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Effectiveness of Neuro-Verbal Planning on Test Anxiety and Self-efficacy of Students

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Abstract

The main purpose of this study was to investigate the effect of neuro-verbal programming on test anxiety and self-efficacy of secondary school students in Sanandaj. The present study had a semi-experimental pretest-posttest design with control group. The sample consisted of 30 students who were selected based on structured interviews and the implementation of the Sarahson Anxiety Inventory (1957) and then they were randomly assigned to control and experimental groups. The experimental group was trained in 8 sessions with neurological planning while the control group did not receive any experimental intervention. Anxiety Inventory Questionnaire of Sarason (1957) and Social Self-Efficacy Scale (Smith & Betz, 2000) were used as the pretest and posttest. The results of one-way covariance analysis showed that therapeutic interventions were effective in reducing the test anxiety in the experimental group ($P<0.01$), but did not affect the self-efficacy of the individuals ($P<0.05$). In general, the results indicated that counseling and psychotherapy specialists can apply the verbal neural program approach for the treatment of anxiety disorders.

Keywords: Neurological planning, Test anxiety, Self-efficacy

Introduction

Test anxiety is an important educational problem affecting millions of students every year around the world. Test anxiety is an unpleasant emotional response to an evaluation situation. This excitement is characterized by a sense of tension, anxiety and arousal of the automated nervous system (Sena, 2007). Test anxiety threatens students' mental health and affects efficiency, talent development, personality formation and social identity. As one of the most common and problematic phenomena among students and students, text anxiety can contribute to academic achievement and their optimal performance, especially when evaluation has a negative effect. Todays, our lives are often influenced by functional results in tests and we live in a test-centered society. When testing is naturally a part of our lives, we will be concerned about the results (Shahini & Triffony, 2011). Learner's potential, test difficulty, and fear of obtaining bad grades are the factors influencing text anxiety (Sarahson, 1990).

Researchers showed in different studies that self-efficacy affects people's feelings, learning, communication and creativity. Self-efficacy plays an important role in people's lives. For example, surveys have shown that academic self- concept has an impact on the student's next academic performance (Kim & Chung, 2003; Marsh & Martin, 2011).

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Self-efficacy is one of the variables that closely correlates with test anxiety involving individual judgments about abilities, capacities, and potentials s for performing specific assignments (Bandura, 2006). Self-efficacy, which is a major factor in social-learning theory, was first developed in the context of social psychology by Bandura. Bandura defined self-efficacy based on our perception of the degree of control we have in our lives (Ahmadi et al., 2011). In addition, self-efficacy is defined as the belief in the ability of a person to have a behavior or a particular task successfully (Bonitz, Larson & Armstrong, 2009). According to Bandura's theory, the people with high anxiety often feel that they do not have the special skills and abilities necessary for interpersonal behavior, and that they expect a low degree of success in social situations leading to anxiety in them (Guadiano & Herert, 2007).

The study of Rudy, Davise, and Mathews (2013) showed that general self-efficacy is significantly associated with anxiety and the higher is the self-efficacy, the less anxiety is experienced. Similarly, the results of the study by Guadiano and Herert (2007) showed that self-efficacy is an important and independent predictor of changes in anxiety syndrome. On the other hand, when people are faced with a situation which should meet very valuable criteria, a feeling of low self-efficacy may be scary, especially when the personal competence criteria are beyond their perceived efficiency to be achieved. Low self-efficacy prevents the formation of positive social relationships, reduces control over negative thoughts. And increases anxiety (Muris, 2002).

Test anxiety has always been one of the major issues in the education of children, adolescents and even adults (Lufi & Awwad, 2013). Various studies reported its prevalence rate by 10 to 30 % in students (Beauchemine, 2009). Therefore, effective measures are required to reduce or moderate anxiety. Drug therapy, cognitive-behavioral, analytical, and existential therapies are among the methods which have been used to treat anxiety so far, but there has always been some doubt about the consistency of outcomes. Hence, effective treatments are needed. Neuro-linguistic programming is one of the treatments that has attracted a lot of attention. NLP refers to neuro-linguistic programming. One of the most important achievements of neuro-linguistic programming, which in fact was created in terms of it, is how to apply knowledge for obtaining the desired results (Dilts, 2009). This method of using the NLP is based on the assumption that if one can do something special, another human being can learn to achieve the same results. To this purpose, this person should be able to discover the structure of the cognitive processes occurring in the brain of his pattern. In other words, he should discover his mental pattern (Patrick, 2007). Neuro-linguistic programming extends self-awareness and provides a new insight into psyche and body.

