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Structural Relationships Among Academic Motivation, Procrastination and Perfectionism: A Modelling Study

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Abstract

The ever-increasing demands for a better and deeper understanding of the nature of learning has urged researchers to examine the factors affecting the learning process. The purpose of this study was to determine whether a model could be formed on the ground of the structural relationship pattern among motivation, procrastination and perfectionism. The participants consisted of 210 students studying at a state university in İstanbul. As data collection tools, Academic Motivation Scale, Frost Multidimensional Perfectionism Scale and Aitken Academic Procrastination Inventory were administered to the study group. Data obtained were analysed using SPSS 21.0 and AMOS 21.0 software program through Structural Equation Modelling. Results indicated that maladaptive perfectionism, as was the case with procrastination, was affected by intrinsic and extrinsic motivation as well as amotivation. On the other hand, adaptive perfectionism was affected by intrinsic and extrinsic motivation. In the light of the theoretical background, the suggested model was tested and after necessary path analysis, it was revised and the structural relationship pattern among motivation, procrastination and perfectionism was suggested as a model.

Keywords: Intrinsic-Extrinsic motivation, procrastination, adaptive-maladaptive perfectionism.

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Akademik Motivasyon, Mükemmeliyetçilik ve Erteleme Arasındaki Yapısal İlişkiler: Bir Modelleme Çalışması

Öz

Öğrenmenin doğasını daha etkin bir şekilde anlama için gösterilen çabalar, araştırmacıları öğrenme sürecini etkileyen faktörleri detaylı olarak incelemeye itmiştir. Bu anlamda gerçekleştirilen çalışmanın amacı, motivasyon, erteleme ve mükemmeliyetçilik kavramları arasındaki yapısal ilişki örüntüsü zemininde bir model oluşturulup oluşturulmayacağını belirlemektir. Katılımcılar, İstanbul'da bir devlet üniversitesine devam eden 210 öğrenciden oluşmuştur. Veri toplama aracı olarak, Akademik Motivasyon Ölçeği, Frost Çok Boyutlu Mükemmeliyetçilik Ölçeği ve Aitken Akademik Erteleme Ölçeği uygulanmıştır. Elde edilen veriler SPSS 21.0 ve AMOS 21.0 yazılım programı kullanılarak Yapısal Eşitlik Modeli ile analiz edilmiştir. Sonuçlar uyumsuz mükemmeliyetçiliğin, akademik ertelemede olduğu gibi, içsel ve dışsal motivasyonun yanı sıra motivasyonsuzluktan etkilendiğini göstermiştir. Öte yandan, uyumlu mükemmeliyetçiliğin ise içsel ve dışsal motivasyondan etkilendiği belirlenmiştir. Alan yazından elde edilen bilgiler ışığında önerilen model test edilmiş ve gerekli yol analizi işlemleri yapılarak gözden geçirildikten sonra, motivasyon, erteleme ve mükemmeliyetçilik arasındaki yapısal ilişki örüntüsü bir model olarak önerilmiştir.

Anahtar Kelimeler: İçsel-dışsal motivasyon, erteleme, uyumlu-uyumsuz, mükemmeliyetçilik

Introduction

To understand the nature of learning and endeavours to make it more effective is an ongoing concern among researchers. In the learning process, both the structure of knowledge as well as how it is perceived in the mind along with the affective factors that influence the mental processes in learning should be emphasized (Yılmaz & Çavaş, 2007). Motivation, which holds a significant place in the affective domain, is one of the most important concepts to be handled in the field of education (Kassaee & Rowell, 2016; Linnenbrink & Pintrich, 2002; Oxford & Shearin, 1994; Parker & Engel, 2001). The learning process involves intentional and deliberate actions, and motivation in this sense, as in any field, affects the mentioned process positively. Endowed with talent and ability, even exceptional students may not be successful in improving their skills when they do not pay attention and make effort (McCoach & Flake, 2017; McInerney & Liem, 2008). Rifai (2010) argues that motivation has a profound effect on learning because it strengthens and steers behaviours. Maehr and Meyer (1997, p. 372) put a further step and assert that "motivation has been, is and probably will be at the heart of teaching and learning". Thus, motivation is considered to be an important factor in constructing knowledge and learning processes.

