Original Article

Evaluation and comparison of test anxiety and self-esteem in traditional and electronic tests in Payame Noor University students, Yazd providence

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ABSTRACT

Today, the vast changes resulting from science and technology in everyday life have also changed the traditional process of learning and teaching. These changes have also created new efforts in various sectors of education in countries, including the basic issues in the process of teaching on how to hold the exam. Given the fact that today universities and higher education institutions have integrated computer technology into educational processes, the test`s process is changing from its traditional way to electronic method using computers, which is specifically used at Payam Noor Universities. Electronic exam process can have positive effects. The use of technology is a good alternative to the traditional test methods and allows educational goals to be achieved at a lower cost. These technologies can also meet the increasing educational needs. Also, the researches have emphasized on the effective role of self-esteem beliefs in the difference between coping strategies of people in anxious situations.

Keywords: Electronic tests, Traditional tests, Self-esteem, Test anxiety.

Introduction

We all are usually worried or under pressure before exams or other important events in our lives. Low level of anxiety can help us improve our motivation in practice. But in fact, being too much worried may be problematic, especially if it negatively affects our ability to prepare for and practice in the exams [1].

Some degree of anxiety is seen in 30-20% of learners before test. This issue is more common in girls than boys. In the definition of test anxiety, at first, natural anxiety should be distinguished from abnormal and sickly anxiety. Certainly, low level of stress can be positive, since it gives a feeling of excitement and gaining an opportunity to person [2]. An example in this regard can be stress that makes an athlete to shine better in the field than practice, or a person who works with more energy and better performance in his new job; or a student that experiences anxiety and excitement during the test which increases his focus on the study and makes her/him stick to his/her program better and manage his/her time; ultimately, this anxiety improves the performance of the individual. Therefore, some degrees of anxiety are needed and can improve our performance. This type of anxiety is called duty-centered anxiety. But when stress and anxiety are negative, we feel that things are out of our control, we are under pressure and we have lost our focus. This kind of anxiety leads to negative cognitive assessment, distraction, adverse physiological reactions, and loss of performance in individual [3].

Self-esteem is one of the most important issues in terms of individual, social and psychological aspects for psychologists [4]. Studies showed that many of today's human problems arise from low self-esteem or, underestimation. Such thoughts may happen due to one's family or environment or from one's own imagination. There are lots of intellectuals who are unaware of their own talents and do not value themselves. They usually

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expect others to lead them to righteousness and dignity. The main problem of these intellectuals is that they always compare themselves with others and not pay attention to their real abilities [5].

Research Methodology

This study was an applied research in term of purpose. Descriptive Method and inferential analyzes have been used in this research. The statistical population of the research included Payame Noor University students in Taft, who had participated in two types of electronic and traditional tests. The library method has been used for data collection. The library method includes the use of books, journals, publications and specialized articles on libraries and the Internet. The questionnaire was prepared based on the relevant thesis and the comments of the relevant masters.

The questionnaire consisted of 58 questions; 8 of which were polygraph examiners, and 50 questions included 4 scales of family self-esteem (parents), educational self-esteem (institution), general self-esteem, and social self-esteem. In order to determine the control and experimental groups, 47 students were selected using a simple random sampling method and the questionnaires were distributed between them. Descriptive statistics including tables, charts, mean, standard deviations and rankings were used to describe the data. Inferential methods such as correlation coefficient test and variance analysis test were used in the research hypotheses to compare the means of several populations.

Research Findings

The descriptive data obtained from the general questions asked from respondents have been provided in followings.

Table 1. Descriptive data about respondents' gender

		Frequency	Frequency percentage
Gender	Female	28	59. 6
	Male	19	40.4
	total	47	100
Test type	Electronic	27	57.4
	Traditional	20	42.6
	Total	47	100

Descriptive statistics related to the main variables of the research

The amount of anxiety in the test

Descriptive statistics related to the degree of anxiety in test which were distinguished based on the type of exam and gender have been presented below.

