Effectiveness of Co-operative Learning Strategy in facilitating Scholastic achievement among Student-Teachers

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Abstract

The present study intends to find out the effectiveness of Cooperative learning strategy in facilitating Scholastic achievement among student –teachers studying in colleges of Education. Pre-test Post-test equivalent group design was adopted for the study. The data thus collected was analyzed using measures of central tendency and t-test. Findings revealed that it is revealed from the findings that, Cooperative learning as a strategy is more effective than the conventional method of teaching in enhancing the Achievement of student-teachers. Students taught through cooperative learning strategy were seen superior to students taught through conventional method of teaching in terms of achievement. Students sustain scholastic achievement fostered through Cooperative Learning Strategy.

Key words: Effectiveness, cooperative learning, Scholastic achievement, students teacher.

Introduction

Learning is defined as the construction of knowledge by the individuals. It is an interactive process involving construction of knowledge by the individuals through social collaboration which happen especially through peer group interaction. Co-operative learning is one such teaching-learning strategy where, constructivist philosophy is used most successfully.
is developed on the theory of Constructivism which embodies the idea that, best learning occurs only when students are actively engaged in the learning process and work in collaboration with other students to accomplish a shared goal. Cooperative Learning utilizes not only student’s own experience to strengthen knowledge, but also uses the experiences, ideas and thoughts of others who are in the group.

In co-operative learning individuals work with their peers to achieve a common goal rather than competing against their peers, here the focus moves from teacher-centered to student-centered education. Cooperative learning is in the forefront of Educational Research because of its various advantages. It is gaining popularity in both pre-service and in-service Teacher education programmes. Cooperative learning strategy is a pattern or a model in which teams of students work on structured tasks under conditions that meet the five criteria; positive interdependence, individual as well as group accountability, face to face interaction, group processing and acquisition of social skills. Cooperative learning based on constructivism has been highlighted in National curriculum framework for school education and national curriculum framework for teacher education.

The New policy on Education, 1986 (NPE) stated that, “Teacher Education is a continuous process and it’s Pre-service and in-service components are inseparable. All aspirants for the teacher’s job need not have only knowledge of different theories of teaching but also certain skills essential for teaching.

As we are aware of, teaching practices are influenced by teacher’s prior experiences and beliefs. If pre-service teachers are not exposed to effective techniques of Cooperative learning in their Teacher education programmes, it may be unrealistic to expect them to engage in cooperative learning in their own classrooms.

The present Teacher preparation programmes like D.Ed and B.Ed do not make fare use of such innovative strategies to prepare effective teachers in their Teacher preparation programmes. The good old concept of Herbartian method of writing lesson plans visualizing classroom approach is still a popular technique.

The practice of cooperative learning in the field of Teacher education has been the focus of many studies. It is also confirmed through the literature produced from various sources
including Educational magazines and Journals that, Cooperative learning strategy has been successfully implemented at the Education of the school level. So it is implied that, if prosperous Teachers are trained in this strategy they would successfully bring this into practice for classroom interaction.

Review of Related Literature

Review of related literature reveals that, few studies have been conducted so far in the field of Teacher education using this strategy (Afeefa Al-Dawoud, 2001; Karrie A. Jones and Jennifer L. Jones, 2001; Ayhan Dikici, Yasemin Yavuzer, 2006; Ilse Ruys, Hilde Van Keer and Antonia Aelterman, 2010; Patel Tabassum Yakub, 2010; Patterson, Eira Wyn, 2011). The Studies conducted so far have reported and highlighted the effectiveness of this teaching strategy and found positive results in terms of achievement in both cognitive as well as other Psycho-social variables like self efficacy, social interaction, and higher order thinking abilities etc.

Methodology

Objectives of the study:

The present study was undertaken with the following broad objectives;

- To compare the performance of student teachers belonging to Experimental and Control Group with reference to Scholastic achievement before the Experimental treatment.
- To compare the effectiveness of Cooperative learning strategy with conventional method of teaching with reference to scholastic achievement.
- To find out the retention potential of intervention programme (CLS) among student-teachers on scholastic achievement.

Hypotheses

To test the objectives stated above, the following null hypotheses have been set up:

1. There is no significant difference between Pre-test scores of Experimental and Control group with reference to their scholastic achievement.
2. There is no significant difference between teaching post-test scores of Experimental and Control group with reference to scholastic achievement.

3. There is no significant difference between immediate and delayed post-test scores of the experimental group with reference to scholastic achievement.

**Sample and Design of the Study**

Student-teachers studying in Colleges of Education of Bangalore University constitute the population. The Sample of the study consisted of 60 Student-teachers studying in colleges of Education with Physics/Mathematics and Chemistry/Biology as their Content Cum Methodology papers. Purposive sampling technique was employed for the selection of sample.

**TABLE: 1**

Allocation of Experimental and Control Groups (30 Matched pairs)

<table>
<thead>
<tr>
<th>Sl.no.</th>
<th>Name of the college</th>
<th>Nature of the group</th>
<th>No. of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M.E.S Teachers college, Rajajinagar, Bangalore.</td>
<td>Experimental Group</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>Dr.Ambedkar college of Education, J.C nagar, Bangalore.</td>
<td>Control Group</td>
<td>30</td>
</tr>
</tbody>
</table>

The Experimental group was subjected to treatment using the Learning together model of Cooperative learning strategy. The student-teachers were divided into 6 groups each consisting 5 student–teachers with different abilities i.e. a heterogeneous group. The student-teachers were taught selected topics in physical science using this model.

**Tools used for the collection of data**

The following Research tools were used for the collection of research data:

- Cooperative learning exercise package based on learning together model was developed by the researcher.
- Achievement test in Physical science-constructed and validated by the researcher.

