REVIEW OF THE VARIABLES THAT PREDICT ACADEMIC PROCRASTINATION OF UNIVERSITY STUDENTS

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Abstract

In this study, variables that predict university student's academic procrastination were examined. Data were collected via Self-regulation learning skills (SLSS) developed by Turan (2009). Academic self-efficacy scale was developed by Jerusalem and Schwarzer (1981) and was translated into Turkish by Yılmaz, Gürçıray and Ekici (2007). Academic procrastination scale was developed by Çakıcı (2003). Demographic data were collected by personal information form prepared by the researcher. Independent samples t-test, one way ANOVA test, and the hierarchical regression analysis were applied for the purpose of data analysis. The results obtained shows that there are no significant differences between student's gender type and their academic procrastination, self-regulation, and their academic self-efficacy levels. No significant difference was found in student's academic procrastination according to their departments. Significant difference was found between Art and Science departments in self-regulation levels according to or in favor of the art department. However, significant difference was found in students' academic self-efficacy levels between art and music departments in favor of the art department. According to the result of the hierarchical regression analysis strategy used, the assessment sub-scale of self-regulation and academic self-efficacy were found to be the best predictors of academic procrastination.

Keywords: Academic Procrastination, Self-Regulation, Academic Self-Efficacy

Introduction

The origin of procrastination is a subject that goes back a very long time ago. William James stated the physiological results of procrastination about 120 years ago and Steel (2007) emphasized that the traces of procrastination goes back to 800s B.C. Klassen et al. (2007) stated that studies of today's psychologists regarding procrastination have increased.

Thus, the reasons behind procrastination are yet to be completely understood. Although procrastination researches are not well established as far as other psychological structures of which experimental and theoretical foundations have been searched, it has been stated that procrastination is a common problem which often results to stress and some diseases (e.g., Dewitte & Schouwenburg, 2002; Fritzsche, Young, & Hickson, 2003; Tice & Baumeister, 1997; Klassen et al., 2007).

Schraw, Wadkins and Olafson (2007) defined procrastination as not completing or avoiding completing the tasks that is required to be completed (Hen et al., 2014). Steel (2007) defined procrastination as consciously postponing the tasks by being aware of the negative results that it will bring (Ferrari, O'Callaghan, & Newbegin, 2005). Solomon & Rothblum (1984) in their studies stated that procrastination leads to unsatisfactory performance (Klassen et al., 2007). Helmke and Aken (1995) defined procrastination as the failure of avoiding strategy (Waschle et al., 2013).

Hammer and Ferrai (2002) estimated that 20% of the adults experiences chronic procrastination in their daily jobs. Consequently, this ratio is between 70-95% at the dimension of academic procrastination (Klassen et al., 2007). Procrastination is a problem which not only occur in time management, but it is also a concept that has cognitive, emotional, and behavioral dimensions (Fee and Tangney, 2000; Kiamarsi et al., 2014). Recent studies carried out on procrastination showed that most of the university students often procrastinate (Steel, 2007; Hen et al., 2014). Howell and Watson (2007) stated that procrastination had preventive results to academic success. Also, procrastination increases stress and makes the student to experience negative results. It decreases the quality and quantity of academic performance (Han et al., 2014). Klassen, Krawchuk and Rajani (2007) emphasized in their researches that the self-esteem, self-efficacy, and self-regulation of the students have a negative correlation with procrastination (Kiamarsi and Abolghasemi, 2014). Solomon and Rothblum (1984) stated that procrastination is correlated with psychological vulnerability in students. Consequently, there was a strong correlation between procrastination and the psychological vulnerability of the students (Kiamarsi et al., 2014). Furthermore, it was stated that 50% of the students experienced procrastination in completing their academic duties despite the anxieties and discomforts they are experiencing (Klingsieck, 2013; Solomon & Rothblum, 1984). While this shows that students are not aware of the results that are led by their own procrastination habits, university workers stated that students procrastinates more than they admit (Senecal, Koestner, & Vallerand, 1995; Burnam et al., 2014).

Solomon and Rothblum (1984) stated that academic procrastination includes much more than insufficient time use and studying habits. However,

the findings obtained from anecdotal studies that were done by observing the procrastinators at the clinical environments emphasized some possible reasons that often lead to procrastination. These includes: worry about assessment, difficulty in decision making, rebellion against control, having no claim concerning duty, afraid of the results of his/her success, perceived grossness of duty, and high standard perception of skills.

