

Effect of Co-Operative Learning Strategy (Circ) On English Reading Comprehension Achievement of Seventh Graders in Relation to their Gender

Madhu Gupta^a, Jyoti Ahuja^b

^aProfessor, Deptt. of Education, Maharshi Dayanand University, Rohtak-124001, Haryana, India ^bAssistant Professor, Vaish College of Education, Rohtak-124001, Haryana, India

Abstract

Co-operative learning due to its influential aspects is the most prevalent teaching-learning technique in the modern world. Therefore as a prelude, the investigators aimed at studying the effect of co-operative learning strategy i.e. Cooperative Integrated Reading Composition(CIRC) on the achievement in English Reading Comprehension among seventh graders in relation to gender. This is an experimental study with 2x2 factorial design. 140 students of seventh standard selected through multi-stage random sampling technique were taken as a sample for the study out of which 70 students taught through CIRC formed Experimental group (E); and 70 students taught through conventional method of teaching formed control group(C). Sample of the students were also equated on the basis of socio-economic status, and achievement in the subject concerned. Achievement test in English Reading Comprehension developed and standardized by the investigators was used to assess the achievement of the subjects. Lesson plans, Worksheets, and Formative tests were developed for the strategy CIRC to carry out the teaching and learning process in both the groups for eight weeks only. At the end of the experiment, achievement test in English Reading Comprehension was given to the subjects. Data were analyzed by using ANOVA and t-test to determine the performance by comparing the mean scores of all the groups. Data analysis revealed that students taught through CIRC showed significant improvement in their achievement in reading skill than the students taught through Conventional Method. Further, boys and girls students taught through co-operative learning strategy CIRC performed better than their counterparts. Furthermore, co-operative learning appeared favorable for both boys and girls but boys were found to be benefitted more when they taught through co-operative learning strategy. It was concluded that co-operative learning is an effective approach which need to be incorporated in teaching Reading Comprehension to improve reading skill.

KEYWORDS: Co-operative Learning Strategy (CIRC), Reading Comprehension Achievement, Gender

Introduction

Since the world's education system is becoming increasingly diverse, it is crucial that learning strategies are beneficial in educating a wide variety of students. Teachers must engage students so that they retain and comprehend the subject matter taught in the classroom, and provide them with the proper social skills needed to succeed beyond the classroom environment. A learning method educators can use to help students develop these necessary skills is called cooperative learning. Cooperative learning is a strategy that develops healthy interaction skills, promotes success of the individual student and

group members, and forms personal and professional relationships (Johnson & Johnson, 1999). Cooperative learning is now widely recognized as one of the most promising practices in the field of education. We can say that cooperation, collaboration, consideration, creativity, responsibility, participation, all these things seem to become involved in the coming century, as does the suggestion of stretching the student's experience beyond individual knowing to a kind of collaborative wisdom.

Cooperative learning techniques, as opposed to conventional strategies, provide learners with opportunities to take more active roles in their own learning. Szosteck (1998) assessed the effects of cooperative learning method in an honours foreign language classroom and found that cooperative learning method promotes positive attitudes, intrinsic motivation and satisfaction among learners. Gupta & Pasrija (2011) revealed Cooperative Learning as an efficient technique to convert students into active learners in classrooms and it makes teaching-learning more satisfying, momentous, enjoyable and effective. Cooperative approach constitutes a paradigm shift in the area of learning linguistic skills. Cooperative learning activities lead to peer interaction which itself promotes the development of language and the learning of concepts and content.

Reading is one of four language skills that have important role for the students. One's academic success has a strong correlation with reading. This strategy is preferred to more solitary-oriented reading techniques. Co-operative Integrated Reading and Composition (CIRC) as one of the main task types advocated by CL proponents is an effective mean of reaching satisfying conclusions with reading. CIRC is a comprehensive approach to instruction in reading, composition, and spelling for upper grades of elementary level. In CIRC, students are taught in reading groups and then return to mixed ability teams to work on a series of cooperative activities, including partner reading, making predictions, identification of characters, settings, problems and problem solutions, summarization, vocabulary, spelling, and reading comprehension exercises. CIRC provides a structure to help teachers and students succeed in helping all students become effective reader. Mohammadi and Salimzadeh (2009) investigated the effects of cooperative learning strategy training on reading comprehension and found statistically significant differences between control and experimental groups. Wenjing (2011) revealed the positive effects of cooperative learning on improving college students' reading comprehension. Isfatul (2012) also examined the effect of Implementation of Cooperative Integrated Reading and Composition Technique to Teach Reading Narrative Text at Eleventh Grade and found its positive effects on students' reading skill. Mahnaz (2012) studied the effect of Teaching Method in Exploring the Iranian EFL Learners' Reading Performance The positive results attained were attributed to the major specificities of the cooperative teaching such as positive interdependence, group formation, individual accountability, social skills, and structuring and structures and T-test indicated statistically significant differences between the experimental and control groups.

