Full research paper

EXAMINING SOCIAL MEDIA ADDICTION AS A PREDICTOR OF ACADEMIC ACHIEVEMENT AND ACADEMIC PROCRASTINATION: A COHORT OF UNDERGRADUATE STUDENTS

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ABSTRACT

This study aims to examine the effects of self-control and future time perception on social media addiction and academic procrastination and determine whether social media addiction affects academic achievement through academic procrastination. A total of 559 university students participated. The participants' most commonly used social media platforms were WhatsApp and Instagram. Path analysis technique was used to analyze the theoretical model. In the theoretical model created to test the 13 hypotheses in the research, future time perception (value, distance, commitment, and speed) and self-control are exogenous variables, social media addiction and academic procrastination are moderating variables, and academic achievement is endogenous variable. According to the research findings, social media addiction is not a significant predictor variable for either academic achievement or academic procrastination. Self-control and speed are significant predictors of both social media addiction and academic procrastination. Commitment predicts social media addiction, and value predicts academic procrastination. On the contrary, value is not a significant predictor of social media addiction, and commitment is not a significant predictor of academic procrastination. Distance is not a significant predictor of social media addiction or academic procrastination.

KEYWORDS

Academic achievement and procrastination, path analysis, self-control, social media addiction

HOW TO CITE

Avci S., Cakir M., Akinci T. (2024) 'Examining Social Media Addiction as a Predictor of Academic Achievement and Academic Procrastination: A Cohort of Undergraduate Students', *Journal on Efficiency and Responsibility in Education and Science*, vol. 17, no. 4, pp. 286–298. http://dx.doi.org/10.7160/eriesj.2024.170402

Article history
Received
January 15, 2024
Received in revised form
April 10, 2024
Accepted
November 11, 2024
Available on-line
December 31, 2024

Highlights

- *Self-control and the speed dimension of future time perception are significant predictors of social media addiction and academic procrastination.*
- *Social media addiction does not significantly predict academic achievement or academic procrastination.*
- *Academic procrastination negatively impacts academic achievement among university students, with the findings showing that higher levels of procrastination are associated with lower academic performance.*
- *The findings suggest that self-control plays a critical role in mitigating social media addiction and academic procrastination, highlighting its importance in educational interventions aimed at improving student performance.*

INTRODUCTION

Social media is the general name of digital applications that enable people to communicate with each other, share content, and follow news. Although there have been changes over time, the most preferred applications in 2023 are listed as Facebook, YouTube, Instagram, TikTok, Snapchat, X (Twitter), Pinterest, WhatsApp, and Telegram, according to the frequency of use (Ortiz-Ospina and Roser, 2023). Social media tools are used as highly supportive tools in many areas such as promoting healthy living (Chen and Wang, 2021), suicide prevention (Robinson et al., 2016), enhancing learning (Barrot, 2022; Cheston et al., 2013; Luo et al., 2020), and professional development (Bruguera et al., 2019). Each of the different social media tools has positive contributions to individual learning and school

learning. YouTube, one of the video-sharing sites, offers a wide range of educational videos. In addition to supporting formal education, these videos have different uses in the context of broadcast education (Coklar and Cihangir, 2021; Orús et al., 2016; Yaacob and Md Saad, 2020). For example, WhatsApp supports education in teachers' communication with students and students' communication among themselves, repetition of learning, and learning motivation (Malik et al., 2019; Tang and Hew, 2017; Yu and Yu, 2022). Instagram is used especially in language education to develop writing and speaking skills and increase motivation for learning (Erarslan, 2019).