In the field of neuro-linguistic programming and treatment of disorders in the country or abroad, there is little research with contradictory findings. Bolstad (2009) showed that neuro-linguistic programming has been effective in reducing the phobia with a relatively short duration. In a study, Patrick (2007) showed that neuro-linguistic programming can be effective at each level of communication and can improve interpersonal relationships. Hall (2008) showed that the use of NLP can improve human communication and boost human internal energy. In a large-scale research, Dilts (2009) showed that NLP tools, such as creating effective outcomes, creating a full future with timelines and mental exercises, personalized history and rebuilding, can be used to help clients.

Ahmadi, Ahadi, Mazaheri Delawar, and Najarian (2011), in a study entitled "The effect of neuro-linguistic programming on students' depression" concluded that neuro-linguistic programming has a significant effect on students and is also effective in reducing depression. The study of Sattari (2010) showed that NLP training reduces the level of anxiety and depression associated with premenstrual syndrome but has no effect on self-efficacy.

The negative effects of test anxiety cannot be limited only to academic failure, but can have a long and negative impact on the psychological well-being of children and adolescents (Boparai et al., 2013). Hence, the need to apply effective and short-term therapeutic approaches is felt. On the other hand, the effectiveness of neuro-linguistic programming on reduction of test anxiety and self-efficacy has not been studied. Thus, the present study aimed at investigating the effect of neuro-linguistic programming on anxiety and self-efficacy among the secondary school students in Sanandaj in 2018.

Method

The present study was a semi-experimental pretest-posttest with control group which aimed at investigating the effectiveness of neuro-linguistic programming in improving anxiety and self-efficacy.

Participants

The statistical population of this study included 1500 female and male students of secondary high school of Sanandaj during the academic year 2017-2018.

Among the statistical population, continence sampling was used and based on the following criteria, 14 males and 16 females who were suffering from anxiety were selected:

1. Having anxiety disorder syndrome test based on Sarahson questionnaire and researcher interview;
2. Having personal interest and willingness to participate in the study;
3. Not having other mental disorders; and
4. Attending the training sessions regularly.

Instruments

Sarahson's Test Anxiety Inventory

It was created by Sarahson in 1957 and has 37 items that should be answered as "yes, no" within 10 to 15 minutes. Considering the appropriate psychometric properties and the existence of standard cutting scores for this questionnaire, it is very common in measuring test anxiety. The higher the individual's score in this questionnaire, the greater the test anxiety. Higher score indicates more test anxiety and the individual is ranked according to the score in either of these three classes: mild anxiety: score 12 and lower, moderate anxiety: score 13-20, severe anxiety: score 21 and above. The validity and reliability of this questionnaire were evaluated in several studies with Cronbach's alpha coefficient of 0.88, internal consistency of 0.95, and the standard validity of 0.72 which in general is acceptable (Biabangard, 2007). The reliability coefficient of this scale was reported to be 0.80 and was reported as 0.91 by split-half method. The psychometric properties of this scale were confirmed by Vakili and colleagues (2009).

The Smith and Betz Self Efficacy Scale

The Smith and Betz Self Efficacy Scale (2000) was used to assess the degree of self-efficacy of the participants. This tool consists of 25 items measuring the individual's self- confidence in various social situations in a 5-point range; and the response to the points is from one (I do not trust myself at all) to five (I totally trust). For example, one of these situations is this: "To express my opinion among the people who are discussing their subject". It should be noted that in the present study, three items were deleted due to cultural mismatch. These items were related to dating and participating in a dance party. Therefore, a minimum score can be 22 and a maximum of it can be 110. Smith and Betz (2000) reported the reliability of the tool with 354 undergraduate students (90 males and 264 females) using the internal consistency (Cronbach's alpha) of 0.94 and retest method as 0.82 during a 3-week period (0.86 for males and 80 for females). The construct validity of this tool was reported by convergent and divergent method through correlation with the scales of social trust and optimal shyness.