The selected topics were taught using lesson transcripts prepared by the Researcher.
Process of experiment

- Sample group (Both Experimental and Control group) was Pre-tested on the Scholastic achievement.
- Experimental group was given treatment through CLS using learning together model.
- Sample group (Both Experimental and Control group) was Post-tested on the Scholastic achievement.
- Experimental group was delayedly Post-tested to know the retention or sustainability in terms of Scholastic achievement.

Statistical technique used
To compare the significant difference between two groups, t-test was used.

Analysis and interpretation of data

Ho-1 There is no significant difference between Pre-test scores of Experimental and Control group with reference to their scholastic achievement.

TABLE: 1
N, Mean, S.D, ‘t’ value of scholastic achievement in physical science of experimental and control group before treatment

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>‘t’ Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sch.achievement</td>
<td>EG</td>
<td>30</td>
<td>14.46</td>
<td>4.71</td>
<td>1.17</td>
<td>NS*</td>
</tr>
<tr>
<td></td>
<td>CG</td>
<td>30</td>
<td>13.36</td>
<td>2.04</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From Table-1, it can be seen that the obtained’ value is 1.17 which is less than the tabled ‘t’ value of 2.04 with degrees of freedom 29 at 0.05 level of significance. Therefore, the null hypotheses that Experimental and Control group do not differ significantly in their scholastic achievement before treatment is accepted. Hence, it is concluded that, the
Experimental and Control groups were alike with reference to scholastic achievement before subjected to treatments. That means, the entry behaviour of all the student-teachers irrespective of Experimental and Control groups with reference to dependent variable were same and the groups are almost homogeneous with reference to the selected variable. It also confirms the appropriateness of matching of the groups. Therefore, it may be concluded that, the difference noticed in enhanced Scholastic achievement after the application of treatments may be attributed to the treatment only.

**Ho-2** There is no significant difference between teaching post-test scores of Experimental and Control group with reference to scholastic achievement.

**TABLE: 3**

<table>
<thead>
<tr>
<th>variable</th>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>‘t’ value</th>
<th>df</th>
<th>significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scholastic achievement</td>
<td>Experimental</td>
<td>30</td>
<td>21.46</td>
<td>4.62</td>
<td>7.16</td>
<td>29</td>
<td>0.01 level</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>30</td>
<td>14.83</td>
<td>2.10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From Table-2, it can be seen that the obtained ‘t’ value is 7.16 which is greater than the tabled ‘t’ value of 2.76 with degrees of freedom 29 at 0.01 level of significance. Therefore, the null hypotheses that Experimental and Control group do not differ significantly in their scholastic achievement after treatment is rejected and an alternative hypothesis is accepted. This shows that there exists significant difference between the post-test scores in the Experimental and Control group with respect to Scholastic achievement after treatment.

Hence, it is concluded that, there is a significant difference between Experimental and Control groups with reference to scholastic achievement after subjected to treatment.

**Ho-3** There is no significant difference between immediate and delayed post-test scores of the experimental group with reference to scholastic achievement.
TABLE: 4

N, Mean, S.D & ‘t’ value of scholastic achievement scores (retention)

between experimental and control groups

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>df</th>
<th>obtained ‘t’</th>
<th>Tabled ‘t’</th>
<th>significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scholastic achievement</td>
<td>29</td>
<td>-0.29</td>
<td>2.04</td>
<td>N.S*</td>
</tr>
</tbody>
</table>

N.S* - Not Significant

From the above table no 3 it is clear that all the obtained ‘t’ value -0.29 is less than the tabled ‘t’ value of 2.04 with df 29 at 0.05 level of significance and the difference is not significant. Hence the hypothesis that ‘There is no significant difference between immediate and delayed post-test scores of the experimental group with reference to scholastic achievement accepted. This implies that, immediate and delayed Post-test scores of Experimental group do not differ significantly with reference to scholastic achievement. Therefore, it may be concluded that, the scholastic achievement which was fostered through Cooperative learning strategy is sustainable by the students.

Major findings of the study

- It is revealed from the findings that, Cooperative learning as a strategy is more effective than the conventional method of teaching in enhancing the Achievement of student-teachers. Students taught through cooperative learning strategy were seen superior to students taught through conventional method of teaching in terms of achievement.

- Students sustain scholastic achievement fostered through Cooperative Learning Strategy.

Educational implications

- The study found out that, Cooperative Learning Strategy helps the student-teacher in the enhancement of their achievement as such. The existing student-teaching programme needs to incorporate the principles of Cooperative Learning Strategy. Out of 12 lessons that student-teacher cover in each method, minimum 2 lessons in each method should be based on Cooperative Learning Strategy. Teacher educators in colleges of education
need to use Cooperative Learning Strategy in their classroom teaching where in students participate actively in discussions.

- Present teacher training programme at all level should be revised so as to incorporate the principles of CLS in all practicum components.
- It is also repeated in National Curriculum Frame work for school education that, pre-service teacher training programme found to be more impressive and effective in all cases. Therefore, specifications with regard to CLS as a strategy of teaching should find place in teacher education curriculum.

Conclusion

The purpose of the present investigation was to study the effectiveness of Cooperative learning strategy in facilitating the scholastic achievement among student-teachers. The study indicated that, Cooperative learning strategy was found to be equally effective in facilitating scholastic achievement of students irrespective of their subject discipline and Educational status.

References

1. Afeefa Al-Dawoud (2001), Pre-service teachers attitude towards and knowledge about cooperative learning in Kuwait, Ph.D thesis, University of north Texas.

