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Correlation among Academic Procrastination, Personality Traits, and Academic Achievement

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ABSTRACT Procrastination is explained as a complex phenomenon with cognitive, affective, and behavioral components consisting of the intentional postponement of an intended course of action in spite of awareness of possible negative consequences. Procrastination on academic tasks is a common problem affecting learning and achievement of university students and may have an effect on students' personality traits and their learning because it affects the self-efficacy, self-control, and organizational behavior of the students. Personality is regarded as an important individual resource in academic settings and plays an important role in students' academic performance. Academic procrastination and personality traits are regarded as important factors affecting learning and achievement of university students, and has a strong link with them. In this study, the findings on the correlation of academic procrastination, personality traits, and academic achievement in a sample of university students are presented.

INTRODUCTION

Procrastination, consists of the intentional delay of an intended course of action, in spite of an awareness of negative outcomes (Steel 2007), and often results in unsatisfactory performance (Ferrari et al. 2005). Such behavior may be particularly prevalent in academic settings (Gallagher 1992) and is a common phenomenon, which is mainly observed in educational processes and believed to adversely affect students' academic achievements (Motie et al. 2012). In an academic context, procrastinatory behaviour involves doing assignments just before they are to be handed in, returning library books past the due date, putting off writing papers, and wasting time by doing other things while preparing for examinations (Schouwenberg and Lay 1995). In other words, academic procrastination appears to make university students postpone and delay their academic work, ignoring their academic responsibilities during the entire course of studies.

With some individuals, procrastination may be viewed as a personality trait that is associated with repeated episodes of dilatory behavior. It is very plausible that personality traits play an important role in learning and education (De Raad and Schouwenburg 1996). Johnson and Bloom (1995) have pointed out that procrastination has been investigated by looking at the relationship between personality factors and procrastination.

It is generally assumed that academic performance is also related to processes such as motivation, social orientation, and emotional control, which may be only marginally related to cognitive ability, but more strongly related to personality. From the perspective of personality traits, many researchers agree that personality is best conceptualized in terms of a five-factor model, including the dimensions of extraversion, openness to experience, emotional stability, conscientiousness, and agreeableness (McCrae and Costa 1999). Accordingly, in recent years researchers have attempted to establish links between college performance and personality traits, most often using the Big Five traits (Chamorro-Premuzic and Furnham 2003; Paunonen and Ashton 2001; Paunonen and Nicol 2001) and exploring the relationship between personality traits and academic achievement or performance in university settings (Busato et al. 1999; Chamorro-Premuzic and Furnham 2003a,b; De Raad 1996; De Raad and Schouwenburg 1996; Furnham and Medhurst 1995).

Literature Review

Academic Procrastination

Contemporary psychologists are increasingly interested in conducting research that explains procrastination (Steel 2007), and procrastination remains one of the least understood human miseries. Procrastination, defined as the tendency to delay initiation or completion of important tasks (Lay 1986) or to put off tasks to the point of

discomfort (Solomon and Rothblum 1984), is a complex phenomenon with cognitive, affective, and behavioral components (Rothblum et al. 1986).

In education and training, the term 'academic procrastination' is commonly used to denote the delay in academic activities. Academic procrastinationis defined as a person delaying academic studies until a moment when intensive stress is experienced (Senecal et al. 1995); postponing decision-making (Janis and Mann 1977); a student's delaying the studies of school (Kandemir 2010); as compelling or nonfunctional postponing behavior known as delaying of both decision-making and fulfilling tasks (Ellis and Knaus 1977); and as being anxious as a result of the desire for occasional or constant detainment (Rothbolum et al. 1986). This type of procrastination may significantly affect the learning and achievement of university students. Researchers have conducted a great deal of research and determined a negative relationship between procrastination and self-esteem (Ferrari 2000) and self-efficacy (Cerino 2014; Katz et al. 2014). Academic procrastination is fairly common for students at the high school, college, and university levels, may have an important negative impact on learning and achievement (Ferrari 2001), and is a problem confronting many adults on a daily basis, particularly for tasks that have to be completed by a specific deadline. A number of researchers have examined the relationship between procrastination and academic outcomes (Akinsola et al. 2007; Beswick et al. 1988; Howell et al. 2006; Rothblum et al. 1986; Tice and Baumeister 1997). To conclude, there are many reasons to investigate the variables related to academic procrastination and how the underlying behavior of academic procrastination negatively affects university life.