In order to observe the ethics, an informed consent was received from all the participants and it was decided that the control group receives training and treatment after the completion of the study. The data obtained from the experimental and control groups were analyzed by covariance analysis method as shown below.

Procedure

By referring to Sanandaj's Education Department and coordinating the consultation team, a list of people who were diagnosed with anxiety disorder was obtained. The researcher invited the subjects with anxiety disorder to be interviewed and attend a free anxiety control workshop. Due to the small number of the samples, some arrangement was made with the consultation team and a bigger list with phone numbers was provided to the researcher. The samples were invited to the center and the interview was conducted. After performing the interview, Sarahson's Anxiety Inventory was performed as a pre-test and the cut-off score was 12. The individuals who scored 12 or more were randomly assigned to two groups of 15. One group with neuro-linguistic programming was trained for eight sessions of 70 minutes but the second group did not receive any training as the control group. The obtained data were analyzed using one-way covariance analysis. In the following, the educational-therapeutic package of neuro-linguistic programming is introduced and then the tools used in this research are described.

Table 1.
Contents of educational-therapeutic sessions for neuro-linguistic programming (cited in Delawar, 2008)

sessions	The studied content
First session	Briefing session, introducing the neuro-linguistic programming and its benefits in life
Second session	Targeting and learning the smart pattern
Third session	Getting familiar with setting the time and presenting the time lines, setting the programming form
Fourth session	Providing some solutions to overcome barriers, teaching self-expressions
Fifth session	Training the representation systems by means of five senses, familiarity with eye movements
Sixth session	Learning based on the prioritization and practice of sensory representation
Seventh session	Neurological levels training
Eighth session	Final conclusion

Findings

Based on the obtained data, 40% of the participants in the experimental group were 16 years old. Four subjects were 17 years old and five subjects were 18 years old. In the control group, about 53% (N=8) of subjects 18 years old, three subjects were 17 years, and four subjects were 16 years old. Eight subjects of the experimental group were female and the others were male. Control group members included eight males and seven females.

Table 2.
Descriptive indicators of test anxiety and social self-efficacy in the experimental and control groups

variable	index	Pretest		posttest	
	group	mean	Standard deviation	Mean	Standard deviation
test anxiety	experimental	15/4	2/47	10/66	1/79
	control	14/53	3/15	14/4	2/94
self-efficacy	experimental	66/6	6	58/2	7/2
	control	66	11/15	68	6/8

Table 2 shows that the average test anxiety level in the experimental group in the post test was decreased compared to the pretest, while in the control group it did not change significantly. According to the table above, the post-test scores of individuals in the experimental group increased compared to the pre-test in terms of social self-efficacy while in the control group it did not change significantly. It is necessary to consider the significance of these changes by an appropriate inferential test.

In order to test the hypotheses, the one-way covariance analysis was used. Before testing, it is necessary to examine the hypotheses of using this test. One of the assumptions of covariance analysis is the homogeneity of regression slope. The results of regression slope of test anxiety variables and social self-efficacy are given in Table 3.

Table 3.
The results of assuming the homogeneity of regression slope in dependent variables

variable	Source of changes	Sum of squares	Degree of freedom	Mean squares	F	Sig
test anxiety	Pretest group	*9/78*	*1*	*9/78*	*2/22*	*0/099*
	Error	*86/91*	*26*	*3/34*		
self-efficacy	Pretest group	*8/54*	*1*	*8/54*	*0/098*	*0/75*
	Pretest group	*2278/9*	*26*	*78/65*		

The results of Table 3 showed the interaction of the * pre-test group in both test anxiety and social self-efficacy variables was not significant (P <0.05). Therefore, the data supported the hypothesis of homogeneity of regression slopes and this hypothesis was confirmed. Another assumption of the covariance analysis is variance homogeneity. In order to test this assumption, the Levene test was used and the results are presented in Table 4.

Table 4.
The results of Levene test related to test anxiety and social self-efficacy

variable	F test	DF 1	DF 2	Sig
test anxiety	0/165	*1*	*28*	*0/68*
self-efficacy	*1/98*	*1*	*28*	*0/17*

The results of Table 4 showed that Levene's test was not significant for any of the two variables of test anxiety and self-efficacy (P >0.05). The assumption of the homogeneity of variances of both variables was confirmed, that is, the error variance of the dependent variables was the same among the groups.

Question 1: Is neuro-linguistic program effective in improving test anxiety?

