



## Relationships among Internet Addiction, Academic Motivation, Academic Procrastination and School Attachment in Adolescents\*

Research Article

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**To cite this article:** Demir, Y. & Kutlu, M. (2018). The Relationship among Internet Addiction, Academic Motivation, Academic Procrastination and School Attachment in Adolescents, *International Online Journal of Educational Sciences*, 10(5), 315-332

### ARTICLE INFO

#### Article History:

Received 01.10.2008

Available online

08.12.2018

### ABSTRACT

The aim of this research is to examine the relationship among adolescents' internet addiction, academic motivation, academic procrastination, and school attachment levels. In line with this general objective, hypotheses have been tested with structural equation modeling. The universe of the research is composed of the students who are studying in the official high schools in Elazig province center. The sample of the research 689 (383 female, 306 male) adolescents were selected by stratified sampling method. Young Internet Addiction Test- Short Form (YID-SF), Academic Motivation Scale (AMS), Academic Procrastination Scale (APS) and School Attachment Scale for Children and Adolescents (SAC) were used as data collection tools in the research. Before the proposed hypothetical model was tested, each latent variable was tested with measurement models to determine if it could be used in structural models. In this context, structures related to latent variables have been tested with measurement models. The measurement models were tested with Confirmatory Factor Analysis (CFA). It has been found that the measurement models in the CFA result have acceptable adaptability values. Then the proposed hypothetical model was tested. As a result of the analysis, all pathways of the hypothetical model were found to be statistically significant. The fit indices for the proposed hypothetical model have acceptable values. Findings show that the proposed hypothetical model has acceptable adaptation with research data. When the results of the research are evaluated as a whole; internet addiction effect academic motivation in the negative direction. On the other hand, it affects the academic procrastination in the positive direction. Academic motivation affects academic procrastination in the negative direction. On the other hand it affects the school attachment in the positive direction. Academic procrastination affects school attachment in the negative direction. Finally, internet addiction is indirectly affecting the school attachment and on the negative direction.

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#### Keywords:

Adolescent, internet addiction, academic motivation, academic procrastination, school attachment.

\* This study was produced from the first author's doctoral thesis and presented in International Akşemseddin Symposium on Human, Social and Sport Sciences.

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DOI: <https://doi.org/10.15345/iojes.2018.05.020>

## Introduction

Adolescence is important in terms of educational life. In this period, adolescents make important academic and professional decisions that determine the rest of their lives. Therefore, adolescence is a critical period in terms of academic and personality development. In this period, there are a number of risky behaviors that can significantly affect academic life. In addition to these risky behaviors including alcohol or substance use, gang-building, bullying, life threatening or property damage, internet addiction is an important risk factor for this period. These risk factors negatively affect the social, psychological and biological development of the adolescents, but also cause serious damage to both academic and career processes.

In adolescence period, academic procrastination behaviors, academic motivation and school attachment are considered as important factors. In this period, possible behavioral addictions such as internet addiction affect these three important factors directly or indirectly in adolescents. Attachment to school is defined how much students like school and their sense of satisfaction (Maddox & Priz, 2003) and feels to belong to that school (Osterman, 2000). Some researchers have explained the concept of school attachment in relation to the relationships with teachers and classmates. In this context, students with high level of attachment to school stated that they have high values and sufficiency beliefs related to the activities in the school and show this situation dynamically with their behaviors (Faircloth & Hamm, 2005; Juvonen, 2006). There are several factors that affect adolescents' attachment to school. According to the literature, while attachment to school has negative correlation with burnout (Schaufeli, Martinez, Pinto, Salanova, & Bakker, 2002; Zhang, Gan, & Cham, 2007) and depressive tendencies (Anderman, 2002; Jacobson & Rowe, 1999), it has positive correlation with life quality (Savi-Çakar, 2011) and peer commitment (Elmore & Huebner, 2010). In another study, the researchers concluded that depressive symptoms were a significant predictor of school attachment (Yıldız & Kutlu, 2015).

The concept of attachment to school includes the connection to teachers, friends, and school itself. In this context, it was stated by various researchers and theorists that academic motivation and academic procrastination had a critical impact on school attachment in the literature (Black, Grenard, Sussman, & Rohrbach, 2010; Dogan, 2015; Dornbusch, Erickson, Laird, & Wong, 2001; Hallinan, 2011; Osher, Spier, Kendziora, & Cai, 2009; Ozdemir, 2018; Wei & Chen, 2010). Indeed, researchers emphasize that there exist positive relationship between school attachment and academic motivation (Mohammadi, Sajjadi, & Kamali, 2013; Ryan, Stiller, & Lynch, 1994). Similarly, another study found a positive relationship between school attachment and academic performance (Wei & Chen, 2010).

