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Investigating Relation between Academic Procrastination and Math Performance of Students in First Year of High School

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ABSTRACT: Mathematic is an important subject and its appropriate learning is critical because human progress in science and technologies is dependent to his progress in mathematics. Since today students are faced with a dynamic world and a changing environment, there are several factors influencing their math performance. Academic procrastination is one of these factors. The present study attempts to investigate relation between academic procrastination and math performance. In this regard, 300 female students of first grade of high school were chosen and answered Solomon and Ruthblum (1984:6) questionnaire of educational negligence. Math score of second semester exams held nationally coordinated was used in order to evaluate math performance. Results showed that there is a significant negative relation between academic procrastination and math performance ($p<0.05$).

Keywords: Academic Procrastination; Math Performance.

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INTRODUCTION

Academic achievement is a multi-aspect element and is subtly related with students` physical, social, cognitive, and affective growth (Atash Rouz et al., 2008). In fact, these factors and variables are so interrelated and have interactions that it is difficult to determine each contribution (Rahnama and Abdolmaleki, 2009).

From curriculum planners` point of view, mathematic is an essential subject which learning is necessary in order to have a good life that in turn requires abilities of selectivity, reasoning, decision-making, and problem-solving (Solaz and Portoles, 2008; Habibi Kalibar, 2012). Many countries have a particular attention to students` progress in mathematics and it is always expected that students have high scores in this subject.

Failure in this subject makes those involved in educational system concerned and they have tried to find solutions and overcome failure factors. For this purpose, reforms have been applied in various levels and in framework of school and the book, though they have not been always successful; because those reforms have always focused on lesson contents. During last three decades study of different factors influencing academic achievement in math has increasingly attracted educational professionals` attention. Findings of many research shows that math performance is not only influenced by knowledge structures and information processing, but also is related to motivational factors such as beliefs, attitudes, values and anxieties (Bassant, 1995).

Students` procrastination during education is a common problem and considered as a barrier to academic success and achievement. Procrastination is an anti-motivational process results from lack of desire to do (Ryan and Deci, 2000). In other words, it is a deliberate delay or delay in performing a task (Ahmadi, 2011). Procrastination means to postpone a task that it has been decided to be implemented. Negligence is a maladaptive life style and is followed by serious individual and social effects such as feeling lack of confidence (Brownlow and Resinger, 2000). Milgram (1991) considers procrastination as a modern disease.

In addition to time control problem, procrastination is a complicated process that includes elements of excitement, cognition, and behavior and these elements lead to the formation of different types of procrastination (Solomon and Ruthblum, 1984) including academic procrastination (Hill, Hill, Chabot and Barrall, 1978; Zieasat et al., 1978), decisional procrastination (Eifert and Ferrari, 2010), neurotic procrastination (Ellis and Knaus, 1979), compulsive procrastination (Ferrari, 1991), and general procrastination, though its most common type is academic procrastination (Brothen and Wambachzqzawaza, 2001; Moon and Illingworth, 2005).

In academic procrastination, procrastinated behavior occurs in academic activities such as getting ready for exams, doing homework, and writing articles. Procrastination is often along with low academic performance (Beck, 1979). Solomon and Ruthblum (1984) described educational negligence as

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a willing to do tasks, prepare for exams, or deliver articles at the eleventh hour. Ruthblum, Solomon, and Murakami (1986) defined this type of procrastination as a willing to dominant and usual tendency of learners to postpone academic activities that is almost always associated with anxiety. A common example of this type is to postpone studying until the exam night and the consequent haste and anxiety. Sankalp and Kastner (1995) showed that students with internal reasons for studying are unlikely to neglect, while those with external reasons are more likely to neglect.

Shraw et al. (2007) considered academic procrastination as a deliberate delay in doing tasks and a pervasive and widespread phenomenon in learning environments that has negative effect on learning, attainment, academic efficacy, and quality of life. Preparing homeworks are intensely dependent to procrastination or delay in starting or completing tasks desirably in expected time. Procrastination in preparing homeworks associated with academic life of students is estimated about 70% (Ferrari et al., 2005). In an interview with students it is revealed that about 25% of interviewees suffer from moderate or severe procrastination (Aitken, 1982). Haycock (1993) found that more than 80% of students have adverse feelings after procrastination.