Personality and Big Five Personality Traits

Personality refers to a set of underlying traits that determine how an individual typically behaves, thinks, and feels (McGeown et al. 2014). Personality is an important individual resource that is not only associated with important life outcomes, such as subjective well-being andmental health (Ozer and Benet-Martínez 2006; Roberts et al. 2007), but is also supposed to play a prominent role in explaining educational attainment and academic success (Poropat 2009). Thus, educational processes at school during adolescence can play an important role in the development of personality by providing learning opportunities and situational demands that shape personality (Bleidorn 2012; Roberts 2006). Personality traits can be broadly defined as stylistic and habitual patterns of cognition, effect, and behavior. Personality traits are conceptualized as stable individual difference characteristics explaining an individual's disposition to particular patterns of behavior, cognitions,and emotions (Hogan et al.1996).

A wide range of studies on personality have identified individual differences in five broad and distinguishable domains across a life span (Roberts and DelVecchio 2000; Robins et al. 2001): neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. These maket he Five-Factor Model of personality (McCrae and Costa 1987). The Five-Factor Model, a central theory to the trait approach to personality, represents the dominant conceptualization of personality structure in the current literature. These traits are the basic dimensions in which people differ, and their sub-components, or facets, provide the specific dimensions or qualities within each trait (Widiger and Simonsen 2005). Extraversion refers to the degree to which people want to experience sociability, positive emotions, and high activity. Agreeableness is associated with a disposition toward nurturance, altruism, trust, and friendly compliance. Conscientiousness has to do with the will to achieve, self-control, persistence, and dependability. Neuroticism refers to the degree to which people experience negative emotions. Openness to experience is associated with a receptivity to new ideas, a preference for varied sensations, and intellectuality (Costa and McCrae 1992, 1995; De Raad 1996; De Raad and Schouwenburg 1996; Furnham 1997).

Academic Procrastination and Personal Traits

Procrastination is grouped into two basic structures, the first of which is procrastination as a personality trait, mainly based on procrastination in decision-making and the routine of daily living.The second type is conditional procrastination, which includes academic procrastination. Procrastination may have an effect on students' personality traits and their learning. Steel (2008) pointed out that procrastination affects the self-efficacy, distractibility, impulsiveness, self-control, and organizational behavior of the students.

It makes students lazy and passive and helps them develop delaying tendencies; either they feel hesitation in taking initiative or fear to start on work or assignments.

Procrastination may be linked to the major model in personality: the Big Five model of personality proposed by Costa and McCrae (1992). Within this model, two main personality traits - neuroticism and conscientiousness - are strongly linked to procrastination (Johnson and Bloom 1995; Lay et al.1998; Schouwenburg and Lay 1995). The procrastination literature suggests that neuroticism is positively correlated with procrastination (Johnson and Bloom 1995; Schouwenburg and Lay 1995; Watson 2001). With young adults, Johnson and Bloom (1995) find that neuroticism, and specifically the underlying facets of impulsiveness and vulnerability, area significant predictor of procrastination among university students. Similarly, conscientiousness has a strong inverse relationship with trait procrastination (Costa and McCrae 1992; Johnson and Bloom 1995; Lay et al. 1998; Scher and Osterman 2002; Schouwenburg and Lay 1995).

In Johnson and Bloom's research (1995), all conscientiousness facets are found to be inversely related to procrastination, with self-discipline being the strongest predictor. Watson (2001)findthat strong neuroticism is a predictor of procrastination, adding depression and self-consciousness facets from the model. With the three factor model, McCown et al. (1987) find a curvilinear relationship between procrastination and neuroticism, the low and high neurotic people having higher procrastination scores. Lay et al. (1998) finda relationship between low conscientiousness and procrastination in school children age (7-11 years old), indicating that procrastination may be a pattern established early on in an individual's academic career. In another study, McCown and Johnson (1991) also find that neuroticism was related to total procrastination scores, along with measures of lack of confidence in preparedness and anxiety, and is inversely related to total hours studying. Conscientiousness and self-reported procrastination is also indicated to predict initial levels of procrastination among students, but neuroticism does not (Moon and Illingworth 2005). Lee et al. (2006) indicate that, despite a moderate correlation between neuroticism and conscientiousness (Ross et al. 2002), conscientiousness has a stronger voice than neuroticism in predicting procrastination. Consistent with results with university students (Johnson and Bloom 1995; Schouwenburg and Lay 1995), trait procrastination is highly negatively related to conscientiousness (Laverdiere et al. 2013).