Excessive use of social media leads to problems. According to DSM5 and ICD 11 criteria, persistent and recurrent use of the internet, internet games, and computer games are included in behavioral addictions under the title of Internet Gaming Disorder (APA, 2013; WHO, 2018). Persistent and recurrent use of social media is considered a type of internet addiction (Hou et al., 2019) since its symptoms and consequences overlap with addiction criteria (APA, 2013; WHO, 2018). In order for a behavior to be defined as addiction, six indicators must be present. These are Salience (becoming the most important activity in life), Mood modification (intense emotion experienced during use), Tolerance (constant desire to do more), Withdrawal symptoms (experiencing negative emotions in case of inaccessibility) Conflict (the individual is in conflict with himself and his environment) and Relapse (rapid return to the same and higher level after trying to quit). Long-term use of social media does not always mean addiction and symptoms of addiction may not occur. However, negative consequences of long-term use are also observed (Griffiths et al., 2014). Social media addiction leads to an increase in stress, anxiety, depression, and insomnia and a decrease in subjective well-being (Lee et al., 2023; Lin et al., 2016; Lin et al., 2021; Shakya and Christakis, 2017; Van Rooij et al., 2017). Internet addiction, in general, and social media addiction, in particular, have negative effects on academic achievement (Al-Menayes, 2015; Giunchiglia et al., 2018; Ponnusamy et al., 2020; Zhao, 2023).

Understanding the reasons why social media use turns into addiction is important for identifying risk groups. Al-Samarraie et al. (2021), in their review study, grouped the causes of social media addiction under the headings of behavioral (self-control, gaming, time spent, etc.), technological (customer policies of the sites, ease of phone access, etc.), social (self-esteem, loneliness, etc.) and mental (depression, anxiety, etc.) factors. For example, they state that checking the feedback on posts on social media platform profiles leads to the automatization of this action after a while. Since the widespread use of smartphones facilitates access to social media tools (Aygul and Akbay, 2019) and the decrease in parental control over individual tools, addiction is spreading (Yayman and Bilgin, 2020). Individuals who are afraid of face-to-face communication with people for reasons such as computer games, social phobia, and transportation barriers meet their socialization needs through social media tools, which leads to addiction (Griffiths et al., 2014; Kuss and Griffiths, 2017).

Social media addiction stands out as a significant variable with detrimental implications for academic performance. Among its adverse effects are diminished attention spans and decreased interest in academic lessons (Cain et al., 2016). Students' prolonged use of phones or computers correlates with sleep disturbances, thereby reducing the time available for academic pursuits (Keles et al., 2020; Vernon et al., 2015). Research indicates that extensive social media engagement leads students to postpone studying, resulting in compromised academic achievement (Junco, 2012; Przepiorka et al., 2016). Huang's meta-analysis in 2018 further underscores how social media addiction detrimentally impacts academic outcomes. While existing studies highlight these consequences, there remains a gap in understanding the causal factors underlying social media addiction. Further investigation is warranted to explore its potential mediating role, particularly in relation to cognitive and social characteristics. For instance, social media use has been linked to the desire for immediate gratification (Przybylski et al., 2013). Hence, additional research focusing on the mediating pathways of social media addiction is imperative.

Understanding the reasons for the excessive use of social media and its effects on learning in university students is important in terms of revealing the problem in detail and guiding experts to produce solutions. This study examines self-control and future time perception, their impact on social media addiction and academic procrastination, and the potential indirect influence on academic achievement within the specific cohort of prospective teachers. The study's first aim is to determine the effect of social media addiction on academic procrastination and academic achievement. The second aim is to examine the predictive effects of future time perception and self-control associated with social media addiction. The pattern of explanatory and predictive relationships between variables was analyzed with structural equation modeling through the theoretical model. The theoretical frameworks of the hypotheses put forward within the scope of the research are also discussed in detail.

LITERATURE REVIEW AND HYPOTHESES

Self-Control

Self-control is "the ability to override or change one's inner responses, as well as to interrupt undesirable behavioral tendencies and refrain from acting on them" (Tangney et al. 2004, p. 274). Individuals with high self-control use more self-regulatory resources to control their thoughts, behaviors, and emotions. Self-control involves the regulation of impulse behaviors. Individuals who are unable to control their impulses develop addictions by succumbing to the attraction of actions such as eating, alcohol, drugs, and spending money (O'Donoghue and Rabin, 1999; Tangney et al., 2018). Similarly, self-control has an explanatory effect in internet-based addictions (Muusses et al., 2015). In a study conducted by Akin et al. (2015) on university students, it was concluded that self-control is a significant predictor of internet addiction. In a study conducted by Kim et al. (2008) on adult individuals, self-control was found to be a predictor of online game addiction. Sagar (2021) conducted a study on university students and found that self-control is a predictor of social media addiction. Individuals with high self-control