Procrastination can be defined as behavior that involves the postponement of any task or decision that needs to be made by the individual (Çıkrıkçı & Erzen, 2016; Milgram, Mey-Tal, & Levison, 1998). When the definitions in the literature are examined, academic procrastination can be expressed as the lack of timely fulfillment of the responsibilities of the students related to the education process. Academic procrastination is an increasingly common problem especially among secondary school students (Ekinci & Gökler, 2017). Researchers emphasize the association between academic procrastination behavior and personality (Adesina, 2011; Ferrari & Ware, 1992; Gustavson & Miyake, 2017; Johnson & Bloom, 1995; Kağan, Çakır, İlhan, & Kandemir, 2010; Kim, Fernandez & Terrier, 2017; Owens & Newbegin, 2000). Karataş and Bademcioğlu (2015) investigated this association. They found negative correlation between academic procrastination behavior and four personality traits including extroversion, agreeableness, conscientiousness, and openness to experience and positive correlation between academic procrastination behavior and emotional instability/neuroticism.

Students' reasons for academic procrastination behavior may vary from individual to individual (Burka & Yuen, 1982). In this context, some researchers have associated academic procrastination behavior with low motivation (Beswick, Rothblum, & Mann, 1988), depression (Saddler & Sacks, 1993), and stress (Haycock, McCarthy, & Skay, 1998). When explaining the reasons for students' procrastination behaviors, some

researchers put emphasis on disliked-academic-tasks (Saleem, Owaisi, & Tufail, 2015). Some people may show procrastination behavior due to low motivation level (Orpen, 1998; Steel, 2007), which takes researchers attention consistently and is defined as production of energy for academic work (Bozanoğlu, 2004). It is stated that motivation has a critical effect on completing tasks related to school and teaching (Demir-Güdül, 2015). In other words, low academic motivation may cause academic procrastination behavior (Kachgal, Hansen, & Nutter, 2001). Therefore, motivation is a critical factor that affects students' behavior and attitudes. In general, academic procrastination behavior has negative effect on students' academic life (Balkis & Duru, 2010; Fee & Tangney, 2000; Saleem et al., 2015).

One factor that affects academic procrastination and academic motivation is internet addiction (Chin-Sheng & Chiou, 2007; Demir & Kutlu, 2017; Saleem et al., 2015; Torun, Akçay, & Çoklar, 2015; Yang & Tung, 2007; Young, 1999). As a matter of fact, there is a positive relationship between internet addiction and academic procrastination (Kandemir, 2014b; Mohammadi, Tahriri, & Hassaskhah, 2015; Odacı & Çelik, 2012). The Internet is used extensively among adolescents (Gross, 2004; Valkenburg, Schouten, & Peter, 2005). This situation causes adolescents to postpone or not to carry out their duties and responsibilities related to school (Young & Rodgers, 1998). Therefore, it can be said that academic procrastination has increased as the duration of internet usage increases. Specifically, excessive internet use of school-age youth increases their academic procrastination and decreases their academic motivation by adversely affecting their psychological and physical development and social relations (Cengizhan, 2005; Demir & Kutlu, 2017; Savci & Aysan, 2017; Young, 1999). Similarly, intensive internet use in adolescents causes them to not fulfill their academic goals or to decrease the quality time they spend for these purposes. This situation affects the academic motivation of adolescents in a negative way. As a result, it can be said that excessive internet use is a factor that decreases academic motivation of adolescents.

There exist many studies in the literature that focus on internet addiction and its effects on academic life. However, those studies are generally designed to investigate correlation between internet addiction and three factors including academic motivation, academic procrastination, and school attachment. In the literature, could not be reached any study based on a structural model that examines the relationships among internet addiction, academic motivation, academic procrastination, and school attachment in adolescents. Therefore, it is thought that testing of these relations between variables with a structural model will contribute to the field. In addition, internet usage among adolescents becomes more common. High school years are one of the most critical periods affecting adolescents' academic career. Therefore, it is important to determine in which direction and in what level the effect of intensive internet use on academic motivation, academic procrastination and school attachment levels which are directly related to the academic development of adolescents.