Johnson and Bloom (1995) suggest that the impulsive nature of extraversion should increase procrastination. However, only some studies find the relationship to be positive (McCown et al. 1987), while others find it to be negative or nil (Lay 1992; Wessman 1973; Lay 1986). With the three factor model, McCown et al. (1987) find a linear relationship between procrastination and extraversion. Schouwenberg and Lay (1995) analyze trait procrastination in terms of the complete set of five-factor facets and find similar results. Exceptions to this area negative relationship to the activity facet of extraversion and a positive correlation with the fantasy facet of openness to experience.

Academic Procrastination and Academic Achievement

Academic procrastination is a student's delay in studying or completing academic assignments; it is a common problem affecting the learning and achievement of university students. This challenge is important to address because procrastination can develop into a habit that can seriously impact your ability to be productive. Prior literature explores the link between academic procrastination and academic performance and generally finds that academic procrastination is negatively related to academic performance (Akinsola et al. 2007; Beck et al. 2000; Elvers et al. 2003; Moon and Illingworth 2005; Tice and Baumeister 1997; Wang and Englander 2010). Procrastination is also linked to other adverse behavior and outcomes, including poor study habits, test anxiety, cramming for examinations, late submission of course work, fear of failure, fear of social disapproval by peers, lower grades, sense of guilt, and depression (Ferrari and Scher 2000; Fritzsche et al. 2003; Lay and Schouwenburg 1993; Midgley and Urdan 2001; Uzun Ozer et al. 2009).

The findings of the previous studies reveal that the reports of students of their procrastination indicate a negative meaningful difference with their academic performance (Beswick et al. 1998); the more the students procrastinate, the lower their grades are (Moon and Illingworth 2005); procrastinators have less motivation to become successful (Steel 2007); procrastination

effects the self-efficacy, self-actualization, distractibility, impulsiveness, self-control, and organizational behavior of students, which makes them lazy and passive and makes them hesitate in taking initiatives or fear starting work or assignments (Steel 2008); academic procrastination is associated with anxiety (Lay 1995; Onwuegbuzie 2004; Essau et al. 2008); and procrastination is related to lower grades and course withdrawals (Beswick et al. 1988; Tice and Baumeister 1997). Consequently, academic procrastination adversely impacts students' personalities as well as their learning and achievement at almost all levels of studies and in all subjects.

Personal Traits and Academic Achievement

It is suggested that personality may be related to academic attainment because of positive traits that naturally promote academic learning (Medford and McGeown 2012; Poropat 2009). Recent investigations of the relations between personality traits and academic performance tendto generally operate under the framework provided by the Five-Factor Model of personality structure. In the study carried out by Komarraju et al. (2009) regarding academic achievement, the Big Five emerge as significant predictors of grade point average (GPA). Students who are more conscientious, open, neurotic, agreeable, and have a strong desire to accomplish are likely to have higher GPAs. These findings are consistent with prior findings that specific aspects of personality, such as grit, sociability, and emotional stability, have important influences on academic achievement (Duckworth et al. 2007; Entwistle and Entwistle 1970; Furnham and Medhurst1995).

Other studies specifically examine the role of the Big Five in predicting academic success. Conscientiousness, regarded as the important predictor of academic achievement (Ziegler et al. 2010), consistently and positively predicts examination performance (Chamorro-Premuzic and Furnham 2003), as well as GPA and academic success (Busato et al. 2000; Barthelemy and Lounsbury 2009; Poropat 2009; Ziegler et al. 2010; Laidra et al. 2007). It has been demonstrated that students scoring high on conscientiousness tend to have higher grades than those scoring low on conscientiousness (Paunonen and Ashton 2001; Trautwein et al. 2009; Kappe and Van der Flier 2010).

