



## The Role of Smartphone Addiction in the Relationship between Perceived Parental and Teacher Academic Involvement and Academic Procrastination Behavior at Middle School Students

### Ortaokul Öğrencilerinde Algılanan Anne-Baba ve Öğretmen Akademik Katılımı ile Akademik Erteleme Davranışı Arasındaki İlişkide Akıllı Telefon Bağımlılığının Rolü<sup>1</sup>

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**ABSTRACT:** The main aim of this research is to examine the role of smartphone addiction in the relationship between perceived parental and teacher academic involvement and academic procrastination behavior among middle school students. The data for the research were collected from 590 students who study in middle schools in Odunpazarı district of Eskişehir through personal information forms and scales. The scales used in the study consist of items that inquire about the levels of perceived parental and teacher academic involvement, academic procrastination behavior and smartphone addiction of the students. In line with the aims of the research, the data were analyzed using the SPSS 22.0 package program. Descriptive statistics, correlation analysis and regression analysis were used to answer the research questions. According to the results obtained from the study, it was determined that middle school students' levels of perceived parental and teacher academic involvement were above average, their levels of smartphone addiction were below average and finally their frequency of academic procrastination behavior was below average. As a result of the study, it was determined that there were negative and statistically significant relationships between perceived parental and teacher academic involvement and the academic procrastination behavior of students. As a result of the regression analyses conducted for the main purpose of the research, it was revealed that smartphone addiction partially mediated both the effect of perceived parental academic involvement on academic procrastination behavior and the effect of perceived teacher academic

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involvement on academic procrastination behavior. Within the scope of the study, it was suggested to examine other possible variables that may cause academic procrastination behavior, which is one of the most important factors that negatively affect student success.

**Keywords:** Perceived parental and teacher academic involvement, academic procrastination, smartphone addiction.

**ÖZ:** Bu araştırmanın genel amacı; ortaokul öğrencilerinde algılanan anne-baba ve öğretmen akademik katılımı ile akademik erteleme davranışları arasındaki ilişkide akıllı telefon bağımlılığının rolünü incelemektir. Araştırmanın verileri, Eskişehir ili Odunpazarı ilçesindeki ortaokullarda öğrenim gören 590 öğrenciden kişisel bilgi formu ve ölçekler aracılığıyla toplanmıştır. Çalışmada kullanılan ölçekler; öğrencilerin algıladıkları anne-baba ve öğretmen akademik katılım düzeylerini, akademik erteleme davranışında bulunma sıklıklarını ve akıllı telefon bağımlılık derecelerini öğrenmeye yönelik maddelerden oluşmaktadır. Veriler, araştırmanın amaçlarına yönelik olarak, SPSS 22.0 paket programı kullanılarak analiz edilmiştir. Araştırma sorularına yanıt vermek üzere betimsel istatistiklerden, korelasyon analizi ve regresyon analizinden yararlanılmıştır. Çalışmadan elde edilen sonuçlara göre ortaokul öğrencilerinin algıladıkları anne-baba ve öğretmen akademik katılımı düzeylerinin ortalamasının üzerinde olduğu, akıllı telefon bağımlılığı düzeylerinin ortalamasının altında olduğu ve son olarak akademik erteleme davranışında bulunma düzeylerinin ortalamasının altında olduğu belirlenmiştir. Çalışma sonucunda algılanan anne-baba ve öğretmen akademik katılımı ile akademik erteleme davranışı arasında negatif yönlü ve istatistiksel olarak anlamlı ilişkiler bulunduğu belirlenmiştir. Araştırmanın temel amacına yönelik olarak gerçekleştirilen regresyon analizleri sonucunda akıllı telefon bağımlılığının hem algılanan anne-baba akademik katılımının akademik erteleme davranışına etkisinde hem de algılanan öğretmen akademik katılımının akademik erteleme davranışına etkisinde kısmi aracılık rolü üstlendiği ortaya konmuştur. Çalışma kapsamında araştırmacılar için geliştirilen öneriler çerçevesinde başarıyı olumsuz etkileyen en önemli unsurlardan olan akademik erteleme davranışını meydana getirmesi olası diğer değişkenlerin karma yöntem araştırma yöntemlerinden yararlanılarak incelenmesi önerisine yer verilmiştir.