Thus, procrastination has been correlated with so many variables up till today. The researches that have been done in recent years has showed that self-efficacy, self-regulation, and self-esteem are the most attention-grabbing ones among so many variables (Cassady & Johnson, 2002; Chu & Choi, 2005; De Roma et al., 2003; Ferrari, 2001; Haycock, McCarthy, & Skay, 1998; Howell et al., 2006; Sene´cal, Koestner, & Vallerand, 1995; Steel, 2007; Tuckman, 1991; Wolters, 2003; Klassen et al., 2007). On the other hand, duty awareness, duty delay, general and academic self-efficacy, impulsivity, self-control, and organization procrastination are the most powerful determinants of procrastination in a meta-analytic study that was done concerning procrastination (Steel, 2007). Also, the lack of attention, tendency of shyness, and low self-esteem are partial determinants (Ferrari, 2000). Subsequently, personal values and learning routines (Dietz, Hofer and Fries, 2007), afraid of mistakes, perfectionism, and control focus takes place among the partially effective variables (Brownlow and Reasinger, 2000; Hen et al., 2014). Klassen et al. (2010) stated that the most attractive ones among these variables are self-efficacy, self-regulation, and self-esteem (Hen et al., 2014). Recent researches showed that the use of emotional intelligence may be correlated with decrease of the stress level, focus on the control, and academic procrastination. The results showed that the skills of adaptation and coping with stress have a high correlation with the academic procrastination tendencies of the students. In addition, adaptation and general mood are strong determinants of the focus on control (Deniz, Tras, Aydoğan, 2009). Tice and Baumaster (1997) stated that the students who procrastinated only at the beginning of the academic year are less stressful and they usually experience less disorders compared to students who did not procrastinate. Steel (2007) stated that Procrastination has two dimensions, state and trait. Trait procrastination represents personal tendency to delay tasks, and it is stable across situations over a long term span. On the other hand, State Procrastination is a more general concept that is influenced by personal tendency to delay tasks (trait Procrastination), situational aspects, and self-regulation strategies. Steel also showed in his meta-analytic studies that constant procrastination continues constantly for a long period of time. Hence, evidences of this procrastination might also be affected from the functional specifications of the procrastination.

In the literature, there are researches that self-efficacy is a strong and constant determinant of procrastination. According to Bandura, the perception of self-efficacy (1977) is based on the belief on our skills. Thus, it is necessary for organizing and carrying out a specific behavior in order to reach a specific target. Self-efficacy is taken into hand as a variable in so many procrastination studies, and the result shows an opposite correlation with procrastination (Ferrari, Parker, & Ware, 1992; Haycock et al., 1998; Steel, 2007; Tuckman, 1991; Wolters, 2003; Klassen et al., 2007). Balkıs and Dura (2007) stated that the people who made procrastination at high level experienced much more stress, and this corresponds to a negative perception of fewness in controlling himself/herself and skills. Haycock, McCarthy and Skay (1998) opined that there was a significant correlation between procrastination and self-efficacy (Hen et al., 2014). Lowman stated that there was no correlation between procrastination and self-efficacy, aggression, conflict, and neuroticism at low level (Kiamarsi and Abolghasemi, 2014). Chu and Choi (2005) stated that the students who took procrastination as a positive learning strategy showed a tendency of self-efficacy at a higher level compared to students who took it as a negative learning strategy. In addition, Seo (2008) stated that self-directed perfectionist students made less procrastination compared to other students and self-efficacy intermediated (full mediator) between these two variables. Tuckman and Sexton (1992) stated that self-beliefs intermediated between performance with self-regulation, external issues, and low self-efficacy often leads to academic procrastination (Hen et al., 2014). Furthermore, Hen et al. (2014) stated a strong correlation between academic procrastination tendencies of the students who had learning difficulty and who had no learning difficulty. Klassen et al. (2007) agreed with the definition of Steel (2007) which states that procrastination is a mistake of self-regulation. However, they also stated that academic procrastination is affected not only by self-regulation skills, but also by self-efficacy for self-regulation (self-efficacy for self-regulated) which covers the beliefs of the individual devoted to the future concerning his/her self-regulation skill. Within the lights of these findings, we may say that the concept of self-efficacy is taken into assessment within three different categories in terms of explaining procrastination. These are 1) general self-efficacy; 2) academic self-efficacy; and 3) self-efficacy for self-regulation.