Neuroticism is not only a significant correlate and predictor of exam, but also of final-year projects and results. This suggests that neuroticism may not just affect academic performance in exam conditions, which is in line with the previous literature (Blickle 1996; Busato et al. 2000; Costa and McCrae 1992; De Raad 1996; De Raad and Schouwenburg 1996). In addition, neuroticism is related to reduced academic performance (Chamorro-Premuzic and Furnham 2003), which is consistent with previous researches (Sanchez-Marin et al. 2001; Komarraju et al. 2009). Neuroticism is also related to absence from the classroom, illness, etc., and hence negatively affects performance (Chomoro and Furnham 2003b).

Spinath et al. (2010) find conscientiousness and neuroticism to be important for mathematics achievement. Furthermore, neuroticism is found to be predictive of mathematics grades, science grades, and foreign language grades, but not mother tongue language grades (Furnham and Monsen 2009; Gilles and Bailleux 2001). Besidesthis, the results of the research (Costa and McCrae 1992) suggest that neuroticism may impair academic performance, while conscientiousness may lead to higher academic achievement.

Agreeableness is positively associated with grades (Farsides and Woodfield 2003). According to the literature (Poropat 2009), agreeableness and emotional instability do not predict academic achievement. Duckworth and Seligman (2005), and Lounsbury et al. (2003b) conclude that more agreeable students tend to have higher GPAs and consequently higher academic achievement. The small body of empirical research that has uncovered significant relations between that factor and academic achievement has produced mixed results; some research finds a positive relation, and other research findsa negative relation. For example, agreeableness is positively associated with GPA (Farsides and Woodfield 2003; Gray and Watson 2002) and final course grades (Conard 2006) in some studies, but negatively associated with GPA (Paunonen 1998; Rothstein et al. 1994) and class participation grades (Rothstein et al. 1994) in other studies.

In terms of extraversion the literature has not reached a consensus. According to Chamorro-Premuzic and Furnham (2003), extraversion is only partly related to academic performance and negatively and significantly predicts academic achievement, which is usually explained in terms of differences in time spent engaging in knowl-

edge acquisition, with extraverts spending more time socializing and introverts spending more time studying (Poropat 2009). Spinath et al. (2010) find extraversion to be important for language achievement. Based on previous studies, Dunsmore (2005) relates higher levels of extraversion to higher academic achievement among elementary school students, and to lower academic performance at higher educational levels. Furnham et al. (2006) find a negative relationship between extraversion and achievement at higher education; they believe students' interpersonal as well as intrapersonal skills account for this negative relationship. In other words, highly extroverted students are more likely to spend their time on social and extra-curricular activities in comparison to less extroverted students.

Openness is positively related to final grades, with high scorers using learning strategies that emphasize critical thinking (Lounsbury et al. 2003). Blickle (1996) finds openness to experience to be associated with academic performance, which seems correlated with intelligence. Openness predicts later academic achievement in accordance with recent results (Caprara et al. 2011) supporting the significant impact of openness on academic achievement. Some studies suggest a relationship between openness to experience and academic achievement (Paunonen and Ashton 2001; Caprara et al. 2011; Poropat 2009). There are also studies that showno such relationship (Busato et al. 2000; Chamorro-Premuzic and Furnham 2003; Duff et al. 2004).

Consequently, in light of the literature review it is obvious that academic procrastination and personality traits are considered as important factors affecting learning and achievement of the students in university settings. This study aims to find the correlation of academic procrastination, personality traits, and academic achievement in a sample of university students.The following questions are the main concern of the study:

(a) What is the correlation among university students' academic procrastination, personality traits,and academic achievement?
(b) Is there a significant difference among university students' academic procrastination, personality traits,and academic achievement in terms of gender?
(c) Is there a significant difference among university students' academic procrastination, personality traits, and academic achievement in terms of grades?