Although it has attracted a great deal of attention among researchers, specific definition of the term motivation is elusive (Oxford & Shearin, 1994). According to Ryan and Deci (2000, p. 69), motivation is closely associated with "energy, direction, persistence-all aspects of activation and intention." McCoach and Flake (2017) regard the concept as the energy to stimulate abilities and lead them to success since, to them, motivation acts as a "catalyst" that shapes and directs ability. In Dörnyei's (1994) definition, the term is related to the sense of excitement or stimulation that develops in a dynamically intrinsic way in individuals and shows a cumulative trait. As a brief conclusion, motivation is a process by which people perform their own desires to achieve a goal.

Although assessed for a long time in a single structure (Deci & Ryan, 2008), Ryan and Deci (2000) express that motivation can be explained by a myriad of experiences and variables, even in its most basic definition. In this sense, Self-Determination Theory (SDT) developed by Deci and Ryan (1985) makes a distinction between motivational types or motives behind the realization of any action by individuals in the learning process. In the theory, Deci and Ryan (1985) assert that motivation basically comprises three components: intrinsic, extrinsic and amotivation. Contrary to the conventional view, SDT focuses on the types of motivation rather than the level of motivation that an individual possesses. In other words, the type of an individual's motivation is more important than the amount of motivation as far as outcomes are concerned (Deci & Ryan, 2008).

Intrinsic motivation connotes the motive to fulfil a task or duty for its own sake instead of any exterior inspiration or award and it emphasizes contentment as well as satisfaction (McCoach & Flake, 2017). Once individuals are intrinsically motivated, they fulfil an activity eagerly since they have an interest, demonstrate a high level of curiosity, possess a kind of stimuli and develop a sense that can handle difficulties (Deci & Ryan, 2008). On the other hand, extrinsic motivation is primarily concerned with outer instruments. Individuals are often extrinsically motivated when they are encouraged, manipulated, directed or awarded by others to whom they attach importance (Ryan & Deci, 2000; Vallerand & Ratelle, 2002). Put differently, the behaviours explained in terms of extrinsic motivation are considered as an instrument or medium to reach an ultimate aim which is generally set and controlled by external agents (Kauffman, Soylu & Duke, 2011). Another component of the theory is amotivation which is generally defined as "the state of lacking the intention to act". In this kind of motivation, individuals do not act voluntarily or intentionally. Amotivation behaviours largely emerge when people do not value an activity, when they feel that they are not capable of fulfilling a task or when they do not feel that they will reach a satisfying result (Ryan & Deci, 2000).

While motivation is of crucial importance in the learning process, lack of motivation leads to undermining individuals' endeavour towards certain tasks (Dişlen, 2013; Park & Sperling, 2012). Rakes and Dunn (2010) along with Vij and Lomash (2014) assert that lack of intention and eagerness could lead to procrastination which, in this sense, is the opposite of motivation. Basically defined as "letting the low priority tasks get in the way of high-priority ones" (Vij & Lomash 2014, p. 1065), procrastination refers to delaying tasks, intentionally choosing one task over the others or voluntarily deferring a task which has to be fulfilled (Gustavson & Miyake, 2017; Shraw, Wadkins & Olafson, 2007; Solomon & Rothblum, 1984). Senecal, Koestner and Vallerand (1995) correlating motivation with procrastination assert that amotivated individuals or the ones who organize their behaviours for the sake of extrinsic motives will delay performing a task or activity until the very last moment because they, only at that time, feel an obligation to act. On the other hand, intrinsically motivated individuals have a tendency to feel a kind of willingness rather than pressure to initiate the given tasks.

According to Vij and Lomash (2014), students' responses to the reasons for procrastination are likely to demonstrate the correlation between procrastination and motivation in that they have a tendency to delay certain tasks while they do not

postpone others. This connotes that they have a kind of motivation for the tasks they do not delay and lack of motivation makes procrastination increase (Vij & Lomash 2014). Senecal et al. (1995) put a further step and suggest that procrastination is a motivational matter. It is argued that procrastination is negatively correlated with motivation and some evidence suggests that individuals having high level of procrastination have maladaptive motivational tendencies (Park & Sperling, 2012). Many researchers have found similar results. For instance, Yoshida et al., (2008) in their study, concluded that the ones who had higher motivation had a tendency to complete difficult tasks while individuals with lower motivation preferred to work on relatively easier tasks. Likewise, Cerino (2014), studying the links between motivation, self-efficacy and procrastination found significant negative correlations between procrastination and motivation, particularly intrinsic motivation. Examining the relationships between procrastination and motivation, Lee (2005) also highlighted the significant correlation between high procrastination and lack of motivation. Among others, studies conducted by Brownlow and Reasinger (2000), Burnam, Komarraju, Hamel and Nadler (2014) and Rakes and Dunn (2010) Vij and Lomash (2014) stressed the negative correlation between motivation and procrastination. Senecal et al. (1995) also stressed low correlation between intrinsic motivation and less procrastination. The common ground that these studies denotes that procrastination is a motivational matter and it is something more than time management or idleness (Senecal et al. 1995).