**Anahtar sözcükler:** Algılanan anne-baba ve öğretmen akademik katılımı, akademik erteleme davranışı, akıllı telefon bağımlılığı

## 1. INTRODUCTION

Studies examining the reasons of students' academic failure have emphasized academic procrastination behavior as a very frequently encountered behaviour that negatively affects students' academic performance (Schouwenburg et al., 2004). Academic procrastination, which is shown to be the most important factor that negatively affects a student's success or students' success, reduces the efficiency of learning and prepares the ground for academic failure (Ferrari et al., 1995). Considering that academic procrastination behavior negatively affects the individual's psychology indirectly as well as causing academic failure, it is a great duty for parents and teachers to prevent this behavior or at least reduce it. It is thought that parents' and teachers' participation in children's academic lives will reduce the tendency of children to academic procrastination behavior.

Academic procrastination behavior encompasses actions such as students failing to engage in timely studying for their courses, completing assignments or projects at the eleventh hour, and even surpassing deadlines or postponing the return of borrowed library books (Rothblum et al., 1986). Academic procrastination behavior has been emphasized as a very common student behavior that negatively affects students' academic performance in studies that examine the reasons for students' failure in academic life (Schouwenburg et al., 2004). Academic procrastination, which is shown to be the most important factor that negatively affects students' success, reduces the efficiency of learning and prepares the ground for academic failure (Ferrari et al., 1995). Therefore, it is possible that students who engage in academic procrastination behavior will fail in their courses (Ferrari et al., 1995; Knaus, 1998), fall behind their friends in some courses (Rothblum et al., 1986) or drop out of school by being absent (Knaus, 1998).

According to Solomon and Rothblum (1984), although there are many reasons for individuals to engage in procrastination behavior, the fear of failure is at the forefront of these reasons. Anxiety level is shown as another reason for students to engage in academic procrastination behavior. Anxiety, which is defined as a situation in which the person does not know what to do or is afraid of the situation he/she faces. It can occur in any phase of students' academic lives. The anxiety that the students experience when they desire to be successful in their courses can push them to engage in academic procrastination behavior (Ekşi and Dilmaç, 2010; Rothblum et al., 1986). It is thought that factors such as fear of failure and anxiety, which are among the most important reasons for engaging in academic procrastination behavior, largely stem from parental behaviors. According to Burka and Yuen (2008), children of parents who have a high orientation toward success or vice versa who do not believe that their children will be successful are more likely to engage in procrastination behavior. It is stated that children who grow up in such families act according to the expectations of their parents.

Parental academic involvement refers to activities such as communicating with academic and administrative staff at school, participating in school activities, helping the student with academic work at home, attending parent meetings (Hill and Taylor, 2004). Yonson (2016) defines parental academic involvement as "parents' helping their children with their school-related tasks to maximize their potential", while Jeynes (2007) defines it as "parents' involvement in their children's educational processes". Parents' preparation of a healthy study environment for their children, helping them with their homework, supporting them in any kind of problem related to school, increase the child's self-confidence and the child also shows a more positive attitude towards school (Gümüşeli, 2004). The child who is motivated by his/her parents also shows academic success with the help of his/her high self-confidence and the positive attitude he/she develops (Marchant et al., 2001). Miedel and Reynolds (1999)

state that parental involvement, especially in early childhood, has a positive effect on the child while learning how to read. Similarly, it has been revealed by research that students who show high academic achievement are the ones who receive support from their parents (Diaz, 1989). In this context, the effects of family involvement on students' academic development and achievement reinforce the idea that it will also have effects on academic procrastination behavior, which is one of the important behaviors that affect children's academic success.

In addition to parental behavior, teachers' academic involvement is also one of the important variables that is expected to affect academic procrastination behavior by shaping students' attitudes towards success. Teacher academic involvement is defined as teachers' valuing their students, showing empathy, being in direct communication with their students, and helping their students with academic tasks (Ryan and Patrick, 2001). According to another definition, teacher academic involvement is the support, help and behavioral control that teachers provide to students in academic studies (Regner et al., 2009). Research shows that there is a positive relationship between perceived teacher academic involvement and the academic achievement of students. The teacher's way of approach to the student in the classroom environment, the activities and the curriculum which are prepared by taking individual differences into account and motivating the students for the courses are among the most important factors that increase the student's success (Geçer and Deryakulu, 2004).

When the information given above is considered, it is thought that the attitudes of parents and teachers can be effective in preventing academic procrastination behavior especially in middle and high school students. Indeed, the findings of the studies in the literature also support this idea. In addition to the positive effect of parents' involvement in their children's educational processes on their academic achievement (Argon and Kızılcı, 2012; Çiftçi and Bal, 2015; Dündar, 2017; Fan and Chen, 2001; Keçeli Kaysılı, 2008; Kotaman, 2008), parents' and teachers' close interest in students' school tasks can keep students away from academic procrastination behavior (Çakıcı, 2003; Özzorlu, 2018; Ulukaya and Bilge, 2014; Wilder, 2014;).