Although a number of empirical studies have been conducted on co-operative learning abroad, a very few have been conducted in classrooms of India. So, the purpose of the present study is to help bridge this gap in this research literature by investigating the effect of co-operative learning on Reading Comprehension achievement in English among seventh grade students in relation to gender.

Objectives of the Study

The study asserts to meet the following objectives:

1. To study the effect of Cooperative learning strategy (CIRC) and gender on academic achievement in English Reading Comprehension of seventh graders before experimental treatment.
2. To study the effect of Cooperative learning strategy (CIRC) and gender on academic achievement in English Reading Comprehension of seventh graders after experimental treatment.
3. To study the effect of Cooperative learning strategy (CIRC) and gender on gain academic achievement in English Reading Comprehension of seventh graders.

Design of the Study

The present study is an experimental study with 2x2 factorial design. Achievement of students in English Reading Comprehension was treated as dependent variable while instructional treatment and gender were treated as independent variables in this study. Instructional treatment was studied at two levels namely experimental group (E) which was taught English through co-operative learning strategy- Co-operative Integrated Reading and Composition (CIRC), and control group (C) which was taught English through conventional method.

Sample

A sample of 140 students was selected through random sampling technique. All the 140 students were divided and formed experimental group (E) and control group (C). Students, who belong to middle strata of socio-economic status and are of moderate intelligence level, were taken for the present study.

Tools used

- **General Intelligence Test (GIT) by Mohsin** was used to measure the intelligence of students. It is verbal intelligence test made for students of age group 9-15 years. It consists of 156 items under 6 sub-tests. These items pertain to logical reasoning, analogies, similarities, odd-one out and language ability. The time limit for this test is 40 minutes. The reliability of the test by split-half method is 0.95 and by test-retest method is 0.89. The validity of this scale was determined by finding correlation of scores with those on the standardized tests.
- **Socio-Economic Status Scale (SESS) by Kalia and Sahu** was used to measure the socio-economic level of students. The reliability calculated by test-retest method was found to be 0.89. For determining the validity, correlation of scores on this scale with other standardized scale was found to be 0.85.
- **Reading Comprehension Achievement Test (English):** To measure academic achievement, the investigators developed a Reading Comprehension achievement test in English for seventh graders. The items in this test were determined according to the lessons of Prose. The coefficient of reliability of the test measured by test-retest method was found to be 0.90. The test was found to possess high content validity.
- **Instructional Material:** Co-operative Learning Lesson Plans, Worksheets and Formative Tests in English were developed to execute the Instructional Treatment. All the instructional material was subjected to two types of evaluation, self evaluation and expert appraisal. Self evaluation was carried out to check the relevance of the content matter to the objectives of the study. In the expert appraisal, comments and suggestions of subject experts were taken. All the experts had a close agreement that selected content matter was according to objectives of the study.

Procedure for Data Collection

The whole experiment was conducted in the three phases which is shown below in the tabular form.

Table-1
Schematic Procedure of the Experiment

Phase	Experimental Group	Control Group
Pre-Test Phase	Measurement of 1. Intelligence 2. SES 3. Achievement in English Reading Comprehension	Measurement of 1. Intelligence 2. SES 3. Achievement in English Reading Comprehension
Treatment Phase	Teaching English through CIRC for 8 weeks	Teaching English through Conventional Method for 8 weeks
Post-Test Phase	Measurement of Achievement in English Reading Comprehension	Measurement of Achievement in English Reading Comprehension

Statistical Techniques Used

1. Descriptive statistics such as mean and S.D. were worked out on the scores of achievement.
2. Two way Analysis of variance (ANOVA) with 2x2 factorial design was employed to study the main effects and interactional effects of independent variables (treatments and gender) on dependent variable (English Reading Comprehension Achievement) supplemented by t-test. To test the assumption of homogeneity of variance for ANOVA, Hartley's test was employed.

Results and Discussion

In order to examine the effect of co-operative learning strategy CIRC on the English Reading Comprehension achievement among the seventh graders in relation to gender, two way analysis of variance (ANOVA) was employed. For testing the homogeneity of variance, Hartley's Test was applied which revealed that all the concerned groups were having similar or equal variances. The summary of ANOVA for pre test scores, post test scores, and gain scores has been presented below.