When the literature was reviewed, it was seen that self-regulation was assessed as a self-regulation mistake. Especially in the researches done at the level of university, it was seen that academic procrastination is correlated with low level self-regulation (Ferrari, 2001). While self-regulation includes skills requiring high motivation, procrastination is a learning approach which includes a low level of motivation and a low level of planning (Ferrari, 2001;

Senecal et al., 1995; Steel, 2007; Wolters, 2003; Klassen et al., 2007). Ferrari (2001) stated that the individuals who procrastinated were unsuccessful in regulating their behaviors in stressful environments and in highly cognitive leadings. Wolters (2003) reviewed correlation of procrastination and self-regulation. Most especially, he emphasized that upper cognitive self-regulation was the second important determinant after self-efficacy. So many researches in the literature stated that low level self-regulation leads to a high level of procrastination. Thus, self-regulation is an important variable in that it has a clear understanding of procrastination (Klassen et al., 2007).

Self-regulation of performance in an effective way requires that the individual should achieve the optimum balance on the duty in the shortest time, and will maintain this clearness for a long period of time (Baumeister, 1997; Bratslavsky and Baumeister, 1998; and Vohs and Heartherton, 2000). The researches stated that chronic procrastinators wasted a shorter preparation period for the duty compared to the ones who did not make procrastination (Lay, 1990; Lay and Edwards, Parker and Endler, 1989). Subsequently, they underestimated the time that was necessary for the completion of the duty (McCown, Johnson and Rupert, 1987). Also, they stated that they waste less time for collecting the information necessary for completing the relevant duty (Ferrari and Dovidio, 2000). Chronic procrastinators also reported that they experienced problems in terms of maintaining the balance between high performance, speed, and trueness (Ferrari, 1993). Chronic procrastinators who are working on a project experience the feelings of anxiety, depression, or boriness under a limited time conditions (Lay, 1987, 1995, 1996; Ferrari and Beck, 1998).

Method

Study Group

The data used in this study were collected from Adnan Menderes University, Faculty of Education, Fine Arts Education Department, and Primary School Science Teaching departments for the 2014-2015 spring academic year. During the data collection process, a total of 259 students were accessed voluntarily. At the stage of entering in the data, the forms of eight students were observed to be missing. Thus, the forms that were missing were excluded from this study. The extreme value concerning the detail that was obtained before the analysis processes was reviewed. Also, the responses of 6 more students were excluded from the analysis. The number of total participants included in this research was 239. Therefore, the first descriptive statistics concerning the variables and the demographic specifications of the study group were given place. Then, the correlation between them was reviewed in order to review the relation of each variable. At the following stage, hierarchical regression analysis was done in

determining how much the academic procrastination of each variable was interpreted.

Data Collection Tools

Self-regulation Learning Skills Scale (SLSS): SLSS developed by Turan (2009) was formed from a total of 4 sub-dimensions, namely: "Manipulation and Start-up Action for Learning", "Planning and Setting an Object", "Strategy Use and Assessment", and "Lack of self-directedness". In terms of inner consistency of the scale, Cronbach alpha coefficient was given as ,91 for all scales. Therefore, in terms of sub-dimensions, it is given as: ,83 for manipulation and start-up action for learning; ,91 for planning and setting an object; ,83 for strategy use and assessment; and ,76 for lack of self-directedness. The whole of the article on lack of self-directedness sub-dimension of the scale are the articles that are required to be reverse coded (Turan, 2009).

Academic Self-efficacy Scale: The scale developed by Jerusalem and Schwarzer (1981) and adapted into Turkish by Yılmaz, Gürçay and Ekici (2007) were formed from 7 articles. The articles in the scale was arranged in the form of 4 Articles Likert Type Scale (completely not fit for me, fit for me less, fit for me, completely fit for me). In addition, Cronbach Alpha inner consistency of the scale was detected as 0.79.