Although parental and teacher academic involvement has been examined as a factor that has effects on the academic procrastination behavior of children in the literature, the findings of the studies suggest that other factors may also play a role in this relationship. As a result of the examinations made in the literature, it has been seen that technology addictions, which especially young people suffer from in the age of technology, can also be among the causes of academic procrastination behavior. Indeed, it has been revealed in the studies that the levels of smart phone, internet or social media use of students, which sometimes reach the level of addiction, also have effects on academic procrastination behaviors of students (Akkuş, 2018; Can and Zeren, 2019; Çebi et al., 2019; Demir and Kutlu, 2018; Gürültü and Deniz, 2017; Kandemir, 2014; Rozgonjuk et al., 2018; Yang et al., 2019; Yurdakoş and Biçer, 2019).

Especially with the decrease in smart phone usage age day by day (DigitalTalks, 2018), it is predicted that smart phone addiction in children may negatively affect their academic lives, too. In light of this information, it can be asserted that smart phone addiction increases the frequency of academic procrastination behavior while parents and teachers support students' academic lives in order to prevent academic procrastination behavior. Based on the literature support for the relationships between the mentioned variables, the main aim of the research is determined as to examine the role of smart phone addiction in the relationship between academic procrastination behavior and perceived parental and teacher academic involvement in middle school students. In line with this main aim, the following questions have been answered in the study:

1. What is the level of academic procrastination behavior of middle school students?
2. What is the level of perceived parental and teacher academic involvement of middle school students?
3. What is the level of smart phone addiction of middle school students?
4. Is there a statistically significant relationship between the levels of perceived parental and teacher academic involvement and academic procrastination behavior of middle school students?
5. Does smart phone addiction have a statistically significant role in the relationships between the levels of perceived parental and teacher academic involvement and the academic procrastination behavior of middle school students?

## 2. METHOD

### 2.1. Study Model

This study was designed using the correlational model, which is one of the quantitative research models. Correlational models are used to determine the relationships between two or more variables. These models are also used to determine the predictive relationships between dependent and independent variables (Creswell, 2012, p.21). In this study, which aims to examine the role of smart phone addiction in the relationship between academic procrastination behaviors and perceived parental and teacher academic involvement in middle school students, the relational model has been used to determine the relationships between variables. Ethical committee approval was received from the Ethics Committee of Anadolu University (Number: 80989, Date: 15.10.2019).

### 2.2. Population and Sample

The study population of the research consists of middle school students who study in middle schools affiliated with the Ministry of National Education in Odunpazarı District of Eskişehir. Accordingly, 21,077 students in 35 middle schools in Odunpazarı are included in the study population of the research. The acceptable sample size for the research population was calculated at 384 by considering the previous studies (Cohen et al., 2000). Due to the time limit, the typical case sampling method, which is one of the purposive sampling types, was used. Typical case sampling, which means the selection of an average, typical case that is not extraordinary in terms of its features related to research questions, is the formation of the sample with a typical one of the many situations in the universe (Baltacı, 2018). Within the scope of the research, 612 students studying in fifth, sixth, seventh and eighth grades in six middle schools in Odunpazarı District were reached. When the questionnaires were evaluated in terms of reliability, it was seen that there were 590 questionnaires suitable for use. So, the sample group for the study consisted of 590 students. Demographic information on the sample group is presented in Table 1.

**Table 1:** Demographic Information Regarding the Sample Group

Variables	Categories	n	%
Gender	Female	282	47,8
	Male	308	52,2
Grade	5th	124	21,0
	6th	132	22,4
	7th	156	26,4
	8th	178	30,2
Education Level of Mother	Primary school	138	23,4
	Middle school	109	18,5
	High school	196	33,2
	University	147	24,9
Education Level of Father	Primary school	67	11,4
	Middle school	85	14,4
	High school	234	39,7
	University	204	34,6
Time Allocated to Smartphone Usage	0-1 hour	160	27,1
	1-3 hour	241	40,8
	3-5 hour	122	20,7
	More than 5 haours	67	11,4
Total		590	100

As seen in Table 1, the sample of the research consists of 590 students. When the ratio of female and male students and their distribution according to their grades are examined, it is seen that samples in all categories are close to each other. In terms of the education levels of the parents, it is seen that most of other mothers and fathers are high school and university graduates. Finally, in terms of the time allocated to smart phone usage, it is seen that the number of students who use smart phones for 1 to 3 hours is higher than the others.