Another personality trait that correlates with lack of motivation or decreased motivation is perfectionism (Klassen, Krawchuk & Rajani, 2008; Neumeister, Fletcher & Burney, 2015). Defined as setting unrealistically high personal standards (Frost, Marten, Lahart & Rosenblate, 1990; Slaney, Rice & Ashby, 2002;), perfectionism is a complicated and multifaceted personality trait (Burnam et al. 2014) which is thought to be associated with many psychological complaints ranging from depression and anxiety to eating ailments (GhorbonDordinejad & Nasab, 2013; Gnilka, Ashby & Noble, 2012). Several studies have analysed the different dimensions of perfectionism. Hewitt and Flett (1991) identified three types of perfectionism: self-oriented perfectionism (a desire for one's own perfection), other-oriented perfectionism (a desire for others' perfection) and socially prescribed perfectionism (others' desires for one's perfection). Frost et al. (1990), emphasized six dimensions of perfectionism: excessive concern for mistakes, high personal standards, perception of high parental criticism, doubting of the quality of one's actions and preference for order and organization. Further, taking the potential psychological range of perfectionism into account (Gnilka et al. 2012), it has also been separated in two types: adaptive and maladaptive perfectionism (Stoeber, Otto & Dalbert, 2009), which has a root in Hamachek's (1978) "normal perfectionism" and "neurotic perfectionism".

Studies confirm that perfectionism as a multifaceted notion is related to motivation and that individuals who have perfectionist striving which is analogous to adaptive perfectionism (Greblo, Barić & Erpič, 2015) are more motivated (Stoeber & Rambow, 2007). A study conducted by Einstein, Lovibond and Gaston (2000) with high school students revealed that self-oriented perfectionism is linked with motivation and students who have perfectionistic strivings are more motivated and more interested in school activities. Stoeber, Feast and Hayward (2009) in their study

found that self-oriented perfectionism and socially prescribed perfectionism were positively correlated with intrinsic and extrinsic motivation respectively. Similarly, in another study, adaptive perfectionism was found to have a positive correlation with intrinsic motivation, while maladaptive perfectionism had a positive correlation with amotivation (Chang, Lee, Byeon, Seong, & Lee 2016).

Similar to the construct between motivation and procrastination, perfectionism has also been studied with procrastination (Bong, Hwang, Noh, & Kim, 2014). According to Flett, Hewitt and Martin (1995), procrastination is closely associated with perfectionism since procrastination originates from tendency to set extremely high standards. In this sense, individuals who exhibit perfectionistic tendencies have predispositions to procrastinate in that they feel the heavy burden of being perfect while performing a given task (Hamachek, 1978). According to Solomon and Rothblum (1984), setting extremely perfectionistic standards is one of the possible reasons for procrastination. A study focusing on academic procrastination, perfectionism and control showed that there was a significant correlation between maladaptive perfectionism which was also alternatively named for socially prescribed perfectionism, whereas the relationship between adaptive perfectionism and procrastination did not correlate with each other (Burns, Dittman, Nguyen, & Mitchelson, 2000). In another study, Jadidi, Mohammadkhani, & Tajrishi (2011) found that the more perfectionists the students were, the more they showed tendencies to academic procrastinate academic tasks. Ferguson and Rodway (1994), studying the efficiency of cognitive-behavioural treatment of perfectionism, stressed the link between perfectionism and procrastination. All in all, since perfectionists have thoughts to perform a task in a perfect manner, they postpone the given tasks as much as possible.

As stated, motivation with its multidimensional structure plays important roles in procrastination and perfectionistic tendencies. In this research, the structural relationships among the intrinsic motivation, extrinsic motivation, amotivation and their relationships between the adaptive and maladaptive perfectionism, together with the relationships between these variables and procrastination were discussed. Considering the lack of research based on these variables, it was evaluated that this study would make a significant contribution. Further, the interrelationship between procrastination and perfectionism deserved a great deal of attention to be scrutinized to dig into more factors affecting the learning process to improve it and get better results. Thus, what this study highlights was a thorough analysis among the structural relationships among motivation, procrastination and perfectionism. To this end, the purpose of this study was intended to specify the structural relationships between motivation, procrastination and perfectionism. In this study, the sub-scales of motivation namely intrinsic, extrinsic and amotivation were considered as *independent variable* while procrastination, order (adaptive perfectionism) and perfectionism (maladaptive perfectionism) as *dependent variables*. In line with the theoretical framework, the purpose of the research was formed as follows:

What is the structural relationships between academic motivation, procrastination and perfectionism?