When the literature is examined, many studies have been found in which internet addiction and academic development are investigated. However, it is seen that these studies are mostly examined correlation of internet addiction with academic motivation, academic procrastination, and school attachment. Thus, this study will reveal possible direct and indirect effects among internet addiction, academic motivation, academic procrastination, and school attachment variables and contribute to the testing of a structural model that shows possible effects of internet addiction on academic life and school attachment. Therefore, it is thought that this study will reflect the effect of internet addiction on academic factors in adolescents, structural model explaining school attachment, and direct and indirect effects of internet addiction, academic motivation, academic procrastination, and school attachment factors on each other. In addition, the increase in internet usage among the adolescents and internet addiction level has become a serious problem for psychological counselors in schools (guidance counselors) to concern. Thus, this study will provide critical contributions to

the studies related to academic development and internet addiction issues in the schools' psychological counseling services.

The aim of this research is to examine the relationships among adolescents internet addiction, academic motivation, academic procrastination, and school attachment levels. The hypotheses for the hypothetical model to be tested are as follows:

- H<sub>1</sub>: Internet addiction affects academic motivation significantly, negatively and directly.
- H<sub>2</sub>: Internet addiction affects academic procrastination significantly, positively and directly.
- H<sub>3</sub>: Academic motivation affects academic procrastination significantly, negatively and directly.
- H<sub>4</sub>: Academic procrastination affects school attachment significantly, negatively and directly.
- H<sub>5</sub>: Academic motivation affects school attachment significantly, positively and directly.
- H<sub>6</sub>: Internet addiction affects school attachment significantly, negatively and directly.
- H<sub>7</sub>: Internet addiction affects school attachment significantly, negatively and indirectly.

## METHOD

### Model of the study

This study is a descriptive study examining the relationships among internet addiction, academic motivation, academic procrastination and school attachment levels. Relational researches are researches investigating the relationships between various variables (Sönmez & Alacapınar, 2016).

### Universe and Sample

The universe of the study consists of high school students within the boundaries of the province of Elazığ. The stratified sampling method was used in the research. In this study, the population is divided into three sub-layers according to the types of schools, taking into account the characteristics of the population. The sample was determined by considering the characteristics of these schools. This study was conducted on 383 (55.6%) female, 306 (44.4%) male, a total of 689 high school students. 181 students (24.3%) are in the 9th grade, 169 (24.5%) are in the 10th grade, 205 (29.8%) are in the 11th grade and 134 (19.4%) are in the 12th grade. When daily average internet usage period is examined; 147 of the students (21.3%) use less than an hour of internet. 237 (34.4%) students use internet for 1-2 hours. 199 (28.9%) of students use internet for 3-4 hours. 65 (9.4%) of the students use internet for 5-6 hours. 41 of the students (6.6%) use internet for 7 hours or more. In order to carry out the application, the first approval was received from Inonu University Ethics Committee. Afterwards, written permission was obtained from Elazığ National Education Directorate.

### Measurements

In this study, participants' internet addiction, academic motivation, academic procrastination and the levels were measured respectively with Young Internet Addiction Test- Short Form (YIAT-SF), Academic Motivation Scale (AMS), Academic Procrastination Scale (APS) and School Attachment Scale for children and adolescents (SAS).

### Young Internet Addiction Test- Short Form (YIAT-SF)

Young Internet Addiction Test- Short Form (YIAT-SF) was developed by Pawlikowski, Altstötter-Gleich and Brand (2013) and adapted into Turkish by Kutlu, Savcı, Demir and Aysan (2016). The scale consists of 12 items. YIAT-SF is a 5-point Likert-type measurement tool. The scores obtained from the scale vary between 12-60. High scores on the scale indicate high levels of internet addiction. The validity and reliability of the scale was found to be a single-factor structure in both university students and adolescents. This structure was

confirmed by Confirmatory Factor Analysis (CFA) ( $X^2= 141,934$ ,  $df= 51$ ,  $RMSEA= .080$ ,  $GFI= .90$ ,  $CFI= .90$ , AND  $IFI= .90$ ). The Cronbach Alpha reliability coefficient was founded to be 0.86 for adolescents. In this study the reliability coefficient was found as .85.

### **Academic Motivation Scale (AMS)**

Academic Motivation Scale (AMS) was developed by Bozanoğlu (2004). The AMS consists of 20 items and three factors. It has a 5-point Likert-type rating. The three-dimensional structure of AMS explains 42.2% of the total variance. In the context of reliability, the test-retest consistency was examined with 101 students at 4 weeks intervals and the correlation between the two measurements was found to be .87. In this study the reliability coefficient was found as .90.