Comparison of Achievement Scores in English Reading Comprehension (Before Experimental treatment)

t-test was applied to find out the difference in the achievement test scores of the students of the two groups Experimental Group (E), and Control Group (C) before giving the experimental treatment. The results are given in Table-2. These mean achievement scores are also depicted in fig 1

Table-2
t-values for Pre-Test Achievement Scores in English Reading Comprehension for Experimental and Control Group

Group	N	Mean	S.D.	t-values
Experimental	70	19.03	2.10	0.80 (NS)
Control	70	18.93	1.83	
Experimental Group (Boys)	35	19.65	2.15	0.40 (NS)
Control Group (Boys)	35	19.56	2.11	
Experimental Group (Girls)	35	18.94	2.21	0.74 (NS)
Control Group (Girls)	35	18.82	2.16	
Experimental Group (Boys)	35	19.65	2.15	0.15(NS)
Experimental Group (Girls)	35	18.94	2.21	
Control Group (Boys)	35	19.56	2.11	0.66(NS)
Control Group (Girls)	35	18.82	2.16	

NS: Not Significant

t-values vide Table-2 for the difference in pre-test achievement scores of the different subjects of both the treatment groups E & C were found to be not significant which clearly shows that initially all subjects performed similarly.

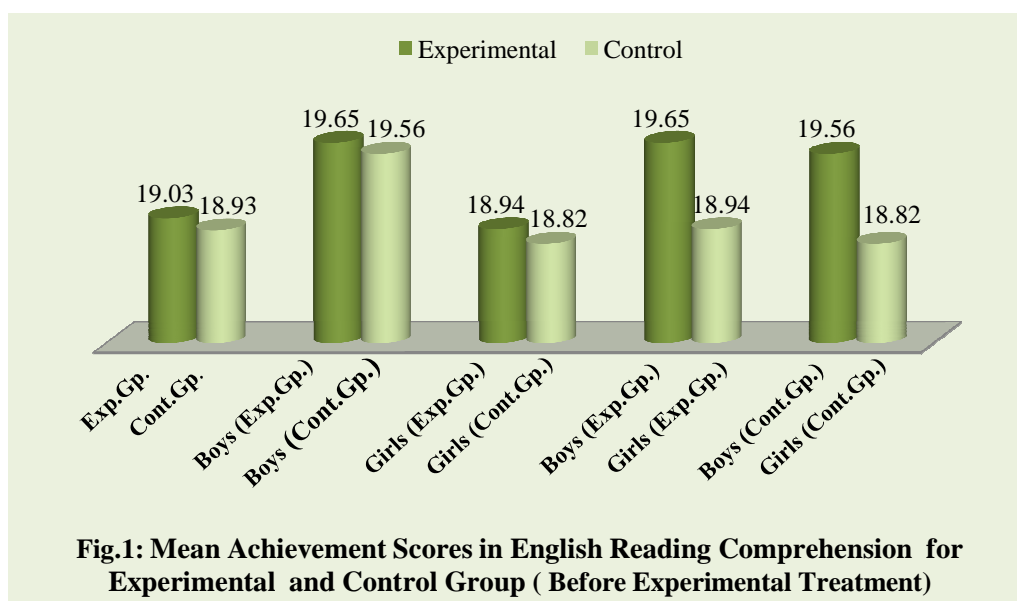


Fig.1: Mean Achievement Scores in English Reading Comprehension for Experimental and Control Group (Before Experimental Treatment)

Effect of Co-operative Learning Strategy CIRC on English Reading Comprehension Achievement (After Experimental Treatment)

After giving experimental treatment, the two groups were again administrated Reading Comprehension achievement test in English. The scores were treated as post-test scores and subjected to two way ANOVA with 2x2 factorial design which is reported in Table-3.

Table-3
Summary of ANOVA for Post-Test Achievement Scores in English Reading Comprehension

Sources of Variation	Df	SS	MS	F Value
Treatment	1	2304.46	2304.46	222.65**
Gender	1	59.61	59.61	5.76**
Treatment x Gender	1	147.48	147.48	14.25**
Between Cells	3	2511.55		
Within Subjects	136	1408.46	10.35	
Total	139	3920.01		

**** Significant at 0.01 level**

MAIN EFFECT

Treatment

F-ratio vide Table-3 for the difference in post-test scores of the two groups is 222.65 which is highly significant at 0.01 level leading to the inference that experimental treatment yielded difference in Reading Comprehension achievement scores in English. To investigate further, the t-values for the post-test achievement scores in English reading comprehension of experimental and control group were computed and have been given in Table-4.

