

Academic Procrastination: The Role of Metacognitive Awareness and Educational Stress

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Abstract: The aim of this study was investigate the academic procrastination in terms of metacognitive awareness and educational stress. The 273 high school students were attended the current study that was based on a correlation model. Academic Procrastination Scale, Metacognitive Awareness Scale and Educational Stress Scale were used in this study. Data were analyzed by using the Pearson Product Moment Correlation Coefficient and multiple linear regression analysis. Results were revealed significant correlations among academic procrastination, metacognitive awareness and educational stress. Academic procrastination correlated negatively with metacognitive awareness; however it correlated positively with educational stress. Results taken from the multiple linear regression analysis showed that metacognitive awareness and educational stress accounted for 20% of total academic procrastination variance. Metacognitive awareness and educational stress made a significant and distinctive contribution to the model. These findings were discussed about the relevant literature and new directions were suggested for further studies.

Keywords: Academic Procrastination, Metacognitive Awareness, Educational Stress, Correlational Model

Akademik Erteleme: Biliřötesi Farkındalık ve Eđİtsel Stresin Rolü

Öz: Bu çalışmanın amacı, akademik ertelemeyi biliřötesi farkındalık ve eđİtsel stres açısından incelemektir. İliřkisel desene dayalı olarak gerçekteřtirilen bu çalışmaya 273 lise öđrencisi katılmıştır. Çalışmada Akademik Erteleme Ölçeđi, Biliřötesi Farkındalık Envanteri ve Eđİtsel Stres Ölçeđi veri toplama aracı olarak kullanılmıştır. Elde edilen veriler Pearson Momentler Çarpımı Korelasyon Katsayısı ve çoklu doğrusal regresyon analizi yardımıyla çözümlenmiştir. Arařtırma bulguları akademik erteleme, biliřötesi farkındalık ve eđİtsel stres arasında anlamlı iliřkiler olduđunu göstermektedir. Akademik erteleme ve biliřötesi farkındalık arasında negatif yönde bir iliřki bulunurken; akademik erteleme ve eđİtsel stres arasında pozitif yönde anlamlı iliřki bulunmaktadır. Çoklu doğrusal regresyon analizi sonuçları, biliřötesi farkındalık ile eđİtsel stresin akademik erteleme toplam varyansının %20'sini açıkladıđını göstermektedir. Biliřötesi farkındalık ve eđİtsel stresin modele katkısı özgün ve anlamlı bulunmuştur. Elde edilen bulgular ilgili literatür ışığında tartıřılmış ve gelecek çalışmalar için önerilerde bulunulmuştur.

Anahtar Sözcükler: Akademik Erteleme, Biliřötesi Farkındalık, Eđİtsel Stres, İliřkisel Model

The tendency of procrastination is typically defined as a behavioral inclination or personal quality to postpone any work or decision (Johnson & Bloom, 1995; Milgram, Mey-Tal, & Levison, 1998). More specifically, the procrastination can be explained as a postponed behavior in a particular task, which an actor decided to do it previously and had potential to perform it without any rational reason (Grecco, 1984). In other words, procrastination is to postpone the responsibilities, the decisions and the tasks (Haycock, McCarthy, & Skay, 1998). Schraw, Wadkins, and Olafson (2007) defined procrastination in their qualitative study "as intentionally deferring or delaying work that must be completed"(p.13). As seen, there is no consensus on the definition of procrastination. Some authors remarked that the certain structure of postponement was crucial (Hess, Sherman, & Goodman, 2000; Piccarelli, 2003; Schraw et al., 2007), while other authors focused on effective component which was important in procrastination behavior (Rothblum, Solomon, & Murakabi, 1986; Sigalli Kruglanski, & Fyock, 2000).

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In literature, the causes of procrastination were investigated (Ferrari, 1992; McCown, Petzel, & Rupert, 1987; Solomon & Rothblum, 1984). After the causes of procrastination were given, the disabilities in time management were seen as the main reason. Having difficulty in concentrating on a task and having a lower sense of responsibility are the other popular reasons of procrastination. Moreover, anxiety and fear which are related to the negative perceptions occurring when one expects the failure, irrational expectations about his/her own performance, inaccurate cognitive processes, perfectionism (Balkis, Duru, Buluş, & Duru, 2006), and lack of motivation, poor organizational skills (Burka & Yuen, 1990; Milgram, Marshevsky, & Sadeh, 1995), and low self-efficacy (Haycock et al., 1998) are considered as the determinants of procrastination.