### **Academic Procrastination Scale (APS)**

Academic Procrastination Scale (APS) was developed by Çakıcı (2003). The APS consists of 19 items and two factors. It has a 5-point Likert-type rating. The two-dimensional structure of APS explains 49.06% of the total variance. The scale consists of two sub-scales: academic procrastination and regular study. Higher scores on the scale indicate a high level of academic procrastination. The Cronbach's alpha coefficient was found to be .92. Spearman Brown's two half test reliability was calculated as .85. In order to examine the test-retest reliability of the scale, 65 high school students were applied 17 days apart and the correlation coefficient was found to be .89. In this study the reliability coefficient was found as .86.

### **School Attachment Scale for Children and Adolescents (SAC)**

School Attachment Scale for Children and Adolescents (SAC) was developed by Hilly to assess the levels of school attachment of children and adolescents (2006). The SAC was adapted into Turkish by Savi (2011). The scale consists of 13 items and three sub-factors. These sub-factors are called to school attachment, peer attachment and teacher attachment. High scores from the scale indicate high school attachment. Exploratory Factor Analysis (EFA) was performed for the realization of the scale. It was found that the scale had a three-factor structure explaining 58.69% of the total variance. The Cronbach alpha reliability coefficient is founded to be .84 for the whole scale. In this study the reliability coefficient was found as .87.

### **Statistical analysis**

The data of the study were analyzed using AMOS 18.0 and SPSS 21.0 package programs. The maximum likelihood method was used in Amos package program. Before starting the analysis, sample size, multicollinearity, normality and extreme values from the prerequisites of structural equation modeling must be examined (Çokluk, Şekercioğlu, & Büyüköztürk, 2014, s. 274). In this context, firstly the extreme values are examined by looking at the z scores of the variables. Z scores for normality should be between -1 and +1 (Çokluk et al., 2014). In this context, the data that were found to be extreme value were excluded from the study. Then, it was investigated whether there was a multiple connection problem. Correlations were examined and the correlation coefficients between the variables were found to be below .90. This finding indicates that there is no multiple connection problem. The existence of multiple linearity problems was investigated by VIF and tolerance variables for independent variables. In this study, the VIF values of the independent variables; 1.20 for Internet addiction, 1.40 to academic motivation is calculated as 1.62 to academic procrastination. Tolerance values were .84 for internet addiction, .71 for academic motivation, and .62 for academic procrastination. Therefore, both VIF and tolerance values are within acceptable limits. These findings indicate that data do not have multiple linkage and linearity problems. Then, the data were evaluated for multivariate normality. In this context, whether the skewness and kurtosis coefficients of the variables in the model are among the acceptable values were examined. As a result of the analysis, skewness coefficients

of the variables were found to be within acceptable limits The findings regarding the normality of the data set are presented below.

n=689	min	max	$\bar{X}$	sd	Skewness	Kurtosis
Internet Addiction	12	60	26.82	8.59	.550	-.271
Academic Motivation	20	100	65.85	14.48	-.357	-.045
Academic Procrastination	19	95	55.43	13.03	-.014	-.203
School Attachment	13	65	45.27	9.58	-.223	-.459

In the analysis of the data, firstly the measurement models of internet addiction, academic motivation, academic procrastination and school attachment variables were tested with Confirmatory Factor Analysis (CFA). Within this scope, academic motivation and school attachment variables are in the second level; Internet addiction and academic procrastination variables were tested by making CFA. The validity of the measurement models was examined by using  $\chi^2/sd$ , GFI, AGFI, CFI, RMSEA, IFI and TLI (NNFI) compliance indices. Whether the hypothetical model has been confirmed or not has been examined with the fit indices.

## RESULTS

In this section, the results of the measurement tools used in the research (internet addiction, academic motivation, academic procrastination and school attachment), descriptive statistics about the measurement tools, measurement models and the findings of testing the proposed hypothetical model are given.

### Correlations between Internet Addiction, Academic Motivation, Academic Procrastination and Attachment to School

Correlation values for the measurement tools used in this study (internet addiction, academic motivation, academic procrastination and school attachment) are given in Table 1.

**Table 1.** Findings on Correlation Values Among Internet Addiction, Academic Motivation, Academic Procrastination and School Attachment

		1	2	3	4
Internet Addiction	(1)	1	-.18**	.40**	-.18**
Academic Motivation	(2)		1	-.53**	.33**
Academic Procrastination	(3)			1	-.32**
School Attachment	(4)				1

\*\*p=.000; p<.001

When correlation values of the latent variables in Table 1 are considered, it is evidence for the relationships between Internet addiction and academic motivation total score ( $r = -.18$ ,  $p < .001$ ), Internet addiction and academic procrastination ( $r = .40$ ,  $p < .001$ ); Internet addiction and school attachment ( $r = -.18$ ,  $p < .001$ ); academic motivation and academic procrastination ( $r = -.53$ ,  $p < .001$ ); academic motivation and school attachment ( $r = .33$ ,  $p < .001$ ); academic procrastination and school attachment ( $r = -.32$ ,  $p < .001$ ). All the other binary correlations apart from these relationships are significant. When evaluated in general terms, it is seen that the correlations among the variables varied between  $-.53$  and  $.40$ . These values indicate that there are no multiple connection problems.