Table-4
't'-values for the Post-Test Achievement Scores in English Reading Comprehension of Experimental and Control group

Group	N	Mean	S.D	't'- value
Experimental Group	70	38.44	3.43	17.22**
Control Group	70	30.17	2.25	

****Significant at 0.01 level**

Table-4 reveals that 't'-values (17.22) for the two groups are significant at 0.01 level. It was found that students in co-operative learning group had significant higher test scores than students in the comparison group. Kaul (2010) revealed that co-operative learning method is more effective than traditional teaching methods while Chabra and Tabassum (2010) revealed about efficacy of the co-operative learning as knowledge building situations in the Indian higher education classroom. Arthy (2012) investigated the

relative effectiveness of Small Group Interaction Techniques in enhancing reading comprehension skills and concluded that cooperative learning to be an effective method for improving reading comprehension. Gupta & Pasrija (2013) explained the efficacy of Co-operative Learning Strategies STAD and TAI on achievement and retention among students.

Gender

F-ratio vide Table-3 for the difference in post-test scores on achievement at Gender level is found to be 5.76 which is significant at 0.01 level of confidence. Further the 't' value (4.28) for post achievement scores of boys & girls vide table -5 is significant. It means that boys performed better than girls after being exposed to experimental treatment, which is in accordance with the common truth that boys are more co-operative in nature. However, it would be equally possible to argue that boys students elaborated explanations interestingly.

Table-5
Means and S.D's of Post-Test Achievement Scores of Boys and Girls
In English Reading Comprehension

Group	N	Mean	S.D.	t-value
Boys	70	36.72	5.29	4.28**
Girls	70	33.88	4.81	

****Significant at 0.01 level**

Interaction Effect (Treatment X Gender)

The F-value (Table-3) for the interaction between treatment and gender for post-test achievement scores is 14.25 which is highly significant at .01 level leading to the inference that two variables interact with each other. To investigate further, the t values were computed (table-6). Mean scores of different groups have been presented graphically in fig.2

Table-6
t - values for the Post-Test Achievement Scores in English Reading
Comprehension of Different Combination Groups for Treatment x Gender

Group	N		Mean		S.D.		t- values
BE vs GE	35	35	39.31	34.07	3.29	2.94	9.70**
BC vs GC	35	35	30.14	30.2	2.21	2.32	0.20(NS)
BE vs BC	35	35	39.31	30.14	3.29	2.21	13.89**
GE vs GC	35	35	34.07	30.2	2.94	2.32	6.14**

**** Significant at 0.01 level**

(NS) Not Significant

A look at table-6 indicated that ‘t’-value for difference of post-test achievement scores between boys and girls students of the Experimental group (E)are found to be significant and t-value for difference of post-test achievement scores between boys and girls of the control group (C) are found to be not significant. When the mean scores of boys sub-groups/girls sub-groups of (E & C) are compared, t-values are found to be highly significant. The interaction effect between treatment and Gender on post-test mean Reading achievement scores for the two groups has also been presented in the form of line graph in Fig.3.

