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The Role of Academic Motivation in Predicting Turkish Undergraduates' Life Satisfaction and Academic Procrastination

Türk Üniversite Öğrencilerinin Yaşam Doyumları ve Akademik Ertelemelerini Belirlemede Akademik Motivasyonun Rolü

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ABSTRACT

The present study aims to determine the motivational profiles of university students through a person-centered approach and to examine the relationship between motivational profiles, academic procrastination, and life satisfaction. The study participants comprised 1,770 undergraduates (1019 female, 749 male, and 2 not specified), who were categorized into three main profiles: (a) students with high levels of both intrinsic and extrinsic motivation but with a low level of amotivation (33.8%), those with a "high-level academic motivation profile"; (b) students with moderate levels of both intrinsic and extrinsic motivation but with low levels of amotivation (44.9%), those with a "medium-level academic motivation profile"; and (c) students with low levels of both intrinsic and extrinsic motivation with high levels of amotivation (21.3%), those with a "low-level academic motivation profile. The results of this study revealed that students with a high-level academic motivation profile have a high level of life satisfaction and a low level of academic procrastination. The results also show that students with medium-level academic motivation profiles have higher levels of life satisfaction than students with low-level academic motivation profiles. However, the academic procrastination level of students with medium-level academic motivation was found to be lower than that of students with a low-level academic motivation profile.

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ÖZET

Bu araştırmanın amacı birey merkezli yöntem ile üniversite öğrencilerinin motivasyon profillerini belirlemek ve bu profiler ile akademik erteleme ve yaşam doyumları arasındaki ilişkiyi incelemektir. Bu çalışmanın katılımcıları olan 1770 üniversite öğrencisi (1019 kadın, 749 erkek and 2 belirtmemiş), şu üç profile ayrılmıştır: (a) hem içsel hem de dışsal motivasyon düzeyleri yüksek fakat motivasyonsuzluk düzeyleri düşük öğrencilerden oluşan (%38) "yüksek düzeyde motivasyonlu profil" (b) hem içsel hem de dışsal motivasyon düzeyleri orta düzeyde olan fakat motivasyonsuzluk düzeyleri düşük olan öğrencilerde oluşan (%44.9) "orta düzeyde motivasyonlu profil", (c) hem içsel hem de dışsal motivasyon düzeyleri düşük fakat motivasyonsuzluk düzeyleri yüksek öğrencilerden oluşan (%21.3) "düşük düzeyde motivasyonlu profil". Bu çalışmanın sonuçları, yüksek düzeyde motivasyonlu profildeki öğrencilerin yüksek düzeyde yaşam doyumu ve düşük düzeyde akademik erteleme gösterdiğini ortaya koymuştur. Sonuçlar ayrıca orta düzeyde akademik motivasyonlu profildeki öğrencilerin, düşük düzeyde motivasyonlu profildeki öğrencilere göre daha yüksek düzeyde yaşam doyumuna sahip olduğunu göstermiştir. Ayrıca orta düzeyde motivasyonlu profildeki öğrencilerin akademik erteleme düzeylerinin düşük düzeyde motivasyonlu profilde yer alan öğrencilere göre daha düşük düzeyde olduğu bulunmuştur.

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INTRODUCTION

Academic Motivation

Self-Determination Theory (SDT) (Deci and Ryan, 1985) posits that motivation is a multidimensional structure that includes different types and qualities of motivational states. This assumption undoubtedly applies to academic motivation which" is defined by a student's desire regarding academic subjects when the student's competence is judged against a standard of performance or excellence" (McClelland, et al.,1953). The theory divides motivation into unitary intrinsic motivation (IM), four types of extrinsic motivation (e.g., integrated regulation (EMIN), identified regulation (EMID), introjected regulation (EMINT), external regulation (EMER), and amotivation (AMOT). Deci and Ryan (1985) ranked these motivational orientations on a scale, called the motivation continuum, from the most autonomous motivation (IM) to a state of amotivation (AMOT) (Deci and Ryan, 2008; Can, 2015). However, Vallerand et al. (1989) took Deci and Ryan's classification of motivation (1985) in terms of academic motivation and divided intrinsic motivation into three equally autonomous sub-motivations (Intrinsic motivation to know (IMTK), Intrinsic motivation to accomplish (IMTA), and Intrinsic motivation to stimulation (IMTS). They also removed the integrated motivation (EMIN) from the motivation continuum (Ryan and Deci 2000b; Can 2015).

SDT differentiates the motivational orientations in respect to their quality; as autonomous and controlled motivations. Behaviors directed by IMTK, IMTA, and IMTS are considered to be fully autonomous, while behaviors directed by EMID are considered partly autonomous. On the other hand, behaviors directed by EMINT and EMER are assumed to be controlled. AMOT refers to an absence of motivation.

