Effectiveness of Cooperative Learning on Academic Anxiety of Secondary School Students

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ABSTRACT: The main aim of the present paper was to study the effect of Cooperative Learning (Jigsaw Strategy) on Academic Anxiety of secondary school student. Total 105 students of class 9th studying in a school affiliated to Punjab School Education Board were taken as a sample. Data was collected by using Academic Anxiety Scale for Children developed by Singh and Gupta (2013). By employing 2×2 ANCOVA results showed that students taught through cooperative learning strategy(Jigsaw) (Mean=10.72,N=50) achieved significantly lower in academic anxiety as compared to traditional method of teaching (Mean=12.93,N=55). Cooperative learning (Jigsaw Strategy) was helpful in reducing academic anxiety.

Key Words: Cooperative learning, Jigsaw, Academic anxiety.

INTRODUCTION

Anxiety is a state of mind in response to some stimulus in the environment which brings in the feelings of apprehension or fear. When the person is exposed to the cause of anxiety the next time, the conditioning effect causes a repeat response and the person will try to avoid the cause. All the responsibilities of being an academic brings with it a state of mind referred to as 'academic anxiety'. This can be associated with almost all the tasks associated with academics i.e. starting from attendance to classes to the biggest cause of academic anxiety is examination. Academic anxiety rises out of the apprehension of rebuke from teachers, parents and peers regarding the failures of performing the responsibilities of an academic properly.

Academic anxiety is an important educational problem that affects millions of students in colleges and schools over the world each year. Although a low level of anxiety can cause positive motivation for improvement of educational functioning, high levels of it can cause a disturbance in concentration, attention, storage of knowledge, recall and educational reduction. Academic anxiety afflicts students during school-related situations.

It is a fact that the progress of a nation depends upon its students' academic achievement and development. That's why every nation emphasizes students' academic achievements. The academic achievements of the students are badly affected due to increase in anxiety in the society. Today, anxiety is common phenomenon of everyday's life. Academic anxiety is an important educational problem that affects millions of students in schools and colleges over the world each year. Motto and Nabi (2012) stated that now a day most of school children have high levels of academic anxiety. Parents and teachers should work together for excellent development of children. Academic anxiety is a common issue that students cannot ignore if they want to succeed in school.

Cooperative learning reduces classroom anxiety created by new and unfamiliar situations faced by students (Kessler, Price & Wortman 1985). Moreover, cooperative learning reduces competitiveness and individualism but offers chances to build or transform the knowledge among students (Johnson 2005). It is widely supported that anxiety is a significant factor that deteriorates the students’ learning or achievement which is measured by the test. When students' anxiety decreases, they tend to perform better tasks. A relaxing environment helps and facilitates students’ learning. Cooperative learning is an approach that does not create threatening situations in the class. It is recommended that teachers incorporate this approach in their instruction by providing a variety of activities in groups and try to create a pleasant learning environment. It will make students have a good perception of learning as well as to make them feel like participating in class. Cooperative Learning is one of the appropriate teaching techniques which lead to less anxiety and increase students' self awareness from their learning procedure (Powel & Enright, 1990). Results of studies by McInerney et al. (1997), Gokce and Derin (2007), Nakahashi(2007), Pushpanjali and Satyaprakasha (2010), Suwantarathip (2010), Lavasani and Khandan (2011), Daneshamooz and Alamolhodaei (2012) and Masomi (2015) indicated a positive effect of employing cooperative learning on academic anxiety.
OBJECTIVE
To study the effect of Jigsaw method of cooperative learning, gender and their interaction on academic anxiety by taking pre-test scores of academic anxiety as a covariate.

HYPOTHESES
1. There is no significant difference in the adjusted mean scores of Academic Anxiety of experimental and control groups when pre-test scores of Academic Anxiety are taken as a covariate.
2. There is no significant difference in the adjusted mean scores of Academic Anxiety of Boys and Girls when pre-test scores of Academic Anxiety are taken as a covariate.
3. There is no significant effect of interaction between group and gender on the adjusted mean scores of Academic Anxiety when pre-test scores of Academic Anxiety are taken as a covariate.

METHOD
Sample: Random sampling technique was used to select the sample school. The present study was conducted on 105 students of 9th class of Govt. Senior Secondary School, Seikhupura, Gurdaspur affiliated to P.S.E.B. Mohali. Both boys and girls were included in the sample for study.

Measure: Academic Anxiety Scale for Children developed by Singh and Gupta (2013) and Cooperative learning Modules based on Jigsaw strategy developed by the investigator was employed to collect data.

Design: The present study was experimental in nature. It was based on the lines of non-equivalent Control group pre test-post test design.

Procedure: The study was designed to find the effectiveness of Cooperative learning (Jigsaw Method) on academic anxiety of 9th class students. Permission was taken from the principal of the school for conducting the experiment. In the first step Academic Anxiety Scale for Children was administered to 105 students as per test. Two intact sections of 9th class were taken randomly to the treatment. This was termed as experimental group and the other was termed as control group. The experimental group was taught social studies through jigsaw method (with modules prepared by investigator) for a period of forty days at the rate of 60 minutes per day. On the other hand control group was taught social studies with the help of traditional (lecture/discussion) method for a period of forty days at the rate of 60 minutes per day. After completion of the treatment Academic Anxiety Scale for Children was administered to both the groups as post test. The extraneous variables like influence and motivation of the teacher was controlled by teaching both groups by the investigator herself.