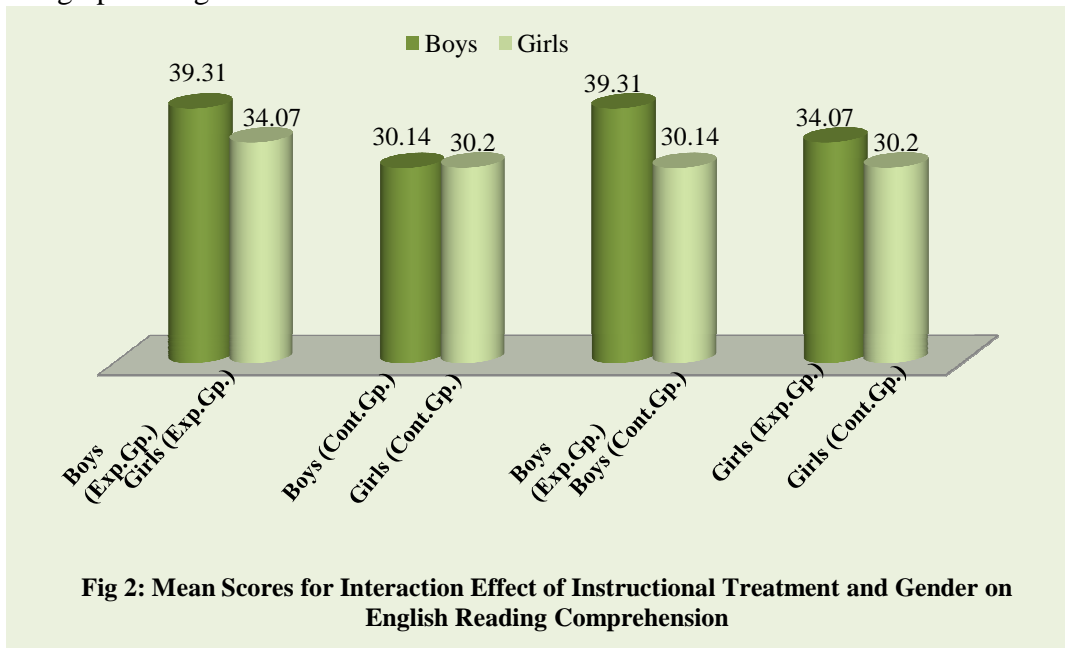


Fig 2: Mean Scores for Interaction Effect of Instructional Treatment and Gender on English Reading Comprehension

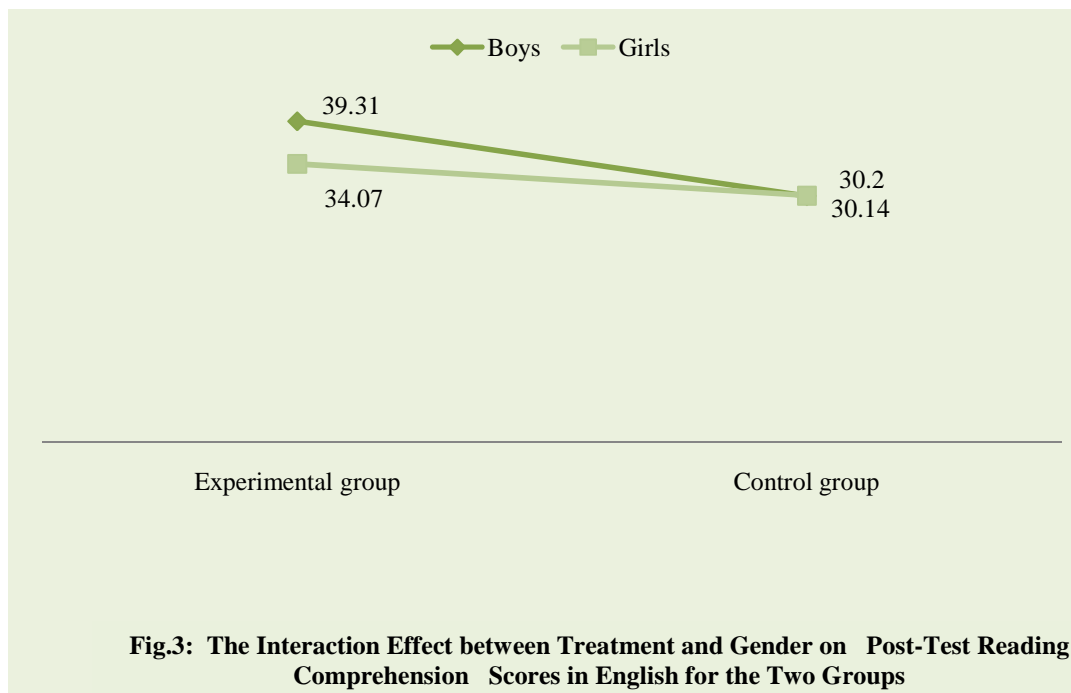


Fig.3: The Interaction Effect between Treatment and Gender on Post-Test Reading Comprehension Scores in English for the Two Groups

Effect of Co-operative Learning Strategy CIRC on English Reading Comprehension Achievement (After Experimental Treatment in Terms of Gain Achievement Scores)

The reading comprehension gain achievement scores in English were subjected to two way Analysis of Variance with 2x2 factorial designs, the summary of which has been presented in Table-7.

Table-7
Summary of ANOVA for Mean Gain Achievement Scores in English Reading Comprehension

Sources of Variation	Df	SS	MS	F
Treatment	1	1177.4	1177.4	174.94**
Gender	1	26.78	26.78	3.98**
Treatment x Gender	1	84.79	84.79	12.6**
Between Cells	3	1288.97		
Within Subjects	136	915.63	6.73	
Total	139	2204.6		

** Significant at 0.01 level

MAIN EFFECT

Treatment

F-value (174.94) vide Table-7 for the difference in the mean gain scores of two groups (E and C) was found to be highly significant at 0.01 level. To investigate further, the t-values for the gain achievement scores in English reading comprehension of experimental and control group were computed and have been given in Table-8.