Studies conducted among students were revealed that most of the students have a tendency of procrastination. Ellis and Knaus (1977) were reported that approximately 95% of university students showed procrastination however Solomon and Rothblum (1984) were noted that 46% of students showed procrastination. The recent study was revealed that 20% of the adults, who left college, had chronic procrastination which could last during their adulthood (Harriot & Ferrari, 1996). In addition to these studies, different researches demonstrated that most of the students were inclined procrastination regularly (Uzun-Özer, 2009; Day, Mensink, & O'Sullivan, 2000; Haycock, 1993; Onwuegbuzie, 2000). In academic area, there are several tasks that need to be done by each student. Writing term paper, studying for exams, daily or weekly reading assignments are some of those tasks. However, students mostly put off those tasks until the day comes on which they definitely have to do them. Putting off the academic tasks planned previously is called as academic procrastination (Lay, 1986).

Academic procrastination appears as a significant agent for students. Researches revealed the correlations among academic procrastination and ineffective learning strategies (Chissom & Iran-Nejad, 1992), low academic achievement, being bored, having difficulty in courses, bad study habits (Lay, 1986; Senécal, Koestner, & Vallenard, 1995), unreal excuses, anxiety, fear of failure, depression, irrational thinking, low self-esteem (Ferrari & Beck, 1998; Ferrari, Johnson, & McCown, 1995; Solomon & Rothblum, 1984). It can be basically stated that there is a need for further empirical study focused on the reflections of academic procrastination on both students' academic settings and their psychological aspects so as to overcome the consequences of academic procrastination and to reduce the tendency of academic procrastination.

Procrastination emerges from effective, cognitive and behavioral components (Rothblum, Solomon, & Murakabi, 1986). Haycock (1993) was pointed that procrastination was associated with several cognitive variables such as irrational beliefs and external attribution styles. While investigating the reasons of procrastination which effects adversely individual's life, some evidence about the causes of academic procrastination were explored (Brown, 1983; Schowuenburg, Lay, Pychyl, & Ferrari, 2004; Uzun Özer, Demir, & Ferrari, 2009). According to the initial studies, individual's cognitive processes have a great impact on the academic procrastination (Burka & Yuen, 1983; Ellis & Knaus, 1977). For instance, using irrational beliefs strategies (Schubert, Lilly, & Stewart, 2000), several kinds of anxiety (Cassady & Johnson, 2002), lack of self-determined motivation (Brownlow & Reasinger, 2000) are all related with the academic procrastination. Additionally, the results of various empirical researches were pointed that the enhancement in group counseling process based on cognitive-behavioral approach and aimed to reduce the academic procrastination occurs with changes in thinking, feeling and behavior (Ramsay, 2002; Rice, Neimeyer, & Taylor, 2011; Stead, Shanahan, & Neufeld, 2010; Uzun Özer, Demir, & Ferrari, 2013). Because of this, it may be concluded that maladaptive cognitive processes have negative effects on the tendency of procrastination in academic settings, though, adaptive cognitive processes, for example metacognitive awareness that is an effective term in directing cognition and monitoring cognitive processes and outcomes (Schraw, 1998), have positive impacts on the academic procrastination. In other words, higher metacognitive awareness may reduce the tendency of the academic procrastination.

Metacognitive awareness including advanced cognitive performance is a part of effective learning. The cognitive process and results that came from people or knowledge about themselves refer to metacognitive awareness (Schraw & Graham, 1997). According to the descriptions of metacognitive awareness, it consists of two basic elements known as metacognitive knowledge (knowledge of cognition) and metacognitive regulation (regulation of cognition). Metacognitive knowledge is the knowledge about the general term of cognition. In addition, knowledge of cognition includes knowledge of one's own cognition (Butler & Winne, 1995; Schraw, 2009). Furthermore, metacognitive regulation refers to some agencies that are effective on learning process (Hartman, 1998). Individuals with higher metacognitive awareness can be better than others on planning, assessing, regulating, monitoring (Anderson & Walker, 1991; Schraw & Sperling-Dennison, 1994). Metacognitive awareness is accepted as an ability to plan, regulate and assess in learning activities (Akin, Abacı, & Çetin, 2007; Blank, 2000; Wellman, 1990).