MATERIAL AND METHODS

Participants

The study was conducted at Yildiz Technical University, one of the state universities of Turkey. The participants were randomly selected from 3 different grades and 12 different departments of the university. The participants were composed of 475 (N=475) undergraduate students, 161 of whom (33.9%) were female and 314 of whom (66.1%) were male. The students came from different departments; 38 (8%) from Geomatic Engineering, 16 (3.4%) from Civil Engineering, 12 (2.5%) from Control and Automation Engineering, 104 (21.9%) from Mechatronics Engineering, 44 (9.3%) from Electrical Engineering, 50 (10.5%) from Computer Education and Instructional Technologies, 22 (4.6%) from Guidance and Psychological Counseling, 2 (0.4%) from Turkish Language and Literature, 20 (4.2%) from English Language Teaching, 39 (8.2%) from Chemistry, 76 (16%) from Industrial Engineering, and 52 (11%) from Metallurgical and Material Engineering. Participants also showed avariety in grades: 37(7.8%) were second grade, 236(49.7%) were third grade, and 202 (42.5%) were fourth grade students. All participants who took part in the research answered the questions voluntarily.

Data-Collecting Instruments

At the stage of selecting the proper data, the researches carried out on academic procrastination, personality traits, as well as the inventories developed and frequently usedup to that time, were analyzed. Participants completed a 54-item survey, including questions of an academic procrastination scale and the Big Five personality traits scale.

In this research, Tuckman's 16-item *Academic Procrastination Scale (APS)* was used. APS "provides a valid and reliable estimate of the tendency to waste time, delay, and intentionally put off something that should be done" (Tuckman 1991) for college students. The reliability of the original APS was .86. The four-point scale hadresponse choices ranging from *that is me for sure (1),* to *that's not me for sure (4).*The Turkish version of APS was translated and adapted by (Uzun Ozer et al. 2009b). TheTurkish version consistedof a 5-point scale since researchers added the response of "unsure" as an extra choice. In addi-

tion to this, 2 items from the original scale were removed in Turkish adaptation and the Cronbach alpha for the Turkish version was computed as .90. This indicated that theTurkish translation of APS was high reliability.

Personality Test Based on Adjectives (PTBA) was developed by Bacanli et al. (2009) based on the model of Big Five Personality Traits (Costa and McCrae 1992). PTBA is a Likert type scale including 40 pairs of opposite adjectives that can be graded from 1 to 7. PTBA consists of five dimensions: extraversion (9 items), agreeableness (9 items), conscientiousness (7 items), neuroticism (7 items), and openness to experience (8 items). Five dimensions explain 52.63 percent of the variance of PTBA. The test-retest reliability coefficient of PTBA ranged from .68 to .86 for all dimensions. The Cronbach Alpha coefficient of the dimensions of PTBA was found to be.89 for extraversion, .87 for agreeableness, .88 for conscientiousness, .73 for neuroticism, and .80 for openness to experience.

The data relating to academic achievement of the students (called cumulative GPA in this study) was obtained from the department administrations at the end of the academic term. In this study, academic achievement (GPA) was the mean of the points students got from the courses in that academic term.

Procedure

The Academic Procrastination Scale (APS), developed by Tuckman (1991) and translated and adapted into Turkish by (Uzun Ozer et al. 2009b), and the Personality Test Based on Adjectives (PTBA), developed by Bacanli et al. (2009), were applied at the end of the academic term. All students from different departments and grades are asked to complete APS and PTBA in their classes at a scheduled time before the final exam. Each student was seated individually at a desk andgiven ten minutes to complete both scales.

Data Analysis

To find out the correlation between variables the analysis related to university students' academic procrastination level, dimension of personality traits, and GPA were accounted with the Pearson Correlation Coefficient. To determine whether or not there is a significant difference among the scores of academic procrastination, dimension of personality traits, and GPA according to gender, independent t-test analysis was applied. In addition, to determine whether or not there is a significant difference among the scores of academic procrastination, dimension of personality traits, and GPA in terms of grades, a one-way anova analysis was conducted.The statistics obtained were transferred into the tables by grouping and then interpreted.

FINDINGS

Regarding the level of university students' academic procrastination, personality traits, and academic achievement, Table 1 summarizes the following findings,which include descriptive statistics on university students' academic procrastination, personality traits, and academic achievement.

The mean of the university students' GPA is 2.65 (66.25%), which is above the average level. The mean of the academic procrastination scores of university students is 42.08, which is above the medium level, too (42.08). The highest score university students' get from the Big Five personality traits was the open to experience dimension (78.05%). The other dimensions, agreeableness (76.33%), extraversion (72.95%), conscientiousness (71.80%), and neuroticism (53.97%), respectively, followed each other.