Table-8
t - values for the Mean Gain Achievement Scores in English Reading Comprehension of Experimental and Control Group

Group	N	Mean	S.D	't'- value
Experimental Group	70	19.9	2.79	15.86**
Control Group	70	12.92	2.49	

**Significant at 0.01 level

It is evident from Table-8 that t- value (15.86) for the difference between gain achievement scores of two groups (E & C) is significant at 0.01 level. This shows that experimental group subjected to co-operative learning strategy CIRC has achieved more than the subjects taught by conventional method of teaching. It is also concluded that CIRC method is more effective than conventional method in raising the Reading

Comprehension achievement level in English. Mehra and Thakur (2008) found that students exposed to co-operative learning yielded better gain in achievement scores as compared to those taught through conventional group learning. Ziba (2010) validates the effect of cooperative learning on the reading comprehension performance in EFL classes. Murray and Karagiannidou (2011) established that use of co-operative learning increases pupil formulation of propositions, explanations. Gupta & Pasrija (2012) determined the positive effects of the co-operative learning approach on the achievement of content knowledge, retention, of Mathematics students toward the teaching method.

Gender

F-ratio (3.98) vide Table-7 for the difference in the mean gains at gender level was found to be significant at 0.01 level of significance. Further the t value (3.98) for gain achievement scores of boys & girls vide table -9 is significant. This shows that boys are more benefited by co-operative learning strategy than their counterparts. It may be argued that they worked as explainers and profited more. Studies have also shown that the students who gained the most from cooperative activities were those who provided elaborated explanations to others. The student who served as explainers learned more than those who received elaborated explanations.

Table-9

Means and S.D's of Gain Achievement English Reading Comprehension Scores of Boys and Girls

Group	N	Mean	S.D.	't'-value
Boys	70	15.87	3.87	3.98**
Girls	70	12.85	4.62	

****Significant at 0.01 level**

Interaction Effect (Treatment x Gender)

The F-value Table-7 for the interaction between treatment and gender for mean gain achievement scores is 12.6 which is significant at 0.01 level, leading to the inference that two variables interact with each other. To investigate further, the t-values were computed (table-10). Mean scores of different groups have been presented graphically in fig.4.

Table-10

t-values for Mean Gain Achievement Scores in English Reading Comprehension of Different Combination Groups for Treatment X Gender

Group	N		Mean		S.D.		t- values
BE vs GE	35	35	19.65	16.74	2.92	2.50	4.54**
BC vs GC	35	35	12.85	13	2.78	2.66	0.23(NS)
BE vs BC	35	35	19.65	12.85	2.92	2.78	10.14**
GE vs GC	35	35	16.74	13	2.50	2.66	5.93**

**** Significant at 0.01 level**

NS: Not Significant

It can be inferred from table-10 that t-values for difference between mean gain achievement scores of boys and girls students of all the two groups(E & C) are found to be significant. When we compare boys sub-groups/girls sub-groups of (E & C), t-values are found to be significant except one case (BC vs GC) for gain achievement scores. The interaction effect between treatment and gender on post-test gain mean in Reading Comprehension achievement scores for the two groups has also been presented in the form of line graph in Fig.5 which depicts that both boys and girls of experimental group and control group.

