Original Contribution

STUDY OF RELATIONSHIPS BETWEEN PERSONALITY TRAITS AND EDUCATION

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ABSTRACT
Purpose: The aim of the present study was to explore the relationship between personality traits, educational stress, and educational performance in college students. Methods: On a random sample of 419 students (166 male and 253 female), the short form of the Big Five Inventory and Student-Life Stress Inventory were applied. The relations between personality traits, educational stress, and educational performance were studied using correlation and hierarchical regression analysis. Results: The results showed that there was a significant positive correlation between conscientiousness, extroversion, and openness to experience, agreeableness and educational performance and there was a significant negative correlation between neuroticism factor and educational performance. A significant negative correlation was found between educational stress and educational performance. Also, the significant negative correlation was found between extroversion and conscientiousness and educational stress and a significant positive correlation was found between neuroticism and educational stress. Hierarchical regression indicated that personality traits accounted for variance in educational stress: 5% by extroversion and 3% by neuroticism. Also, hierarchical regression analysis predicting educational performance indicated that personality traits and educational stress accounted for variance in educational performance: 12% by conscientiousness, 10% neuroticism and 6% educational stress. Conclusions: The finding emphasize the need recognized the role of personality traits in educational stress and the role of personality traits and educational stress in educational performance. Implications of these findings for improving educational performance are discussed.

Key words: Personality traits, educational stress, educational performance

INTRODUCTION
The evidence shows that the students, in following their educational goals, may face lots of challenges to deal with. If such experiences are considered to become negative, a sort of destructive effect will be left on their motivations and their further operations (1). Also, other studies in their investigations on intrapersonal sources to affect the learners' educational behaviors have emphasized the crucial result of emotions or excitations including mental stress for

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educational problems (2). Still other investigations have insisted on the necessity of more research to find out intrapersonal motives that cause the experience of educational emotions, and excitations derived from some characteristics of personality (3).

A pattern of big five factors in personality seems to be as a fundamental discovery for researchers interested in identifying intrastructural individual differences in personality. In fact, the pattern of five major factors will be an inclusive categorization consisting of five rather constant factors called: openness, conscientiousness, extroversion, compatibility and neuroticism (4).

The model of five factors of personality became available through several studies by using factor analysis with the centrality on

qualities of personality. On another side, Costa & McCrae (1989) making use of factor analysis, concluded that we might take account of five major dimensions in order to indicate individual differences in people's characteristics of personality as follows: Neuroticism (N) a mental disorder with one's willingness to experience anxiety, tension seeking, compassion, hostility, impulsivity, depression and low self-respect; whereas, extroversion (E) refers to one's tendency to be positive, to show courage, be energetic and feel friendly for the others. Openness (O) is applied to one's inclination to curiosity, the love of arts and artistry, flexibility and wisdom; while, agreeableness shows a person's tendency toward liberality, generosity, kindness, unanimity, sympathy, philanthropy and confidence. Finally, conscientiousness C) is applied to an individual's tendency to be organized, efficient, reliable, trustful and logical, and to go to self-administration, progress and restfulness (4).

The results of different studies have demonstrated that from among personality traits, openness (the probable ability of searching and the capacity to confront unfamiliar phenomena) and conscientiousness (the idea of organizing, perseverance, and motivation in behavior based on one's purpose) enjoy an exclusive position in the psychology of education. However, the personality traits of neuroticism, extroversion, and agreeableness have not been elaborated as much as the factors of openness and conscientiousness in the researches done on the educational operation (5).

Educational stress refers to an increasing feeling of need for acquisition of knowledge simultaneous with one's understanding of not having enough time to capture all the learning or knowing for the examination. Michie, Glachan and Bray (2001), on the basis of the results obtained from the studies made by Abouzari (1994), Cooper et al (1988 reported by Misra & Castillo, 2004) and Fischer (1994, quoted by Misra & Castillo 2004), emphasized the important, remarkable function of educational stress in giving shape to the students' experiences at the side of the six other variables of: age, sex, motivation for continuation of one's studies, general self-respect and the concept of self-education (6).

The evidence shows that educational problems are usually the most common sources found in the students (7). Mental stress resulted from educational activities is accompanied by different negative outcomes, such as low welfare and well-being (8) and weak educational operation (7). As it is understood, several investigations have been made to prove a significant relationship between educational stress and low educational operation.