After reviewing the literature and related studies, the suggested model for the structural relationship pattern between motivation, procrastination and perfectionism in the current research is presented in Figure 1.

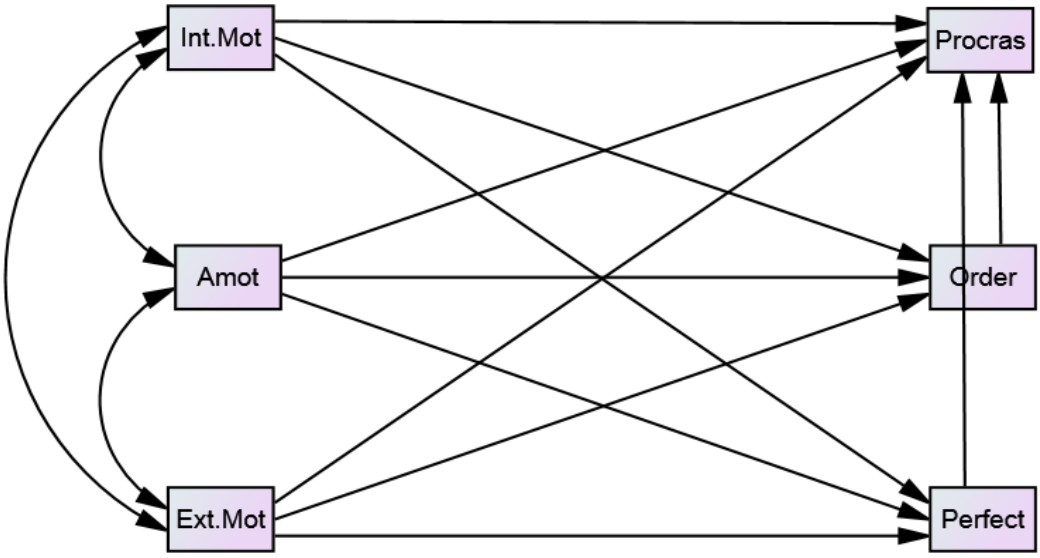

Figure 1. The structural relationships between motivation, procrastination and perfectionism in the suggested model

In Figure 1, the suggested model was formed in compliance with the theoretical background and empirical studies related academic motivation procrastination and perfectionism.

Method

Research Design

The present research was conducted in causal research design. This type of design aims to determine the causes of an existing situation or event and the effects of those variables or the results of an effect. In other words, these studies emphasize on an analysis of an event to clarify the relationship patterns among the variables and patterns (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2008). The cause-effect relationship patterns among aforementioned variables were analysed through Structural Equation Modelling (SEM).

Participants

The sample of the research included college students attending a state university in Turkey during the academic year of 2017-2018. 210 (93 female 45%, 117 male 55%) students form the study group. In order to select participants, simple random sampling was applied. In this method, each individual in the world has the same chance of being sampled and independent of each other. Therefore, the weight to be given to each individual in the calculations is the same (Kılıç, 2013).

Data Collection Tools

The data were collected from the "Academic Motivation Scale", "Aitken Academic Procrastination Inventory" and "Frost Multidimensional Perfectionism Scale".

Measuring tools were applied to the students by the researchers in the 2017-2018 academic year in the spring semester.

Academic motivation scale. Academic Motivation Scale (AMS), which was developed by Vallerand et al. (1992) and translated into Turkish by Karatas¸ and Erden (2012) was used to determine the participants' motivational levels. Consisting of 27 items and three sub-scales, the scale measures intrinsic, extrinsic and amotivation. The internal consistency coefficient of the scale was found .97 Cronbach's Alpha, and the factor analysis results indicated that there were seven factors explaining 68.59 % of the total variance in the scale (Karatas¸ & Erden, 2012), which all meant that the scale was valid and reliable.