Table 1: Means, standard deviations, percentages, and maximum scores

	GPA	*AP*	*N*	*C*	*E*	*A*	*OE*
N	475	475	475	475	475	475	475
Mean	2.65	42.08	18.89	25.13	32.83	34.35	31.22
%	66.25	60.11	53.97	71.80	72.95	76.33	78.05
Max.	4.00	70.00	35.00	35.00	45.00	45.00	40.00
Std. D.	0.54	6.84	4.92	5.14	6.09	5.80	5.08
Std. Er.	.02	.31	.22	.23	.27	.26	.23

GPA (Academic achievement), AP (Academic procrastination), N (Neuroticism), C (Conscientiousness), E (Extraversion), A (Agreeableness), OE (Open to experience).

In Table 2, the findings regarding the correlation analysis among university students' academic procrastination, personality traits, and academic achievement are shown.

As can be seen in Table 2, as a result of correlation analysis some significant positive and negative correlations between variables are found. A significant positive correlation between GPA and conscientiousness (r=.25, p<.01) is found, as well as between GPA and agreeableness (r=.09, p<.05). There is also a significant negative correlation between academic procrastination and conscientiousness (r=-.28, p<.01), as well asbetween academic procrastination and extraversion (r=-.16, p<.01). In terms of the correlations among Big Five personality traits, a significant negative correlation is seen between neuroticism and agreeableness (r=-.12, p<.01). Conscientiousness is positively correlated with extraversion (r=.43, p<.01), agreeableness (r=.40, p<.01) and open to experience (r=.36, p<.01). Extraversion is positively correlated with agreeableness (r=.36, p<.01) and open to experience (r=.61, p<.01). Lastly, at there is a positive correlation between agreeableness and open to experience (r=.47, p<.01).

Based on the results of t-test analysis relating to university students' academic procrastination, personality traits, and academic achievement in terms of gender in Table 3, gender is found to cause significant differences only in GPA and theextraversion dimension of the Big Five personality traits in favor of female students. Relating to GPA, female student GPAs (M=2.83) are higher than male student GPAs (M=2.56), so a significant difference in favor of female students is observed (t=5.32, p<.01). Regarding the t-test findings of the extraversion dimension of the Big Five personality traits, the female students' score (M=33.63) is higher than themale students' (M=32.42). The significant difference is in favor of female students (t=2.06, p<.05).

The findings in Table 4 show that according to one-way Anova analysis regarding university students' academic procrastination, personality traits, and academic achievement in terms of grades, the significant difference is only observed in students' GPA in favor of the second grade (F=15.01, p<.05). To be able to reveal which grade makes the difference, the Bonferroni test is applied. As can be seen in Table 5, the second grade students' GPA (M=2.23) are found to besignificantly lower than the third (M=2.74) and the fourth grade students' (M=2.63).

DISCUSSION

As remarked in the literature, it is clear that academic procrastination and personality traits

Table 2: Correlation analysis among university students' academic procrastination, personality traits and academic achievement

		GPA	*AP*	*N*	*C*	*E*	*A*	*OE*
GPA	r	1	-.08	.01	.25*	.02	.09*	-.10
	Sig. (2-tailed)		.06	.83	.00	.61	.03	.82
	N	475	475	475	475	475	475	475
AP	r	-.08	1	.08	-.28**	-.16**	-.06	-.08
	Sig. (2-tailed)	.06		.07	.00	.00	.18	.05
	N	475	475	475	475	475	475	475
N	r	.01	.08	1	-.07	-.00	-.12**	-.02
	Sig. (2-tailed)	.83	.07		.10	.93	.00	.58
	N	475	475	475	475	475	475	475
C	r	.25**	-.28**	-.07	1	.43**	.40**	.36**
	Sig. (2-tailed)	.00	.00	.10		.00	.00	.00
	N	475	475	475	475	475	475	475
E	r	.02	-.16**	-.00	.43**	1	.36**	.61**
	Sig. (2-tailed)	.61	.00	.93	.00		.00	.00
	N	475	475	475	475	475	475	475
A	r	.09*	.-06	-.12**	.40**	.36**	1	.47**
	Sig. (2-tailed)	.03	.18	.00	.00	.00		.00
	N	475	475	475	475	475	475	475
OE	r	-.10	-.08	-.02	.36**	.61**	.47**	1
	Sig. (2-tailed)	.82	.05	.58	.00	.00	.00	
	N	475	475	475	475	475	475	475