> "The IMTK is to do something for pleasure while one is learning, exploring, or creating something new. For example, if a student derives pleasure while doing homework, the motivation expired by the student will be IMTK. The IMTA describes an individual who derives satisfaction while he is accomplishing something. For example, students who solve extra mathematics problems, even though they are not required to do so, display IMTA. In describing the IMTS, it would be acceptable to offer that it is the behavior carried out to observe and experience stimulating sensations as the consequences of activities being engaged in (Cokley, 2000). For instance, a driver exceeding the speed limit to experience stimulating emotions displays an IMTS" (Can, 2015, pp. 389).

EMID is about behaviors done to get positive results. When a student finds an academic activity valuable and important, the motivational orientation of that student will be EMID. "EMINT refers to doing something to maintain high self-esteem or a sense of pride, or to avoid guilt or anxiety, and external regulation pertains to a behavior that is performed because of an external demand or possible reward" (Altıntaş et al., 2018). When a student internalizes and finds value in participating in an educational activity voluntarily, EMINT occurs. When activities that are to be completed are perceived as worthless by individuals, or when individuals believe themselves to be inadequate to do those activities, amotivation occurs. Amotivation, which is the final motivational state of SDT, is neither autonomous nor controlled; rather it refers to a lack of motivation (Can, 2015; Vallerand et al., 1992).

Although SDT differentiates motivation into different types of sub-motivations, some researchers (Deci and Ryan, 2012; Hayenga and Corpus 2010; Ratella et al. 2007) emphasize that intrinsic and extrinsic motivation may work together and that different motivational orientations may exist simultaneously within an individual. Accordingly, students in a population may have several sub-motivations at different

levels at the same time. Thus, students who display similar sub-motivations can be included in the same motivation cluster. Thus, several clusters of motivations can be obtained from a population at the same time.

According to SDT, if the motivational orientation of an individual is autonomous, the resultant variable associated with it will be more positive (Deci et al., 1991; Ryan and Deci, 2009). The results of those studies that use both the variable-centered method (Bishop, 2010; Guo, 2018; Krapp et al., 1992; Martín-Albo et al., 2012; Vallerand et al., 1997; Vansteenkiste et al., 2005) and the person-centered method (Boichè and Stephan, 2014; Hayenga and Corpus, 2010; Schunk et al., 2013; Vansteenkiste et al., 2009; Wormington et al., 2012) also support this view. Of these studies, the only research that tested the relationship between motivation profiles and academic procrastination that could be found was conducted by Vansteenkiste et al. (2009). However, no studies could be found in the literature that tests the relationship between motivation profiles and life satisfaction.

Academic Procrastination

Academic procrastination, which is a particularly common problem among university students, is defined as the deferment of academic tasks in an unreasonable manner until the deferment leads to high levels of anxiety (Solomon and Rothblum, 1984). Academic procrastination, as a negative tendency or personality trait, is positively associated with undesirable cognitive, behavioral, and emotional outcomes, such as ineffective time-management (McCown, Petzel, and Rupet, 1987), difficulty concentrating (Balkıs et al., 2006), a low sense of responsibility (Özer and Altun, 2011), academic failure (Onwuegbuzie, 2004; Steel, 2007), low self-esteem (Aydoğan and Özbay, 2012), and anxiety (Onwuegbuzie, 2004). Additionally, extrinsic academic motivation is a negative predictor of academic procrastination (Solomon and Rothblum, 1984; Onwuegbuzie, 2004; Kağan, 2009). According to Tuckman and Sexton (1989), procrastination is the lack or absence of self-regulated performance.

Although several studies in the literature report that autonomous academic motivation reduces academic procrastination (Brownlow and Reasigner, 2000; Katz, Elliot, and Nevo, 2014), only one study could be found (Vansteenkiste et al., 2009) that examines the relationship between academic motivation profiles of college students and their academic procrastination behavior. In their study, Vansteenkiste et al. (2009) report that the study participants were clustered into four different profiles: a good-quality motivation profile (i.e., high autonomous, low controlled), a poor-quality motivation profile (i.e., low autonomous, high controlled), a low-quantity motivation profile (i.e., low autonomous, low controlled), and a high-quantity motivation profile (i.e., high autonomous, high controlled). Among these, those students in the good quality motivation group displayed the least procrastination behavior when compared with students in all other motivation group profiles. Even if this study shows a negative relationship between autonomous motivation profiles and academic procrastination, findings obtained from similar future researches would be beneficial in further clarifying this matter.

Life Satisfaction

Academic life is an important variable that affects life satisfaction (Chow, 2005; Powers, 2008). Life satisfaction, which is a different but closely related concept to that of motivation (Deci and Ryan, 2000), is defined as "the cognitive aspect of subjective well-being and refers to people's evaluation of the quality of their life" (Peterson, Park, and Seligman, 2005). According to Myers and Diener (1995), life satisfaction is the evaluation of one's own life according to their own criteria. This evaluation is an assessment that