Frost multidimensional perfectionism scale. Frost Multidimensional Perfectionism Scale (FMPS), developed by Frost et al. (1990), was administered to the participants to specify the perfectionistic tendencies. It is a five-point Likert type scale that consists of 36 items under six subscales. Among other subscales, Order subscale represents adaptive perfectionism. In studies, Order subscale scores are recommended not to be included in total scoring of the scale (Kağan, 2011). Higher scores in the scale mean that the individual tends to display higher perfectionist behaviors. The scale was adapted to Turkish by Kağan (2011). The researcher calculated the total inner consistency .91 while Cronbach's Alpha for the subscales ranged between .64 and .94. These values demonstrated that the scale valid and reliable.

Aitken academic procrastination inventory. Developed by Aitken, Academic Procrastination Inventory (API) was applied to determine the participants' procrastination levels. Consisting of 16 items and being a five-point Likert scale, API was adapted into Turkish by Balkıs (2006). Higher scores received from the scale suggest higher level of procrastination. The internal consistency coefficient of the inventory was found .89 Cronbach's Alpha, and test-retest reliability coefficient was calculated .87 (Balkıs, 2006), which showed that the scale is valid and reliable.

Data Analysis

The structural relationships among the variables motivation, procrastination and perfectionism were analysed through the software program AMOS 16 using Structural Equation Modelling (SEM) which clusters many statistical methods to analyse comprehensive relationships between one or more than one dependent and independent variables (Ullman & Bentler, 2013). It also allows to test and understand the multidimensional structure of a model along with offering to determine the deficiencies of a suggested model (Weston & Gore, 2006).

Results

Suggested model for the structural relationships between motivation, procrastination and perfectionism is presented in Figure 2.

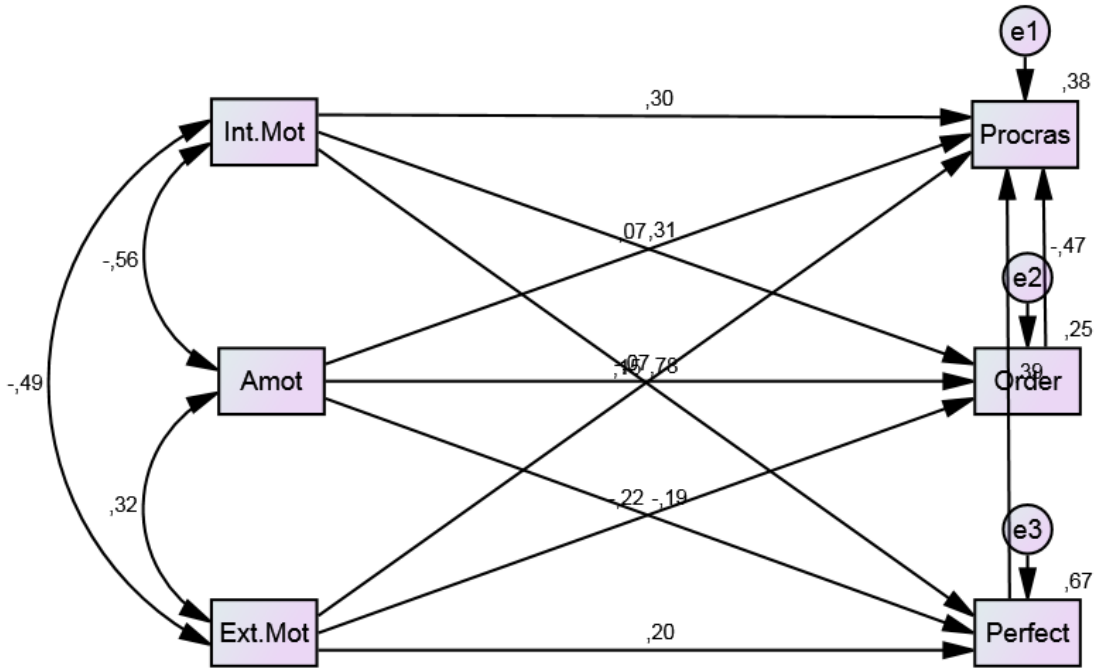

Figure 2. The structural relationships between motivation, procrastination and perfectionism of the suggested model

In Figure 2, the values of the suggested model regarding the structural relationships between variables are presented.

The model above was tested through maximum likelihood method in the AMOS software program. In order to use this method and reach the correct results, it was necessary to use some goodness of fit indexes which the system required. The values of these indexes are of crucial importance with regard to revealing and analysing the goodness between the model which is theoretically framed and the data obtained (Bayram, 2013).