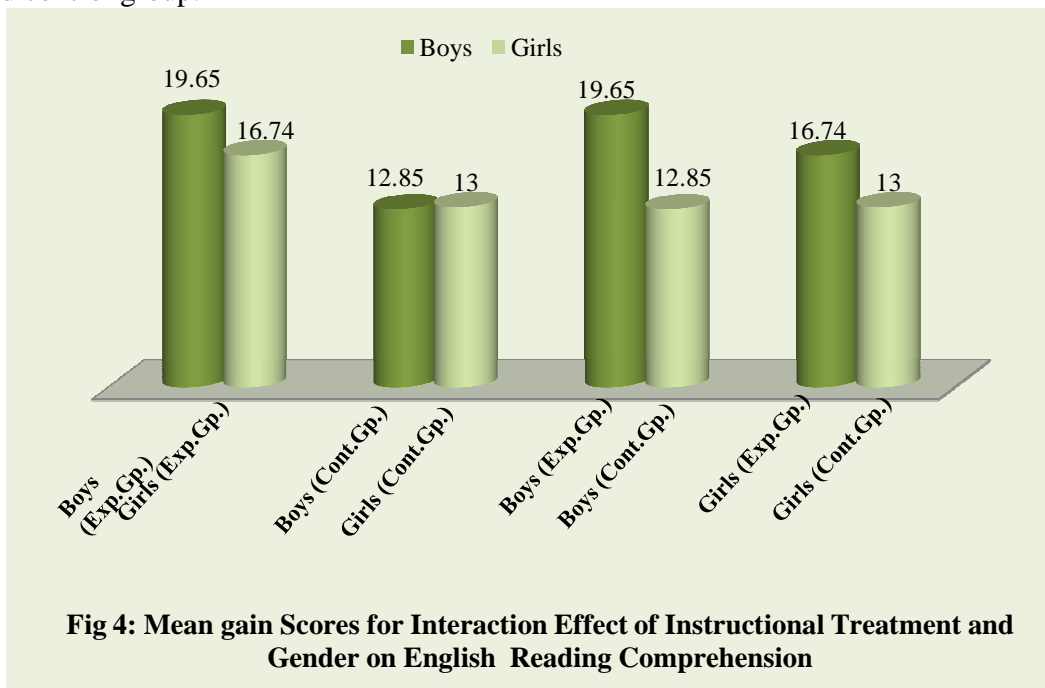


Fig 4: Mean gain Scores for Interaction Effect of Instructional Treatment and Gender on English Reading Comprehension

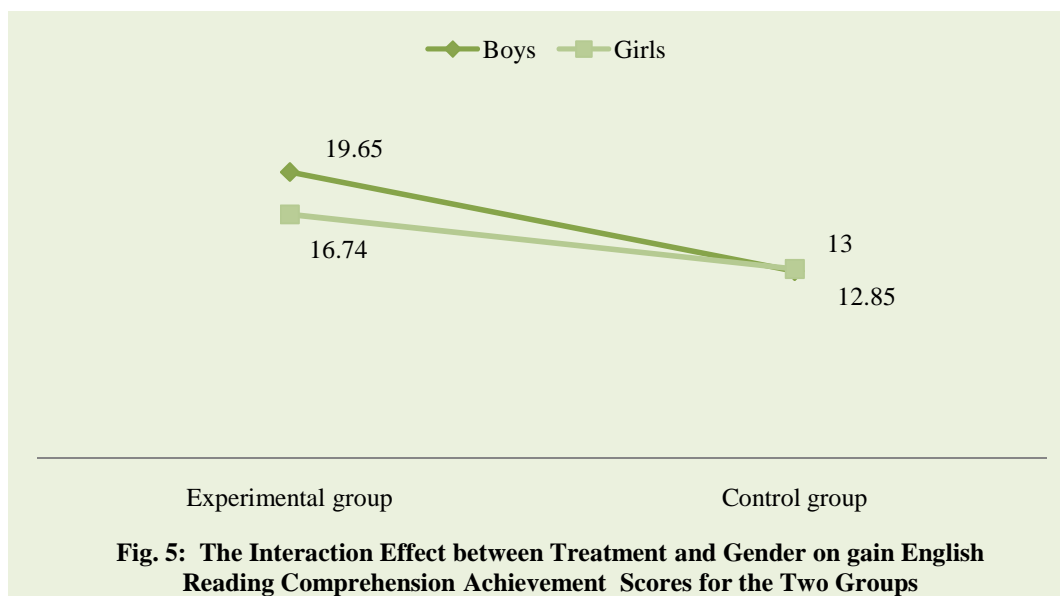


Fig. 5: The Interaction Effect between Treatment and Gender on gain English Reading Comprehension Achievement Scores for the Two Groups

Findings of the Study

- No significant differences were found in the English Reading Comprehension achievement scores of two groups (E and C) before giving the experimental treatment i.e. initially experimental group, and control group were similar in their performance. The difference in pre-test scores of achievement in English Reading Comprehension for two groups of boys (BE and BC) and two groups of Girls (GE and GC) taught through co-operative learning strategy CIRC and conventional method was found to be non significant.
- The post-test achievement scores in English Reading Comprehension of experimental group and control group of seventh graders differ significantly in favour of experimental group. This implies that students who were taught English through co-operative learning strategy CIRC showed significant improvement in their achievement than the students who received instructions through conventional method of teaching.
- Significant difference was found in the post-test English Reading Comprehension achievement scores of two sub-groups of gender (boys and girls) taught through co-operative learning strategy CIRC and conventional method of teaching showing the favour of boys group.
- The mean gain achievement scores in English Reading Comprehension of experimental group and control group of seventh graders differ significantly in favour of experimental group. This leads to the conclusion that students taught English through co-operative learning strategy CIRC benefitted more in learning material than the students who received instructions through conventional method of teaching.
- The difference between mean gain English Reading Comprehension achievement scores of boys and girls students of the two groups (E & C) are significant. When we compare boys sub-groups/girls sub-groups of (E & C), significant differences are found in mean gain achievement scores.