includes current living conditions, in addition to past and future states (Diener and Lucas, 1999). Like positive affect (experiencing positive emotions) and negative affect (experiencing negative emotions), life satisfaction is also one of the main indicators of well-being (Diener, 1985). On the other hand, life satisfaction is one of the resultant variables of intrinsic motivation (Guo, 2018) and well-being (Burton et al., 2006). Deci and Ryan (2000) state that when an individual's level of intrinsic motivation increases, their life satisfaction, and well-being also increase. Similarly, Jiménez et al. (2010) revealed that moving from extrinsic to intrinsic motivation has a statistically significant effect on life satisfaction. Additionally, other studies (Burton et al., 2006; Deci and Ryan, 2000; Niemiec et al., 2006; Martin–Albo et al., 2012) have revealed that that intrinsic motivation positively correlates with well-being and life satisfaction. However, findings obtained from studies investigating the relationship between extrinsic motivation and life satisfaction are inconsistent with one another. For example, Mafini et al. (2014) found a positive relationship between extrinsic motivation and life satisfaction, while Bhat and Naik (2016) and Batista et al. (2016) found negative relationships between the same variables. Furthermore, Kwok et al. (2013) suggest that extrinsic motivation is not related to life satisfaction, while Gillet et al. (2012) state that negative affect—one of the indicators of well-being—is positively affected by controlled motivation and amotivation.

Although some researchers (Graves et al., 2015; Liu et al., 2009; Ratelle et al., 2007; Van den Broeck et al., 2013; Vaters, 2015) have tested the relationships between motivational profiles and some of the variables that related to well-being, no studies could be found from the literature directly investigate the relationship between life satisfaction, and motivation profiles. This gap in the research regarding the relationship between motivation profiles and life satisfaction can be addressed by future research findings, which will also serve to clarify this subject area.

Current Study

This research aimed to determine the academic motivation profiles of university students and to examine the relationship between emerging profiles and the academic procrastination and life satisfaction of the participants. There is no research on the motivation of the academic profile of university students in Turkey. Moreover, in only a few of the studies conducted to determine motivation profiles in different cultures (Boiché and Stephan, 2014; Ratella et al., 2007), intrinsic motivation, all dimensions of extrinsic motivation, and amotivation are included in cluster analysis. The motivation was mostly analyzed as autonomous-controlled or internal-external dimensions in the studies. As for this study, seven dimensions of academic motivation were included in cluster analysis. In this respect, the study provided an opportunity to see the academic motivations of students that they exhibit naturally in detail. Besides, it also provided a chance to analyzed the relationship of academic motivation profiles with both variables at the academic level (academic procrastination) and variables at the general level (psychological life satisfaction). In this study, the findings of studies revealing that psychological need satisfaction was an important variable in life satisfaction (Cihangir Çankaya, 2009; Deci and Ryan, 2000; Elliot, Sheldon and Church, 1997; İlhan and Özbay, 2010) were taken into consideration and psychological need satisfaction was determined as the control variable. Thus, an important variable that could be effective in the relationship between life satisfaction and academic motivation is checked. The study is informative about the validity of Self-Determination theory in Turkish culture.

METHOD

Research Model

This research is a correlational survey model. In this reasarch aims to describe the academic motivation profiles of university students and reveal the relationships between their academic motivation profiles with gender, perceived academic achievement, academic procrastination, life satisfaction, and basic psychological satisfaction.

Study Group

The study participants included a total of 1,770 students, 749 (57.6%) male, 1,019 (42.3%) female, and two (1%) students who preferred not to specify their gender. All these student participants attended Anadolu University in Turkey at the time this study was conducted. These students comprised 501 freshmen (28.3%), 528 sophomore (29.8%), 377 junior (21.3%), and 359 senior (20.3%) students.

Ethical Statement

The study was carried out within the framework of the Helsinki Declaration and all participants whose informed consents were obtained took part in this study as volunteers. In line with this, the study was investigated and permitted by Anadolu University Scientific Research and Ethical Review Board (REF: 17031-16.09.2013). Required permits were obtained to use the scales in this study. The participants were informed of the goals of the project and they were told that their identities would be kept confidential.

Data Collection Tools

The Turkish versions of the Academic Motivation Scale (AMS) (Can, 2012), the Tuckman Procrastination Tendency Scale (TPTS) (Uzun-Özer, Saçkes, and Tuckman, 2013), and the Life Satisfaction Scale (SWLS) (Yetim, 1993) were used to collect the study data.

Academic Motivation Scale (AMS). The English version of the original Scale, the AMS (Vallerand et al. 1992), is called the "Echelle de Motivation en Education" in French (Vallerand et al., 1989). The AMS is a 28-item Likert - type scale. The Scale comprises seven sub-scales that assess amotivation (AMOT), three ordered types of extrinsic motivation (EMER, EMIN, EMID), and three types of unordered intrinsic motivation (IMTK, IMTA, IMTS). The confirmatory factor analyses (CFA) conducted by Can (2012) using 797 Turkish university students revealed acceptable fit values for the scale (CFI = 0.92, SRMR = 0120.062, NNFI = 0.90, GFI = 0.89, AGFI = 0.86, RMSEA = 0.064), which confirmed the scale's construct validity. The Cronbach's alpha values of the AMS subscales ranged between 0.71 and 0.84. In the present study, Cronbach's alpha were .81 (for knowing), .84 (for accomplishment), .81 (for experiencing sensations), .71 (for external regulation), .83 (for introjected regulation), .73 (for identification) and .83 (for amotivation).

