SECONDARY SCHOOL STUDENTS’ TEST ANXIETY AND ACHIEVEMENT IN ENGLISH

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ABSTRACT

This study was conducted to explore secondary school students’ relationship of test anxiety with their achievement in the subject of English. Gender differences were also measured in terms of test anxiety. Data was collected from 2,270 tenth grade students (1,126 males and 1,146 females) selected from 80 schools in eight districts of Punjab province. Relationships were measured by using simple correlations (r), multiple correlation (R) and standard regression coefficient (β). ANOVA was used to find out the differences, the Eta square values were also included. The results of the study indicated that there was negative correlation of test anxiety with students’ achievement in the subject of English. It was also concluded that female students had higher test anxiety than male students.

KEYWORDS: Test Anxiety, Achievement, Test Anxiety Inventory (TAI)

INTRODUCTION

According to Walberg’s theory (1984), “there are many factors which can contribute to the variance in students’ cognitive and affective outcomes. Some of these factors are maturity, students’ abilities, teaching methodologies, motivation, environment at homes and the peer groups inside and outside the classrooms etc.” There are many factors, which have effect on achievement of students in different subjects, like test anxiety, attitude, gender, race, socioeconomic status, self-efficacy, peers, teachers, parents, motivation, ability, and learning environment etc. (Rodriguez, 2004; Okapala, Okapala, and Smith, 2001; Elliott, Kratochwill, Cook, & Travers, 2000; Gertyz, 1999, Caldas & Bankston, 1997).

Test anxiety is a major factor which influences the students’ achievement in different subjects. According to Kaya (2004), it has created interest among educators, researchers, and psychologists. Many research studies have been conducted in different countries to find out the relationships and differences of test anxiety with students’ achievement in different subjects. Although a research has been conducted in Pakistan to find out the effects of test anxiety on students’ achievement (Ali, 2012), but this research was conducted in the subjects of science at secondary level. This study is the first effort to find out effect of test anxiety on students’ achievement in the subject of English.

ANXIETY

Phillips, Martin, and Myers (1972) have described that anxiety is a response to different environmental factors. According to Sarason (1984), anxiety directly belongs to the emotions of human beings and it points out the lack of self-assurance. It may also be a kind of threat from the environment. He has also stated that anxiety is the most important factor in all fields of studies as well as researched in many studies and countries.

The term anxiety has been described by Cohen, Yaakobi, Porat, and Chayoth (1989) as the emotional state. It can be generalized that anxiety has negative effects on students’ self-esteem. The students can learn from their own
experiences about the stimuli which cause anxiety. But these stimuli vary from person to person as no two persons have same ideas and thoughts. In the view point of Reber (1995), anxiety is an emotional state in unpleasant conditions without a specific object.

Lafi, Okasha, and Cohen (2004) have divided anxiety into two categories: state anxiety and trait anxiety. The trait anxiety is described as the individual’s capability to perceive different situations from the environment like danger and threat. On the other hand, state anxiety is described as the perception of individual’s emotional situation. According to Spielberger (1979), the term state anxiety expresses the emotional situations of the individuals.

TEST ANXIETY

It is an emotional state that has psychological effects during the examinations (Duesek, 1980). In the view point of Sarason (1984), test anxiety is widely studied variable which provide the measure of personal characters to situations in which students are evaluated. According to Spielberger and Vagg (1995), test anxiety may be the part of general anxiety. It causes the performance of students in examinations. Zeidner (1998) has defined test anxiety as, “The set of phenomenological, physiological and behavioral responses that accompany concern about possible negative consequences or failure on the examination or similar evaluative situation” (p. 17). Hong (1998) has also given the definition of test anxiety as “a complex multidimensional construct involving cognitive, physiological, and behavioral reactions to evaluative situations” (p. 51).

Different researchers and psychologists have described that there are different components of test anxiety like worry, emotionality, thinking, tension, cognitive interference, and lack of self-confidence (Liebert and Morris, 1969; Sarason, 1984; Unruh and Lowe, 2010). But the major components of test anxiety are worry and emotionality. According to Sharma and Sud (1990), the component of test anxiety relating to cognition is worry which concerns about the consequences of failure. On the other hand, emotionality is caused due to reactions of autonomic nervous system.

TEST ANXIETY AND ACHIEVEMENT

A major factor which has influenced students academic achievement is test anxiety. According to Zeidner (1998), “there are many factors like cognitive, affective, motivational, somatic and environmental factors, along with test anxiety, which affect students’ achievement” (p. 235). Similarly, Woolfolk (2004) has described that, “Test anxiety has interference on three points: focusing attention, learning, and testing. Highly anxious students divert their attention between this new material and tension. As a result, the achievement of anxious students becomes lower” (p. 366).

Many research studies have been conducted to explore the effects of test anxiety with students’ achievements in different areas on the basis of gender, race, locality, language, ethnicity, parents socioeconomic status etc. (Ali, 2012; Nicholson, 2010; Peleg, 2009; Chapell, Blanding, Silverstein, Takahashi, Newman, Gubi, and McCann, 2005; Kaya, 2004, Mcdonald, 2001, Hong, 1999; Williams, 1992; Wynstra and Cummings, 1990; Hembree, 1988). Most of the research studies indicated that test anxiety was negatively correlated with students’ achievement in different subjects. Highly test anxious students had lower academic achievements and low test anxious students had higher achievements.