The results of several studies showed significant relationships between metacognitive awareness and some academic, psychological and emotional variables that are also correlated with academic procrastination. Metacognitive awareness were positively associated with academic achievement (Coutinho, 2007), motivation, locus of control (Landine & Stewart, 1998; Zimmerman, 2000), self-regulation (Zimmerman, 1990), critical thinking (Willinghan, 2008), self-efficiency and satisfaction of life (Cikrikci, 2012). By basing on these studies, it can be said that all of aforementioned variables include various aspects of cognitive processes. However, there has been a requirement to investigate relationships between metacognition awareness, which is connected with approximately all of cognitive processes, and academic procrastination. Therefore, the term metacognitive awareness is accepted as a sine qua non variable for academic procrastination in the current study.

The likelihood effect of educational stress, which shows close relations with academic variables such as pressure from study, workload, worry about grades, self-expectations, academic grades (Sun, Dunne, Hou, & Xu, 2011), were assessed in the scope of the current study. Stress, reclaimed a considerable and unavoidable component of daily life in modern societies (Hung, 2011; Lazarus & Folkman, 1984), is a psychological state which appears when individuals confront physical or psychological difficulties (Lazarus, 2006). As a consequence of the rapid development on information resources and science as well as unfavorable effects of the stress on individuals' attention and energy, their lives have become too hard to live along with competitiveness among people (Fletcher, Major, & Davis, 2008; Odacı & Çikrikci, 2012). While students are reaching their goal, students have had many negative experiences which can influence adversely their motivation and performance and leading to stress (Suldo, Shaunessy, & Hardesty, 2008), depression (Öngen, 2006; Tolor & Murphy, 1985), helplessness (Buys & Winefield, 1982). Therefore academic stress that permeates students' life can be considered as an obstacle to perform educational activities efficiently (Akgün & Ciarrochi, 2003; Clark & Rieker, 1986; Felsten & Wilcox, 1992). Since academic stress is defined as a chronic stress because of the nature of academic demands, academic stress and academic activities may be assessed companions. According to Agolla and Ongori (2009), academic work is not conducted without stressful experiences. Therefore the stress that is a reaction to the restrictor situations is a crucial variable in academic circle (Agolla, 2009).

Although there is no a direct research examining the relations between academic procrastination and academic stress, in general the term of stress is found to be related with procrastination (Sirois, 2007; Sirois, Melia-Gordon, & Pychyl, 2003; Stead et al., 2010). Moreover, procrastination is impressed from the major reasons of stress among students (Ferrari et al., 1995). Based on the theoretical background of educational stress, it may be concluded that as procrastination is connected with high levels of stress (Flet, Blankestein, & Martin, 1995), students who are affected from educational stress have a tendency of academic procrastination. In addition to this, a recent study revealed that stressful experiences can bring about procrastinated behaviors in a sample of students (Schraw et al., 2007). Stress may also affect the

tendency of procrastination among students according to the urgency of the stressor (Stead et al., 2010). For instance, the degree of stress in students who procrastinated varies depending on the numbers and qualities of academic activities that need to be performed (Tice & Baumeister, 1997).

Research Overview

Despite the increasing number of studies based on academic procrastination were conducted among university students (Lee, 2005; Odacı, 2011; Saddler & Sacks, 1993; Senécal et al., 1995), until today, little research has been carried out among adolescents educated in high school (Çam, 2013; Owens & Newbegin, 1997; Wesley, 1994; Uzun-Özer, 2009). Particularly in Turkey, education in high school and university are seen very important and valuable for students' future life. Because of the fact that being successful during the high school years and getting high points from university entrance exam, in which all of high school students have to attend this exam to apply for a license program, are crucial, students who expect such achievements have to study hard and compete with approximately their two millions peers (Güler & Çakır, 2013; Yıldırım & Ergene, 2003). Therefore, the causes of students' failure need to be examined, though; the nature of causes shows some changes in time. Nowadays, we know that academic procrastination that has negative effects on academic performance of students (Schouwenburg, Lay, Pychyl, & Ferrari, 2004) and educational stress have negative effects on academic achievement although metacognitive awareness has positive effects. With this in mind, academic procrastination, metacognitive awareness and educational stress play important role on success. On the other hand, there is no study which explores the correlations among those variables in high school sample. Moreover, the way in accounting for academic procrastination is controversial. For the purpose of eliminating the need of studies, examining determinants of academic procrastination among high school students, the present study was planned to conduct.