can also resist external stimuli that may prevent them from goal-oriented behaviors. At the university level, goals such as graduating and finding a better job will be possible by fulfilling their academic duties without interrupting them. University students are surrounded by many stimuli that may distract them from these goals (Duckworth et al., 2019). In such an environment, the activation of self-control can ensure that academic tasks are fulfilled without being postponed. Research results also show that self-control is a significant predictor of academic procrastination (Ariely and Wertenbroch, 2002; Kim et al., 2017; Przepiórka et al., 2019). More evidence is needed to determine the effect of self-control on social media habits and academic procrastination. In this framework, the following hypothesis was formulated:
H1: Self-control has a negative effect on social media addiction and academic procrastination.

Future Time Perspective

According to the time perception theory, an individual's perception of past, present, and future time has an impact on his/her behavior. According to Zimbardo's time perception model (Keough et al., 1999), five time dimensions affect the individual cognitively, emotionally, and motivationally: Past-Positive, Past-Negative, Present-Hedonism, Present-Fatalism, and Future. Future time perception, which is one of the variables of this study, is defined as the effect of the goals that the individual wants to achieve in the near or distant future on his/her actions in the present (Lens, 1988). The formation of an individual's cognitive structure on the basis of a temporal dimension shapes his/her perception of the world. Overemphasis on a particular dimension may lead to the suppression of other domains (Gutpa et al., 2012; Zimbardo and Boniwell, 2004). According to Husman and Shell (1996), there are four dimensions of future time perception: value, connectedness, speed, and distance. This study used the structure defined by Husman and Shell (1996) and the measurement tool developed by the same researchers. Individuals with predominant future time perception are more successful in tasks whose outcomes will be seen in the future, such as academic tasks (Lens et al., 2001; Mello and Worrell, 2006; Peetsma, 2000; Peetsma and Van der Veen, 2011), investing for retirement (Bal et al., 2010; Jacobs-Lawson and Hershey, 2005), and playing sports (Kooij et al., 2018). Individuals with high future time perception can see the negative consequences of alcohol and drug use more easily (Keough et al., 1999; Przepiorka and Blachnio, 2016). Similarly, social media addiction is much less common in individuals with high future time perception (Miceli et al., 2021). Díaz-Aguado Jalón et al. (2018) conducted a study on middle school students and concluded that negative views about the future and time are important predictors of problematic internet use. Przepiorka and Blachnio (2016) conducted a study on Facebook users and concluded that future time perception is a predictor of Internet and Facebook addiction. Miceli et al. (2021) found that future time perception predicts social media addiction significantly. Husman and Shell (1996) argue that individuals with a high perception of future time can easily connect the present and the future and see the effects of their actions on their lives. In this respect, they avoid procrastination behaviors because they know the importance of doing their academic tasks to realize their future plans (Husman et al., 2016). Research results also show that high future time perception reduces procrastination (Li et al., 2023; Nedeljković, 2017; Zabelina et al., 2018). The number of studies on the effect of future time perception on social media addiction and academic procrastination in university students is quite limited. The following hypotheses were formulated to determine the effect of four dimensions of future time perception on social media addiction and academic procrastination:
H2: the future time perception has a negative effect on social media addiction.
H3: the future time perception has a negative effect on academic procrastination.