Among these indexes, The Chi-square Goodness Index is the most commonly known goodness index and, in a sense, can be termed as the initial goodness value (Çokluk, Şekercioğlu, Büyüköztürk, 2012). The value of $\chi 2$, which should be smaller than 3 (Kline, 1998; Schermelleh-Engel, Moosbrugger, & Müller, 2003), in a meaningful range of values indicates that the model does not fit the data, while the value of $\chi 2$ in a meaningless range indicates a fit between the model and the data (Weston & Gore, 2006).

There are different goodness indices used in the evaluation of a model's fitness. Table 1 presents the values of standard fitness measures used to evaluate model's fitness and the suitability of the suggested model.

The goodness of fitness indices obtained from the suggested model are presented in Table 1. As it can be seen, the chi-square value divided by the degree of freedom has been found as 2.1 ($2 \leq \chi 2/df \leq 3$); RMSEA value is .11 ($0 \leq RMSEA \leq .08$); NFI value is .98 ($.95 \leq NFI \leq 1.00$); CFI value is .98 ($.97 \leq CFI \leq 1.00$); The GFI value is .98 ($.95 \leq GFI \leq 1.00$) and the AGFI value is .82 ($.85 \leq AGFI \leq .90$). As is seen, the values of RMSEA (.11), and AGFI (.82) are not within the recommended ranges, thus the

model has been reviewed and rearranged in accordance with the steps to be taken in the path analysis as follows:

Table 1
Recommended Values for Evaluation and Values of the Suggested Model

Fit Measure	Good Fit	Acceptable Fit	Suggested Model
$\chi 2/df$	$0 \leq \chi 2/df \leq 2$	$2 \leq \chi 2/df \leq 3$	2.1
RMSEA	$0 \leq$ RMSEA $\leq .05$	$0 \leq$ RMSEA $\leq .08$	.11
NFI	$.95 \leq$ NFI ≤ 1.00	$.90 \leq$ NFI $\leq .95$	.98
CFI	$.97 \leq$ CFI ≤ 1.00	$.95 \leq$ CFI $\leq .97$	.98
GFI	$.95 \leq$ GFI ≤ 1.00	$.90 \leq$ AGFI $\leq .95$	.98
AGFI	$.90 \leq$ AGFI ≤ 1.00	$.85 \leq$ AGFI $\leq .90$	.82

RMSEA = Root Mean Square Error of Approximation; NFI = Normed Fit Index, CFI = Comparative Fit Index; GFI = Goodness-of-Fit Index; AGFI = Adjusted Goodness-of-Fit-Index (Schermelleh-Engel et al. 2003).

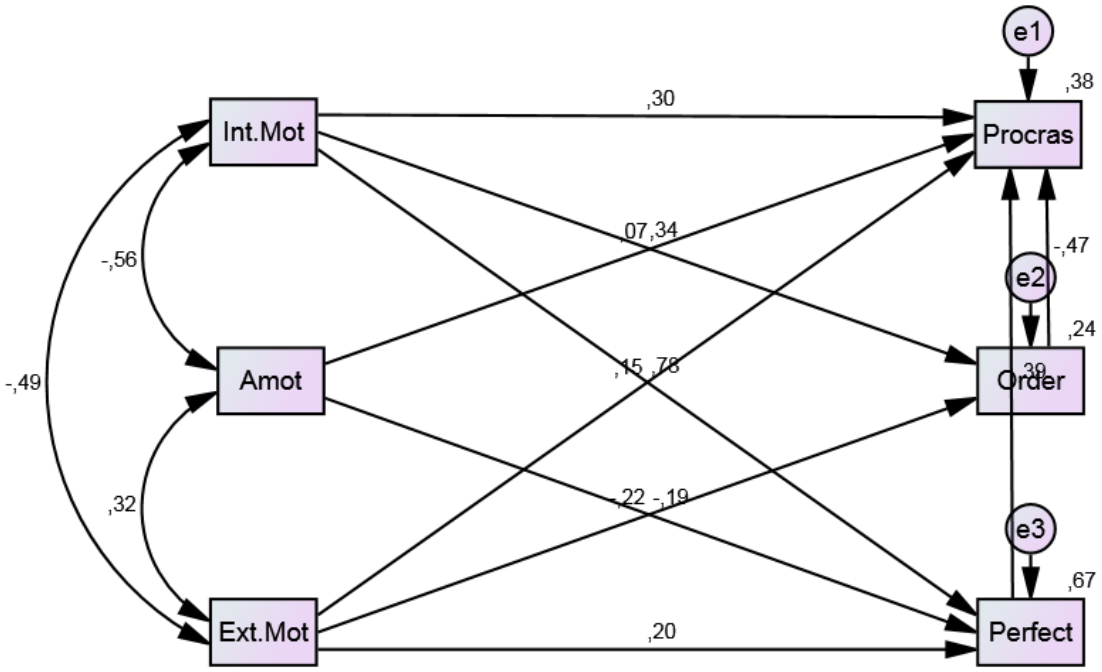

Figure 3. The Structural Relationships between Motivation, Procrastination and Perfectionism of the Suggested Model.