Given the extant literature on academic procrastination, the following hypotheses were generated:

1. There is a significant correlation between academic procrastination and metacognitive awareness.
2. There is a significant correlation between academic procrastination and educational stress.
3. Metacognitive awareness and educational stress are predictors of academic procrastination.

Method

Model

This correlational study was designed by a quantitative approach. Researchers attempt to explore the relationship between independent variable and dependent variable in quantitative research (Cohen, Manion, & Morrison, 2000). As a general rule, explaining or comprehending complicacies of existent phenomenon is aimed in correlational researches (McMillan & Schumacher, 2006). The correlational research in which the relations of two or more variables are investigated provides indexes to determine "the direction and the strength of relationships among variables" (Ary, Jacobs, & Sorenson, 2010, p.350). In a current study, the predictive strength of metacognitive awareness and educational stress, which were selected as independent variables, on academic procrastination was examined with the scope of correlational structure.

Participants

The participants were composed of 273 students learning at a high school located in southern of Turkey. 165 of the participants (60.4%) were female, 108 (39.6%) were male. They ranged in age from 14

to 18 and the average age was 16.24 (Sd= .85). 15.4% of students were freshman (n = 42), 41.0% of them sophomore (n= 112), 36.6% of them junior (n= 100), 7.0% of them senior students (n= 19).

Instruments

Academic Procrastination Scale (APS).

The APS is a 19-item self-report scale developed by Çakıcı (2003) to define the academic procrastination behaviors among students. As each item was rated on a 5 point likert scale ranging from 1 (not at all like me) to 5 (completely like me), 12 items were reversed score. The Cronbach's Alpha value was found .92. In addition, the coefficients of internal consistency for factor 1 and factor 2 were .89 and .84, respectively.

Metacognitive Awareness Inventory (MAI).

The MAI was developed by Schraw and Sperling-Dennison (1994) to assess individuals' metacognitive awareness. The inventory consisted of eight subscales and ranges from 1 (never) to 5 (always). For original form that includes 52 items, the Cronbach's Alpha value was found .95. Furthermore, the coefficients of internal consistency for subscales ranged from .88 to .93. Akın, Abacı and Çetin (2007) carried out the adaptation study of Metacognitive Awareness Inventory in Turkish. As a result of exploratory factor analysis, they determined that the MAI with eight factor structure accounted for 47% of total variance. The coefficient of internal consistency was found .95 for whole inventory.

Educational Stress Scale for Adolescence (ESSA).

The ESSA was developed by Sun, Dunne, Hou and Xu (2011) to measure the academic stress. The 16 item ESSA, based on a five point rating scale from 1 (disagree completely) to 5 (agree completely), contains five latent variables. This five factor structure accounted 64% of total variance. The Cronbach coefficient of .81 was reported. The coefficients of Cronbach's Alpha ranged from .66 to .75. The ESSA was tested by means of confirmatory factor analysis (CFA). The results of CFA indicated satisfactory model fit ($\chi^2(99) = 815.57$, $p < .001$; RMSEA = .07; GFI = .94; CFI = .90, IFI = .90, NFI = .89, SRMR = .07). The adaptation study of ESSA in Turkish was conducted by Gediksiz, Arslan and Akın (2012). The Turkish version of ESSA showed strong evidence for validity and reliability. According to the results of the confirmatory factor analysis for ESSA, five factor model demonstrated an excellent fit with sufficient following fit indices: RMSEA = .03, CFI = .99, IFI = .99, NFI = .99, NNFI = .99. In addition, the internal consistency of ESSA was found as .87.