In order to investigate this question, the covariance analysis was used. In this analysis, the mean posttest of the experimental group was compared with the mean of the control group and the pre-test scores were used as auxiliary variables.

Table 5.
The results of one-way covariance analysis to examine the significance of differences between test and control groups in test anxiety

variable	Source of changes	Sum of squares	Degree of freedom	F	Significance level	ETA Coefficient	Exponentiation
Test anxiety	group	*130/13*	*1*	*36/33*	**0/001*	*0/57*	*1*
	error	*96/7*	*27*				

The results of Table 5 illustrated the fact that there is a significant difference between the test and control groups after the pre-test adjustment (P <0.001, partial 2 = 0.27, 27=36.3, and F1) in terms of post test scores of test anxiety.in other words, therapeutic interventions were effective in reducing test anxiety in the experimental group. Partial eta square of 0.57 indicated that about 57% of the post-test scores changes in test anxiety were due to the effect of therapeutic interventions.

Q2: Is neuro-linguistic program effective in improving self-efficacy?

Covariance analysis was used for statistical analysis of data related to this question. In this analysis, the mean post-test of the experimental group was compared with the mean of the control group and the pre-test scores were used as auxiliary variables.

Table 6.
The results of one-way covariance analysis to examine the significance of differences between test and control groups in self-efficacy

variable	Source of changes	Sum of squares	Degree of freedom	F	Significance level	ETA Coefficient	Exponentiation
self-efficacy	group	*38/87*	*1*	*0/459*	*0/504*	*0/017*	*1*
	error	*2287/5*	*27*				

The results of Table 6 illustrated the fact that there is no significant difference between the test and control groups after the pre-test adjustment (P >0.05, partial 2 = 0.02, 27=0.45, and F1) in terms of post test scores of social self-efficacy.in other words, therapeutic interventions were not effective in improving the social self-efficacy in the experimental group.

Discussion and Conclusion

The present study aimed at investigating the effectiveness of neuro-linguistic programming on improving test anxiety and self-efficacy of students. According to the results of Dilts (2009), Patrick (2007) and Hall (2008), the results of these studies indicated that neuro-linguistic programming has an impact on the reduction of test anxiety. This finding can be explained in a number of ways: the use of NLP is based on the assumption that if one can do something special, another person can learn to achieve similar results. However, for such an occurrence, this person must be able to discover the structure of the cognitive processes occurring in the brain of his pattern. In other words, he must be able to discover the mental pattern of his model. Neuro-linguistic programming extends self-awareness and provides a new insight into mind and body. Using the neuro-linguistic programming

helps the referrals to achieve these goals instead of predictions and judgments. Individuals in the targeting part can select and plan for their short, medium, and long term goals. This method enables the individual to become aware of his behavior, feelings and thoughts, and plan his life in order to achieve the desired state of affairs. Understanding Meta patterns in neuro-linguistic programming allows individuals to examine their verbal patterns before examinations and cognitive misconceptions and also deepen the meaning of the words from its surface structure.

The other finding of the study showed that neuro-linguistic programming did not have much effect on increasing the self-efficacy of those who experienced the test anxiety. The ineffectiveness of therapeutic interventions can have many reasons: Effective functioning requires both skills and belief in the ability to perform those skills, and it certainly takes a lot of time for a person to regain his confidence in his abilities. According to Glaser, people experience the first failure in school while continuous failures lead to the formation of identity. Accordingly, rebuilding a person's identity requires time and enjoyment of successful experiences. On the other hand, the management of permanent, changing, ambiguous, unpredictable and stressful situations require multiple skills while neuro-linguistic programming alone cannot create all of these skills in the person. Families, schools, and friends certainly have a remarkable role in improving the sense of self-efficacy of individuals but there is no expectation without their support.

In general, the results indicated that the treatment with neuro-linguistic programming could be effective in reducing students' test anxiety. Therefore, the test anxiety phenomenon in students' needs to be more focused and psychologists and counselors working in schools and clinics apply this approach to dealing with anxious students. It is suggested to design and implement some programs for improving the students' self-efficacy. The limited research sample to the students of Sanandaj and the uncertainty of controlling all the disturbing factors are among the issues limiting the generalization of the results. Therefore, it is necessary to take the necessary precautions in generalizing the results to other populations.

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