Table 2. Descriptive statistics about the degree of anxiety based on gender

Gender	Average	Mean	Variance	Standard deviation
Female	57.3	56	72.42	8.51
Male	41.6	43	90.98	9.53

Table 3. Descriptive statistics about the degree of anxiety based on Test Type

Test Type	Average	Mean	Variance	Standard deviation
Electronic	62.8	61	92.85	9.63
Traditional	48.7	48	58.53	7.65

Self-esteem

The descriptive statistics related to the degree of self-esteem based on test type and gender were as follows:

Table 4. Descriptive statistics of the level of self-esteem based on gender

Gender	Average	Mean	Variance	Standard deviation
Female	34.61	36	79.73	8.93
Male	36.63	40	76.69	8.76

The analyzes used for concluding the research hypotheses

- **The first main hypothesis: The anxiety level in the electronic tests is greater than the traditional test.**

Considering the fact that it was intended to examine the averages of two independent groups, the t-test of two independent population were utilized. In this hypothesis, the null and opposite hypotheses have been defined as follows: the null hypothesis indicates the equality of averages of two groups; and the opposite hypothesis indicates that there is a significant difference between averages of two groups. T-test results for the first hypothesis are as follows:

Table 5. Independent t-test results for anxiety variable

Significance probability	Freedom degree	t-statistics
0.013	45	2.13

Given the probability value, which was less than 0.05, it could be concluded that the null hypothesis was rejected. The rejection of null hypothesis means that there was a significant difference between the average score of anxiety among the students who attended in electronic and traditional tests. Therefore, considering the average of anxiety among two groups which has been provided in the descriptive statistics section, it can be concluded that the anxiety level in electronic tests was greater than the traditional tests. So, the first main hypothesis of the study was accepted.

- **The second main hypothesis: Students' self-esteem is higher in electronic tests than traditional ones.**

T-test results for the second main hypothesis are as follows:

Table 6. Independent t-test for self-esteem variable

Significance Probability	Freedom degree	t-statistics
0.009	45	2.68

Given the significance probability value, which was less than 0.05, it could be concluded that the null hypothesis was rejected. The rejection of null hypothesis means that there was a significant difference between the average score of self-esteem

among the students who attended electronic and traditional tests. Therefore, considering the average score of self-esteem among two groups that has been presented in the descriptive statistics section, it can be concluded that the level of self-esteem for students in electronic tests was greater than traditional ones. So, the second main hypothesis of the research was accepted.

- **First sub-hypothesis: The degree of social degradation in electronic students is greater than traditional students.**

For the social degradation variable, which is one of the variable components of anxiety, the results of the t-test have been obtained as follows.

Table 7. Descriptive statistics of social degradation variable

Test Type	Number	Average	Standard deviation
Electronic	27	17.81	4.6
Traditional	20	14	2.66

Table 8. Independent t-test results for social degradation variable

Significance Probability	Freedom degree	t-statistics
0.002	45	3.32

Given the probability value, which was less than 0.05, it could be concluded that the null hypothesis was rejected. The rejection of the null hypothesis means that there was a significant difference between the average score of social degradation among the students who attended traditional and electronic test.

Therefore, according to the mean score of social degradation between two groups, it can be concluded that the degree of social degradation for students who attended electronic tests was greater than traditional ones. So, it could be concluded that the first sub-hypothesis of the research was accepted. The results of test obtained for this sub hypothesis have been provided as follows:

Table 9. Descriptive statistics of social error variable

Test Type	Number	Average	Standard deviation
Electronic	27	22.59	3.37
Traditional	20	21.55	2.85

Table 10. Independent t-test results for social error variable

Significance Probability	Freedom degree	t-statistics
0.27	45	1.116

Given the significance probability value that was greater than 0.05, it can be concluded that the null hypothesis was confirmed. The acceptance of the null hypothesis means that there was no difference between the social error score of students who attended electronic and traditional tests. Therefore, the second sub-hypothesis was rejected.

For the stress variable, which was another component of the anxiety variable, the results of the t-test have been obtained as follows.

Table 11. Descriptive statistics of stress variable

Test Type	Number	Average	Standard deviation
Electronic	27	12.92	5.15
Traditional	20	13.15	3.7

Table 10. Independent t-test results for stress variable

Significance Probability	Freedom degree	t-statistics
0.869	45	-0.165

Given the significance probability value that was greater than the error level of 0.05, it can be concluded that the null hypothesis was confirmed. Acceptance of null hypothesis means that there was no difference between stress score in students who attended traditional and electronic tests. Therefore, the third sub-hypothesis was rejected. T-test results obtained for this hypothesis are as follows:

Table 13. Descriptive statistics of anxiety variable

Gender	Number	Average	Standard deviation
Female	28	57.71	9.59
Male	19	48.32	8.5

Table 14. Independent t-test results for anxiety variable

Significance Probability	Freedom degree	t-statistics
0.041	45	1.94

Given the significance probability value, which was less than 0.05, it could be concluded that the null hypothesis was rejected. The rejection of null hypothesis means that there was a significant difference between the average score of anxiety among male and female students. Therefore, considering the average score of anxiety among the two groups, it can be concluded that the level of anxiety for female students was higher than male students. So, the fourth sub-hypothesis of the research was also accepted.