Tuckman Procrastination Tendency Scale (TPTS). The scale was developed by Tuckman (1991) to measure college students' procrastination tendencies regarding academic behavior. The original version of the TPTS is a one-dimensional Likert-type scale comprising 16 items. The lowest total score possible from the scale is 16, while the highest is 80. The high scores obtained from the scale indicate a high procrastination level. Uzun-Özer, Saçkes and Tuckman (2013) who performed the Turkish version of the scale, reported that CFA results showed perfect fit indices (RMSEA = 0.056, CI = 0.047–0.064; GFI

= 0.99, CFI = 0.98). They also calculated the Cronbach's alpha value of the scale to be .080. Cronbach's alpha was .89 in this study.

The Life Satisfaction Scale (SWLS). The Life Satisfaction Scale was developed by Diener et al. (1985) to measure general life satisfaction. In the original version of the scale, Diener et al. (1985) found the criterion validity of the SWLS to be 0.82 and Cronbach's alpha reliability of the SWLS to be 0.87. The adaption of the Scale into Turkish, Yetim (1993) found the convergence validity of the scale to be .40 and reported that the Turkish version of the scale, which showed a single factor structure as the original scale, explained 38% of the total variance. In the present study, Cronbach's alpha was .83.

Need Satisfaction Scale. The scale was developed by Deci and Ryan (1991) to determine the level of satisfaction derived from basic psychological needs (need for competence, need for connection, and need for autonomy). The Likert-type scale, which is composed of 21 items, consists of three subscales to measure the needs of competence, connection, and autonomy. The height of the scores obtained from the subscales indicates that the satisfaction level of the psychological need it belongs to also increases. A total score is obtained from the scale, and the height of the score indicates that general need satisfaction also increases. Bacanlı and Cihangir-Çankaya (2003) who performed the Turkish version of the scale, reported that Turkish version of the NSS has acceptable validity (RMSEA = 0.07, CI = 0.86; AGFI = 0.82, CFI = 0.82) and reliability (Cronbach's alpha: .83). In the present study, Cronbach's alpha was .85..

Data Collection and Analysis

For the analysis of the study data, students' motivation profiles were determined using two stages of cluster analysis, depending on those z scores obtained from the AMS subscales. First, the metrics, outliers, multicollinearity, and the prerequisites of the cluster analysis (Hair et al., 1998) were examined. For the first stage of the cluster analysis, Ward's Linkage Clustering Method and the Squared Euclid distance method were used. For the second stage of the cluster analysis, a non-hierarchical cluster analysis was performed using the K-means clustering method. The stability of clusters was examined through the double-split cross-validation procedure (Vansteenkiste et al. 2009). The data set was then randomly divided into two subgroups, and both hierarchical and non-hierarchical cluster methods were separately applied to each of the sub-groups. Subsequently, the cluster centers obtained within each sub-group were designated as cluster centers for the other sub-group. Reanalysis was performed, and Cohen's kappa value was calculated for the results of each of the clusters obtained. One-way ANOVA was used to determine whether students' psychological need satisfaction scores and academic procrastination scores differ significantly according to students' academic motivation profiles. First, the prerequisites of this test, normality, and variance homogeneity were analyzed. Subsequently, the relationship between students' life satisfaction and academic motivation profiles was examined using one-way ANCOVA, controlling for students' psychological need satisfaction levels; before this performing, this analysis, normality, linearity, variance homogeneity equivalent of intragroup regression tendencies were also analyzed.

RESULTS

Preliminary Analyses

Before conducting the cluster analysis, 76 univariate outliers (values greater than M± 3 SD) and 13 multivariate outliers (Mahalanobis distance values over 24.32; $p < .001$) were removed from the data set. Then, the relations between the AMS subscales were analyzed to determine multicollinearity, if any, between variables. Findings from the analysis are presented in Table 1.

Table 1. Results of correlation analyses between subscales of AMS

Variables	1	2	3	4	5	6	7
1. Intrinsic motivation to know	-	.70*	.64*	.47*	.38*	.07*	- .33*
2. Intrinsic motivation to accomplish	-	-	.67*	.44*	.57*	.12*	- .21*
3. Intrinsic motivation to experience sensations	-	-	-	.34*	.43*	-.01*	- .11*
4. Identified regulation	-	-	-	-	.43*	.52*	- .33*
5. Introjected regulation	-	-	-	-	-	.34*	- .05*
6. External regulation	-	-	-	-	-	-	- .12*
7. Amotivation	-	-	-	-	-	-	-
M	20.82	17.40	15.42	22.07	16.27	22.08	7.07
SD	5.04	5.82	5.63	4.28	6.40	4.60	4.23

As it is seen in Table 1, correlation values vary between -.33 and .70 among motivation types. It is seen that the highest relationship between motivation types is between intrinsic motivation to know and intrinsic motivation to accomplish (r= .70). It is also seen that the lowest relationship is between introjected regulation and amotivation (r = -.05). Additionally, both intrinsic and extrinsic motivation types show negative relationships with amotivation and these relationships vary between .-33 and .-05. This analysis showed that the variables were free of the multicollinearity problem.