OBJECTIVES OF THE STUDY

The objectives for this study were:

- To provide descriptive data related to test anxiety and achievement in the subject of English.
- To validate translated version of instrument regarding test anxiety.
• To explore the relationship between test anxiety and students’ achievement in the subject of English.
• To investigate the differences of students’ test anxiety on the basis of gender.

RESEARCH METHODOLOGY

Population

The population of the study consisted of all 10th grade students (male and female) in secondary and higher secondary schools in all 36 districts of Punjab province. These students were studying science and arts subjects and taking English as major subject.

Sample of the Study

As there are 36 districts in Punjab province, so it was very difficult to collect data from all the districts. Eight districts (Okara, Faisalabad, Lahore, Pakpattan, Sargodha, Multan, Kasur, and Layyah) were selected randomly. In each district, 10 schools were selected conveniently on the basis of gender i.e., five male schools and five female schools but these schools were present in urban areas only. Total number of students selected from all 80 schools in Eight districts were 2,270 (1,126 male students and 1,144 female students).

Instrument of the Study

In order to measure student’s test anxiety in the subject of English, Spielberger’s (1980) Test Anxiety Inventory was used. Spielberger (1980) has described that Test Anxiety Inventory (TAI) is designed to measure test anxiety of high school and college students. According to him, “It is a 4-point Likert type scale having three subscales: Test Anxiety--Worry (TAI-W), Test Anxiety--Emotionality (TAI-E) and Test Anxiety--Total (TAI-T)” (p. 1).

Test Anxiety Inventory (TAI) was translated into Urdu language. These translations were compared to each other and Test Anxiety Inventory Urdu (TAI-Urdu) was developed. This TAI-Urdu was administered on 150 students of 10th grade selected from three schools of Lahore district for the pilot testing. The Alpha Reliability Coefficient for this translated version was found $\alpha = .887$ for whole of the instrument. Similarly, $\alpha$-values for subscales Test Anxiety-Worry, Test Anxiety-Emotionality and Test Anxiety-Total were calculated as .676, .851 and .754 respectively. After pilot testing, data was collected from 2,270 students for final study.

Students’ scores in the subject of English were obtained from board examinations and these scores were considered as achievement scores in the subject of English.

DATA ANALYSIS AND RESULTS

The data collected from 2,270 students was analyzed to:

• Examine the factor structure of Test Anxiety Inventory (TAI),
• Find out the relationship of test anxiety with English achievement scores, and
• Explore gender differences in terms of test anxiety.

Factor Analysis

Factor analyses were conducted for the examination of internal structures of 20 items of Test Anxiety Inventory (TAI). The internal structure of TAI was examined by using the principal axis factor analysis with Varimax rotation. The criterion for an item to be retained is described by Nelson (2005). According to this criterion, only that item is retained in
an instrument whose factor loading is at least 0.30 on its own scale and less than 0.30 on all other scales. By following this criterion, none of the items were deleted from TAI and all 20 items retained in TAI after factor analysis.

Table 1 below presents the factor loadings, percentage of variance, and eigenvalues for three scales of TAI.

**Table 1: Factor Analysis Results for the TAI**

<table>
<thead>
<tr>
<th>Item</th>
<th>TAI-Total</th>
<th>TAI-Worry</th>
<th>TAI-Emotionality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>0.43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>0.41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>0.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>0.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>0.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>0.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>0.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>0.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>0.43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>0.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>0.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>0.40</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>0.52</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>0.41</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>0.51</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>0.47</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>0.52</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>0.69</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td>0.52</td>
</tr>
<tr>
<td>% Variance</td>
<td>8.79</td>
<td>6.68</td>
<td>5.71</td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>2.32</td>
<td>1.59</td>
<td>1.51</td>
</tr>
</tbody>
</table>

Table 1 shows that the percentage of variance was 8.79 % for Test Anxiety Inventory- Total, 6.68 % for Test Anxiety Inventory- Worry, and 5.71 % for Test Anxiety Inventory- Emotionality. Similarly, the eigenvalues for three scales of Test Anxiety Inventory ranged from 1.51 to 2.32. The results of factor analysis in Table 1 supported a strong structure for 20 items with three scales of Test Anxiety Inventory.

**Relationship of Test Anxiety with English Achievement Score**

The relationship of test anxiety with English achievement score was investigated by using simple correlation and multiple regression analysis (R). The standardized regression coefficient ($\beta$) was used to identify either test anxiety was significantly correlated with English achievement score or not.

Table 2 below shows the simple correlation ($r$), multiple correlation ($R$) and the standardized regression coefficient ($\beta$) for relationships of English achievement score with three TAI scales.

