
2. Reading activities
   A. Reading out the text and explaining the themes – 20 minutes

3. Post-reading activities or follow-up activities
   A. Evaluating the participants, and assigning homework – 5 minutes

Phase II:
1. Working of individual participants on quizzes – 30 minutes
2. Providing the participants with the correct answers – 15 minutes

Phase I:
   In the pre-reading stage, after taking the attendance and exchanging greetings, the teacher wrote the title of the text, which was to be taught, and listed difficult words of the text on the blackboard for the participants to note down and try to memorize. Mechanical drills for vocabulary presentation and repetition of new words were applied at this stage. Then, he gave a brief introduction to the text. Subsequently, in the next 10 minutes of class time, the related grammar points of the passage were introduced. Grammar was introduced deductively; that is, the rules were explicated directly with the support of some examples. In reading stage, he asked the participants to carefully follow him on the lines while he was reading the text aloud for them. At the meantime, whenever needed, difficult words and sentence structures were explained again. He also, whenever requested, explained about the ideas posed in the text for the participants. And at the last stage, in the last five minutes, he asked some sort of recitation questions, which just assessed whether the participants had
understood the text. As soon as he felt they did not know the answer, either he himself or a volunteer who had already raised his or her hand provided the right answer. Finally, the participants were asked to summarize the text for the following session and get ready for the quiz.

**Phase II:**

In the following session, the teacher asked the participants to take a quiz which had already been prepared for checking their understanding of the previous text. These single worksheets were comprehensive enough to cover the whole material already taught. They usually focused on factual questions, asking for general information and then for critical and later creative thinking, which required analysis of the information, synthesis of concepts, and evaluation of the solutions. The questions were analogous to the items on the posttest, the reading section of the IELTS test. The participants had 30 minutes to work on the questions on their own and then submit their answer sheets to the teacher. Their answers in these answer sheets were considered as part of their course grades. Finally, some volunteers were selected to write their correct answers on the blackboard for the class to copy, in the last 15 minutes. The participants copied the correct answers for later study so as to get ready for final exams, which they had to take individually, as they did the quizzes.

As it was obvious, the above scenario was totally teacher-dominated and the participants were dependent to the teacher for comprehending the text, and doing the tasks and exercises. The teacher was always helping the participants not only to
answer his questions but also to do the exercises of each unit. Passivity and parrot-like imitation was explicitly or implicitly encouraged in this method of teaching, which as explained in Chapter One of this study is, in effect, mostly, a concoction of GTM and ALM. The other problem with this method was that the participants were getting deprived of the wait-time or the time to think about the probable answers because the teacher was in a hurry to help them, with his spoon-fed method. This method left no scope for creativity and critical thinking.

**Competitive Team-Based Learning (Competitive T-BL)**

In the first session, the teacher reintroduced Competitive T-BL and elaborated its principles and objectives to the participants clearly. Also, after an overview on the five units which were to be covered, the teacher shed light on the objectives of the course and clearly clarified the rationale for using Competitive T-BL, the criteria for success, and the desired behaviours during class activities. An instruction sheet that pointed out the essential elements of working in Competitive T-BL classes was pasted as a poster on the classroom wall shortly thereafter. In contrast to the traditional class, the introduction session here was in a friendlier manner. With the intention of bringing a warm social climate and classroom, the teacher tried to establish mutual rapport between him and the participants on the one hand, and among the participants themselves on the other. During the course, the common regular cycle for the activities, in this teaching method, involved the following steps:
Phase I:

1. Pre-reading activities
   A. Activating the participants’ minds on the topic – 10 minutes
   B. Discussing the guiding questions in groups – 5 minutes

2. Reading activities
   A. Practicing the reading passage by individual members of teams – 10 minutes
   B. Working in dyads – 5 minutes
   C. Working in groups – 10 minutes

3. Follow-up activities
   A. Discussing the topic class-wide and assigning homework – 5 minutes

Phase II:

1. Practicing of individual members on quizzes – 20 minutes

2. Encouraging peer pre-assessment and further discussion – 10 minutes

3. Group discussion, and evaluation of the teams – 10 minutes

4. Providing the participants with the correct answers – 5 minutes

Phase I:

In the first 10 minutes of the class time, after the warm-up, in order to set the stage, the teacher introduced the topic of the text and tried to activate the participants’ minds through relating the topic to their background knowledge, applying different strategies and techniques such as group brainstorming and class-wide discussions. At
the same time, few key vocabularies along with few important grammatical points were introduced and highlighted. In contrast to traditional method, vocabulary and grammar were taught inductively with a focus on conceptualised presentation. Then, the teacher asked some more detailed guiding questions from the participants and wanted them to work in groups in order to guess what the answers might be, within five minutes. These advance organizer questions were expected to solicit immediate oral answers, explore and improve the participants’ background knowledge on the topic, and motivate them to actively get engaged in the learning process.

The participants were then allocated 10 minutes to read the text individually and as fast as possible to prove or reject their predictions by locating the solutions to questions in the text. They were strongly advised to practice silent reading as an effective skill for deeper understanding of the text and improving the speed of their reading. Likewise, they were asked to underline key vocabularies and note down main ideas. Obtaining an overall meaning of the text and detection of any incongruities in the text was emphasized at this stage. Then, at next juncture, they were asked to share and discuss their answers to the questions in their dyads, within five minutes. They were also told to discuss their uncertainties about unfamiliar vocabularies and confusing ideas or sentences. By the end of this phase, the participants had a moderate level of understanding of the text and were thus ready to start the next stage. Subsequently, the teacher asked them to pull chairs into close circles for further discussion about the problems they came along on the path of comprehending the text, and clarification of the relationship and assimilation of difficult concepts. Using
strategies that enabled the linking of text content to prior knowledge was also accentuated here for the construction of meaning. The main goal in this stage was to provide opportunities for the participants to achieve more knowledge of the text and try to come to a consensus. And finally, in the last five minutes of the class time, the topic was put on the stage for a class-wide debate. This activity provided opportunities not only to the participants to further explore, understand, and consolidate the themes through explaining and comparing their understanding but also to the teacher to evaluate their understanding of the material. At the end, as it was with TLM, the participants were also asked to summarize the text for the following session and get ready for the quiz. The philosophy behind this assignment was to appreciate the importance of syntax in addition to semantic components of the text. This assignment was hope to make reading more purposeful. For the summary of the procedure followed in these classes, see Figure 8.

**Figure 8. Activities in Competitive T-BL Classes**

![Activities Diagram]

In contrast with TLM, the teacher, in this class, was always actively monitoring the participants by circulating among the teams, while they were carrying out the activities. To facilitate the process of learning, he was providing assistance, teaching and/or modelling academic strategies as well as social skills and the norms and realities of living in the real world, implicitly or explicitly. Below is an extract
from his guidelines, before the participants began to read the first text in the first session, which refers to academic skills:

...What you, as readers, should look for in each text are the features that scaffold it. These features include its title, sub-headings, topic sentences, and graphs, if any, all of which help them predict the content, the theme, and the writer’s purpose. Another strategy for you is that, in course of the endeavour for comprehension of the text and constructing appropriate interpretations of it, you need not to know every word. Skipping unknown words and applying background knowledge, which has been proved to significantly contribute to more effective learning, would be helpful. It is also very important that while reading a text, you underline the key points and take notes of your uncertainties for the discussion time....

The highest achievers, who were known as the intellectuals were of a great help to the teacher in these classes as they openly received the teams’ representatives for any kind of academic help.

Phase II:

In the second phase, in the following session, the quiz papers were distributed among the participants to answer individually, within 20 minutes. At the end of the allotted time, the teacher collected the answer sheets in order to evaluate individuals’ comprehension of the material taught. Soon after this stage they were asked to take the same quiz as a group. They were asked to first compare and discuss their responses to questions with their counterparts in their pairs, in 10 minutes. Afterwards, the two dyads, of each group, had the time to share their answers and decide on more acceptable solutions for their teams, for another 10 minutes. They were encouraged to give reasons to their teammates as to how they came to their answers, at these two last
stages. Only one answer sheet of each group was randomly selected for evaluation of not only that individual team member but also his or her team. This strategy made all team members more motivated, more active and more responsible both for their own learning and the learning of the members of their respective teams. Finally, the teams were provided with the correct answer sheets to see how effective their understanding of the material and their discussions had been. In sum, these quizzes and the way they were conducted were, in effect, designed to, to the extent possible, subordinate testing to teaching and thereby facilitating the attainment of teaching objectives. The procedure for the final evaluation of the individuals and their teams has already been explained in Chapter Three.