RESULTS
Table 1: Group wise Mean scores, S.D., N and t-value of pre test mean scores of Academic Anxiety

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>50</td>
<td>12.14</td>
<td>2.962</td>
<td>1.364(N.S.)</td>
</tr>
<tr>
<td>Control</td>
<td>55</td>
<td>11.25</td>
<td>3.617</td>
<td></td>
</tr>
</tbody>
</table>

N.S.= Non significant

From table 1: It is evident that t-value is 1.364 which is not significant at 0.5 level. It indicates that the mean scores of academic anxiety of experimental and control groups differ significantly. It may therefore be concluded that students in experimental and control groups were equal on pre test scores of academic anxiety variable.

Table 2: Group wise Mean, S.D. and N values of boys and girls on post test scores of Academic Anxiety

<table>
<thead>
<tr>
<th></th>
<th>Experimental group</th>
<th>Control group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>M = 9.57</td>
<td>M = 11.68</td>
<td>M = 10.62</td>
</tr>
<tr>
<td></td>
<td>N = 28</td>
<td>N = 28</td>
<td>N = 56</td>
</tr>
<tr>
<td></td>
<td>S. D. = 2.673</td>
<td>S. D. = 2.829</td>
<td>S. D. = 2.57</td>
</tr>
<tr>
<td>Girls</td>
<td>M = 12.18</td>
<td>M = 14.22</td>
<td>M = 13.31</td>
</tr>
<tr>
<td></td>
<td>N = 22</td>
<td>N = 27</td>
<td>N = 49</td>
</tr>
<tr>
<td></td>
<td>S. D. = 2.92</td>
<td>S. D. = 1.84</td>
<td>S. D. = 2.57</td>
</tr>
<tr>
<td>Total</td>
<td>M = 10.72</td>
<td>M = 12.93</td>
<td>M = 11.88</td>
</tr>
<tr>
<td></td>
<td>N = 50</td>
<td>N = 55</td>
<td>N = 105</td>
</tr>
<tr>
<td></td>
<td>S. D. = 3.05</td>
<td>S. D. = 2.70</td>
<td>S. D. = 3.06</td>
</tr>
</tbody>
</table>
From table 2 and bar graph of data showed that mean scores of the students of experimental group (N=50) were 10.72 with standard deviation 3.05 and mean scores of students of control group (N=55) were 12.93 with standard deviation 2.70. These values indicate that mean scores of students in control group were higher than that of students in experimental group. It may noted from table 2 that mean scores of Girls were, 13.31 also higher than mean scores of Boys (10.62).

Table 3 : Summary of 2×2 factorial design ANCOVA on adjusted mean scores of Academic Anxiety of experimental and control groups

<table>
<thead>
<tr>
<th>Source of variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSA(Group)</td>
<td>132.373</td>
<td>1</td>
<td>1132.373</td>
<td>21.283**</td>
</tr>
<tr>
<td>SSB(Gender)</td>
<td>109.344</td>
<td>1</td>
<td>109.344</td>
<td>17.580**</td>
</tr>
<tr>
<td>SS A*B</td>
<td>4.509</td>
<td>1</td>
<td>4.509</td>
<td>.725(N.S.)</td>
</tr>
<tr>
<td>SS Error</td>
<td>621.975</td>
<td>100</td>
<td>6.220</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>15787.000</td>
<td>105</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Significant at 0.01 level, N.S. = Non significant

It is evident from table 3 that reported F-value for adjusted mean scores of academic anxiety is 21.283, which is significant at .01 level with df 1/100. It means that there is significant difference in adjusted mean scores of academic anxiety between experimental and control groups. Further the adjusted mean scores of academic anxiety of the experiment group (mean=10.72, N=50) is lower than of control group (mean=12.93, N=55). It reflects that cooperative learning (Jigsaw Strategy) was to be significantly effective to decrease academic anxiety as compared to traditional method of teaching.

The F value (table 3) for adjusted mean scores of academic anxiety of boys and girls is 17.580 which is significant at 0.01 level with df 1/100. It means that there is significant difference in adjusted mean scores of academic anxiety between boys and girls students. Both boys and girls differ in academic anxiety.

The F value (table 3) for interaction between treatment and gender is .725, which is not significant even at 0.05 level. It means that there is no significant effect of interaction between treatment and gender on academic anxiety.

**DISCUSSION**

The results revealed that cooperative learning (Jigsaw strategy) can helpful to reduce academic anxiety. Cooperative learning also enhances understanding and self confidence. These results would imply that incorporating cooperative learning in the classrooms would enhance the academic achievement of secondary school students. The present study showed that Cooperative learning (Jigsaw strategy) has an effect on academic anxiety of school students. Moreover, cooperative learning competitiveness and individualism but offers chances to build or transform the knowledge among students (Johnson, 2005). When students’ anxiety decreases, they tend to perform better tasks. A relaxing environment helps and
facilitates students’ learning. Cooperative learning is an approach that does not create threatening situations in the class. It is recommended that teachers incorporate this approach in their instruction by providing a variety of activities in groups and try to create a pleasant learning environment. It will make students have a good perception of learning as well as to make them feel like participating in class. The research findings suggest that cooperative learning enhances trust and mutual respect, declines anxiety, promotes meta-cognitive knowledge and encourages self-dignity and enthusiasm toward learning (Johnson & Johnson, 1989; Millis, 2010; Slavin & Karaweit, 1981). Pushpanjali and Satyaprakasha (2010) who pointed out that Cooperative Learning is a broad phrase for an effective approach to education and was effective in significantly reducing the anxiety. Cooperative Learning is one of the appropriate teaching techniques which lead to less anxiety and increase students’ self-awareness from their learning procedure (Powel & Enright, 1990). The research findings suggest that cooperative learning enhances trust and mutual respect, declines anxiety, promotes meta-cognitive knowledge and encourages self-dignity and enthusiasm toward learning (Johnson & Johnson, 1989; Millis, 2010; Slavin & Karaweit, 1981).

REFERENCES