Procedure and Data Analysis

To carry out the research, the requisite permission was granted from teachers who were familiar with research process after a short presentation. Students were asked to fill the questionnaires. In addition, the instruments were administered to students in groups. It took approximately 40 minutes to complete.

Before the statistically analyzed, the hypothesis of normality was tested by investigating the limit values of skewness and kurtosis that should not be more than 3.0 and 10.0, respectively (Kline, 2011). In current study, skewness values of all variables ranged from -.50 to .17, whereas the variation of kurtosis rates varied from -.37 to 1.18. According to the rates of skewness and kurtosis, it can be concluded that the assumption of normality was accepted (Table 1). To determine the correlations among variables to test the hypothesis, Pearson correlation coefficient was used. Moreover, multiple linear regressions were employed to create a prediction model for academic procrastination. Overall, these analyses were conducted via SPSS 22.0.

Results

Inter-correlations

This section explored the means, standard deviations, inter-correlations, and internal consistency coefficients of variables. The correlations among academic procrastination, educational stress and metacognitive awareness were calculated by using Pearson’s correlation analysis (Table 1).

Results of Pearson correlation were revealed a significant positive correlation between academic procrastination and educational stress ($r = .27, p < .01$). On the other hand, metacognitive awareness was negatively associated with academic procrastination ($r = -.27, p < .01$).

Table 1
Descriptive statistics, alphas, and inter-correlations of the variables

Variables	1	2	3
1.Academic Procrastination	1		
2.Metacognitive Awareness	-.27**	1	
3.Educational Stress	.27**	.23**	1
Mean	50.73	174.16	52.67
Standard Deviation	13.14	35.15	10.19
Skewness	.17	-.50	-.17
Kurtosis	.37	1.18	.35
Cronbach Alpha	.85	.79	.95

** $p < .01$

The Predictivity of educational stress and metacognitive awareness in academic procrastination

Several interventions were employed to exterminate some cases which disrupt the consistency of the model and that are likelihood to observe in regression model. At first, multicollinearity assumption was examined and no evidence that was related to multicollinearity was found. In other words, there were no strong relationships among variables in regression model. Secondly, the autocorrelation function was also explored by Durbin-Watson test. The value of Durbin-Watson was found 1.88 which was satisfactory value (Field, 2013).

The results of multiple linear regression analysis was indicated that educational stress and metacognitive awareness accounted for 20% of total academic procrastination variance ($F(2, 270) = 33.86, p < .001$). In addition to this educational stress ($\beta = .36, p < .001$) and metacognitive awareness ($\beta = -.36, p < .001$) made significant contributions to the model. As assessing effective size measures of standardized coefficients, values suggested by Kline (2011) were taken into account. According to Kline (2011), values lower than .10 indicate little effect size; values between .30 and .50 show medium effect size; values higher than .50 represent strong effect size. Given these criteria, it was stated that metacognitive awareness and educational stress had medium effect in explaining academic procrastination (Table 3).

Table 3
Results of multiple regression analysis

Variables	B	Std. Error	β	t	p	R	R2	$\Delta R2$	F
Constant	49.94	4.65				.44	.20	.19	33.86
MA	-.13	.02	-.36	-6.50	.000				
ES	.46	.07	.36	6.44	.000				

Discussion

The current paper declares the predictive strength of metacognitive awareness and educational stress on academic procrastination in a sample of high school students. Three hypotheses were tested. The results of the research were revealed that all three hypotheses were fully confirmed.

In supporting of the first and second hypotheses that there are significant correlations between academic procrastination and metacognitive awareness, and educational stress, was clearly supported with the results (Table 1). At first, the result that academic procrastination and metacognitive awareness are negatively associated was discussed. It was indicated that the higher level of metacognitive awareness, the lower academic procrastination student had. The effects of metacognitive awareness in cognitive processes are well known (Schraw, 1998). The knowledge of cognition and the regulation of cognition that are the main functions of metacognition supply some opportunities with students to monitor their cognition (Schraw, 2009). In this wise, adaptive further cognitive functions such as planning, evaluating, monitoring etc. are employed. Therefore, it may be expected that metacognitive awareness, which has such important functions on cognition, can influence the tendency of academic procrastination in which cognitive processes are also effective. In other words, these two variables of cognitive structure may work together. The study of Rabin, Fogel and Nutter-Upham (2011) presents supportive results that executive function is composed of several self-regulatory processes and is related with academic procrastination. Additionally, the present research provides a strong evidence for this assumption with the results. Briefly, it may be claimed that students with higher metacognitive awareness have the lower tendency of academic procrastination. The relation of metacognition and academic procrastination is in a line with similar results from several studies (Rabin et al., 2011; Wolters, 2003).