In addition, research showed that the tendency to postpone things has a negative effect on educational attainment, since both quality and quantity of student`s work is limited. Negligence results in negative outcomes including less commitment to goal, less assigned time to work (Moore Ford, 2008), decline in academic achievements (Akinsola *et al.*, 2007), and decrease in long term learning (Schouwenburg, 2005), as well as lower test scores in courses, irrational thinking, cheating, low self-esteem, holidayism, and feeling of guilt and depression (Fritzche *et al.*, 2003). Furthermore, procrastination is related with various types of anxiety in academic field such as test anxiety and social anxiety that not only hinders academic achievement, but also influences quality of life adversely (Collins et al., 2008).

Steel (2007) pointed that negligence has effects on self-efficacy and self-actualization, distraction, impulsivity, self-control, and organizational behavior of students and subsequently makes them lazy and inactive with consequent effects on their academic performance.

Though there are few studies have been done in this regard, in their research, Dewitte and Schouwenburg (2002), Fritzche et al. (2003), Lee (2005), Midgley and Urdan (2007) showed that procrastination is associated with negative outcomes such as delayed assignment submission, haste in Preparing for test, social anxiety, avoidance of homework, dysfunctionalism, low self-regulation, low responsibility and success, and other hand results in negative impacts on mental health.

Owens and Newbegin (2000) showed that scores simply have the strongest effect on academic procrastination in math as well as English language among girls and boys. Students who procrastinate in math or English language have considerably low self-confidence. When verbal and public self-esteem is low depression results in academic procrastination among girls in English lesson. However, academic procrastination in math among boys has roots in low scores.

Tamaddoni et al. (2011) showed that students neglect especial cases that lead to academic success and reduction of academic stress. Also, there is a significantful negative relation between educational negligence and academic achievement.

Shamsolahrari et al. (1390) found that teaching skills to overcome negligence resulted in negligence reduction and increase in academic performance of experiment group compared to control group.

Regarding importance of procrastination in the process of education, present study attempts to provide information to psychologists and educational consultants by identifying its relation with academic performance. Therefore, studying correlation between academic procrastination and math performance, authors try to take a step in this regard, and assumes that there is a relation between academic procrastination and math performance.

MATERIAL AND METHODS

Correlation method is used in this research. Population of the study includes 4077 female students of the first grade of high school in Yazd in 2013-2014 academic year. Regarding population size 300 were selected using cluster sampling. Among them, 43 questionnaires were not completed, so finally a sample of 257 was obtained. Coefficient correlation and multiple regression were employed.

Measurement Tools

Questionnaire of academic procrastination: 27-item questionnaire of Solomon and Ruthblium (1984:6) was used in order to evaluate educational negligence. This scale examines procrastination in three domains of Preparing for test (questions 1-6), Preparing home works (questions 9-17), and writing articles (questions 20-25). It should be noted that following these items there were two questions; the first three ones (7, 18, 26) evaluates students` affection about procrastination and second three questions (8, 19, 27) are about their tendency towards

changing their procrastination habits. Answers to questions were from never (1) to always (5). In this scale, questions 2, 4, 6, 11, 13, 15, 16, 21, 23, and 25 were reversely scored. The questionnaire is translated into Fari by Joukar and Aghadelavarpour (2007) and reliability and validity of respectively 0.91 and 0.88 were obtained. In the present study, overall validity of the questionnaire was 0.80. Regarding that elements of students` affection about procrastination and their tendency to change procrastination its habits do not determine degree of individual procrastination, validity of the questionnaire was estimated 0.87 by elimination of these element.

Math performance: first semester math exam scores, held nationally coordinated, were used in order to measure math performance.

RESULTS

A. descriptive findings: table 1 shows average, standard deviation, minimum and maximum of testes' scores in procrastination questionnaire and mathematics academic performance test.