### 2.3. Data Collection Technique and Tools

The data for the research was collected using personal information forms and likert-type data collection tools. The data collection tool is composed of four parts. The first part of the data collection tool includes a personal information form containing demographic variables such as gender, class, time allocated to smart phone usage, and parental education status of the participants. The other parts of the data collection tool is consist of he scales explained below.

“*Smartphone Addiction Scale- Short Version*”, which was developed by Kwon et al. (2013) and adapted to Turkish culture by Şata and Karip (2018), was used to measure the smart phone addiction levels of middle school students. The scale consists of 10 statements and options ranging from “1 Strongly Disagree” to “7 Strongly Agree”. Exploratory factor analysis was performed to determine the validity of the scale and Cronbach alpha ( $\alpha$ ) coefficient was calculated to determine its reliability for the

research sample of this study. As a result of the exploratory factor analysis, it was seen that the factor load values of the items in the scale ranged from .786 to .467; and the total variance explained by the scale was 48.037%. The reliability value ( $\alpha$ ) of the scale was found as .87.

“*Perceived Parental and Teacher Academic Involvement Scale*”, which was developed by Regner, Loose and Dumas (2009) and adapted to Turkish by Dündar (2014), was used to measure the perceived parental and teacher academic involvement of middle school students. This scale consists of 16 statements whose options are range from “1-Never” to “7-Always”. Exploratory factor analysis was performed to determine the validity of the scale and Cronbach alpha ( $\alpha$ ) coefficient was calculated to determine its reliability for the research sample of this study. As a result of the exploratory factor analysis, it was seen that the factor load values of the items in the “perceived teacher academic involvement” dimension of the scale ranged from .851 to .569; the factor load values of the items in the “perceived parental academic involvement” dimension ranged from .794 to .397. The total variance explained by the scale was 49.892%; and the reliability coefficient ( $\alpha$ ) was found as .88.

“*Academic Procrastination Scale*”, which was developed by Çakıcı (2003), was used to measure the academic procrastination behaviors of middle school students. The scale consists of 19 statements whose options are range from “1 Does Not Reflect Me At All” to “7 Reflects Me Completely”. Exploratory factor analysis was performed to determine the validity of the scale and Cronbach alpha ( $\alpha$ ) coefficient was calculated to determine its reliability for the research sample of this study. As a result of the exploratory factor analysis, it was seen that the factor load values of the items on the scale ranged from .760 to .423; and the total variance explained by the scale was 39.627%. The reliability value ( $\alpha$ ) of the scale was found as .91.

## 2.4. Analysis and Interpretation of Data

The analysis of the data was made with SPSS 22.0. In the analysis of the data; factor analysis, descriptive statistical analysis, correlation analysis and regression analysis were utilized. To indicate the normality of the data in the distribution, the coefficients of skewness and kurtosis were examined. The findings are presented in Table 2.

**Table 2:** *Skewness and Curtosis Values of Study Variables*

Variables				n	$\bar{x}$	Skewness	Curtosis
Perceived Parental Academic Involvement Dimension				590	5.98	-1.38	1.96
Perceived Teacher Academic Involvement Dimension				590	5.15	-.813	-.035
Smartphone Addiction Scale				590	3.04	.606	-.472
Academic Procrastination Scale				590	3.17	.353	-.576

It is seen in Table 2 that the skewness and kurtosis values calculated for each study variable are between -2 and +2. In the literature, it is stated that the kurtosis and skewness coefficients which are in the range of +2 to -2 indicate a normal distribution (George and Mallery, 2010). Since the measures of central tendency also took values that were close to each other, it was concluded that the data showed

normal distribution. In addition to normal distribution, other important assumptions of linear regression analysis were tested. These assumptions are the presence of linear relationships between variables, no multicollinearity between independent variables, and the absence of outliers among the data. Linear relationships were detected with statistically significant correlation values. Apart from linear relationships, correlation values also give clues about no multicollinearity between independent variables since all correlation coefficients are below .70 as suggested in the literature (Hair et al., 2014). No multicollinearity assumption was also tested with tolerance and VIF values. The literature suggests that tolerance values should be above .02 and VIF values should be below 10 (Field, 2009). Results of regression analysis show that tolerance values are above .02 and VIF values are below 10. Lastly, outliers in the data were examined using Mahalanobis distance values. These values were transformed into chi-square values and found to be above .001. Therefore, it is concluded that the assumption regarding outliers is also met.