Cluster Analysis

Once the prerequisites of the cluster analysis were provided, a hierarchical cluster analysis was performed depending on z scores obtained from the AMS subscales. To determine the number of clusters in the first stage of cluster analysis, the algorithm list, which was obtained from the study, was analyzed and breakages between cluster distances were examined. As a result of this analysis, the largest breakage in the distance between the clusters was found in the second cluster, with a 35% change in heterogeneity. As stated by Hair et al. (2016), it was thought that it would not be possible to suggest that two clusters would emerge at the end of the analysis merely by looking at this natural change between the first and the second cluster. Therefore, heterogeneity changes in clusters 3 and 4 were also examined, which revealed that changes in this stage were also high (the changes in the 3rd and 4th clusters were 14% and 12%, respectively). Considering these findings, it was decided that the hierarchical cluster analysis indicated that the scores obtained from AMS showed three clusters.

In the second stage, non-hierarchical cluster analysis was performed to verify the three clusters obtained with hierarchical cluster analysis, as well as to finalize the cluster centers. It was observed that the new clusters obtained with the non-hierarchical cluster analysis method showed a similarity to the three clusters obtained using the hierarchical cluster method and that 75% of the students remained in the same clusters across the two analyses. These findings support that the AMS scores were included in these three clusters. The stability of these three clusters was examined through the double-split cross-validation procedure. The average kappa value across the subsamples (.89) provided substantial evidence for the stability of these three cluster solutions.

ANOVA was performed to determine whether the mean scores of the motivation clusters obtained from the sub-dimensions of the AMS differ significantly from each other. In this analysis, the Welch test was used instead of the F test because the variances are not homogeneous. According to the clusters, the average scores obtained from the sub-scales of AMS and Welch test results regarding whether they differ significantly from each other are given in Table 2.

Table 2. Motivational characteristics of academic motivation profiles

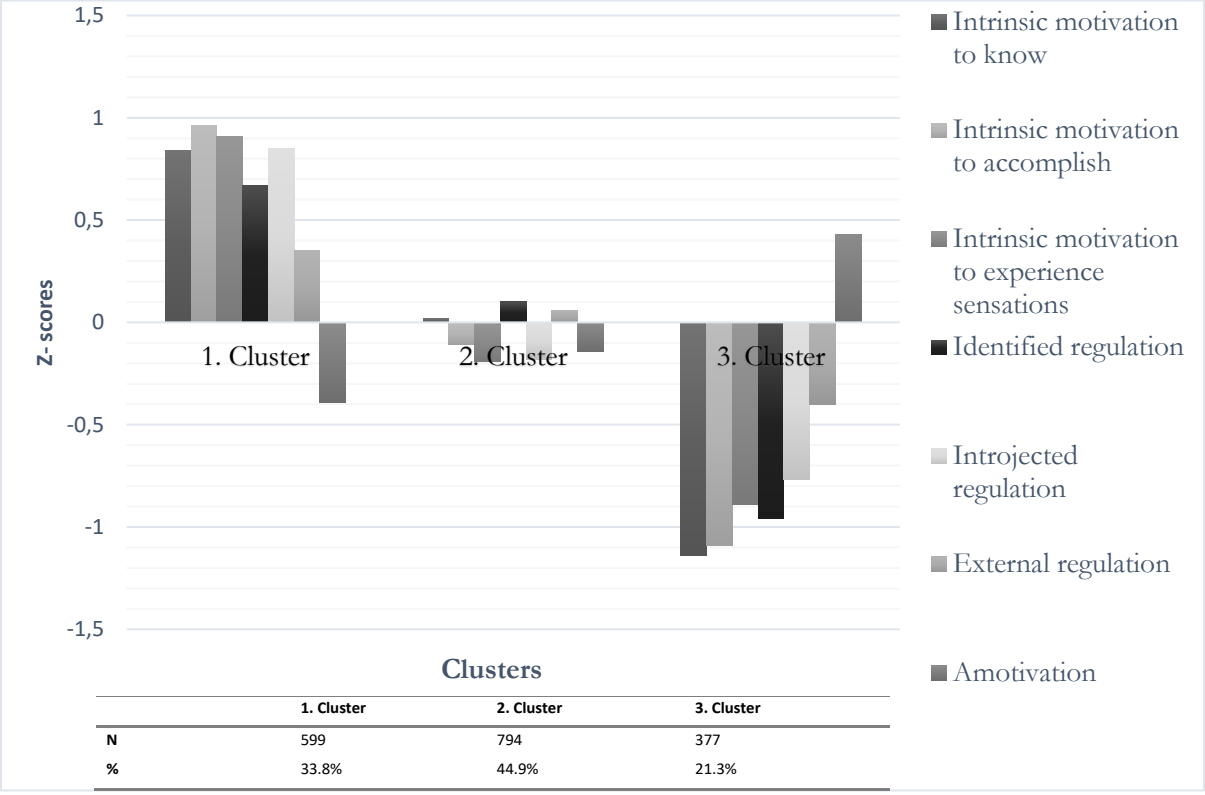
Motivation Types	1. Cluster Profile with high-level motivation			2. Cluster Profile with medium-level motivation			3. Cluster Profile with low-level motivation			Welch Test
	M	*SD*	*Z*	*M*	*SD*	*Z*	*M*	*SD*	*Z*	
Intrinsic motivation to know	25.05	6.78	0.84	20.65	3.30	0.02	14.48	4.14	-1.14	1098.08*
Intrinsic motivation to accomplish	22.90	3.40	0.96	16.47	3.70	-0.11	10.61	3.98	-1.09	1334.90*
Intrinsic motivation to experience sensations	20.72	4.01	0.91	14.42	4.08	-0.19	10.35	4.00	-0.89	843.36*
Identified regulation	24.89	2.80	0.67	22.23	3.22	0.10	17.27	3.98	-0.96	542.98*
Introjected regulation	21.84	4.71	0.85	15.15	5.09	-0.18	11.16	4.97	-0.77	627.41*
External regulation	23.55	3.91	0.35	22.09	4.23	0.06	19.73	5.33	-0.40	75.23*
Amotivation	5.61	2.96	-0.39	6.87	3.86	-0.14	9.81	5.28	0.43	104.52*

