COMPARISON OF INTEGRATED (COLLABORATIVE, PROJECT AND TRADITIONAL) EDUCATION IN TERMS OF TEST ANXIETY OF SIXTH GRADE ELEMENTARY STUDENTS OF DISTRICT 2 OF URMIA CITY IN THE MATH LESSON IN ACADEMIC YEAR OF 2012-13

*Elham Hajipour1 and Mustafa Sheykhzadeh2
1Department of Education, Education and Training Office of Anzal, Urmia, Iran
2Department of Educational Sciences, Urmia Branch, Islamic Azad University, Urmia, Iran
*Author for Correspondence

ABSTRACT
This study was performed to compare the collaborative, project and traditional consolidated teaching in terms of the anxiety of the primary 6th grade students in mathematics in the academic year of 2012-13, District 2, Urmia. This study is placed in a quasi-experimental design group. The project design is two heterogeneous groups with pre-test and post-test. 40 students from the primary 6th grade students were selected by the multi-stage cluster sampling. They were classified in two groups of test group and control group. The tool of this study is the academic achievement of the primary 6th grade mathematics (the chapter of statistics and probabilities). The results showed that the consolidated teaching (collaborative, project and traditional) has effect on the anxiety of 6th grade students in mathematics.

Keywords: Integrated, Anxiety, Collaborative, Project and Traditional

INTRODUCTION
In Iranian educational system, relying on traditional methods, particularly lecture, teachers encourage students to memorize and repeat scientific topics. Despite the fact that in the scientific, educational, and even executive communities, intellectual development and freethinking of students are emphasized, these types of perspectives actually have taken propagandist aspects. Strengthening of cooperation and friendship between the students and their social development are discussed in such communities. However, no step has been taken in action in this regard. Instead, cooperation and friendship have also often turned into a kind of competition that resulted in the increase of jealousy, resentment, and hostility among students. The dominant style in most of the educational classes is traditional in the sense that students encounter with challenging situations, fewer opportunities are provided for interaction, brainstorming, collaboration, and debate among teachers and students and students with each other. Students are encouraged to rote learning, collaboration gives it way to competition, and the risk of aversion increases among students (Shekari, 2011).

Test Anxiety
Research has shown that some of the students gain sufficient mastery on contents of lessons throughout the semester, but they do not show significant success when they are assessed, due to anxiety in test. Test anxiety is one of the situational anxieties occurs in all socio-economic classes and it has close relationship with the academic performance of students in educational centers (Rost and Schermer, 2001; Zidner, 1998).

Therefore, anxiety threatens students' mental health and has a negative impact on their effectiveness, talent, personality and social identity formation (Ergene, 2003). Test anxiety is characterized by worrying thoughts, heart rate, and emotional outbursts during or after the test. It sometimes so severe that makes every-day and academic lives of students difficult. Research in this area started seriously by studies of Sarason and Mendler (1956). They believe that test situation, calls for two types of drives: 1-drives focused on the task that backs to manifestation of behaviors to fulfill task, 2- Anxiety-learned drives that creates two inconsistent behaviors. The first type of drives is efforts related to task by which people can terminate the test and thus reduce their anxiety, the other type is responses and behaviors of the task characterized by feelings and emotions such as helplessness, severe physical reactions, punish and
reprimand, low confidence and implicit attempts to escape from the test location. Zidner (1998) defined test anxiety as a type of preoccupation characterized by procrastination and uncertainty about their abilities that often leads into negative cognitive evaluation, lack of concentration, adverse physiological reactions and poor academic performance, and it plays deterrent role in the students' mental health. Deffenbacher (1980) believes that this phenomenon includes cognitive and emotional components. Cognitive component is responsible for reducing the performance and intellectual pursuits, while emotional component is part of emotional or emotionality. Based on cognitive model, people with anxiety, focus their attention to activities unrelated to the task, intellectual engagement with worry, self-criticism, and physical concerns and thus they pay less attention on task-oriented efforts. This reduces their performance. However, people who have anxiety use positive evaluations frequently (quoted by Sepehrian and Rezai, 2010). Nixon and Frost (1996) found that those students, who have overestimated themselves in terms of achievement motivation, achieved higher grade point average (GPA). Another finding in this study showed that there was a curved relationship between self-satisfaction and academic success. It was found that those students who had middle to high self-satisfaction, they had also higher GPA.

MATERIALS AND METHODS

Methodology
This study, like most research is done in education, is applied, because it has tried to develop the practical knowledge in consolidated teaching and given that the random assignment of individual and in spite of the control group, the annoying factor cannot be controlled, this study is placed in the quasi-experimental design group (Sarmad et al., 2010).

The Population
According to the statistics obtained from the Management of Education, District 2, Urmia, in the academic year of 2012-13, the population of sixth grade students in the area is 6457 students and the total number of primary schools is 169 schools and the total number of classes at this grade is 207 classes.