### Conclusions related to the measurement model

Before testing the proposed hypothetical model, the measurement model of each variable was tested through CFA to determine whether or not the scales of the latent variables measure up to be included in the structural model. The results of the fit index for the measurement model are given in Table 2. These findings show that the scales are sufficient to be included in the structural model.

**Table 2.** Results of Measurement Models

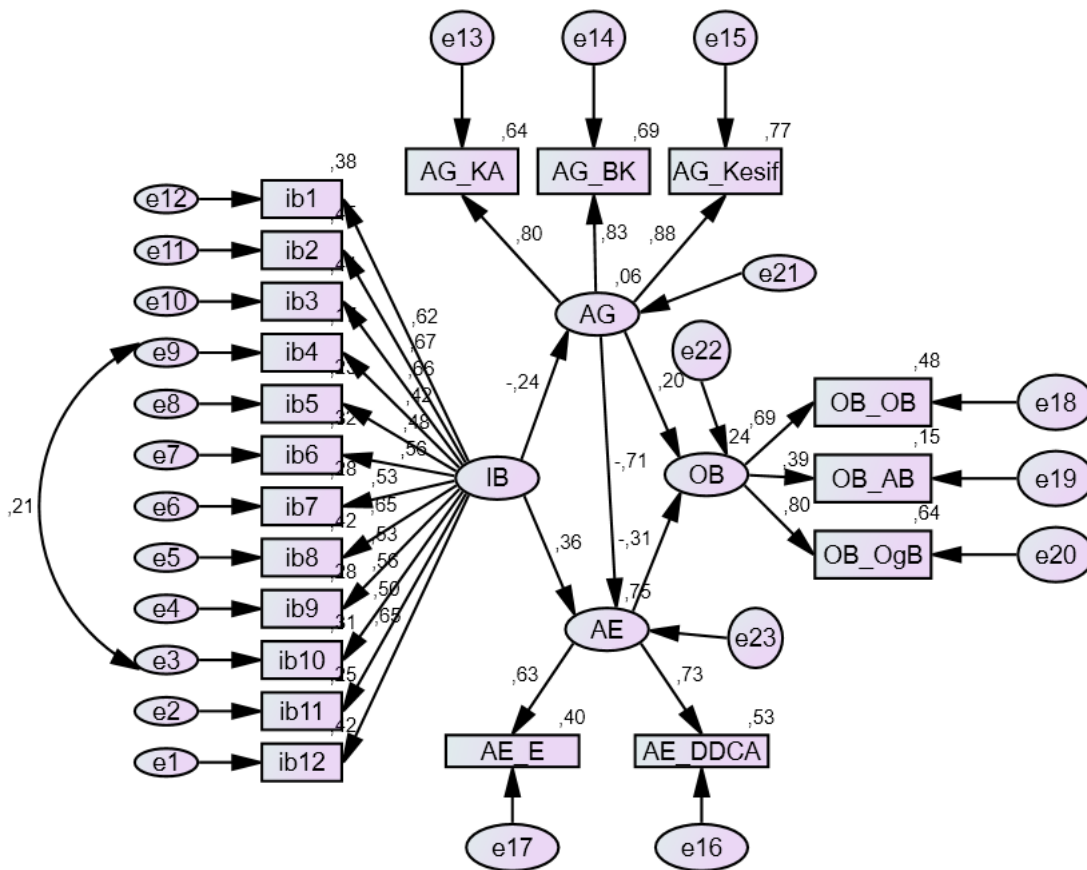
Indices	YIAT-SF	AMS	APS	SAC
$\chi^2/sd$	4.237	3.882	3.344	3.558
GFI	.95	.91	.93	.95
AGFI	.92	.89	.91	.93
IFI	.92	.90	.90	.96
TLI (NNFI)	.90	.88	.88	.96
CFI	.92	.90	.90	.96
RMSEA	.069	.065	.058	.061

### Conclusions related to the proposed hypothetical model

In this study, possible correlation among internet addiction, academic motivation, academic procrastination, and school attachment was investigated and a hypothetical model has been proposed to explain the relationships among these variables. This model was tested by using AMOS 18.