In order to obtain the compatibility of the model as a whole, the single headed row between amotivation and order has been omitted and then the model was re-assessed as in the Table 2.

The goodness of fitness indices obtained from the revised model are presented in Table 2. As it can be seen, the chi-square value has been found as 1.2 ($2 \leq \chi 2/df \leq 3$); RMSEA is .05 ($0 \leq$ RMSEA $\leq .08$); NFI is .99 ($.95 \leq$ NFI ≤ 1.00); CFI is .99 ($.97 \leq$ CFI ≤ 1.00); GFI is .99 ($.95 \leq$ GFI ≤ 1.00) and the AGFI is .94 ($.85 \leq$ AGFI $\leq .90$). With reference to these values, which are within the recommended ranges, the revised model is acceptable and compatible.

Table 2
Recommended Values for Evaluation and Values of the Revised Model

Fit Measure	Good Fit	Acceptable Fit	Suggested Model
$\chi 2/df$	$0 \leq \chi 2/df \leq 2$	$2 \leq \chi 2/df \leq 3$	1.2
RMSEA	$0 \leq$ RMSEA $\leq .05$	$0 \leq$ RMSEA $\leq .08$	.05
NFI	$.95 \leq$ NFI ≤ 1.00	$.90 \leq$ NFI $\leq .95$	.99
CFI	$.97 \leq$ CFI ≤ 1.00	$.95 \leq$ CFI $\leq .97$	.99
GFI	$.95 \leq$ GFI ≤ 1.00	$.90 \leq$ AGFI $\leq .95$	.99
AGFI	$.90 \leq$ AGFI ≤ 1.00	$.85 \leq$ AGFI $\leq .90$	.94

In Table 3, regression weights, standard errors, critical ratios and 'p' values of the variables of the revised model are presented.

Table 3
Regression Weights, Standard Errors, Critical Ratios and 'p' Values of the Variables of the Revised Model

Variables		Estimate	Standard Error	Critical Ratio	p Value
Int. Mot.	→ Perfectionism	.59	.05	12.64	.00**
Int. Mot.	→ Order	.12	.03	4.20	.00**
Int. Mot.	→ Procrastination	.15	.63	2.37	.00**
Ext. Mot.	→ Perfectionism	.17	.05	3.65	.00**
Ext. Mot.	→ Order	-.14	.03	-2.72	.00**
Ext. Mot.	→ Procrastination	.11	.05	2.65	.00**
Amotivation	→ Procrastination	.11	.14	2.80	.00**
Amotivation	→ Perfectionism	-.49	.15	-3.36	.00**
Order	→ Procrastination	-.73	.12	-6.31	.00**
Perfectionism	→ Procrastination	.26	.08	3.45	.00**

**p<.05

Table 3 indicates that the predictive power of intrinsic motivation on perfectionism is .59 and its predictive power on order and procrastination respectively is .12 and .15. The value of how extrinsic motivation predicts perfectionism is .17 and how it predicts order and procrastination is -.14 and .11. The power of amotivation to predict procrastination is .11 and its power to predict perfectionism is -.49. The interval how order predicts procrastination is -.73 while the predictive power of perfectionism over procrastination is .26. All mentioned values are significant at p<.05 level. Standardized regression weights of variables are demonstrated in Table 4.

Table 4 presents the standardized regression weights of the variables. As can be seen in the table, the regression weight of intrinsic motivation on perfectionism is .78; on order is .34 and on procrastination is .30. The regression weight of extrinsic motivation on perfectionism is .20; on order is -22 and on procrastination is .15. Amotivation's weights on procrastination and perfectionism are .07 and -.19 respectively. The regression range that order predicts procrastination is -47 while perfectionism's weight on procrastination is .39.