As it may be realised, the environment in Competitive T-BL was learning-centred and the participants were scaffold by their partners in course of learning. The focus was on negotiation and discussion and higher order thinking skills rather than survival strategies, and creativity and critical thinking were implicitly or explicitly encouraged. The teacher was facilitator of learning process rather than the predominant mode of dispensing knowledge.

Cooperative Team-Based Learning (Cooperative T-BL)

After a review on Cooperative T-BL and its principles, the objectives of the course, criteria for success, and learners’ responsibilities during class activities were explained to the participants in the first session. During the experiment the same procedure as it was in competitive T-BL was followed with this method also with the
exception that the importance of inter-group cooperation, in lieu of inter-group competition, was greatly highlighted. Therefore, teams helped one another on tasks and quizzes. However, as it was in competitive T-BL, they took the main tests individually.

As in competitive T-BL, a solve-pair-share procedure was the blueprint of activities in Cooperative T-BL classes also. All individual participants were endowed with the opportunities to go over tasks mentally and try to solve them, individually. Then they were allocated the time to discuss and compare their solutions verbally with other members of their groups before being asked to share publicly which lessened their anxiety level and increased their confidence level. Discussants had the opportunities to analyse their thought and create a permanent record of the encoded information and, in fact, store the information. Likewise, they had to call back the stored information in response to their partners.

As regards their evaluation, all team members received the same grade. This grade was the sum of the average of individual members of each team, regardless of differences in contributions of its individual members to the total-team effort.

**Administering the Posttests**

At the end of the experiments (on 28 August and 26 December 2006 in India and Iran respectively), the IELTS reading test, the SILL survey, and the Attitude questionnaire were again conducted as the posttests. This researcher followed the same procedure as he did in the course of administration of the pretests for the
posttests. In addition, the delayed free-recall test was conducted 17 days after the completion of the experiments (on 13 September 2006 and 11 January 2007 in India and Iran respectively) and, in fact, 47 days after teaching the first text of the textbook, ‘The Grand Embankment’, which was used as the source for the delayed free-recall test. In other words, the recall test was administered to measure the participants’ abilities for recall of information after 47 days. The participants were allotted 45 minutes to write as much as they could remember about the text. This researcher, as their teacher, explained to them that it was the meanings and themes that mattered for their evaluation, and that grammatical structures and advanced vocabularies were not that important. They were also assured that their writing would not affect their scoring in any way. He also promised to keep their names confidential.

**Scoring of the Groups’ Performances**

Once the pretests and posttests were administered, this researcher himself marked them through the following procedures very carefully.

**The Reading Test**

Each correct answer to the IELTS reading test’s items was awarded one mark; and so the maximum raw score a candidate could achieve on a paper was 40. The evaluation was almost objective inasmuch as most items had only one correct response, and the answers for the short-answer items were limited and clear from the text.
The Survey

The point values given to each statement in the SILL survey were as follows:
Number 1, ‘never or almost never true of me’ = 1; number 2, ‘usually not true of me’ = 2; number 3, ‘somewhat true of me’ = 3; number 4, ‘usually true of me’ = 4; number 5, ‘always or almost always true of me’ = 5.

The total score of each individual was added together to get the total SILL score. The evaluation of the SILL was objective because each response on a five-point Likert scale was given a point value.

The Questionnaire

Scoring of the attitude questionnaire was done keeping in mind the positive and negative nature of the statements. The point values for the first block (statements 1 to 4), the second block (statement 5), and the fourth block (statements 19 to 28) were as follows:
Number 1, ‘strongly agree’ = –3; number 2, ‘agree’ = –2; number 3, ‘somewhat agree’ = –1; number 4, ‘no specific idea’ = 0; number 5, ‘somewhat disagree’ = 1; number 6, ‘disagree’ = 2; and number 7, ‘strongly disagree’ = 3.