The Sample (Sample Size and Sampling Method)
Multistage cluster sampling method was used in this study due to the broad studying population. First, all the primary schools which have 6th grade were selected, then, Pishdad and Danesh primary schools were selected randomly among them. In each of them, a class with 20 students was selected. The students of Pishdad School received a consolidated teaching as a test group and the students of Danesh School were taught traditionally as a control group.

Data Collection Tools and its Validity and Reliability
In this study, questionnaire, as the most common means of collecting data in the human science was used, the questionnaire is used to collect some test data is used. In this study, anxiety questionnaire test developed by Jacob Friedman in 1977 was used. It has 13 questions in the 4-point Likert scale (scored from strongly agree to strongly disagree). Reliability coefficient was reported as 0/81 and 0/91 for this questionnaire (Manavipour, 2011).

Data Analysis Method
SPSS 19 software and t-test of dependent and independent samples were used to analyze data in this study.

Descriptive Statistics
Based on table 1, we can see that mean and standard deviation test anxiety for experiment group in the pre-test were 4/96 and 47/85, respectively.

<table>
<thead>
<tr>
<th>N</th>
<th>mean</th>
<th>Standard of deviation</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>47/85</td>
<td>4/96</td>
<td>56</td>
<td>40</td>
</tr>
</tbody>
</table>

Based on table 2, we can see that mean and standard deviation test anxiety for experiment group in the post-test were 40/70 and 5/27, respectively.
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Table 2: Test anxiety for experimental group in the post-test

<table>
<thead>
<tr>
<th>N</th>
<th>Mean</th>
<th>Standard of deviation</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>40/70</td>
<td>5/27</td>
<td>49</td>
<td>29</td>
</tr>
</tbody>
</table>

Based on table 3, we can see that mean and standard deviation test anxiety for control group in the pre-test were 48/20 and 5/75, respectively.

Table 3: Test anxiety for control group in pre-test

<table>
<thead>
<tr>
<th>N</th>
<th>Mean</th>
<th>Standard of deviation</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>48/20</td>
<td>5/75</td>
<td>58</td>
<td>39</td>
</tr>
</tbody>
</table>

Based on table 4, we can see that mean and standard deviation test anxiety for control group in the post-test were 4/68 and 48/55, respectively.

Table 5: Test anxiety for control group in the post-test

<table>
<thead>
<tr>
<th>N</th>
<th>Mean</th>
<th>Standard of deviation</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>48/55</td>
<td>4/68</td>
<td>56</td>
<td>38</td>
</tr>
</tbody>
</table>

**Deduction**

**First Hypothesis Test**

Integrated learning (collaborative, project-based, and traditional learning) has impact on test anxiety sixth grade students in the math lesson.

To test this hypothesis, dependent t-test was used. The questionnaire was used twice for students of the sixth grade. Therefore, in the first time, anxiety test questionnaire was used before implementation of independent variable (integrated education) and in the second time, it was implemented after the independent variable (integrated education).

Table 5: dependent t-test to compare test anxiety in the post-test and pre-test in the experiment group

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>Standard of deviation</th>
<th>Degree of freedom</th>
<th>t</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>20</td>
<td>47/85</td>
<td>4/96</td>
<td>19</td>
<td>6/28</td>
<td>0/000</td>
</tr>
<tr>
<td>Post-test</td>
<td>20</td>
<td>40/70</td>
<td>5/27</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on table 5, we see that dependent t-test was carried out to compare post-test and pre-test anxiety in the experiment group. The number of students in the pre-test and post-test was 20 and their mean was 47/85 and 40/70, respectively. In addition, their standard of deviation was 4/96 and 5/27, respectively, and degree of freedom was 19 and t was 6/28. It can be seen that significance level was 0/000 and since it is lower than 0/05, it can be concluded that statistically there is significant difference in the post-test and pre-test scores of students. Therefore, null hypothesis is rejected and the research hypothesis is confirmed. So, we conclude that integrated education (collaborative, project-based, and traditional) has impact on test anxiety of students of sixth grade in the math lesson. In addition, square of ETA was used to calculate the impact value of t-test on dependent samples, where the impact value in this hypothesis is as follows:

\[
\text{square of ETA} = \frac{t^2}{t^2 + (N - 2)} = \frac{6.28^2}{6.28^2 + (20 - 1)} = 0.67
\]

Required guidance to interpret this value presented by Kohen (19880 is as follows:
low impact = 0/01
medium impact = 0/06
high impact = 0/14
Square of ETA was calculated as 0/67 and this is regarded as very high impact. Therefore, it can be concluded that there is significant difference in the test anxiety scores of students in the pre-test and post-test.