After the model was tested, the path coefficient for direct correlation between internet addiction and academic motivation, academic procrastination, and school attachment was found to be insignificant in the model. Then, t values were calculated for the insignificant path correlations. The lowest value between internet addiction and school attachment was deleted from the model and the re-formed model was tested. In the final model, standardized path correlation value between internet addiction and school attachment was investigated and found to be significant. This means that internet addiction has indirect effect on school attachment. According to the findings of the final model, the t values ranged from -14.619 to 24.824. In addition, the standardized path correlation values between academic motivation and school attachment, academic procrastination, and school attachment, and all other paths were significant at .05, .01, and .001 levels, respectively.

According to the analysis results the fit indices of the hypothetical model were observed to be,  $\chi^2=498.551$ ,  $sd=164$ ,  $\chi^2/sd=3.040$ , GFI=.93, AGFI=.91, IFI=.93, TLI (NNFI)=.91, CFI=.93, SRMR=.050 ve RMSEA = .054. These findings suggest that the hypothetical model has acceptable fit values. The path analysis of the final hypothetical model is given in Figure 1.



**Figure 1.** Testing the final hypothetical model

IB: Internet Addiction, AG: Academic Motivation, AE: Academic Procrastination, OB: School Attachment

### CONCLUSION, DISCUSSION AND RECOMMENDATIONS

In this study, the relationships between internet addiction, academic motivation, academic procrastination, and school attachment in adolescents have been tested with structural equation modeling and it has been concluded that hypothetical model generally conforms well.

The standardized regression coefficient between internet addiction and academic motivation was found to be -.24, which shows that internet addiction negatively affects academic motivation. This result shows that internet addiction predicts academic motivation negatively and significantly. Therefore, it is seen that internet addiction has a negative effect on academic motivation of the students.

The standardized regression coefficient between internet addiction and academic procrastination was found to be .36, which means internet addiction positively affects academic procrastination. The standardized regression coefficient between academic motivation and academic procrastination was calculated as -.71. This shows academic motivation negatively affects academic procrastination. Internet addiction and academic motivation together explain a 75% variance in academic procrastination. This result shows that internet addiction predicts academic procrastination positively and significantly. Therefore, it is seen that internet addiction is a factor affecting academic procrastination behavior of students.

The standardized regression coefficient between academic motivation and school attachment was calculated as .20, which shows positive effect of academic motivation on school attachment. This result shows that academic motivation positively and significantly predicts school attachment. Thus, academic motivation is one of the factors that affect school attachment.



The standardized regression coefficient between academic procrastination and school attachment was found as  $-.31$ . This regression coefficient value shows that academic procrastination negatively affects school attachment. According to the finding, the academic procrastination predicts school attachment in negative direction at significance level. As a result, academic procrastination may be considered as a factor that affects students' school attachment. In addition, academic motivation and academic procrastination together explain 24% variance in school attachment. Thus, academic motivation and academic procrastination are factors that affect school attachment.

According to the first finding, internet addiction negatively affects academic motivation. In other words, internet addiction prevents adolescents from getting motivated for academic work. There exist other studies in the literature that support this finding. In their study, Zhu and colleagues (2015) showed negative correlation between internet addiction and academic motivation. Also, Tsitsika et al. (2010) found that internet-addicted adolescents have more unexcused school absences than others. Young (1998b) is one of the first researchers who conducted studies related to internet addiction and found the association between internet usage and academic performance. Specifically, use of internet with no control may result in low academic motivation and failure in academic life as well as expulsion from school (Young, 1998b). This result of internet addiction affecting academic motivation can be explained through mindfulness, procrastination, losing academic and work-related opportunities, time management, and efficient course work. Based on this, people with high level of internet addiction have preoccupation related to the internet (Bozkurt, Şahin, & Zoroğlu, 2016; Cengizhan, 2005; Yellowlees & Marks, 2007). In other words, the internet covers an important part of the daily life of adolescents. In this context, it can be said that adolescents who use preoccupation on the internet pushed their academic work and duties to the second plan and put the internet on the foreground. This situation adversely affects adolescents' motives related to academic work and tasks. Adolescents with high internet addiction tend to postpone their academic work and duties due to intensive internet use (Ambad et al., 2017; Khan et al., 2016; Mohammad et al., 2010). This leads to an increase in work and duties and a decrease in the motivation to fulfill these tasks. In addition, one of the criteria used to diagnose internet addiction is to lose academic work and related opportunities due to intensive internet use (Arısoy, 2009). In this context, intensive internet use negatively affects adolescent academically and they may lose academic and career opportunities. This situation may cause adolescents to learn the sense of helplessness. Therefore, adolescents may experience problems in academic motivation. Finally, it can be said that time management and consequently efficient study in adolescents with internet addiction are prevented. As a matter of fact, it is emphasized that individuals with intensive internet use cannot manage time effectively (Lee, 2004; Siddiqi & Memon, 2016). This situation prevents adolescents to carry out academic tasks that they are obligated to fulfill successfully and not to study efficiently. Therefore, the level of motivation of the adolescent in terms of academic obligations decreases.