*Correlation is significant at the .05 level (2-tailed)

Table 3: t-test analysis regarding university students' academic procrastination, personality traits, and academic achievement in terms of gender

	Gender	*N*	*M*	*Std. d.*	*Std. e.*	*t*	*p*
GPA	female	161	2.83	.49	.03	5.32	.00**
	male	314	2.56	.55	.03		
AP	female	161	41.93	6.82	.53	-.32	.74
	male	314	42.15	6.87	.38		
N	female	161	19.24	4.92	.38	1.09	.27
	male	314	18.71	4.91	.27		
C	female	161	25.34	5.22	.41	.64	.69
	male	314	25.02	5.11	.28		
E	female	161	33.63	6.01	.47	2.06	.03*
	male	314	32.42	6.09	.34		
A	female	161	34.92	5.81	.45	1.53	.12
	male	314	34.06	5.78	.32		
OE	female	161	31.24	5.06	.39	.05	.95
	male	314	31.21	5.09	.28		

* The mean difference is significant at the .05 level
** The mean difference is significant at the .01 level
GPA (Academic achievement), AP (Academic procrastination), N (Neuroticism), C (Conscientiousness), E (Extraversion), A (Agreeableness), OE (Open to experience).

Table 4: One-way Anova analysis regarding university students' academic procrastination, personality traits, and academic achievement in terms of grades

		Sum of squares	*df*	*Mean square*	*F*	*Sig.*
GPA	Between groups	8.49	2	4.24	15.01	.00*
	Within groups	133.56	472	.28		
	Total	142,06	474			
AP	Between groups	5.91	2	2.95	.63	.93
	Within groups	22221.49	472	47.07		
	Total	22226.96	474			
N	Between groups	4.14	2	2.07	.08	.91
	Within groups	11481.80	472	24.32		
	Total	11485.94	474			
C	Between groups	92.60	2	46.30	.75	.17
	Within groups	12476.76	472	26.43		
	Total	12569.37	474			
E	Between groups	133.88	2	66.94	1.81	.16
	Within groups	17451.30	472	36.97		
	Total	17585.19	474			
A	Between groups	140.12	2	70.06	2.09	.12
	Within groups	15814.74	472	24.32		
	Total	15954.87	474			
OE	Between groups	75.58	2	37.79	1.46	0.23
	Within groups	12158.40	472	25.75		
	Total	12233.98	474			

* The mean difference is significant at the .05 level
GPA (Academic achievement), AP (Academic procrastination), N (Neuroticism), C (Conscientiousness), E (Extraversion), A (Agreeableness), OE (Open to experience).

are considered important factors affecting the-learning and achievement of the students in university settings. The main purpose of this study is to examine whether or not there is a significant correlation among academic procrastination, personality traits, and academic achievement in a sample of university students. Whether or not there is a significant difference among university students' academic procrastination, personality traits, and academic achievement in terms of gender and grades is another focus point of this study.

Based on the correlation analysis among university students' academic procrastination, per-

Table 5: Bonferroni test results regarding university students' academic achievement in terms of grades

Dependent Variable	*Grade*	*Mean*	*Grade*	*Mean Difference*	*Std. Er.*	*Sig.*
GPA	2	2.23	3	-.51	.09	.00*
			4	-.40	.09	.00*
	3	2.74	2	.51	.09	.00*
			4	.10	.05	.10
	4	2.63	2	.40	.09	.00*
			3	-.10	.05	.10

* The mean difference is significant at the .05 level
GPA (Academic achievement)

sonality traits, and academic achievement,this study finds that there is a significant positive correlation between GPA and conscientiousness. This means that students who are more conscientious have higher academic achievement. This result, regarding conscientious, is consistent with the results of previous studies (Komarraju et al. 2009; Duckworth et al. 2007; Ziegler et al. 2010; Barthelemy and Lounsbury 2009; Poropat 2009; Laidra et al. 2007; Paunonen and Ashton 2001).