Academic Procrastination Scale: "Academic Procrastination Scale" developed by Cakıcı (2003) in order to detect the academic procrastination behaviors of the students was used. Academic Procrastination Scale is formed from a total of 19 expressions where 12 are negative and 7 are positive. Thus, this includes student's roles in their education pursuit (studying lesson, preparing for the exams, and preparing project, etc.). The reactions given to these expression in this scale are graded into five stages Likert scale as "totally not reflect me", "reflect me very less", "reflects me a little", "mostly reflects me", and "completely reflects me". Consequently, the highs cores obtained from the scale showed that there was academic procrastination behavior. Cronbach Alpha coefficient of academic procrastination scale was detected as .92. The Cronbach alpha coefficient calculated for the First Factor of the Scale was .89, while that calculated for the Second Factor of the Scale was .84. Spearman Brown two half test reliability was calculated as a total of .85 and .87 for first half test with 10 articles. Hence, .86 was calculated for the second half test with 9 articles. Test-repeat correlation coefficient of the Academic Procrastination scale was calculated by applying it to 65 high school students with seven days intervals which was detected as .89. Test-repeat test reliability coefficient of the scale

was calculated as .80 for the 1st factor and .82 for the 2nd factor (Cakıcı, 2003).

Findings

Furthermore, the descriptive statistics concerning the demographic specifications of University students is expressed in Table 1 below.

Table 1. Descriptive Statistics Concerning the Demographic Specifications

		Frequency	%	Total %
Department	Music	83	34,7	34,7
	Art	71	29,7	64,4
	Science	85	35,6	100,0
	Total	239	100,0	
Gender	Male	82	34,3	34,3
	Female	157	65,7	100,0
	Total	239	100,0	

When Table 1 is reviewed, the sex distribution of the study group where the research was done was distributed as 82 (34,3%) males and 157 (65,7%) females.

When Table 2 is reviewed, it is seen that all the reviewed variables had normal distribution. In Table 3, the descriptive statistics and the internal validity criteria of the research variables and their sub-dimensions were given.

Table 2. Kolmogorov-Smirnov Test Results Concerning the Normal Distribution of the Variables

Values		Academic Procrastination	Self-regulation	Self-efficacy
N		239	239	239
Normal Parameters	$\overline{X}$	54,96	149,19	20,10
	SS	12,48	15,66	3,297
Kolmogorov-Smirnov Z		1,167	,936	1,195
P		,131	,344	,115

When Table 2 was reviewed, it was seen that all the reviewed variables had normal distribution. In Table 3, the descriptive statistics and the internal validity criteria of the research variables and their sub-dimensions were given.

Table 3. Descriptive statistics and the internal validity coefficients concerning the variables of the research

	N	Min.	Max.	M	Ss	Cr. A.
Procrastination	239	22	89	54,96	12,48	,83
Self-regulation	239	112,00	189,00	149,19	15,66	,90
Manipulation and Start Up for Learning	239	14,00	35,00	27,05	3,91	,79
Planning and Setting An Object	239	18,00	40,00	29,76	4,18	,80
Strategy Use and Assessment	239	44,00	95,00	71,23	8,78	,88
Lack of self-directedness	239	8,00	35,00	21,13	4,57	,73
Self-efficacy	239	12,00	28,00	20,10	3,29	,76

In Table 3, scores concerning academic procrastination and self-regulation scale, and the descriptive statistics concerning the total scores of self-efficacy were given. According to that, the total scores of academic procrastination varied between 22 and 89. Also, the average score was 54,96 and the standard deviation was 112,48. The scores obtained from self-regulation scale varied between 112 and 189. Therefore, the average score was 149,19, and the standard deviation was 15,66. Sub-dimensions of the scale was detected as 27,05 for Manipulation and Start up for Learning; 29,76 for Setting An Object; 71,23 for Strategy Use; and 21,23 for Assessment and Lack of self-directedness. Cronbach alpha coefficient which is relevant to the whole of the scale was detected as 90. Hence, these coefficients were detected as 78, 80, 88 and 73, respectively for sub-dimensions. While academic self-efficacy scale total score varied between 12 and 28 in the research, the average obtained was detected as 20,10. Also, standard deviation was detected as 3,29 and Cronbach alpha coefficient of the scale was detected as ,76. In Table 4, the results of the independent sampling t test were done with the aim of detecting the correlation between variables and sub-dimensions and the sexes of the participants.