According to the second finding of the study, internet addiction positively affects academic procrastination. In other words, internet addiction causes academic procrastination in adolescents. In the literature, there exist studies with results that are parallel to the results of the current study (Ambad et al., 2017; Brate, 2017; Chen et al., 2015; Demir & Kutlu, 2017; Kandemir, 2014b). This finding may be explained through preoccupation and time management as in the correlation between internet addiction and academic motivation. According to Young (1998b), the predominance of internet in the life of individuals may be explained by the concept of preoccupation. Based on this, as the occupation of mind increases, the individual puts his duties and responsibilities related to other jobs, occupations, education, career, and house in his life into the second plan. In other words, the Internet is becoming the center of individual's life. This situation causes the adolescents to postpone their academic duties. Indeed, the Internet is at the center of life rather than academic tasks. Also, people with intensive internet use cannot manage time effectively (Chin-Li, 2014; Öksüz, Guvenc, & Mumcu, 2017). Time management skills are not sufficiently developed in adolescents who cannot

use time effectively. This situation causes the adolescents not to devote enough time to academic work and thus postpone them. Likewise, adolescents who spend time on the Internet and do not have time management skills are likely to postpone other academic tasks expected from them.

According to the third finding of the study, academic motivation is negatively associated with academic procrastination. In other words, the decrease in academic motivation causes academic procrastination. There exist studies that support this finding (Cerino, 2012; Dogan, 2015; Kandemir, 2014a; Kandemir et al., 2017; Rakes & Dunn, 2010; Saracaloğlu & Göktaş, 2016; Stell, 2007). For instance, Beswik and colleagues (1998) found the same relationship between academic motivation and academic procrastination. Similarly, researchers found that people with high academic motivation avoided procrastination (Diaz-Morales, Cohen, & Ferrari, 2008). This finding may be explained through academic self-efficacy and goal orientation. First of all, academic self-efficacy skills of adolescents who are not motivated academically enough are not developed. Academic motivation is considered to be a driving force for the fulfillment of academic tasks (Elliot, 1999). In the absence of this driving force, academic self-efficacy skills are not developed. This situation may cause adolescents to show academic procrastination behavior (Klingsieck, 2013). Indeed, academic procrastination is an undesirable coping mechanism that can also arise as a result of lack of skills and is used in coping with difficulty. Adolescents who do not have academic self-efficacy skills may fail to be able to work efficiently, to use time effectively, to prepare for exams, to be successful in examinations, to follow courses, to participate actively in the lessons, and to take notes (Kandemir, 2014a; Klassen et al., 2008; Motie et al., 2012; Rabin et al., 2011; Waschle et al., 2014). This failure may cause adolescents not to care about anything. As a matter of fact, an adolescent who perceives himself inadequate may think that he cannot succeed in exams (Brownlow & Reasinger, 2000; Haghbin et al., 2012). This thought may cause the student not to complete academic duties and responsibilities or postpone them. Motivation can be considered as a critical factor for a particular purpose. Adolescents with higher academic motivation have higher goal orientation (Seo, 2009). Therefore, these adolescents fulfill the duties and responsibilities expected from them in order to reach the determined goal. On the other hand, in adolescents who are not academically motivated, goal orientation is lower. Therefore, aimlessness leads to postponement of academic duties and responsibilities.

According to the fourth finding of the study, academic motivation is positively associated with school attachment. In other words, increase in academic motivation result in school attachment. This finding is supported by other studies in the literature (Hill & Werner, 2006; Riley, 2013; Trolian et al., 2016). It is emphasized that high academic motivation and interest have a positive effect on students' belonging to school (Duru & Balkıs, 2015). Karaşar and Kapçı (2016) found positive association between academic motivation and school attachment as found in this study. In other words, they found that students with high academic motivation had high levels of school attachment. Trolian and colleagues conclude that students with high level of academic motivation are also more interested in school and these students tend to spend more time at school (Trolian et al., 2016). The relationship between academic motivation and school attachment can be explained by academic achievement and active participation in the lessons. First of all, academic achievement is high in adolescents with high level of academic motivation and academic achievement is low in adolescents with low level of academic motivation (Firouznia, Yousefi, & Ghassemi, 2009; Komarraju, Karau, & Schmeck, 2009). In this context, Guay and colleagues purpose that academic motivation is a factor affecting academic success (Guay, Ratelle, Roy, & Litalien, 2010). Adolescents with low academic success may have problems feeling as a meaningful part of the school. As a matter of fact, academic achievement is considered as a factor that facilitates school attachment. Therefore, academic achievements of the adolescents who are not academically motivated decrease and low academic achievement brings with it the inability to connect to the school. Also, academic motivation brings in active participation in lesson (Fortier, Vallerand, & Guay, 1995), which is expected to be a factor strengthening teacher-student relation. Adolescents who actively participate in lessons