*p<.05

As can be seen in Table 2, the average score of the first cluster regarding the intrinsic and extrinsic motivation subscales is higher than the scores of the second and third clusters. The average score of the amotivation scale of the first cluster is lower than that of the 2nd and 3rd clusters. When the average scores of the second cluster and the third cluster are compared with the scores of intrinsic motivation, extrinsic motivation, and amotivation, it is seen that the intrinsic and extrinsic motivation scores of the second cluster are higher than those of the third cluster and the average score of the amotivation scale is lower than that of the third cluster. Welch test results indicated that there were significant differences between the clusters in terms of the average scores of the AMS subscales. The results of Tamhane's T2 test regarding the source of the differences between the average scores showed that all these differences between the average scores were significant. As a whole, these results supported that the three motivation clusters were correctly distinguished.

Interpretation of The Clusters and Determination of Profiles

For interpreting the clusters and creating the profile names, histogram graphs were formed based on the clusters relating to motivation types. These are presented in Figure 1.



	1. Cluster	2. Cluster	3. Cluster
N	599	794	377
%	33.8%	44.9%	21.3%

Figure 1: Distribution of cluster-center scores by the clusters' motivation types

As can be seen in Table 2, the average score of the first cluster regarding the intrinsic and extrinsic motivation subscales is higher than the scores of the second and third clusters. The average score of the amotivation scale of the first cluster is lower than that of the 2nd and 3rd clusters. When the average scores of the second cluster and the third cluster are compared with the scores of intrinsic motivation, extrinsic motivation, and amotivation, it is seen that the intrinsic and extrinsic motivation scores of the second cluster are higher than those of the third cluster and the average score of the amotivation scale is lower than that of the third cluster. Welch test results indicated that there were significant differences between the clusters in terms of the average scores of the AMS subscales. The results of Tamhane's T2 test regarding the source of the differences between the average scores showed that all these differences between the average scores were significant. As a whole, these results supported that the three motivation clusters were correctly distinguished.

As shown in Figure 1, the 1st cluster has the lowest amotivation score of all three clusters, highest scores in all other motivation types. For this reason, it was named as high-level academic motivation profile. A total of 33.8% of the students are located in this profile. The 2nd cluster, representing students with a medium-level motivation profile, has a medium level of scores compared to the other two clusters in all motivation types. This cluster is named as medium-level academic motivation profile. A total of 44.9 % of the group is located in this profile. The 3rd cluster has the highest amotivation score and the lowest scores in other types of motivation. This cluster has been named as a low-level academic motivation profile 21% of the group is in this profile.

Findings Regarding Academic Procrastination and Life Satisfaction

As can be seen in Table 2, there are differences in favor of those in higher motivated profiles among the participants' academic procrastination scores. One-way analysis of variance was applied to determine whether the participants' academic procrastination scores significantly changed according to their motivation profiles. Whether life satisfaction scores differ significantly in terms of academic motivation profiles was tested by one-way ANCOVA analysis by controlling students' psychological needs satisfaction levels. Findings from these analyses are presented in Table 3.

Table 3. Distribution of university students's academic procrastination and life satisfaction levels according to academic motivation profiles and the results of one-way variance analysis and covariance analysis

		Academic Procrastination				Life Satisfaction				
Motivation Profile	***N***	***M***	***SD***	***F***	η^2	***M***	***SD***	***Corrected Mean***	***F***	η^2
Profile with high-level motivation	599	34.86	11.00	61.70*	.04	23.60	6.23	22.61	18.12*	.02
Profile with medium-level motivation	794	38.67	11.24			21.48	5.98	21.69		
Profile with low-level motivation	377	40.97	12.26			19.32	6.03	20.45		

*p<.001

Variance analysis results showed that there were significant differences between the academic procrastination scores of students in different motivation profiles (F (2, 1767) = 61.70, p <. 001). However, the effect size value (η^2) of the motivation profiles on academic procrastination was found to be at a low level (η^2 = .04). The results of a two-group comparison conducted using the Tukey HSD test indicate that the academic procrastination level ($\overline{X}$ = 34.86) of students within the high-level motivation profile is significantly lower than students located within the medium-level profile ($\overline{X}$=38.67) and low-level motivation profile ($\overline{X}$= 40.97). The academic procrastination level of the students in the medium-level motivation profile ($\overline{X}$= 38.67) was found to be significantly lower than those of students in the low-level motivation profile ($\overline{X}$= 40.97).