Academic Procrastination

Procrastination is defined as "to voluntarily delay an intended course of action despite expecting to be worse off for the delay" (Steel, 2007, p. 66). Academic procrastination refers to delaying or postponing academic tasks such as studying and completing assignments. Regular academic procrastination is quite common among university students (Patrzek et al., 2015; Rabin et al., 2011; Solomon and Rothblum, 1984; Schraw et al., 2007). Academic procrastination prevents students from sufficiently learning the information required for specialization (Steel, 2007). A significant negative relationship exists between academic procrastination and academic achievement (Balkis, 2011; Balkis, 2013). Academic procrastination is predicted by many factors, such as academic motivation (Cerino, 2014; Lee, 2005), self-esteem (Rebetez et al., 2015; Yang et al., 2021), fear of failure (Zarrin et al., 2020), perfectionism (Seo, 2008). Studies show that internet addiction (social media, internet, online gaming, Facebook) also affects academic procrastination (Al Shaibani, 2020; Aznar-Díaz et al., 2020; Gurultu and Deniz, 2017; Kandemir, 2014; Muslikah and Andriyani, 2018; Nwosu et al., 2020). In addition to the direct effect of social media addiction on academic achievement, it also has an effect on academic procrastination (Goroshit, 2018; Kim and Seo, 2015). In the study conducted by Ucar et al. (2021), it was concluded that the academic achievement of university students with high levels of procrastination was higher than those with low levels. A similar study conducted by Balkis (2013) concluded that academic procrastination is a significant predictor of academic achievement.
In this framework, the following hypotheses were formulated:
H4: Social media addiction has a positive effect on academic procrastination.
H5: Academic procrastination has a negative effect on academic achievement.

Academic Achievement

Research in the field shows that social media addiction has a negative impact on academic achievement. Addiction studies generally focus on social media addiction (Al-Menayes, 2015; Hou et al., 2019; Zhao, 2023) or individual social media tools (Facebook, YouTube, WhatsApp) (Busalim et al.,

2019; Foroughi et al., 2021; Tufaila et al., 2015; Vashishtha et al., 2017). For example, Al-Menayes (2015) concluded in his study on university students that social media usage time and social media addiction decrease academic achievement. Junco (2012) concluded that time spent on Facebook decreases behaviors toward fulfilling academic tasks. Pekpazar et al. (2021) concluded that Instagram addiction affects academic achievement through academic procrastination in their research on university students.

In this framework, the following hypothesis was formulated:

H6: Social media addiction has a negative effect on academic achievement.

METHODS AND PROCEDURES

Theoretical Model

The theoretical model created for this study (Fig1) was tested using path analysis, a special type of structural equation modeling. The arrows and their directions indicate the explanatory relationship between the variables in the model (Streiner, 2005). The theoretical model identified future time perception and self-control as exogenous variables, social media addiction and academic procrastination as moderators, and academic achievement as endogenous variables. In the model, the effect of social media addiction on academic achievement was measured both directly and indirectly through academic procrastination.