Pekrun (2000), in the social-cognitive theory controlling the value of educational emotions, emphasizes the individual's role in the evaluation of situations as an intrapersonal event for educational emotions or excitations. In other words, a person's assessment of controlling the situation, in different circumstances, including educational cases, plays a remarkable role in the experience of educational emotions (9). This is when other studies, in their explaining the distinction between people's experience of distresses in different situations, emphasize the role of processes in cognitional assessment which are certainly affected by personality traits (9).

With regard to what we said, the present study has sought to follow and explain the important function of the two variables of personality traits and educational stress while investigating their relations in predicting the students' educational operation in academic procedures. This research has tried to answer the following questions:

- Is there any relation between the personality traits and educational performance?
- Is there a relationship between personality traits and educational stress?
- Is there a relationship between educational stress and educational performance?
- Do the variables of personality traits and educational stress play a part in the prediction of the students' educational performance?

MATERIALS AND METHODS
Participants
The statistical population of this research consisted of all the students who were studying to get their B.A. degree at university of Mohaghegh Ardabili in the academic year of 1386-87 (2007-2008, A.D.). Of the whole number of 419 students, there were 166 boys and 253 girls, who were chosen by cluster

sampling. The students belonged to different branches of study in the fields of human sciences, basic science, techniques and engineering.

Measures
Big Five Inventory: The short form of Big Five Inventory is a scale of "pencil and paper" which contains 44 items. It is designed by John (1991) (10). This questionnaire makes use of the five-point scale of Likert by marks of one of five ("absolutely opposed" to "absolutely in agreement") rated for each choice.

In this research, "reliability coefficient" in the given questionnaire was calculated with alpha (α) method of Cronbach and its calculated coefficient was obtained for neuroticism .84, for extroversion .72, for openness .76, for agreeableness .60 and for conscientiousness .85.

Student-Life Stress Inventory (SLSI): Gadzella (1991) designed SLSI in order to investigate stressful agents in the life of the students and their reactions against such agents. The inventory is a self-reporting instrument with paper and pencil consisting of 51 questions at nine levels which is based on a theoretical model described by Morris (1990) (1). This model is to assess five kinds of stressful agents: disappointments, conflicts, pressures, changes and self-imposed stresses; and four types of reactions toward those agents that cause the stress (physical, emotional, behavioral, and cognitional evaluation). At each sub-category of the scale, the answers are added together in order to obtain a total score. The higher totals show respectively where the educational stress is more and which reaction is higher toward the stress.

In the part of stressful agents in education, the sub-division of disappointments has 7 questions: conflict has 3, changes 3, pressure 4 and, last of all, self-imposed stress has 6 questions.

Missra and Castillo (2004) reported the alpha of Cronbach for sub-scales of disappointment, conflict, pressure, changes and self-imposed stress, as .65, .63, .71, .75 and .63 respectively (12). In the part of reactions against stressful agents, there are four kinds of them against educational stresses consisting of physiological (14 questions), emotional (4 questions), behavioral (8 questions), and cognitional (2 questions). Missra and Castillo (2004) reported the Cronbach Alpha for the sub-scales of physiological, emotional, behavioral and cognitional to be 78%, 81%, 68% and 85 respectively. Validity and reliability of this questionnaire have been reported in the previous studies (12).

In the present research, the coefficient for reliability of the given questionnaire was calculated with the method of Cronbach Alpha (α) and the coefficients for the sub-scales of disappointments, conflicts, pressures, changes, and self-imposed stress were 74%, 79%, 75%, and 77% respectively. For the sub-scales of reactions: physiological, emotional, behavioral and cognitional, the coefficients were 84%, 80%, 88% and 74% respectively. For the total stress, the score was obtained to be 80%.

Procedure
After selecting the subjects randomly, the questionnaire for personality traits and the student-life stress inventory were given to the students to answer. Having directed them how they should answer the questions, we also asked them to avoid writing any names or familial names on the sheets. As we wanted to obtain the answer for the question whether or not there was a relationship between personality qualities, educational stress and educational performance and, as we wanted to make known the share of each variable for personality qualities and educational stress in the prediction of the students' educational operation, we used Pierson correlation method and hierarchical method of regression.
Results:

Table 1 shows the average, standard deviation, variables of educational stress, and the five big factors of personality and educational performance for the two sexes. These results indicate that the average of the girls' grades in comparison with the boys' are higher for the factors of neuroticism and agreeableness, and the boys' grades average, in comparison with the girls', are higher for the factors of conscientiousness, openness and extraversion. The results also show that the total grade for educational stress is higher in girls than in boys, and the average of educational performance is higher in boys than in girls.