### 3. FINDINGS

#### 3.1. Students' Smartphone Addiction, Perceived Parent and Teacher Academic Involvement, and Academic Procrastination Behavior Levels

The first three research questions are answered in this heading. Students' smartphone addiction levels, perceived parental and teacher academic involvement, and academic procrastination behavior levels have been examined. The findings are presented in Table 3.

**Table 3:** *Students' Smartphone Addiction, Perceived Parental and Teacher Academic Involvement, and Academic Procrastination Behavior Levels*

Variables	n	$\bar{x}$	sd
Perceived Parental Academic Involvement	590	5.98	1.04
Perceived Teacher Academic Involvement	590	5.15	1.42
Smartphone Addiction	590	3.04	1.41
Academic Procrastination	590	3.17	1.26

As seen in Table 3, the perceived parental academic involvement levels ( $\bar{x}=5.98$ ) and perceived teacher academic involvement levels ( $\bar{x}=5.15$ ) of the middle school students are above average. Furthermore, as can be understood from the difference in mean scores, middle school students' perceived parental academic involvement is higher than their perceived teacher academic involvement. The mean score of the responses of students for the smartphone addiction is 3.04. Accordingly, it can be said that the smartphone addiction levels of the middle school students are below the average. Lastly, as seen in Table 3, academic procrastination levels of students are below the average ( $\bar{x}=3.17$ ) which means that their academic procrastination levels are not high.



### 3.2. Relationships Between Perceived Parental and Teacher Academic Involvement, Smartphone Addiction, and Academic Procrastination Behavior of Students

The relationships between perceived parental academic involvement, smartphone addiction, and academic procrastination behavior were examined through correlation analysis. The correlation matrix obtained from the analyses is presented in Table 4.

**Table 4:** Relationships Between Perceived Parental and Teacher Academic Involvement, Smartphone Addiction, and Academic Procrastination Behavior of Students

Variables	1	2	3	4
1) Perceived Parental Academic Involvement	1			
2) Perceived Teacher Academic Involvement	.471*	1		
3) Smartphone Addiction	-.107**	-.166**	1	
4) Academic Procrastination	-.266**	-.284**	.640**	1

As seen in Table 4, there are statistically significant relationships between 'smartphone addiction' and 'academic procrastination' and 'perceived parental and teacher academic involvement' variables. Accordingly, perceived parental academic involvement has statistically significant and negative relationships with smartphone addiction at the level of -.107 and with academic procrastination at the level of -.266. Perceived teacher academic involvement has statistically significant and negative relationships with smartphone addiction at the level of -.166 and with academic procrastination at the level of -.284. Lastly, there are statistically significant and positive relationships between smartphone addiction and academic procrastination at the level of .640.

### 3.3. The Role of Smartphone Addiction in The Relationships Between Perceived Parental and Teacher Academic Involvement and Academic Procrastination Behavior of Students

The role of smartphone addiction in the relationships between perceived parental and teacher academic involvement and the academic procrastination behavior of middle school students was tested in line with the aim of this study. To do that, the three-step regression analysis proposed by Baron and Kenny (1986) was applied. According to this method, the following conditions must be met in order to accept the significant role of the mediator variable:

1. The independent variables (perceived parental and teacher academic involvement) should have a significant effect on the dependent variable (academic procrastination).
2. The independent variables (perceived parental and teacher academic involvement) should have a significant effect on the mediator variable (smartphone addiction).
3. When the mediator variable (smartphone addiction) is included in the regression analysis in addition to the independent variables (perceived parental and teacher academic involvement), the regression coefficient of the independent variables (perceived parental and teacher academic involvement) on the dependent variable (academic procrastination) should decrease. The mediator

variable (smartphone addiction) should have a significant effect on the dependent variable (academic procrastination) at the same time.

According to the method explained above, decrease in the coefficient of the independent variable indicates partial mediation, and the disappearance of statistically significant relationships between independent variable and dependent variable indicates full mediation effect. In addition, the decrease or disappearance of the relationships between the independent and dependent variables should be statistically tested. For this purpose, the Sobel test is used (Kenny et al., 1998).

First of all, the possible effects of perceived parental academic involvement and teacher academic involvement on the academic procrastination behaviors of students were tested with regression analysis. The findings are summarized in Table 5.