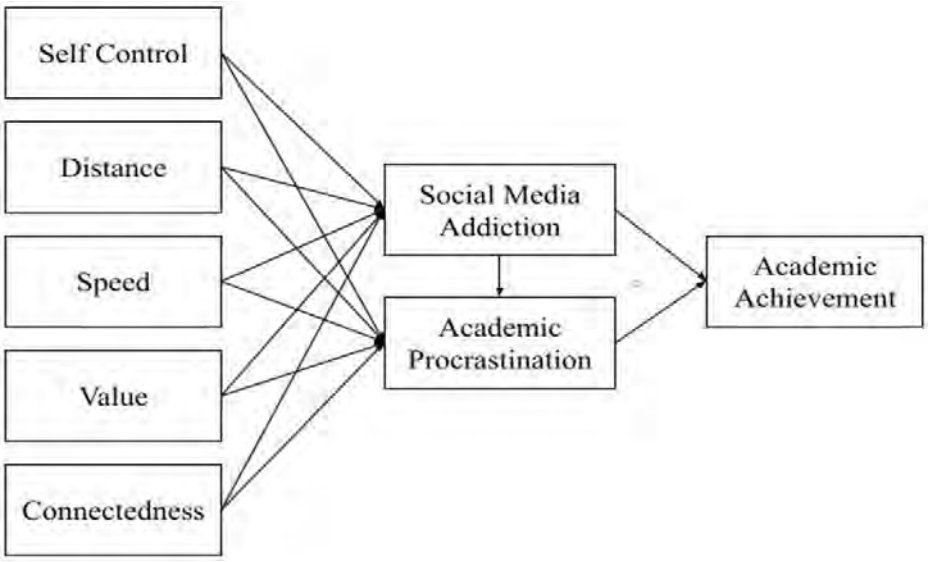

Figure 1: Theoretical model

Participants

University students who are social media users participated in this study. Schreiber et al. (2006) and Nevitt and Hancock (2004) recommend that there should be at least ten observations per variable (10:1) when determining the minimum sample size. Considering these evaluations published in the literature, data were collected from a total of 559 participants for the current study. The participants were university students from Marmara University in Istanbul. Marmara University is preferred by high-achieving students in terms of academic success. The students in this study were enrolled in programs in the fields of Science, Engineering, and Teacher Education. Of the participant students, 35% were male, and 65% were female, with ages ranging between 19 and 50 years (M = 23.5; SD = 5.12). The social media tools to which participants were most frequently subscribed included WhatsApp (95.7%), Instagram (92.7%), X (60.3%), YouTube (52.8%), Pinterest (46.0%), Telegram (40.3%), and Facebook (32.4%). Among these, the most commonly used social media tools were Instagram (40.3%), WhatsApp (34.5%), YouTube (9.7%), and X (7.7%).

The Ethics Committee of the Institute of Educational Sciences at Marmara University first secured ethical approval for the study. Following this, permissions were obtained from the university administration and relevant departments to administer the questionnaire to students who voluntarily participated during class hours. The data collection process took place in October 2023, with each session lasting approximately 20 to 25 minutes.

Data Collection Instruments

Future Time Perception

The scale developed by Husman and Shell (2008) was used to measure future time perception. The scale was adapted into Turkish by Avci and Erden (2009). The scale consists of four sub-dimensions: Connectedness (12 items), Value (7 items), Distance (5 items), and Speed (3 items). Participants responded to each item by rating themselves on the following 5-point scale: (1) strongly disagree, (2) somewhat disagree, (3) neutral, (4) somewhat agree, and (5) strongly agree.

Connectedness is the relationship between an individual's present actions and future goals; Value is the importance an individual attaches to the goals he/she wants to achieve in the near or distant future; Distance is how far into the future the individual sets goals; and Speed is the individual's perception of the speed at which time passes (Husman and Shell, 2008). The internal reliability coefficient was .755 for the whole scale, .853, .773, .735, and .776 for Connectedness, Value, Distance, and Speed, respectively.

Self-Control

The Brief Self-Control Scale developed by Tangney et al. (2004) and adapted into Turkish by Nebioglu et al. (2012) was used to measure self-control. Although the original Likert-type scale consisting of 17 items was unidimensional, a two-dimensional structure emerged in the Turkish adaptation study. The Cronbach's alpha internal reliability coefficient of the scale was.818 in this study. Participants responded to each item by rating themselves on the following 5-point scale: (1) strongly disagree, (2) somewhat disagree, (3) neutral, (4) somewhat agree, and (5) strongly agree.

Social Media Addiction

Bergen Social Media Addiction Scale, developed by Andreassen *et al.* (2017) and adapted into Turkish by Demirci (2019), was used to determine social media addiction. The scale includes six items representing six indicators of addiction. Participants responded to each item by rating themselves on the following 5-point scale: (1) Almost never, (2) Sometimes, (3) About half of the time, (4) Most of the time, and (5) Almost always. The Cronbach's alpha internal reliability coefficient of the scale was .789 in this study.

Academic Procrastination

The six-item short form developed by Balkıs and Duru (2022) based on the academic procrastination scale developed by McCloskey (2011) was used to determine academic procrastination. Participants responded to each item by rating themselves on the following 5-point scale: (1) strongly disagree, (2) somewhat disagree, (3) neutral, (4) somewhat agree, and (5) strongly agree. The Cronbach's alpha internal reliability coefficient of the scale was.898 in this study.

Academic Achievement

Participants were asked to rate their own achievement on a scale of 1-10 to assess academic achievement. This decision was made because the participants came from different disciplines, and their GPA (Grade Point Average) varied according to the difficulty of the field. The use of self-reported grades is quite common in similar studies (Al-Menayes, 2015).