Due to the strong relationship between life satisfaction and psychological-need satisfaction (Cihangir-Çankaya, 2005; İlhan ve Özbay; 2010; Ryan, Bernstein ve Brown, 2010; Toprak, 2014) psychological need satisfaction was considered as a control variable when examining life satisfaction level according to academic procrastination level of students. As seen in Table 2, after controlling the participants' psychological need satisfaction level, it was observed that life satisfaction scores decreased in the high-level motivation profile but increased in the medium and low-level motivation profiles One-way analysis of covariance revealed that the life satisfaction average scores of the participants in high, medium and low motivation profiles were significantly different from each other. (F (2.1766) = 18.12, p <. 001). However, the effect size of the academic motivation profiles on life satisfaction was found to be of a low level (η^2 = 0.02). According to the Tukey HSD test results, the life satisfaction levels of students with a high-level motivation profile ($\overline{X}$ = 23.60) were found to be significantly higher than those of students with a medium-level motivation profile ($\overline{X}$ = 21.48) and low-level motivation profiles ($\overline{X}$= 19.32). Also,

students with a medium-level motivation profile ($\overline{X}$= 21.48) were found to have significantly higher scores than those with a low-level motivation profile ($\overline{X}$= 19.32).

DISCUSSION, CONCLUSION & SUGGESTIONS

In this study, it was determined that the participants were clustered in three different motivation profiles named as high, medium, and low-level motivation profiles according to their scores obtained from AMS. The scores obtained by the students in the medium motivation profile from the intrinsic and extrinsic motivation types are lower than the high motivation profile but higher than the low motivation profile. The amotivation scale score of this group is lower than that of the high motivation profile and higher than that of the low motivation profile. While the students in the low-level motivation profile obtained the lowest scores from the intrinsic and extrinsic motivation types, they obtained the highest scores from the amotivation subscale. The three types of motivation profiles obtained in this research show quite many similarities to the three profiles that Ratella et al. (2007) obtained in two different studies conducted on high school students. However, the other three profiles obtained in a study conducted with university students within the scope of the same research differ from the profiles obtained in this study in terms of features that the profiles have. Profiles such as those with high or low autonomous motivation in this research have also been found in previous researches (Boichè and Stephan, 2014; Hayenga and Corpus, 2010; Kusurkar et al., 2013; Ratella et al., 2007; Vansteenkiste et al., 2009). However, the profile that has similar characteristics to the profile with a medium-level of motivation has been encountered in few studies (Boichè and Stephan, 2014; Ratella et al., 2007). Therefore, it can be stated that the profile with a high-level of motivation and the profile with low-level of motivation obtained in this study are the profiles that the students commonly have.

No autonomous profile whose intrinsic motivation and identified motivation are high and other motivation types are low is obtained in this study. However, it is seen that an autonomous profile was obtained in all of the studies that previously determined university students' academic motivation profiles (Boichè and Stephan, 2014; Kusurkar et al., 2013; Ratella et al., 2007; Vansteenkiste et al., 2009). Additionally, no controlled motivation profile whose intrinsic motivation and identified motivation are low and other extrinsic motivation types are high is obtained in this study. Like autonomous profile, it is seen that a controlled profile was obtained in most of the studies that previously determined university students' academic motivation profiles (Boichè and Stephan, 2014; Kusurkar et al., 2013; Ratella et al., 2007; Liu et al., 2009; Vansteenkiste et al., 2009). This situation can be related to cultural factors. One of the most important factors can be the way of choice of profession. The profession and the university that the students choose play a determining role in the university entrance exam in Turkey. Thus, the findings of the study indicate that the students are populously obliged to choose a profession for which they "have enough score" when they choose profession (Çetin, 2012; Özsoy, Özsoy, Özkara and Memiş, 2010). Therefore, most of the students may be attending a university for extrinsic reasons. The fact that the educational environment in universities is not supportive enough of intrinsic motivation might be restraining students from developing profiles related to intrinsic motivation. However, more researches are needed in Turkey to determine the motivation types that the students exhibit and to reveal the factors that are effective in the formation of these motivations.