Table 4. T-test results concerning the gender type of the research variables

	Sex	N	Mean	Ss	sh	T	sd	P
Academic	Male	82	53,35	11,16	1,23	-1,443	237	,150
Procrastination	Female	157	55,80	13,07	1,04			
	Male	82	147,19	14,68	1,62	-1,431	237	,154
Self-regulation	Female	157	150,24	16,09	1,28			
	Male	82	27,06	3,70	,408	,019	237	,985
Motivation and action to learning,	Female	157	27,05	4,03	,322			
Planning, and	Male	82	29,31	4,28	,473	-1,211	237	,227
Setting An Object	Female	157	30,00	4,12	,329			
Strategy Use and	Male	82	70,04	8,85	,978	-1,513	237	,132
Assessment	Female	157	71,85	8,70	,694			
Lack of self-	Male	82	20,76	4,70	,519	-,903	237	,367
directedness	Female	157	21,33	4,50	,359			
Academic Self-	Male	82	19,89	3,82	,422	-,726	237	,469
efficacy	Female	157	20,21	2,98	,238			

As seen in Table 4, there is no statistical difference between academic procrastination score according to sexes. When academic self-efficacy and self-regulation scores according to sexes were reviewed, there was no statistical difference observed between the score averages that males and females did obtained. This was either in terms of the total score of the scale or the sub-dimensions of the scale. In Table 5, the results of the one-way variance analysis were given according to the departments of research variables and sub-dimensions.

Table 5. One-way Variance Analysis Results Concerning the Academic Motivation and Sub-dimension

		Total Squares	Df	Av. of Sq.	F	p	Diff.
Academic Procrastination	Between Gr.	932,240	2	466,12	3,04	,050	No sig. Difference
	Within Groups	36164,421	236	153,23			
	Total	37096,661	238				

P<,05

In Table 5, one way variance analysis results were given according to the departments of academic procrastination students among the research variables. Accordingly, no difference was observed between the departments using scheffe test which was done even if the result of the one-way variance analysis was observed at the border of significance value (p=,05). In Table 6, the results of the one-way variance analysis were given according to the departments of academic procrastination students among the research variables.

Table 6. Results of One Way Variance Analysis of Self-regulation and Its Sub-dimensions According to Department

		Kareler Top	Df	Kareler ort.	F	Sig.	Fark
Self-Regulation	Between Groups	778,03	2	389,017	1,594	,205	
	Within Groups	57597,72	236	244,058			
	Total	58375,75	238				
motivation and action to learning	Between Groups	99,84	2	49,924	3,315	**,038***	**Art-Science**
	Within Groups	3554,44	236	15,061			
	Total	3654,29	238				
Planning and determining aims	Between Groups	15,87	2	7,939	,452	,637	
	Within Groups	4148,46	236	17,578			
	Total	4164,34	238				
Strategy using and assessment	Between Groups	237,37	2	118,689	1,546	,215	
	Within Groups	18113,50	236	76,752			
	Total	18350,87	238				
lack of self-directedness	Between Groups	73,42	2	36,711	1,766	,173	
	Within Groups	4905,02	236	20,784			
	Total	4978,44	238				

In Table 6, one way variance analysis results were given concerning self-regulation and sub-dimensions according to the departments of students among the research variables. Accordingly, no difference was observed between the departments in terms of the sub-dimensions of the self-regulation total score, planning and setting an object, strategy and assessment, and the lack of self-directedness. A statistical difference was observed at the sub-dimension of "start-up for action for motivation and learning". Therefore, by using scheffe test, it was detected that a statistical difference was in the benefit of art teaching between art (x=27,69) and science (x=26,20). In Table 7, the results of the one-way variance analysis were given in terms of academic self-efficacy scores according to the departments of the students.

Table 7. Results of One-way Variance Analysis Concerning the Academic Self-efficacy Variable

	Total Squares	df	Average of Squares	F	Sig.	Difference
Between Groups	75,473	2	37,737	3,544	**,030**	**Art - Music**
Within Groups	2512,912	236	10,648			
Total	2588,385	238				

In Table 7, it is seen that academic self-efficacy variable showed difference according to the education departments. Using the scheffe test to detect the difference between each departments, it was detected that statistical difference was beneficial to art teaching between art (x=20,80) and music (x=19,39). In Table 8, the correlation of all variables and its relevant sub-dimensions were given.

Table 8. Correlational Relationships of the Study Variables and Sub-dimensions

		1	**2**	**3**	**4**	**5**	**6**	**7**
1	**A. Procrastination.**	1	- 439**	- 347**	- 342**	- 434**	058	- 289**
2	**Self-regulation.**		1**	,776**	,830**	,899**	,274**	,393**
3	*motivation and action to learning.*			1**	,562**	,663**	,013	,274**
4	*Planning and determining aims*				1**	,720**	,064	,341**
5	*St. Use and Ass.*					1**	-,068	,335**
6	*L. of. Self-Directedness*						1	,154*
7	**Academic Self-efficacy**							1**

**p<0,001, *p<0,05

When Table 8 was reviewed, it was seen that all the variables have a significant relationship in a negative way except for the lack of self-directedness which is a sub-dimension of academic procrastination self-regulation. While it may be said that academic procrastination is correlated with self-regulation for the total score and strategy used and its assessment in a negative way, it also has a medium correlation with the self-efficacy in a negative way. The results of hierarchic regression analysis in explaining the variables that predict self-regulation skill is given in Table 9 below.