Data analysis

Research data were collected online via Google Forms in December 2023. Extra points were awarded to the students' academic grades for participating in the research to enhance the reliability of measurements. Path analysis, a type of structural equation modeling, was used to realize the objectives of this research. AMOS and SPSS programs were used to analyze the data. In order to conduct path analysis, the data should be normally distributed, there should be no outliers, there should be a relationship between the variables, and there should be no multicollinearity between the variables. The assumption of normality is based on skewness and kurtosis values, and extreme values are determined by Mahalanobis distance. Mahalanobis distance is a statistical measure that calculates the distance of a data point from the mean of a distribution while also accounting for the correlations among the variables in the dataset. It is commonly employed to identify outliers by assessing how far individual data points deviate from the overall data structure (Kline, 2015). Pearson correlation value for the level of relationship between variables, VIF, and tolerance values for multicollinearity were determined (Kline, 2005; Byrne, 2013). This study calculated the means and standard deviations of selected variables as descriptive statistics.

In path analysis, it is first necessary to determine whether the goodness-of-fit indices are within acceptable classes. Frequently used fit values are Chi-square/df, RMSEA (Root Mean Square Error of Approximation), IFI (Incremental Fit Indices), NFI (Normed Fit Index), RFI (Relative Fit Index), CFI (Comparative Fit Index), TLI (Tucker Lewis Index). In this study, the values of the seven indices presented were analyzed to evaluate the model fit from different perspectives, to check the consistency between the indices, and to avoid misinterpretations (Kline, 2015). For a good fit, Chi-square/df must be below 3, RMSEA below.03, and IFI, NFI, RFI, CFI, and TLI must all be above.95. If the fit values are not within the limits, modifications should be made to the model. That modification involves methods like adding/removing causal arrows and adding covariance arrows between exogenous variables (Hu and Bentler, 1999; Kline, 2005; Tabachnick et al., 2013).

RESULTS

At the beginning of the analysis, it was checked whether the data distributions of the variables met the assumptions of path analysis. Since all skewness and kurtosis values were below 1, it was accepted that the variables were highly normally distributed (Hair et al., 2021). The presence of multicollinearity among the exogenous variables in the study was checked through Tolerance and VIF. The fact that all Tolerance values are above .10 and all VIF values are below 10 indicates that there is no multicollinearity between the variables (Miles, 2014) (Table 1).

Pearson Correlation values show that there is a relationship between the variables of the study at different levels. There is a negative correlation of .192 between academic achievement and social media addiction and a positive correlation of .385 between academic procrastination. There is a significant relationship between social media addiction and academic procrastination at the level of .333 in a negative direction. The only variable with no significant relationship between any of the variables is Value. Although there is no linear relationship between Value and other variables, it was included in the analysis because it is a sub-dimension of Future Time Perception (Table 1).

Path analysis was used to test the hypotheses in the theoretical model. The model fit index values obtained within the scope of path analysis are quite high. The chi-square/sd (1.71 < 2), RMSEA (.036 < .05), IFI (.997 > .95), TLI (.984 > .95), RFI (.961 > .95), NFI (.993 > .95) and CFI (.997 > .95) values (Table 2) of the tested model are quite good (Hu and Bentler, 1999; Kline, 2005; Tabachnick et al., 2013; Byrne, 2013). Since the obtained results showed that the model was compatible, further analyses were conducted.

	X	Sd	T	VIF	S	K		FTP-C	FTP-V	FTP-S	FTP-D	SC	AP	SMA
FTP-C	4.09	.63	.749	1.334	-.808	.736	r							
							p							
FTP-V	3.21	.67	.889	1.125	.177	-.035	r	.255						
							p	< .01						
FTP-S	3.32	1.07	.577	1.734	-.370	-.571	r	.403	-.042					
							p	< .01	.317					
FTP-D	2.99	.63	.842	1.188	.263	.879	r	.165	.146	.369				
							p	< .01	< .01	< .01				
SC	3.38	.63	.673	1.486	.129	-.375	r	.325	.008	.561	.238			
							p	< .01	.846	< .01	< .01			
AP	2.72	1.06	.889	1.125	-.269	-.751	r	.341	.038	.732	.261	.659		
							p	< .01	.364	< .01	< .01	< .01		
SMA	2.82	.87	.889	1.125	.164	-.433	r	- .011	.011	-.331	-.126	-.372	-.333	
							p	.793	.798	< .01	< .01	< .01	< .01	
AA	6.54	1.62	---	---	-.650	.504	r	.164	-.003	.276	.120	.337	.385	-.192
							p	< .01	.949	< .01	< .01	< .01	< .01	< .01