According to the other results of this study, a significant positive correlation between GPA and agreeableness is observed. In the literature there are some mixed and uncertain results about the function of agreeableness in predicting GPA. Whilesome studies claim that agreeableness ispositively associated with grades and GPA (Farsides and Woodfield 2003; Poropat 2009; Gray and Watson 2002) and more agreeable students tend to have higher GPAs and consequently higher academic achievement (Furnham et al. 2006; Duckworth and Seligman 2005; Lounsbury et al. 2003), others point out that agreeableness is not associated with GPA and does not predict academic achievement (Paunonen 1998; Rothstein et al. 1994; Farsides and Woodfield 2003; Poropat 2009).

Another result obtained from this study is that academic procrastination is negatively associated with conscientiousness and extraversion. The result of prior studies, focusing onthe inverse link between procrastination and conscientiousness, are in line with this result (Costa and McCrae 1992; Johnson and Bloom 1995; Lay et al.1998; Scher and Osterman 2002; Schouwenburg and Lay 1995; Watson 2011; Laverdiere et al. 2013). Regarding thenegative relationship of academic procrastination with extraversion in this study, only some studies find the relationship to be positive (McCown et al. 1987: Johnson and Bloom 1995), while others find it to be negative (Lay 1992; Wessman 1973).With the three factor model, McCown et al. (1987) found a linear relationship between procrastination and extraversion.

In terms of the correlations among Big Five personality traits, a significant negative correlation isseen between neuroticism and agreeableness. Because of the overall effect of neuroticism tends to be negative rather than positive (Matthews and Zeidner 2004) and contains anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability (Costa and McCrae 1992), unlike agreeableness which contains trust and friendly compliance, this finding is expected and parallel with the findings of previous studies. In addition, another result of this study is that,except for neuroticism, the other personal traits of conscientiousness, extraversion, agreeableness, and open to experience are positively correlated with each other. Whereas these personal traits are related to high levels of emotional well-being (DeNeve and Cooper 1998; McCrae and Costa 1991; Steel et al. 2008), neuroticism is related to lower levels of well-being (Costa and McCrae 1980; Pavot et al. 1990; Steel et al. 2008).

What is more, this study found that gender causes significant differences only in GPA and theextraversion dimension of the Big Five personality traits in favor of female students. This study reported that female students' GPA is higher than male students' because they use self-regulated strategies more, which is parallel with most of the prior studies (Farsides and Woodfield 2003). Also, the female students' extraversion score is higher than male students'. Unlike the result of this study, inter-correlations among the Big Five were modest, and girls are rated significantly higher than boys on all personality factors, except for extraversion, where no gender differences are-

found (Neuenschwander et al. 2012). Regarding the results on grades, a significant difference isonly observed in students' GPA in favor of the second grade; in other words, the second grade students' GPA is significantly lower than the third and the fourth grade students'. This shows that the orientation period to the university for the first years might affect students' academic achievement, but in the following years students' academic achievement relatively increases.

CONCLUSION

This study directly focuses on the relationship of academic procrastination, personality traits, and academic achievement. To conclude, the results from this preliminary analysis show that there is a strong relationship among these variables, especially with academic achievement. A major strength of the present study is that it proves the unique importance of personality traits, especially the conscientious dimension on academic procrastination and achievement. First, it is very crucial to remove the barriers causing procrastination, which has negative effects on the learning of students, resulting in low achievements or failure in examinations and resulting in depression and anxiety during their school life.This result should be of main interest to academic advisors, counselors, and educators. New academic programs designed to help students cope with academic procrastination, which is one of the main reasons for low academic achievement, should be a main concern. Second, the findings shed new light on the validity of personality traits for various academic outcomes, having an inverse link with academic procrastination. The other key finding from this study, parallel with earlier studies, is the role of gender in academic achievement, which is in favor of female students. The literature explains the reason for this result is because female students use self-regulating strategies more often and effectively.

The current findings are limited by the design of the study and the use of the sample of students, and the conclusions drawn should be considered with these sampling and measurement issues in mind. Further research is needed with bigger student populations in different education levels and grades. It would also be worthwhile to explore the other variables that have a close relationship with and a positive effect on academic procrastination and personality traits. In conclusion, this study extends our understanding of the important role of academic procrastination and personality traits in explaining academic achievement in university settings.

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