The findings that show that academic procrastination decreases as the level of intrinsic motivation increase across all three profiles support the previous research findings (Orpen, 1998; Bosota, 2001; Senècal, Julien, and Guay, 2003) that indicate intrinsic academic motivation provides more positive results

for individuals. However, in a study, Vansteenkiste et al. (2009) report that university students with high- and low-motivation profiles show no significant difference regarding their academic procrastination levels. The students who obtained a high level of academic procrastination tended to procrastinate without a reason on performing tasks such as preparing for an exam, doing homework, participating in the lesson. Some of the researchers who tried to explain this situation suggest that academic procrastination should be regarded as a motivational problem (Senécal, Koestner and Vallerand, 1995) and that procrastination arises from scarcity or lack of motivation (Tuckman and Sexton, 1992; Diaz-Morales, Cohen and Ferrari, 2008). Students who obtained a high level of academic procrastination withdraw easily from academic tasks for activities such as watching television, meeting friends, and they confront intention-behavior dilemmas (Schouwenberg, 1995). However, especially students who have high intrinsic motivation persist with maintaining their aims (Ratelle, Guay, Vallerand, Larose and Senecal, 2007; Vallerand and Bissonette, 1992). Moreover, students who have a high level of academic procrastination also have a high level of unwillingness for performing their academic tasks. When the fact that this situation is an important predictor of procrastination is taken into consideration, it can be said that students who have both intrinsic and extrinsic motivations to maintain academic life might be fulfilling their academic tasks without procrastinating them because these students both enjoy learning and pay attention to the consequences of their behaviors in the educational process. Therefore, it can be said that they are more enthusiastic about performing academic tasks and thus they exhibit less procrastination behavior. The fact that students located in the profile that has higher amotivation than the other profiles have a low level of intrinsic or extrinsic reasons to maintain academic life causes them to procrastinate their academic tasks until the very last minute. It can be said that more research findings are needed to support the view that there is a negative relationship between academic procrastination and autonomous motivational orientations of university students.

The findings of this study on satisfaction with life show that students with a more autonomous motivation profile also have higher levels of life satisfaction. This finding, which shows that motivation is an important determinant of life satisfaction, is consistent with the findings of previous studies (Batista et al., 2016; Koç, 2018; Ratella et al., 2007; Salinas-Jiménez et al., 2010). Self- determination theory asserts that individuals who have high well-organized types of intrinsic and extrinsic motivation mostly experience positive feelings and have more satisfaction in their lives. Despite that, it is asserted that individuals who do not have well-organized types of extrinsic motivation and who have high amotivation mostly experience negative feelings and they have less satisfaction in their lives (Ryan and Deci, 2011). The findings obtained from other researches conducted in different cultures support this idea (Ratella et al., 2005; Vanteenkiste et al., 2005). It is found in the current study that the students who have high levels of intrinsic and extrinsic motivation have higher life satisfaction than the students in the other profiles. The students in this profile have high intrinsic motivation and extrinsic motivation as well. In this respect, the findings of the current research show both consistency and inconsistency with the views of self-determination theory. However, some researchers (Ratella et al., 2007) suggest that autonomous motivation can have a role in protection. They state that in profiles that have high autonomous and controlled motivations, autonomous motivation can be protecting against the negative effects of controlled motivation. It can be said that the results obtained in this research are consistent with this view. However, more studies are needed to determine the protective effect of autonomous motivation.

Implications

In this research, students' academic motivation profiles that the students exhibit at a certain period are analyzed. In further researches to be performed, students' motivation profiles can be determined as soon as they start university education, and changes in these profiles can be analyzed with longitudinal studies during their university education. Thus, the role of university education can be determined in academic motivation profiles. The current study aims to describe only the motivation profiles. In the studies to be conducted in the future, different research methods can be used. Thus it can be possible to analyze why university students exhibit some profiles while they do not exhibit some of the others. This study can be repeated in different samples, and academic motivation profiles at different levels of education can be compared.

Conclusion

These results show that intrinsic motivation, extrinsic motivation, and amotivation in an individual work together at the same time, rather than supporting the views of some authors (Hayenga and Corpus 2010; Deci and Ryan, 2012; Ratella et al. 2007) suggest that intrinsic and extrinsic motivation works together in an individual. Additionally, it was revealed by the current study that the students who had intrinsic and extrinsic motivations at a high level and amotivation at a low-level exhibit less academic procrastination behavior and have higher psychological need satisfaction and life satisfaction as well.

Limitations

This study has several strengths and limitations. The most important strength of this study is that this is the first study conducted in Turkey that determines university students' academic motivation profiles and investigates its relationship with their academic procrastination and life satisfaction. The fact that no other study investigating the relationship between different motivation profiles and life-satisfaction directly was not found in the related literature is another strength of this research. However, the selection of the participants in this study only from one university is a limitation of the current research because it undermines the generalizability of the study findings. Another limitation of this study is that those participants who did not respond to the scale items honestly could not be removed from the study, this was due to the lack of filler items in the scales used in this research.

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AAC: Idea and design, data analysis, interpretation of findings, reporting of the article

Conflict of Interest

It has been reported by the authors that there is no conflict of interest.

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Ethical Statement

The authors declare that they have carried out the research within the framework of the Helsinki Declaration and with the participation of volunteer students. In line with this, the study was permitted by Anadolu University, Ethics Committee.
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