***< .01, SMA: Social Media Addiction, AP: Academic Procrastination, AA: Academic Achievement, SC: Self Control, FTP: Future Time Perspective, D: Distance, S: Speed, V: Value, C: Connectedness, S: Supported, NS: Not Supported, T: Tolerance, S: skewness, K: Kurtosis*

Table 1: Descriptive values and assumption values for variables

Fit measure	Model fit	Recommended value
Kikare/Sd	1.71	< 2.00
IFI	.997	> .95
TLI	.984	> .95
NFI	.993	> .95
RFI	.961	> .95
CFI	.997	> .95
RMSEA	.036	< .05

Table 2: Fit index values of the model with path analysis (source: Kaynak: (Hu and Bentler, 1999; Kline, 2005; Tabachnick et al., 2013; Byrne, 2013))

Structural Model

Figure 2 shows the path coefficients and total explained variance percentages (R^2) for the moderating and endogenous variables. According to the findings, future time perception and self-control predict 19% of the variance in social media addiction (R^2 = 0.19). Social media addiction, future time perception and self-control directly, and future time perception and self-control indirectly through social media addiction predict 63% of the variance in academic procrastination (R^2 = 0.63). Social media and academic procrastination directly, future time perception, and self-control indirectly predict %15 of the variance in academic achievement (R^2 = 0.15).

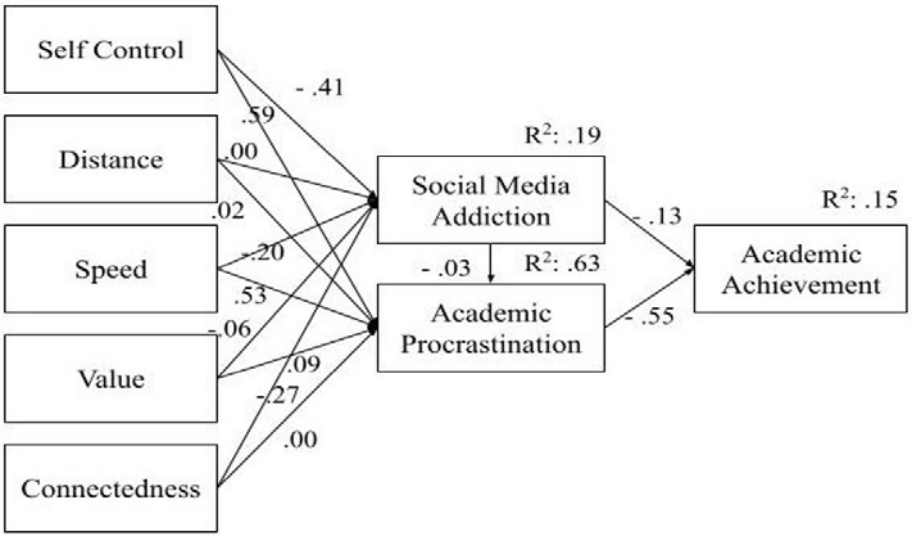

Figure 2: Model tested

Hypothesis number	Path			β	SE	t	p
1	SMA	←	SC	-.409	.064	-6.39	< .001
2	AP	←	SC	.592	.055	10.83	< .001
3	SMA	←	FTP-V	-.062	.053	-1.18	.239
4	SMA	←	FTP-C	-.273	.061	-4.46	< .001
5	SMA	←	FTP-S	-.200	.041	-4.85	< .001
6	SMA	←	FTP-D	.006	.057	.11	.911
7	AP	←	FTP-V	.090	.044	2.07	< .05
8	AP	←	FTP-C	-.001	.051	-.02	.983
9	AP	←	FTP-S	.532	.035	15.4	< .001
10	AP	←	FTP-D	.024	.047	-.51	.609
11	AP	←	SMA	-.035	.035	-1.00	.317
12	AA	←	AP	.549	.063	8.75	< .001
13	AA	←	SMA	-.132	.077	-1.73	.084

SMA: Social Media Addiction, AP: Academic Procrastination, AA: Academic Achievement, SC: Self Control, FTP: Future Time Perspective, D: Distance, S: Speed, V: Value, C: Connectedness,