may take their peers' attention. Their peers may have the perception of exchanging information with them, interacting with them, accepting them in their groups, and seeing them as leaders in the groups.

According to the fifth finding of the study, academic procrastination influence school attachment in a negative way. In other words, increase in academic procrastination behavior cause a decrease in school attachment. There exist studies in the literature with similar finding. This finding may be explained with teacher-student relation and academic success. It is emphasized that adolescents with academic procrastination behaviors do not disrupt or fulfill the assignments and duties given by teachers. In such a case, teachers may develop negative attitudes and behaviors towards those adolescents. For example, a student who is permanently postponing or not fulfilling his / her responsibilities may be criticized by a teacher in a classroom setting. This may negatively affect the teacher-student relationship. Therefore, adolescents may experience problems in connecting to the teacher who is considered to be an important dimension of school attachment. In addition, academic achievement in adolescents with academic procrastination is also decreasing. Therefore, adolescents may not be able to make positive connections to an object (school) that they have failed. As a matter of fact, academic achievement is considered as an important resource for school attachment.

When the direct effects are evaluated as a whole, contribution to the model, from the biggest to the lowest, comes from the standardized regression coefficient (-.71) between academic motivation and academic procrastination, the standardized regression coefficient between internet addiction and academic procrastination (.36), the standardized regression coefficient between academic postponement and school attachment (-.31), the standardized regression coefficient between internet addiction and academic motivation (-.24), and the standardized regression coefficient between academic motivation and school attachment (.20), respectively.

The standardized indirect regression coefficient between Internet addiction and school attachment was found to be -.21. This indirect regression coefficient shows that internet addiction affects school attachment negatively. According to this result, internet addiction indirectly affects school attachment in a negative way. Adolescents with internet addiction may postpone their academic duties and responsibilities as they use the Internet intensively. Academic procrastination can lead to negative attitudes and behaviors towards school. Indeed, adolescents may not develop positive attitude and behavior towards an object (school) that they show procrastinating behavior towards. Therefore, internet addiction may lead to academic procrastination, and academic procrastination may prevent school attachment. Similarly, internet addiction hampers motivation of the adolescent towards school and class. Academic motivation is considered to be a factor that positively affects school attachment. Finally, internet provides new opportunities such as communicating with people, meeting new people, watching/sharing videos, sharing feelings/thoughts, and becoming popular. This situation causes adolescents to head towards virtual environments rather than real social environments. Therefore, an adolescent with internet addiction spends a significant amount of time and relationships in virtual environments. This prevents the adolescent from establishing real social relations with peers and teachers in the school and accordingly, the attachment of the adolescent to the school is weakened.

When the model was evaluated in general, it was observed that the model provided good fit and the hypotheses were confirmed. When the model was examined, it was found that internet addiction affected academic motivation negatively and academic procrastination positively. In other words, internet addiction in adolescents decreases academic motivation and increases academic procrastination. It was determined that academic motivation had a negative effect on academic procrastination and a positive effect on school attachment. In other words, higher academic motivation in adolescents decreases academic procrastination behaviors and increases school attachment. It was found that academic procrastination affected school

attachment negatively. In other words, higher academic procrastination in adolescents reduces school attachment.

As a result of the research, the following suggestions were made.

- In programs aimed at increasing the level of school attachment in adolescents, researchers may include content and activities that will increase academic motivation and reduce academic procrastination.
- Internet addiction is a generic addiction that includes other internet dependencies. In this context, effect of social media addiction and online gaming addiction on adolescents' school attachment can be examined.
- The effect of adolescents' purpose of using internet on school attachment can be tested.
- This is a cross-sectional study and is therefore limited to a single period. In this context, the effects of internet addiction on school attachment can be examined by conducting longitudinal research.

In this research, data were collected by using quantitative research methods. Factors affecting school attachment can also be investigated by qualitative research.

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