Academic procrastination has 5 aspects including Preparing for test, Preparing homework, writing articles, and students` affection towards procrastination and their tendency to change this habit. Among them, Preparing homework with average of 25,5214, standard deviation of 3,44041 had the highest degree of academic procrastination. Sample group in this sub-scale had more academic procrastination.

Math performance with average and standard deviation of respectively 16,0652 and 3,33210 showed a good performance of the sample group in math performance test.

Regarding table 2, relation between procrastination and math performance in level 0.05 is negatively significant. Also ANOVA table shows a linearity and significant relation of regression model.

Table 1. Descriptive statistics of studied variables

Variables	Number	Minimum	Maximum	Average	Standard deviation
Academic procrastination	257	51	107	81,8716	8,86548
Preparing for test	257	11	26	17,4981	2,80781
Preparing homework	257	15	36	25,5214	3,44041
Writing articles	257	6	25	17,5953	2,87222
Affection about procrastination	257	3	15	11,3230	2,97529
Tendency to change procrastination habits	257	3	15	9,9339	2,44620
Math performance	257	6,25	20	16,0652	3,33210

Table 2. Correlation matrix of studied variables

Variables	1	2
Academic procrastination	1	
Math performance	-0,259**	1

** p<0.05

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	248.535	5	49.707	4.810	.0001
	Residual	2593.810	251	10.334		
	Total	2842.346	256			

Coefficients [a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	18.497	1.998		9.255	.000
Preparing for test	-.207	.075	-.190	-2.76	.034
Preparing homework	-.138	.067	-.121	-2.06	.041
Writing articles	-.116	.077	-.100	-1.512	.132
Affection about procrastination	.322	.073	.287	4.380	.000
Tendency to change procrastination habits	-.119	.097	-.088	-1.235	.218

Above table shows that among variables of model, variable "Affection about procrastination" had the most predicted effect and variable "Preparing homework" had the least predicted effect in math performance. The variables of "Writing articles" and "Tendency to change procrastination habits" are not significant in regression model. In addition, R^2 of the model was 0.65.

DISCUSSION AND CONCLUSION

Procrastination is one of the problematic phenomena for many of people and has affected millions of them throughout the world. This issue is common in various educational levels (Joukar and Delavarpour, 2007) and influences academic performance. Though negligence is not always problematic it can have undesirable outcomes and act as a barrier for achievement and access to goal. This paper justifies necessity of investigating academic procrastination and math performance.

Findings of the present study revealed that relation between procrastination and math performance is negative and significant full on level 0.05. These findings are consistent with findings of Owens and Newbegin (2000), Tamaddoni et al. (2011), Shamsolahrari et al. (2011). Owens and Newbegin (2000) found that low scores in math among boys are results of academic procrastination in math.

Tamaddoni et al. (2011) suggested that with increase in procrastination, academic achievement is decreased. Shamsolahrari et al. (2011) found that skills to overcome negligence lead to decline of negligence and increase in academic performance of test group compared to control one.

To explain and confirm the hypothesis it can be said that there are many factors result in educational decline. As a prohibitive factor, procrastination can influence academic success and academic achievements, and hinders high academic performance. Additionally, procrastination is associated with many various anxieties like exam anxiety and social anxiety that not only hinders academic achievement, but also negatively influences quality of life (Collins et al., 2008).

One of the limitations of the present study was the restricted r4elations with education field, particularly a certain educational grade; therefore, it is suggested that in future works this relation would be investigated in various levels and other non-educational fields. In addition, due time and facility limitations, it was not possible to choose a larger sample including boys. It is suggested that in future works the relation would be performed in boys and girls groups to compare them. Regarding privilege of procrastination among students, it is suggested to hold training workshops for skills to overcome procrastination that can have positive effects to decrease negligence. Also, it is suggested to curriculum planners and administrators to inform students about importance of mathematics, major in mathematics, educational prerequisites, and Jobs related to math. Providing this kind of information to students would help clarification of importance and status of mathematics.

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