Educational Implications

- Efforts should be made by the teachers to create suitable CIRC learning environment especially in English classes for enhancing the improvement in Reading skill.
- Sometimes students are not able to understand what teacher is explaining to them due to some reasons and they don't ask again due to hesitation. But in groups, they can get explanation of the same topic in simple words and attains greater on achievement.
- Teachers should be given proper orientation to co-operative learning strategies or in-service training from time to time. School authorities or teacher educators should organize refresher courses, seminars or workshops so that teachers can be trained in different methods of teaching-learning to generate the desired level of learning among the students. Pre- service and in-service teachers should understand how to structure and monitor meaningful experience for students.
- Purpose of the cooperative groups is to make each member stronger as an individual. Individual accountability ensures that all group members take responsibility for their share of the work. Therefore feeling of accountability is developed among the students in cooperative learning environment.

Conclusion

Based on the result of the data analysis the researcher concluded that Cooperative Integrated Reading and Composition was an effective technique in teaching reading comprehension because there was an improvement in reading skill of the students. Moreover, this technique also helped improve the student's interest and motivation to read because they sit in group and it make them can discuss together in that group. Then, they interested to work with their partner or team, responsible to their job each other in group, so that they will be students who can work individually and cooperatively.

References

- Chabra, S. and Tabassum, Z. (2010). Cooperative learning approach at teacher training level, *Psycho-Lingua*, (ISSN: 0377-3132), 40(1&2):67-69.
- Gupta, M. and Pasrija, P. (2012) Cooperative Learning: An Efficient Technique to convert Students into Active Learners in Classrooms. *MIER Journal of Educational Studies, Trends and Practices, Vol.2 No.1, 2012, pp 21-33 (ISSN: 0976-8203)*
- Gupta, M. & Pasrija, P. (2012). Effect of co-operative learning on high school students' mathematical achievement and retention using TAI and STAD methods, *Indian Journal of Psychology and Education*, 2012, Vol. 2(1), pp. 75-86.
- Gupta, M. & Pasrija, P. (2013). Co-operative Learning Strategies (STAD and TAI): Effect on Mathematics Achievement and Retention. *Journal of Educational Leadership in Action USA Vol. 2 issue 1*(Accepted for publication) Also presented the paper in Chicago International Conference on Education in Chicago, USA held on June 3-4, 2013
- Isfatul, Yeni. (2012). The Implementation of Cooperative Integrated Reading and Composition Technique to Teach Reading Narrative Text at Eleventh Grade of MA Unggulan Tulangan Sidoarjo. (S-1 Thesis). *Education of English Department, Tarbiyah Faculty, State Institute for Islamic Studies*.
- Johnson, D.W., & Johnson, R.T. (1999). *Learning together and alone: cooperation, competition, and individualization (5th ed.)*. Boston, MA: Allyn and Bacon.
- Kaul, P. (2010). The effect of learning together Techniques of co-operative learning method on students achievement in mathematics, *Edutracks*, Vol 9, No. 12.
- Mohammadi, M., & Salimzadeh, R. (2009). The effect of cooperative learning strategy training on reading comprehension and motivation of EFL learners. Paper presented at 7th international conference TELLSI, Yazd, Iran.

- Mahnaz Kazemi (2012). The Effect of Jigsaw Technique on the Learners' Reading Achievement: The Case of English as L2. *MJAL 4:3 Autumn 2012; ISSN 0974-8741 University of Guilan, Iran*
- Szostek, C. (1998). Assessing the effects of cooperative learning in an honours language classroom. *Foreign Language classroom. Foreign Language Annals, 27(2), 252-261.*
- Wenjing Zuo (2011). The Effects of Cooperative Learning on Improving College Students' Reading Comprehension. *Academy Publishers: Theory and Practice in Language Studies, Vol. 1, No. 8, pp. 986-989,*
- Ziba Javadi Rahvard (2010). Cooperative learning strategies and reading comprehension *California Linguistic Notes Volume XXXV No. 2.*