**Table 5:** *The Effect of Parental Academic Involvement and Teacher Academic Involvement on Academic Procrastination*

Independent Variable			Dependent Variable	R	R <sup>2</sup>	Adj. R <sup>2</sup>	F	p	B
Perceived Involvement	Parental	Academic	Academic Procrastination	.266	.071	.069	44.391	.000	-.266
Perceived Involvement	Teacher	Academic	Academic Procrastination	.284	.081	.079	51.519	.000	-.284

As seen in Table 5, perceived parental academic involvement predicts about 7% of academic procrastination behavior. When the standardized beta ( $\beta$ ) value related to regression is examined, it is seen that perceived parental academic involvement ( $\beta = -.266$ ;  $p < .01$ ) has a moderate effect on the academic procrastination behavior. Teacher academic involvement predicts about 8% of the procrastination. When the standardized beta ( $\beta$ ) value related to regression is examined, it is seen that perceived teacher academic involvement ( $\beta = -.284$ ;  $p < .01$ ) has a moderate effect on the academic procrastination.

After examining the effects of perceived parental and teacher academic involvement on academic procrastination behavior, which is the dependent variable of the research, the effects of parental academic involvement and teacher academic involvement, which are the independent variables of the research, on smartphone addiction, which is the mediator variable of the research, were examined. The findings obtained are presented in Table 6.

**Table 6:** *The Effect of Parental Academic Involvement and Teacher Academic Involvement on Smartphone Addiction*

Independent Variable			Dependent Variable	R	R <sup>2</sup>	Adj. R <sup>2</sup>	F	P	B
Perceived Involvement	Parental	Academic	Smartphone Addiction	.107	.012	.010	6.846	.009	-.107
Perceived Involvement	Teacher	Academic	Smartphone Addiction	.166	.027	.026	16.614	.000	-.166

As seen in Table 6, perceived parental academic involvement predicts 1% of the variance in the smartphone addiction. When the standardized beta ( $\beta$ ) value of regression is examined, it is seen that perceived parental academic involvement ( $\beta = -.107$ ;  $p < .01$ ) has a weak effect on the smartphone addiction. Teacher academic involvement predicts about 3% of the smartphone addiction. When the standardized beta ( $\beta$ ) value of regression is examined, it is seen that perceived teacher academic involvement ( $\beta = -.166$ ;  $p < .01$ ) has a weak effect on smartphone addiction.

In the final stage, a model which includes the role of smartphone addiction in the effect of parental academic involvement on academic procrastination behavior and in the effect of teacher academic involvement on academic procrastination behavior was tested. In this context, the role of smartphone addiction in the relationship between parental academic involvement and academic procrastination behavior was first examined through hierarchical regression analysis. The findings obtained from the regression analysis are presented in Table 7.

**Table 7:** *The Role of Smartphone Addiction in the Relationship Between Perceived Parental Academic Involvement and Academic Procrastination*

Independent Variable	Dependent Variable	R	R <sup>2</sup>	Adj. R <sup>2</sup>	$\beta$	t	F	P
1. Perceived Parental Academic Involvement	Academic Procrastination	.266	.071	.069	-.266	-6.703	44.931	.000
1. Perceived Parental Academic Involvement	Academic Procrastination	.671	.450	.448	-.200	-6,496	403.997	.000
2. Smartphone Addiction					.619	20.100		

As seen in Table 7, the regression coefficient of perceived parental academic involvement has decreased with the inclusion of smartphone addiction in the model. However, despite this decrease, both parental academic involvement and smartphone addiction have affected academic procrastination behavior significantly. Accordingly, it is possible to infer that smartphone addiction has a partial mediating effect on the effect of parental academic involvement on academic procrastination behavior. In order to test this result statistically, the Sobel test was performed. It was confirmed by Sobel test that smartphone addiction has a mediating role in the relationship between the perceived parental academic involvement and the academic procrastination (Sobel test value = -2.5862, standard error = .0323,  $p = .009$ ).

After that the role of smartphone addiction in the effect of teacher academic involvement on academic procrastination behavior and on the effect of teacher academic involvement on academic procrastination behavior was tested. In this context, the role of smartphone addiction in the relationship between teacher academic involvement and academic procrastination behavior was first examined through hierarchical regression analysis. The findings obtained from the hierarchical regression analysis are presented in Table 8.