Table 1. *Means and standard deviations personality traits, educational stress, educational performance*

Variable	Boys M(SD)	Girls M(SD)	t	P
Extroversion	30.55(9.71)	25.34(5.67)	6.97	0.001
Agreeableness	32.37(5/72)	30.72(5.46)	2.99	0.003
Conscientiousness	37.64(6/41)	36.23(6.07)	2.28	0.023
Neuroticism	22.13(6.41)	24.46(7.06)	3.44	0.001
Openness	31.95(4.74)	33.78(5.10)	3.70	0.001
Educational stress	118.08(26/90)	137.07(27.33)	6.99	0.001
Educational performance	15.93(1/95)	15.54(1.64)	1.77	0.035

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The results on the matrix of correction show that the factors of extraversion, agreeableness, conscientiousness, and openness have a positive significant relationship with educational performance, and the factor of neuroticism has a negative significant relationship with educational performance. Also, the results show that educational stress has a negative significant relationship with educational performance, the factors of extroversion and conscientiousness have a negative significant relationship with educational stress, the factor openness has a negative non-significant relationship with educational stress, the factor neuroticism has a positive significant relationship with educational stress, and the factor agreeableness has a positive non-significant relationship with educational stress.

In order to make known the effects of the sex and personality traits in prediction of educational stress, and in order to make known the function of the mediator "educational stress" in the investigation of the relation between personality traits and educational performance, we used the models of regression analysis in hierarchical method, and in order to predict educational stress through personality traits and sex, we made use of the variable sex at the first step, and then at the second and third steps, we made use of the factors extroversion and neuroticism respectively. As, in the prediction of educational stress through personality traits, the only factors of extroversion and neuroticism were effective, and in the prediction of educational performance through personality traits the only factors of conscientiousness and neuroticism played significant roles, so these factors were taken into consideration. Also, it is worth mentioning that, in the present research, we did not seek to investigate the role of different sexes about educational stress and educational performance. It was only at the first step, that sex was taken into consideration for its function to be controlled in the models of regression in hierarchical method.

The results of regression analysis in hierarchical method are shown in **Table 3**, at the first step, the variable of sex revealed a significant variance from the scale of educational stress:

$$R^2 = 0.10 \ F \ (1, 417) = 48.90, \ P < 0.001$$

Table 2. *Intercorrelations among personality traits, educational stress and educational performance*

variable	1	2	3	4	5	6
1-Extroversion	-					
2-Agreeableness	0.018	-				
3-Conscientiousness	0.29**	0.20**	-			
4-Neuroticism	-0.28	-0.06	-0.42**	-		
5-Openness	0.43**	0.055	0.40**	0.45**	-	
6-Educational stress	-0.20**	0.02	-0.10*	0.18**	-0.06	-
7-Educational performance	0.11*	0.12*	0.52**	-0.40**	0.15*	0.24**-

**P<0.01   * P<0.05

Table 3. *Multiple regression analysis examining the prediction of educational stress by personality traits and prediction of educational performance by personality traits and educational stress*

step	variable	β	P
F=20.25 R^2 =0.18 P<0.0			
1	sex	0.30	0.001
2	Extroversion	-0.15	0.009
3	neuroticism	0.11	0.013
F=57/85 R^2=0.20 P<0.000			
1	Sex	-0.007	0.87
2	conscientiousness	0.40	0.001
3	Educational stress	0.21	0.002
F=31.13 R^2 =0.15 P<0.000			
1	sex	0.024	0.617
2	neuroticism	-0.036	0.001
3	Educational stress	-0.19	0.001

At the second step, extroversion took account of 5% of the variance of educational stress: F (2, 416) = 30.14, P < 0.001.The factor extroversion showed a negative significant relationship with mental stress: β = -0.15, < 0.09. At the third step, the factor neuroticism was taken into attention. This variable explained three percent variance of the variance educational stress: R^2 = P < 0.03, F (3, 415) = 20.25, P < 0.001. The factor neuroticism showed a positive significant relationship with educational stress: β = 0.11, P < 0.013.   The results showed that the β of extroversion at the new step after the entering of the variable neuroticism reduced from -18% to -15%. The reduction of the β of extroversion revealed that the variable of the new step (neuroticism) had affected the relationship between the variable of previous step (extroversion) and the variable of educational stress. In other words, the decrease of β of extroversion at the new level happened under conditions that neuroticism showed positive relationship with educational stress; while the control of common variance of extroversion and neuroticism, in prediction of educational performance through extroversion, was accompanied with a decrease. The above finding, along with the research literature, emphasizes the effective role of the factor neuroticism in the experience of educational stress.