Table 4
Standardized Regression Weights

Variables			Estimate
Int. Mot.	→	Perfectionism	.78
Int. Mot.	→	Order	.34
Int. Mot.	→	Procrastination	.30
Ext. Mot.	→	Perfectionism	.20
Ext. Mot.	→	Order	-.22
Ext. Mot.	→	Procrastination	.15
Amotivation	→	Procrastination	.07
Amotivation	→	Perfectionism	-.19
Order	→	Procrastination	-.47
Perfectionism	→	Procrastination	.39

**p<.05

After calculating the regression weights of the variables, correlations, standard errors, critical ratios and p values are presented in Table 5.

Table 5
Correlations, Standard Errors, Critical Ratios and 'p' Values of the Variables of the Revised Model

Variables			Estimate	Standard Error	Critical Ratio	p Value
Int. Mot.	↔	Ext. Mot.	-258.13	47.88	-5.40	.00**
Amotivation	↔	Int. Mot.	-97.66	16.40	-5.96	.00**
Ext. Mot.	↔	Amotivation	50.00	13.29	3.76	.00**

**p<.05

Table 5 demonstrates that there is a negative and significant relationship between intrinsic motivation and extrinsic motivation (CR = -5.40; p<.05). Likewise, the relationship between amotivation and intrinsic motivation (CR = -5.96; p<.05) is also negative and significant. On the other hand, the relationship between extrinsic motivation and amotivation is positive and significant (CR = 3.76; p<.05).

Conclusion, Discussion and Recommendations

The purpose of this study was to analyse the structural relationships among academic motivation, procrastination and perfectionism. The results of the statistical analysis performed firstly revealed that intrinsic motivation strongly predicts perfectionism. As Kağan (2011) stated, in the Perfectionism Scale, when order which represents adaptive perfectionism as a subscale has been removed, the other subscales of perfectionism in total represent maladaptive perfectionism. In this sense, the result that intrinsic motivation predicts perfectionism contradicts some studies in the literature. For example, in a study conducted by Chang et al. (2016) suggests that adaptive perfectionism has a positive correlation with intrinsic motivation, while maladaptive perfectionism has a positive correlation with amotivation (Chang et al. 2016). On the other hand, there are some studies (Miquelon, Vallerand, Grouzet, & Cardinal, 2005; Stoeber et al. 2009) which support our result that intrinsic motivation predicts order that is considered as adaptive perfectionism. As for the association between intrinsic motivation and procrastination, our finding is not in line with some other results. Fatimah, Lukman, Khairudin, Wan Shahrazad, & Halim (2011), together

with Lee (2005), Rakes and Dunn (2010) and Vij and Lomash (2014) found in their studies that high level of procrastination is related to low intrinsic motivation. In another study, Harrison (2014) states that there is no relationship between motivation and procrastination. This might have stemmed from the fact that there is only one subscale that represents adaptive perfectionism in the whole scale. In addition, there might be some other factors affecting the relationship among motivation, procrastination and perfectionism.

Our results also revealed that maladaptive perfectionism is affected by extrinsic motivation in a positive way. On the other hand, the link between adaptive perfectionism and extrinsic motivation is negative. The results found in Stoeber and Eismann's (2007) study have shown that adaptive perfectionism is associated with intrinsic motivation, while, extrinsic motivation is linked with maladaptive perfectionism. In the present study, we have found that amotivation has a significant and positive association with procrastination which is in line with studies conducted by Cerino (2014) and Çavuşoğlu and Karataş (2015). Further, in Lee's (2005) and Kok's (2016) studies, non-self determined extrinsic motivation correlate positively with procrastination, which confirms our study's results.

From the present study, we also found that the relationship between adaptive perfectionism is negative and this is consistent with the results of a study conducted by Harrison (2014), which highlights that adaptive perfectionism is negatively related to academic procrastination. The present study also highlights the positive correlation between maladaptive perfectionism and procrastination. A study carried out by Seo (2008) has similarly examined the link between these two variables. The findings of the study revealed that students with adaptive perfectionism procrastinated less than others. The results in another study conducted by Çapan (2010) showed that there was a significant negative correlation between adaptive perfectionism and procrastination while no correlation was observed between maladaptive perfectionism and procrastination.

All in all, what the results of the present study highlight is that maladaptive perfectionism, as is the case with procrastination, is affected by intrinsic and extrinsic motivation as well as amotivation. On the other hand, adaptive perfectionism is affected by intrinsic and extrinsic motivation.

The present study is limited to university students who are in their first year at university. For a better and more comprehensive understanding of the structural relationships among variables mentioned above, future studies can focus on a study group which consists of different classes and levels. Further, for future studies, it would be helpful to examine how these variables affect academic performance and achievement. This could pave for important implications for policy makers as well as educators.

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