**Table 2: Simple Correlations ($r$), Multiple Correlations ($R$), and Standardized Regression Coefficients ($\beta$) for Relationships of English Achievement Score with Three Test Anxiety Scales**

<table>
<thead>
<tr>
<th>Scale</th>
<th>English Achievement Score</th>
<th>r</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Anxiety Worry</td>
<td>-0.23**</td>
<td></td>
<td>-0.19**</td>
</tr>
<tr>
<td>Test Anxiety Emotionality</td>
<td>-0.29**</td>
<td></td>
<td>-0.23**</td>
</tr>
<tr>
<td>Test Anxiety Total</td>
<td>-0.24**</td>
<td></td>
<td>-0.21**</td>
</tr>
<tr>
<td>Multiple Correlation R</td>
<td>0.30**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*P < 0.05, **P < 0.01, N = 2270
Table 2 shows that all three scales of Test Anxiety i.e., Test Anxiety-Worry, Test Anxiety-Emotionality, and Test Anxiety-Total had significant negative relationships (p < 0.01) with English achievement measure for simple correlation analysis. It is also clear from Table 2 that there was a significant multiple correlation (R) (p < 0.01) between the English Achievement Score with all three scales of test anxiety. The standardized regression coefficients (regression weights) were also examined to interpret the significant multiple correlation. The number of standardized regression coefficients (β) was three for 10th grade students studying English. The investigations of signs for standard weights show that the relationship between English achievement score were negative for all three scales of Test Anxiety.

It is indicated from the above discussion that increasing test anxiety causes lower English achievement scores.

Gender Differences in Terms of Test Anxiety

The gender differences were also measured for all three scales of test anxiety using a sample of 2270 students of 10th grade studying English as major subject. To analyze the differences, ANOVA was used. The magnitudes of these differences were also measured by calculating effect size recommended by Thompson (1998). Table 3 below shows the Item Mean, Item Standard Deviation, ANOVA Results and values of Effect Sizes for the differences in genders for three scales of test anxiety.

Table 3: Item Mean and Item Standard Deviation for Gender Differences (ANOVA Result and Effect Size) for Three Scales of Test Anxiety

<table>
<thead>
<tr>
<th>Scale</th>
<th>Item Mean</th>
<th>Item SD</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Test Anxiety- Worry</td>
<td>3.66</td>
<td>3.86</td>
<td>0.79</td>
</tr>
<tr>
<td>Test Anxiety- Emotionality</td>
<td>4.23</td>
<td>4.67</td>
<td>0.69</td>
</tr>
<tr>
<td>Test Anxiety- Total</td>
<td>2.46</td>
<td>2.55</td>
<td>0.50</td>
</tr>
</tbody>
</table>

***p<0.01, males (n = 1126); females (n = 1144)

Table 3 shows that there was significant gender differences (p < 0.01) occurred for all three scales of Test Anxiety. It is also clear from Table 3 that females had more test anxiety than males for all three scales. The results of Table 3 also indicate that the effect size for three test anxiety scales ranged from 0.29 to 0.33 standard deviations. According to Cohen (1988), effect sizes can be considered small (0.10), medium (0.25), or large (0.40). According to this criterion, the values of effect sizes for three test anxiety scales ranged from medium to large suggesting that there were some important gender differences in test anxiety.

From the above discussion, it is concluded that females had higher test anxiety than males.

DISCUSSIONS

This study has shown the results that test anxiety had negative correlation with students achievement scores in the subject of English. It is concluded from the results of the study that test anxiety of 10th grade students studying English as major subject caused lower achievement. The correlation of English achievement scores with all three scales of test anxiety ranged from -.23 to -.29. These results indicate that these correlations are not very strong but the results verify the results of some previous studies like Kaya (2004) where the correlation was -0.15 (p < 0.001). Highly test anxious students had low academic achievement and low test anxious students had higher achievement (Ali, 2012; Nicholson, 2010; Peleg, 2009; Chapell, Blanding, Silverstein, Takahashi, Newman, Gubi, and McCann, 2005; Kaya, 2004, Mcdonald, 2001, Hong, 1999; Williams, 1992; Wynstra and Cummings, 1990; Hembree, 1988).
It is also concluded from the above discussion that females had more test anxiety than males. There were significant differences between test anxiety of male and female students. The results of this study replicated the results of some previous studies (Unruh & Lowe, 2010; Putwain, 2007; and Adigwe, 1997). It was concluded that females had higher test anxiety than males. Hembree (1988) meta-analyzed 562 studies from different states of America. The results of this meta-analysis were same that females had more test anxiety than males. Schwarzer (1980) conducted a longitudinal study on the students of grades 6 and 9. This study also favored the arguments that female students had more test anxiety than males.

SUGGESTIONS FOR FUTURE RESEARCH WORK

This research was conducted on the students of secondary level only. It is suggested that the same research may be conducted from primary level up to university level. In the future research, qualitative research methods may also be included to check the validity of quantitative research methods. Qualitative research can influence students’ achievement in science. In qualitative research methods Test Anxiety and can be measured by observations and interviews instead of questionnaires. This research may also be expanded in all of the four provinces of Pakistan. By conducting the research in whole of the country, its validity may be enhanced.

REFERENCES