As it was pointed out before, in order to predict the educational performance by way of the variables sex and the personality factors of conscientiousness, neuroticism and educational stress, we made use of models of regression in hierarchical method. The results of the analysis of regression in hierarchical method for the prediction of educational performance through sex at the first step showed that this variable (sex) did not explain any significant variance: R^2 = 0.01, F (1, 417) = 4.78, P < 0.29.

At the second step, the factor conscientiousness took account of 12% of the variance of educational performance: F (2, 416) = 79.23, P < 0.001.

The factor conscientiousness showed a positive significant relationship with educational performance: β= 0.40, P < 0.001.

At the third step, the variable educational stress was brought into equation, which explained 7% of the variance of the mental stress in one's education: R^2 = 0.1, F (3, 415) = 57.80, P < 0.001.   The decrease in the β of the factor conscientiousness indicated that the variable of the new step (educational stress) had affected the relationship between the variable of the step before it (conscientiousness) and the variable of the criterion (educational performance). In other words, decrease in the amount of the β of conscientiousness at the new step occurred under the conditions that educational stress showed a negative relation with educational performance, and the control of common variance of conscientiousness and educational stress, in predicting educational performance through conscientiousness, would be accompanied with some reduction. The above finding showed that the educational stress could reduce the effective positive share of conscientiousness in predicting educational performance.

The results of regression analysis in hierarchical method in predicting educational

performance through sex at the first step showed that this variable would not account for any significant variance from educational performance: $R^2 = 0.01$, F (1, 417) = 4.78, P < 0.029.

At the second step, the factor of neuroticism explained 10% of the variance of educational performance: F (2, 416) = 36.95, P < 0.001.

The factor neuroticism showed a negative significant relationship with the educational performance: β= -0.36, P < 0.001.

At the third step, the variable educational stress was brought into the education, which explained 4% of the variance of the educational stress: R^2 =0.04 F (3, 415) = 31.13, P < 0.001.

The decrease of β of the factor neuroticism points to the fact that the variable of the new step (educational stress) had affected the relation between the variable of the step before it (neuroticism) and the variable of the basis (educational performance). In other words, decease in the β of neuroticism at the new step happened under the conditions that educational stress had showed a negative relation with educational performance, and the control of common variance of neuroticism with educational stress was accompanied with a decrease in the prediction of educational performance out of the share of neuroticism.

DISCUSSION

The results of the present research showed that the extroversion, agreeableness, conscientiousness and openness have a positive significant relationship with educational performance, but the factor neuroticism has a negative significant relationship with educational performance. The results also indicated that educational stress had a negative significant relationship with educational performance. The extroversion and conscientiousness had a negative significant relationship with educational stress, but the factor openness had a negative non-significant relationship with educational stress. The factor neuroticism had a positive significant relationship with educational stress, but the factor agreeableness showed a positive non-significant relationship with educational stress. The analytical results of multiple regression in the prediction of educational stress by way of the personality traits showed that the factor extroversion had a positive significant

relationship with educational stress but the factor neuroticism had a negative significant relationship with educational stress.

Furthermore, the results of analyses of regression in hierarchical method in the prediction of educational operation through personality traits and educational stress showed that, from among the factors of personality, conscientiousness had a positive significant relationship with educational performance. Neuroticism had a negative significant relationship with educational performance and, at last, educational stress had a negative significant relationship with educational performance.

The finding of the present research about the positive significant relationship between the factor conscientiousness and educational performance is in agreement with the findings of Martin, Montgomery & Saphian (2006) (13). It seems that the factor conscientiousness has a relationship with the factor "strength of character" (Smith, 1969), "motivation" (Furnham, 2003), and some other characteristics related to educational performance such as struggle for progress, dutifulness, discipline and accepting responsibility (14). Conscientiousness, because of its relation to motivation, is regarded as one of the predicting factors for performance, specially when the internal indicators of motivation are taken into account (14).

Therefore, being organized, hardworking, persiverance, ambitiousness, and preciseness will positively predict an individual's operation in different fields of action including educational situations. It is interesting to say that some of the learners may even have lower levels of intelligence abilities but the above-mentioned characteristics for motivation can help them be positive in their operation (14).