Table 9. Results of Hierarchical Regression Analysis Concerning the Total Score of Academic Procrastination

		B	Std. Error	β	T	p	T	VIF
1	(Constant)	106,257	7,181		14,798	,000		
	M. A. to L.	-,295	,252	-,093	-1,169	,244	,544	1,839
	P.D.A	-,079	,258	-,026	-,307	,759	,458	2,185
	S.U.A	-,511	,136	-,359	-3,753	,000	,372	2,687
	L. S-D	-,216	,162	-,079	-1,334	,184	,966	1,035
2	(Constant)	110,391	7,339		15,041	,000		
	M. A. to L.	-,271	,250	-,085	-1,081	,281	,543	1,842
	P.D.A	-,009	,257	-,003	-,036	,971	,451	2,216
	S.U.A	-,471	,136	-,331	-3,459	,001	,366	2,732
	L. S-D	-,154	,163	-,056	-,946	,345	,939	1,065
	A. Self-Eff.	-,550	,239	-,145	-2,301	,022	,841	1,189

***p<0,001, **p<0,005,*p<0,05, Model 1 R2= ,20 Model 2 R2= ,22

At the analysis, manipulation and start up action for learning, planning and setting an object, strategy use and assessment, and lack of self-directedness which were sub-dimensions of self-regulation were included in the analysis in the form of block. 20% of variance was explained. Consequently, academic self-efficacy was included into the analysis at the second stage. This second model explained 22% of the variance. When the second model is reviewed, it is seen that the variable which makes contribution to the variance solely is the strategy use and assessment (β= -331,p<005). Self-efficacy follows strategy use and assessment (β= -145,p<0,05). Thus, it is seen that other variables did not make any significant contribution to the variance on their own.

Discussion

No significant difference was detected between sexes of prospective teachers and academic procrastination levels in the research. The findings that were obtained conform to the study of Motie et al. (2012). But when the literature is reviewed, different results were obtained concerning this subject. Cakıcı (2003) detected in his study that there was no significant difference in terms of academic procrastination between the sexes. Also, he stated that

males made much more academic procrastination compared to females. Van Eerde (2003) stated that females made less procrastination behaviors compared to the males. However, Van emphasized that this difference was very less. Uzun Ozer and Ferrari (2009) offered data parallel to this information and stated that males showed much more procrastination behaviors compared to females.

It is seen in the research that the self-regulation skill levels of the students and its sub-dimensions did not show significant difference according to the sexes. Zimmerman and Martinez-Pons (1990) stated that females showed much more self-regulation skill compared to males in the subject of using learning strategies with self-regulation concerning recording keeping, monitoring, structuring the environment, and setting an object and planning. In the same way, Braten and Olausslenn (1998) revealed that female students used much more learning strategy in the learning processes compared to the male students (Erdinç, Balkıs and Duru, 2014). In the same way, Meece & Painter, (2008) also stated that females generally used much more self-regulation strategy compared to males (Bembenutty, 2008). The research showed difference with the literature in this way. Gömleksiz and Demiralp (2012) reviewed viewpoints of prospective teachers concerning their self-regulation skills in their research. As a result of this research, they stated that the sexes of the students did not lead to significant differences for start-up action for manipulation and learning, planning and setting and object, strategy use an assessment, and lack of self-directedness sub-dimensions. Along with that, these research results shows that it completely conforms to the results of Gömleksiz and Demiralp (2012). Thus, it may be taken into consideration as an indicator of different results as can be seen in the literature.

In this research, it was stated that academic self-efficacy levels of the university students did not lead to a significant difference according to sexes. When national literature is reviewed, there are different results concerning whether self-efficacy level differs according to sex. Aksu (2008) stated that there was no significant difference between females and males in terms of self-efficacy beliefs devoted to mathematics teaching. In the same way, Oğuz (2009) stated that academic self-efficacy beliefs of the prospective form teachers did not lead to significant difference according to sexes. Saracalıoğlu, Yenice and Ozden (2013) emphasized on their researches that self-efficacy levels of prospective teachers did not lead to any significant difference according to sexes. In spite of that, Akbay and Gizir (2010) stated that males had much more academic self-efficacy level compared to the females. Moreover, Bembenutty (2008) stated that females had much more self-efficacy level compared to males in the fields of writing and reading.