**Table 8:** *The Role of Smartphone Addiction in the Relationship Between Perceived Teacher Academic Involvement and Academic Procrastination*

Independent Variable	Dependent Variable	R	R <sup>2</sup>	Adj. R <sup>2</sup>	$\beta$	t	F	P
2. Perceived Teacher Academic Involvement	Academic Procrastination	.284	.081	.079	-.284	-7178	51.518	.000
3. Perceived Teacher Academic Involvement	Academic Procrastination	.665	.443	.441	-.183	-5.846	233.070	.000
4. Smartphone Addiction					.610	19.517		

As seen in Table 7, the regression coefficient of perceived teacher academic involvement has decreased with the inclusion of smartphone addiction in the model. However, despite this decrease, both teacher academic involvement and smartphone addiction have affected academic procrastination behavior significantly. Accordingly, it is possible to infer that smartphone addiction has a mediating effect on the effect of teacher academic involvement on academic procrastination behavior. In order to test this result statistically, the Sobel test was performed. It was confirmed by the Sobel test that smartphone addiction has a mediating role in the relationship between the perceived teacher academic involvement and the academic procrastination (Sobel test value = -4.0436, standard error = .0233,  $p = .009$ ).

#### 4. DISCUSSION and RESULT

In line with the aims of the research, the level of perceived parental academic involvement and perceived teacher academic involvement of middle school students were examined. According to the findings of the research, the arithmetic means of the responses given by middle school students to their perceived parental academic involvement and their perceived teacher academic involvement were 5.98 and 5.15, respectively. Accordingly, the levels of perceived parental and teacher academic involvement of middle school students are above average; and their perceived parental academic involvement is higher than their perceived teacher academic involvement. This result is parallel to the findings of some other studies in the literature (Regner et al., 2009; Dündar, 2017). Besides, literature draws attention to the effects of both parent and teacher academic involvement on the achievement of academic goals by students (Regner et al., 2009; Woolley et al., 2009). So, the results of this study are considered promising for the future success of the students in the sample.

Another research question was the level of smartphone addiction among middle school students. According to the findings, the arithmetic mean of the responses given by middle school students to the statements in the smartphone addiction scale is 3.04. Accordingly, it is possible to say that the levels of smartphone addiction among middle school students are below average. This result seems surprising in terms of the increasing usage of technological devices and the internet in Turkey as well as in the whole world. In addition to the widespread use of internet technology, social networks have become accessible at any time and under any conditions with the entry of smartphones into the pockets of people of all ages. Although the widespread use of smartphones offers advantages in many areas of life, it has been interesting for scholars to investigate some social problems related to excessive use of these devices. In addition to studies that compare people who are addicted to the internet with people who are addicted to

gambling, drugs and alcohol (Young, 1998), there are also studies that show that excessive phone use is closely related to sleep disorders and depression symptoms (Thomee et al., 2011). Addiction types of students such as smartphone and internet addiction have been frequently examined and negative effects of these addictions on academic achievement have been revealed in these studies (Bozkur, 2013; Çubuk, 2019; Söyler, 2019). In this context, it is possible to say that the results of this research indicate that the students in the sample group do not have smartphone addiction at a level that will affect their academic achievement.

Within the scope of the research, in addition to the academic involvement of parents and teachers and the level of smartphone addiction of students, the level of engaging in academic procrastination behavior of them was also examined. According to the findings, the arithmetic mean of the responses of middle school students to the statements in the academic procrastination behavior scale is 3.17. Accordingly, it is possible to say that the frequency of middle school students' academic procrastination behavior is below average. Studies in the literature indicate that academic procrastination behavior negatively affects students' academic achievement (Steel, 2007). In addition, academic procrastination behavior can negatively affect their psychological well-being by causing an increase in their anxiety and stress levels (Day et al., 2000; Stead et al., 2010). When evaluated in light of this information, it is seen as a pleasing situation that the academic procrastination tendencies of students in the sample are below average.

In line with the aims of the research, the relationships between the independent variable which is the perceived parental and teacher academic involvement and the dependent variable which is academic procrastination behavior were examined. As a result of the analyses, statistically significant negative relationships were found between perceived parental academic involvement and academic procrastination behavior of students and between perceived teacher academic involvement and academic procrastination behavior of students. Academic procrastination behavior negatively affects academic achievement and reduces students' academic performance (Rothblum et al., 1986; Ferrari et al., 1995; Knaus, 1998). Based on this information, it is possible to say that low levels of perceived parental and teacher academic involvement may push the students to engage in academic procrastination behavior, and academic performance decline may occur as a result of this behavior. These results are also supported by the findings of previous studies in the literature (Argon and K1Y1C1, 2012; Bilge, 2014; Çakıcı, 2003; Keçeli Kaysılı, 2008; Özzorlu, 2018; Wilder, 2014;). Based on these findings, it could be said that parental and teacher academic involvement may keep the students away from academic procrastination behavior and may lead to an increase in their academic achievement. However, it should also be considered that especially parents' excessive authoritarian and critical attitudes or an high-expectations during academic involvement may backfire and push the students to engage in academic procrastination behavior.