- **Fifth sub-hypothesis: Self-esteem in female students is higher than male students.**

The t-test results for this hypothesis are obtained as followings:

Table 15. Descriptive statistics of self-esteem variable

Gender	Number	Average	Standard deviation
Female	28	34.6	8.9
Male	19	36.5	8.7

Table 16. Independent t-test results for self-esteem variable

Significance Probability	Freedom degree	t-statistics
0.446	45	0.769

Given the significance probability value that was greater than the error level of 0.05, it can be concluded that the null hypothesis was confirmed. Confirmation of the null hypothesis means that there was no difference between self-esteem scores

in male and female students. Therefore, the fifth sub-hypothesis was rejected.

- **Sixth hypothesis: There is a significant relationship between the degree of anxiety among students and their self-esteem.**

We have used correlation coefficient test to test this hypothesis. In this test, the null and opposite hypotheses which showed the correlation coefficient between the two variables and their analysis were as follows.

Table 17. Pearson Correlation Coefficient Test

	Correlation Coefficient value	Significance Probability
Anxiety * Self-esteem	-0.585	0.040

According to the correlation coefficient value as well as the significance probability value, which was less than 0.05, the relationship between anxiety and self-esteem was negative. This means that with the increase in anxiety, students' self-esteem decreased.

Discussion and Conclusion

The purpose of this study was to investigate and compare the level of anxiety and self-esteem among students who attended traditional and electronic tests. To evaluate this goal, we first selected 47 students randomly from Payame Noor University students in Yazd province. 28 students were female and 19 students were male. 27students enrolled in the electronic exam, and 20 students participated in the traditional test. In this research, different statistical methods such as correlation test and independent t-test were used to examine hypotheses. The results of these hypotheses tests are as follows.

Research Findings

The t-test results for the first hypothesis showed that the significance probability value was equal to 0.013 and its comparison with the alpha value was considered to be 0.05. Because the significance probability was less than alpha, it can be concluded that the average anxiety score differred in traditional and electronic tests. Since the average score for anxiety of students who attended electronic test was 62.8 and for students who attended traditional test was equal to 48.7, it can be concluded that the first hypothesis was confirmed, that is, the amount of test anxiety was more in students who attended electronic test.

The results of the t-test for the second hypothesis showed that the significance probability was equal to 0. 009 and its comparison with the alpha value was considered to be less than 0.05. As the significance probability was lower than alpha, it can be concluded that the average self-esteem score differed in traditional and electronic tests. Since the average score for anxiety of students who attended electronic test was 41.8 and for students who attended in traditional test was equal to 32.2, it can be concluded that the second hypothesis was confirmed. It means that the level of self-esteem was higher in students who attended electronic test.

The results of the t-test for the third hypothesis showed that the significance probability value was equal to 0.002 and was less the alpha value, which was considered to be 0.05. As the significance probability value was lower than alpha, it can be concluded that the average score of social degradation was different in students who attended traditional and electronic tests. Since the average score of social degradation was 17.8 for students who attended electronic test and was 14 for students who attended for students who attended electronic test, it can be concluded that the third hypothesis was confirmed; it means that the amount of social degradation was higher in students who attended electronic test.

The results of the t-test for the fourth hypothesis indicates that significance probability value was 0.27 and was more than the alpha value, which was considered to be 0.05. Since significance probability value was more than alpha, it can be concluded that the average score of social error had no significant difference in electronic and traditional tests.

The t-test results for the fifth hypothesis showed that the significance probability value was 0.869 and was more than the alpha value, which was considered to be 0.05. Since significance probability value was greater than alpha, it can be concluded that there was no significant difference between average score of stress in traditional and electronic tests.

The results of the correlation test for the sixth hypotheses showed that the significance probability value was equal to 0.04 and was less than alpha value, which was considered to be 0.05. Since the significance probability value was less than alpha, it can be concluded that there was a significant relationship between the level of self-esteem and students' anxiety.

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