They emphasized that males had much more self-efficacy level compared to the females in the field of mathematics, science, sports, and computer.

According to these finding, there is no significant difference in the negative way between academic procrastination and academic self-efficacy levels of the prospective teachers. Accordingly, it may be said that a decrease is seen at the academic procrastination level as the self-efficacy levels of prospective teachers increase. In the same way, low self-efficacy level may lead to high level of procrastination. Stobber and Joorman (2001) stated that due to negative beliefs, people may have doubts about their own skills. However, this may lead to procrastination due to negative motivation (Kiamarsi, 2014). Tuckman (1991) found a significant correlation between academic procrastination and academic self-efficacy in a negative way (Cakıcı, 2003). Schouwenburg (1992) stated that the students who had doubts from their skills in terms of carrying out a performance displays procrastination behaviors for avoiding an emotional disturbance of which studying lesson may lead to (Hensley, 2014).

Another finding obtained in the research was that there was no significant correlation between self-regulation skills and academic procrastinations of the prospective teachers in a negative way. In the research, negative significant correlation was observed at other sub-dimensions except for the sub-dimension of lack of self-directedness of self-regulation. According to the findings, while decrease in self-regulation skills increased procrastination, increase in self-regulation skills may decrease the procrastination. Zimmerman (2002, 2004) stated that students who are good at learning with self-regulation rarely procrastinate (Motie, 2012). Corkin et al. (2011) stated that procrastination was defined not only as a procrastination behavior, but also a self-regulation error within the psychological definition of procrastination. Furthermore, studies (Beswick, Rothblum, and Man, 1988; Chissom and Iran-Nejad, 1992; Yaakub, 2000; Balkıs et al., 2006) stated that academic procrastination was in correlation with less effective studying strategies and concentration hardness in terms of academic success and academic procrastination.

When the findings obtained as a result of hierarchic regression analysis are reviewed, it is seen that self-regulation skills and academic self-efficacy levels of prospective teachers explained academic procrastination levels significantly and in a negative way. Strategy use and assessment (β= -331, $p<0,005$) and academic self-efficacy levels (β= -145, $p<0,05$) being the sub-dimensions of self-regulation, have become the biggest contribution. These findings are in conformity with several other literatures (Corkin et al., 2011; Klassen et al., 2007; Motie et al., 2012; Steel, 2007; Ferrari, 2001; Hen ve Goroshit, 2014; Kiamarsi, 2014; Odacı, 2011; Waschle et al., 2013).

Self-regulation is related with the ways of using internal and external clues which states that when students will start their behaviors devoted to the target, how long will they continue and when they will finish? Consequently, the regulation of behaviors was reviewed under the self-regulation theory of Deci and Ryan (self-determination) (Senecal, Koestner and Vallerand, 1995). According to this theory, human behaviors are carried out within five regulation types. They include motivation from the least autonym to the highest autonym – external regulation which are the cases at which the person has no object devoted to the behavior, has no award expectation, or has no personal gain which is relevant to the job that he/she will do – . Secondly, the person regulates a behavior devoted to the conflicts that is created by an external award or other people. Thirdly, it involves the introjected regulation the person internalizes. Fourthly, it involves the identified regulation that the person makes in a job because of the importance or value it has on himself/herself. Finally is the intrinsic motivation that the person makes in a job because he/she gets satisfaction and obtains pleasure from the job. Self-autonym theory states that the autonomous form of the self-regulation is distinguished from its non-autonomous form in three ways. First and foremost, it states that the people who had internal reasons for participating in an activity are more sociable and patient (Deci and Ryan, 1987). Secondly the people who had internal reasons and participate in an activity due to autonomy reasons have more positive emotions such as interest and enjoyment (Ryan and Connel, 1989). Finally, the people who have autonomous form of self-regulation show more integrated and consistent behaviors in the activities (Koestner, Bernieri & Zuckerman, 1992; Koestner & Zuckerman, 1993; Ryan, Koestner & Deci, 1991; Senecal, Koestner and Vallerand, 1995).

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