As a result of the analyses conducted to examine the relationship between the independent variable which is parental and teacher academic involvement and the mediator variable which is smartphone addiction, statistically significant negative relationships were found. When parents and teachers are more closely involved in the education of their children, are supportive of their children, and also take responsibility for monitoring students in both academic and non-academic matters. The children of such parents can stay away from being addicted to smart phones or other similar stimuli. In a study conducted with a sample of high school students, Bozkur (2013) found that children whose parents were academically involved had lower levels of internet addiction than others. In addition, another finding of

this study is that when parents controlled and cared for their children, internet addiction levels of these children decreased.

The relationships between the mediator variable which is smartphone addiction levels of students and the dependent variable which is academic procrastination behavior levels of students were examined in line with the aims of the research. As a result of the analyses, a significant negative relationship was found between smartphone addiction and academic procrastination behavior levels of students. Students with high levels of smartphone addiction tend to engage in academic procrastination behavior more. Previous studies in the literature also support this finding (Demir and Kurtlu, 2017; Gürültü and Deniz, 2017; Kandemir, 2014). In addition to these studies, there are studies in the literature that show that addictions such as smartphone, internet, social media addictions generally have a negative impact on the academic achievement of students (Samaha and Hawi, 2016; Gökçeşlan et al., 2016; Yıldırım, 2018). These studies also give a clue on the negative relationships between smartphone addiction and the academic procrastination behavior levels of students.

As a result of the analyses conducted to examine the role of smartphone addiction in the relationship between perceived parental and teacher academic involvement and academic procrastination behavior in line with the aims of the research, it was seen that the regression coefficients of perceived parental academic involvement and perceived teacher academic involvement decreased when the smartphone addiction was included in the regression models. However, despite his decrease, the significant effects of both parental academic involvement and teacher academic involvement on academic procrastination behavior have continued. This means that smartphone addiction plays a partial mediating role in the relationships between the mentioned variables. This result reveals the power of smartphone addiction in explaining academic procrastination behavior. Accordingly, the student's academic procrastination behavior is shaped by their perceived parental and teacher academic involvement, and as a result, part of the relationship between perceived parental and teacher academic involvement and academic procrastination behavior occurs in the context of smartphone addiction. This means that academic procrastination behavior can not only be explained by parents and teachers' academic involvement. There are other variables that should be examined to explain the academic procrastination behaviors of students. One of these variables is the smart phone addiction of students as can be seen in the results of this study. Although the role of smartphone addiction in the relationship between perceived parental and teacher academic involvement and academic procrastination behavior has not been examined before in the literature, it was seen that smartphone addiction played a mediating role in the relationships between self-regulation and academic anxiety and procrastination in Yang et al.'s (2019) study. This supports the notion that while high perceived parental and teacher academic involvement will possibly keep the students away from academic procrastination behavior, the students may still tend to engage in academic procrastination behavior if they are addicted to smartphones.

By considering the results obtained from the research, some suggestions have been developed for practitioners and researchers. Academic procrastination behavior can be encountered at every stage of the education process, and it is important to prevent it at an early age and develop a sense of responsibility in students. Therefore, both parents and teachers have great responsibilities to achieve this. In order to prevent or at least reduce the student's academic procrastination behavior, parents should closely monitor their children's school tasks, provide them with healthy environment for studying, help them with their homework and projects, support them while solving the problems they encounter at school, and establish open communication with them. Teachers, like parents, should establish supportive relationships with their students in the classroom, control their homework and monitor the exam results and their academic

development. Within the framework of the suggestions developed for researchers, it is important to examine other variables that may cause academic procrastination behavior, which is one of the most important factors that negatively affect academic achievement according to the literature. Especially considering that there are many factors that affect the academic lives of young people positively or negatively, it is clear that there are still points that have not been researched in the literature. Students' personal characteristics and psychological factors should be examined to uncover their effects on their academic procrastination tendency.

### **Author Contributions**

The first author searched the literature, collected the data and prepared the research report, both authors analysed and interpreted data, the second author reviewed the manuscript.

### **Conflict of Interest**

The authors declared that they have no conflict of interest.

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