As we said before, neuroticism showed a negative significant relationship with educational performance. The relation between educational operation and neuroticism, particularly with regard to the concept of anxiety in stressful situations such as university examinations has been clarified (14). Chamorro, Premuzic and Furnham (2003) found out that neurotic students in comparison with non-neurotic students, due to their physical and mental illnesses, decide not to take their final exams (14). Therefore, neuroticism is not only related to the low

educational performance, but it has also a relation with high levels of physical injuries such as muscular tension, digestive disorders and perspiration (15). On this basis, neuroticism, with the concept of considering oneself weaker than one really is, has been reported to have a relationship with lower self-assessments (Furnham, Chamorro- Premuzic & McDougall, 2003; Zhang, 2003) and emphasizes that neurotic learners with their lack of stability, high excitation and low self-esteem (with high neuroticism) always avoid the danger of making a mistake. Thus, they feel much more comfortable to do assignments that require them to merely reproduce the materials they have learned. These findings are in agreement with the results of the research of Disth, 2003; Blickle, 1996) (14, 15).

The finding of this research regarding the negative significant relationship of educational stress with educational performance is, again, in agreement with the studies made by Ermsouy, Celimli & Gencoz (2005); Akgun & Ciarrochi, (2003) (7, 16).

To account for the above finding, we can put forward the hypothesis of the "Limitation of Man's Cognition". No doubt, applying different cognitional activities requires different cognitional capacities, too. The impact of emotional states on the individuals' cognitional activity will be determined by a known amount of cognitional capacity which is required for doing the given duty indicated. For example, a depressed person appropriates a part of his cognitional capacity to thinking about his own temperament or mood and, as a result, the remainder of his efficient capacity available to him has been reduced to do some given duties.

The finding of the present research about the positive significant relationship of the factor neuroticism with the experience of mental stress in education is in agreement with the findings of Govaerts & Gregoire (2004); Hojat, et. Al., (2003) (9, 3). As we mentioned before, this finding could be explained with the help of Pekrun's cognitional-social theory of value controlling. In this theory, in order to account for the experience of educational excitations, the processes of cognitional assessment have been emphasized as intrapersonal events. This is while the researchers in cognitional assessments believe that the models of cognitional assessment of people are formed in relation to stressful situations, which call for different emotional responses on the basis of different personality dimensions (17). In other words, processes of cognitional assessment are affected by personality traits.

The results of the present research showed that in studying educational stress, the function of personality traits and in studying educational performance, the function of personality traits and educational stress as variables with intrapersonal nature are very important. As we pointed out before, in agreement with the literature of research in studying the relationship between personality traits and educational performance, and in studying the relationship between educational stress and educational performance, it is very essential to pay attention to the mediating function of variables such as the processes of cognitional assessment and contrastive strategies in both sexes, which has lots of importance, and we suggest that they should be investigated in subsequent studies.

On the other hand, we may point to practicable aspects of this research, which will provide an appropriate ground for behavioral management in stressful situations to choose intervening programs in order to change and improve some faulty cognitional assessments and also make timely decisions to confront defective strategies.

As an example, in agreement with the results of some studies Elias, et. al. (1997) had stated that on encountering stressful situations, "learned resourcefulness" is like an acquired store of cognitional-behavioral skills that help everyone to regulate their internal events such as excitements, and cognitions that are certainly active in the exact performance of all behaviors based on purposes (18). In respect of this, Meichenbaum's Stress Inoculation Program seems to be useful, because it increases the feeling of "learned resourcefulness" in a person and the belief in an efficient encounter with stressful situations becomes strengthened. The program consist of three phases: The first is the conceptual phase that includes the creation of a cooperative relation between the client and the instructor. During the training time, the client receives necessary training about the way how to respond to "stress" and how to assess the impact of processes when he or she confronts the stress. The second is the phase of acquiring skillfulness and practice, which includes

learning the skill of confrontation. The third phase consist of the way how to apply the learned skills and how to follow them afterwards. In the last phase, some opportunities will be provided for the learners so that they can use the learned skills when they face a variety of stressful agents.

With regard to what we have said up to here, it may be admitted that the skill of "learned resourcefulness" will undoubtedly help the learners while they encounter educational stresses. The learners will learn how to confront the factors which produce mental stress or distress with enough efficiency before their operation could be weakened by such factors. On the whole, the skill of "learned resourcefulness" will potentially be accompanied with many implications within the limits of academic contexts for the psychologists, including educational psychologists.

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