The values for third block (statements 6 to 18), fifth block (statement 29), and the sixth block (statement 30) were reversed, as follow, because they had been developed to measure satisfaction with the group process.
Number 1, ‘strongly agree’ = 3; number 2, ‘agree’ = 2; number 3, ‘somewhat agree’ = 1;
number 4, ‘no specific idea’ = 0; number 5, ‘somewhat disagree’ = −1; number 6, ‘disagree’ = −2; and number 7, ‘strongly disagree’ = −3.

To get the total attitude score, the total score of each individual was added together. The evaluation of the attitude questionnaire was as well objective inasmuch as all statements were scored −3 to 3 (or in reverse) points on a seven-point Likert scale.

The Recall Test

Two independent experienced colleagues, who were teaching at two different universities, one in Iran and the other in India, were requested to rate the participants’ papers. To avoid their bias, this researcher kept them ‘blind’ to the study. He asked them to look for semantic recall of information and idea units of the text and give one point to each, regardless of grammatical patterns and the kind of lexicon applied for conveying the meanings. They were asked not to take into account the hierarchy of the participants’ presentations of information in their ratings. Every explicit or implicit or a paraphrase of an idea unit reflecting the meaning of the text were requested to receive one point value as the participant has, in fact, recalled the unit. This researcher also reminded the raters of Carroll’s (1972a) idea who suggested that the “total meaning’ of an utterance has to do with the relation of a sentence or discourse to its total context” (p.12). He explained to them that they should try to perceive the meaning of the smaller units in the light of the larger context. The average of the two raters’ evaluation served as the final score for the individuals.
Inter-Rater Reliability (Correlation) for Delayed Free-Recall Test

The correlation coefficient for inter-rater evaluation for the select teaching methods in Iran was obtained by applying Cronbach alpha correlation. See Table 10.

Table 10. Inter-Rater Reliability (Correlation) for Iran

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<th>Correlation</th>
<th>Sig.</th>
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<td>.000</td>
</tr>
<tr>
<td>Coop T-BL</td>
<td>.966</td>
<td>.000</td>
</tr>
<tr>
<td>Comp T-BL</td>
<td>.934</td>
<td>.000</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level.

As indicated in the above table, the correlation coefficient obtained for inter-rater evaluation for TLM, Cooperative T-BL, and Competitive T-BL, for Iran, was .951, .966, and .934 respectively, which is highly significant, indicating a marked agreement between the two raters in their evaluations.

Likewise, the correlation coefficient for inter-rater evaluation for the select teaching methods in India was obtained through the same procedure. See Table 11.

Table 11. Inter-Rater Reliability (Correlation) for India

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<tr>
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<td>.000</td>
</tr>
<tr>
<td>Comp T-BL</td>
<td>.970</td>
<td>.000</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level.

As it is clear from Table 11, the correlation coefficient obtained for inter-rater evaluation for the select teaching methods, for India, were as well found to be highly significant. Correlations of .943, .941, and .970 were obtained for TLM, Cooperative
T-BL, and Competitive T-BL respectively, which indicated that there was a marked agreement between the two raters in their evaluations.

**Data Analysis and Statistical Methods Applied**

Soon after the data collection was over, they were scrutinized, checked for errors, and coded and master charts were prepared. The data were fed to the SPSS package, version 15 for Windows (SPSS, 2006 December) in order to test the hypotheses of the present study. The following statistical techniques were employed in the present study:

- Analysis of Variance (ANOVA) – Repeated Measures
- One Way – ANOVA
- Three Way – ANOVA
- Scheffé’s Post Hoc Test

Chapter Five has an explanation why these statistical techniques were applied.

To sum up, this chapter provided information on the practices of methodology and design for selecting the sample, instructional resource materials, tools of the study, and procedures of data collection. The next chapter is an attempt to analyse the data and the findings of the research study.
References