The second hypothesis that there was a significant correlation between academic procrastination and educational stress and it was confirmed with the results that academic procrastination was positively associated with educational stress. This result means that the tendency of academic procrastination varies depending on the students' level of educational stress. As students with procrastination tendency put off their academic tasks, they may feel themselves under pressure and this situation may result in stressful experiences. Sharma and Kaur (2011) were reported that procrastination was one of the most important factors in the causes of stress. Similarly, the results of a study that were conducted among college students were indicated that procrastination was considered as a source of stress (Tice & Baumeister, 1997). Psychological distress can occur depending on academic procrastination that is a common problem among university and high school students (Solomon & Rothblum, 1984). In addition, educational stress sometimes called academic stress (Akgün & Ciarrochi, 2003; Huan, See, Ang, & Har, 2008; Misra & Castillo, 2004) can have negative effects on school performance (Sloboda, 1990; Struthers, Perry, & Menec, 2000). The deficiencies and fear of failures on academic tasks may influence students' motivation. Tyrrell (1992) pointed that the motivation to study and worrying about academic skills are related with educational stress. With this in mind, students who have the lack of ability and motivation to perform academic tasks procrastinate doing these tasks. In contrast, Sénécal, Vallerand, and Guay (2001) found a surprising result that motivation was negatively associated with higher level of academic procrastination. This may be interpreted that as students with high motivation trust their academic abilities and the real time of doing academic tasks doesn't come yet, they show a tendency of academic procrastination. However, they are definitely under pressure and stress and they become a companion of them when the real time comes, though, they are talented. The final comment of the second hypothesis is as follow: because of the fact that students feel themselves under pressure due to the several reasons about academic situations, they procrastinate.

The third hypothesis that metacognitive awareness and educational stress are significant predictors of academic procrastination and this is completely supported by the data of the current study (Table 3). From this result it is considered that students who employ their metacognitive skills in some cases particularly based on cognitive experiences may react consistently to academic tasks. Therefore, low metacognitive skills may be effective in predicting high level of academic procrastination. Besides, metacognitive awareness and educational stress were also found to be predictors of academic procrastination. Educational or academic stress may influence the attitudes of students toward academic tasks. It may be adduced that students postpone their tasks in academic settings to make them relax.

Conclusion

In present study, three hypotheses were tested to achieve the research objectives. Briefly, the results of the study show a significant negative relationship between academic procrastination and metacognitive awareness, and a significant positive correlation with educational stress. Finally, the results were revealed that metacognitive awareness and educational stress were the determinants of academic procrastination.

Limitations and Future Research

As expected in every study, there are several limitations in this study. Primary limitation is related with the methodology of the research. Generalizability of the results is the other limitation of study. To get an evidence for temporal stability of the results of the data, research should be conducted with similar sample. The research is limited to gather data in which quantitative research methods are used. In this way common and multidirectional data for the tendency of academic procrastination can be obtained. The current study should be assessed in the light of these limitations.

Until now, sufficient amount of studies investigating the relationships among academic procrastination, metacognitive awareness and educational stress have not been conducted. The lack of studies absolutely is essential and this is felt deeply. In total, the results of the current research have a contribution to fill the gap in the literature. All variables in present study are in close relationships with academic settings. The inputs and outcomes of high schools differ depending on students' performance. As the attitudes of students toward academic situations can influence academic procrastination, further research should be performed in different samples. For example, the tendency of academic procrastination among gifted high school students who have advanced metacognitive abilities (Çikrikci, 2012) is not still apparent. Eventually, some empirical intervention programs should be developed to reduce the tendency of academic procrastination. School counselors must be aware of the academic procrastination and its consequences and they should be in collaboration with parents.

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