Second Hypothesis Test
There is significant difference in the test anxiety scores of sixth grade students in the math lesson, given type of education (integrated and traditional). T-test was used to test this hypothesis. To test this hypothesis, we divided students into two independent groups that one of them has been educated by integrated education in the statistics and probability lesson of sixth grade (control group), while other group included students educated by traditional method (control group).

Table 6: Independent t-test to compare test anxiety in the post-test in control and experimental groups

<table>
<thead>
<tr>
<th>Test</th>
<th>n</th>
<th>mean</th>
<th>Standard of deviation</th>
<th>Degree of freedom</th>
<th>t</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment group</td>
<td>20</td>
<td>40/70</td>
<td>5/28</td>
<td>38</td>
<td>4/97</td>
<td>0/000</td>
</tr>
<tr>
<td>Control group</td>
<td>20</td>
<td>48/55</td>
<td>4/68</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on table 6, we see that independent t-test to compare test anxiety in the post-test and pre-test was carried out in the control and experimental group. The number of students was 20 for both of the groups and mean of control and experimental groups was 40/70 and 48/55, respectively, and their standard of deviation was 5/28 and 4/68, respectively.

The degree of freedom was also 38 and t was 4/47. Since the value of column (2-tailed) is 0.000 and this value is less than the cut-off point 05/0, there is statistically significant difference between control and experimental groups in mean scores of test anxiety of sixth grade students in math lesson. Therefore, the null hypothesis is rejected and the research hypothesis is confirmed. So it can be concluded that there is difference in mean scores of anxiety test of sixth grade students in math, based on type of type of education (integrated and traditional). Square of ETA was also used to calculate the impact value of t-test of independent samples that it is as follows in this hypothesis:

\[
\text{Square of ETA} = \frac{\frac{t^2}{N_1+N_2-2}}{\frac{4.97^2}{4.97^2+(20+20-2)}} = 0.39
\]

As square of ETA was calculated as 0/39 and this impact is high, it can be concluded that there is significant difference in the anxiety test scores of sixth grade students in the control and experiment groups in math lesson. In addition, considering means of these groups, it can be deducted that integrated education (collaborative, project-based, and traditional) has significant impact than traditional education on test anxiety of sixth grade students in the math lesson.

Conclusion and Recommendations
Conclusion of First Hypothesis
Integrated education has impact on test anxiety of sixth grade students in the math lesson. T-test was used to test this hypothesis. Anxiety test questionnaire was used twice for sixth grade students. Therefore, in the first time, anxiety test questionnaire was used before implementation of independent variable (integrated education) and in the second time, it was implemented after the independent variable (integrated education). As the significant value of column is 0/000 and it is less than 0/05, it can be concluded that there is statistically significant in the pre-test post-test anxiety scores students. Therefore, null hypothesis is rejected and research hypothesis is confirmed. We conclude that integrated education (collaborative, project-based, and traditional) has impact on test anxiety of sixth grade students in the
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math lesson. In addition, square of ETA was calculated as 0/67 and it shows high impact. Therefore, we conclude that there is significant difference in the anxiety test scores of students in the post-test and pre-test. In their study of writing anxiety, Gok and Derin (2007) concluded that students of collaborative group have significantly lower writing anxiety than those students who experienced teacher-based learning. Baes on results of previous studies and its comparison with the results of this hypothesis, it can be concluded that the results of this hypothesis is consistent with previous studies.

Conclusion of Second Hypothesis

There is difference among anxiety test scores sixth grade students in the math lesson regarding type of education (integrated and traditional). To test this hypothesis, independent t-test was used. To test this hypothesis, we have divided the students into two independent groups, one group of students has been educated by integrated method in the statistics and probability lesson (experiment group, and another group of students has been educated by traditional method in these lessons (control group). Since the column value of significance level is 0/000 and it is less than cutting point of 0/05, there is statistically significant difference between control group and experiment group in the mean of scores of anxiety test of sixth grade students in the math lesson. Therefore, the null hypothesis is rejected and the research hypothesis is confirmed. So it can be concluded that there is difference in the mean scores of anxiety test of sixth grade students in math lesson, when method of education is considered. Since square of ETA has been calculated as 0/39 and this shows high impact, it can be concluded that there is significant difference in the test anxiety scores of sixth grade students of experiment and control group in the math lesson. In addition, given means of experiment and control groups, it can be concluded that integrated education (collaborative, project-based, and traditional) has significant impact on reducing the anxiety test of sixth grade students in the math lesson. Olodip and Okoy (2010) in their study on the effect of cooperative learning in reducing anxiety in chemistry concluded that the anxiety level of students had been reduced, who has participated collaboratively, while those who had been educated in the lecture form, this anxiety had been increased. Based on results of previous studies and comparing it with results of this research, it can be concluded that the results of this hypothesis is consistent with previous research. It is recommended to scholars and researchers that investigate the effectiveness of this method in other lessons and educational levels and the effect of this method in reducing the effects of test anxiety in students.

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