Table 3: Measurement values of the tested structural model

In structural equation model analysis, the *t*-value provides information about whether each variable is a significant predictor, while the path coefficient (β) provides information about the degree of effect (Hair et al., 2021). While self-control ($t = -6.39$, $p < .001$), speed ($t = -15.40$, $p < .001$), and connectedness ($t = -4.46$, $p < .001$) are significant predictors of social media addiction, distance ($t = .11$, $p > .05$) and value ($t = -1.18$, $p > .05$) are not significant predictors. The effect levels of the variables on social media addiction are, from largest to smallest, self-control ($\beta = -.409$), connectedness ($\beta = -.273$), speed ($\beta = -.200$), value ($\beta = -.062$), and distance ($\beta = .006$) (Table 3).

While self-control ($t = 10.834$, $p < .001$), speed ($t = 4.851$, $p < .001$), and value ($t = 2.07$, $p < .05$) were significant predictors of academic procrastination, social media addiction ($t = -1.00$, $p > .05$), connectedness ($t = -.02$, $p > .05$) and distance ($t = .51$, $p > .05$) were not significant predictors. The effect levels of the variables on academic procrastination are, from large to small, self-control ($\beta = .592$), speed ($\beta = .532$), value ($\beta = .090$), social media addiction ($\beta = -.035$), distance ($\beta = .024$), and connectedness ($\beta = -.001$). Finally, academic procrastination ($t = 8.749$, $p < .05$) was a significant predictor of academic achievement, while social media addiction ($t = -1.729$, $p > .05$) was not. The effects of social media addiction and academic procrastination on academic achievement are $\beta = -.132$ and $\beta = .549$, respectively (Table 3). According to these results, hypothesis H1 is not rejected, hypotheses H2 and H3 are partially rejected, while hypotheses H4, H5, and H6 are fully rejected (Table 3).

		SC	FTP-C	FTP-V	FTP-S	FTP-D	SMA	AP
Total Effects	SMA	-.297	.196	-.048	-.244	.005	...	...
	AP	-.361	.006	-.058	-.540	-.014	.029	...
	AA	.152	-.016	.024	.212	.005	-.082	-.362
Direct Effects	SMA	-.297	.196	-.048	-.244	.005	...	...
	AP	-.353	.001	-.057	-.533	-.014	.029	...
	AA	...	...	...	...	...	-.071	-.362
Indirect Effects	AP	-.008	.006	-.001	-.007	.000	...	...
	AA	.152	-.016	.024	.212	.005	-.010	...

SMA: Social Media Addiction, AP: Academic Procrastination, AA: Academic Achievement, sc: Self Control, FTP: Future Time Perspective, D: Distance, S: Speed, V: Value, C: Connectedness

Table 4: Standardized total, direct, and indirect effect values for the tested structural model

In addition to the significance level, the impact factor is also considered in path analysis. The impact factor shows the effect of each value on the total factor. If the effect factor takes a value other than zero, it can be considered a contribution (Hair et al., 2021). In the model, self-control and speed are the two exogenous variables with the highest impact power. Self-control directly affects social media addiction at the level of -.297, academic procrastination at the level of -.361, and academic achievement indirectly at the level of .152. Speed directly affects social media addiction at the level of -.244, academic procrastination at the level of -.540, and indirectly affects academic achievement at the level of .212. The total effect of social media addiction on academic achievement is .082. Of this value, .071 is direct, and .010 is indirect through academic procrastination. The effect of academic procrastination on academic achievement is -.362 (Table 4).

DISCUSSION

According to the research findings, it has been concluded that social media addiction is not a significant predictor of academic achievement in university students. Despite the prevailing emphasis in the literature on the negative impact of social media addiction on academic achievement (Al-Menayes, 2015; Busalim et al., 2019; Hou et al., 2019;

Junco, 2012; Pekpazar et al., 2021; Paul et al., 2012; Zhao, 2023), numerous studies, including the present research, yield results suggesting a lack of such impact (Fauzi et al., 2021; Othman et al., 2017). Particularly in Turkey, attending reputable universities is contingent upon high performance in entrance exams. The students involved in this study rank high in academic performance, and despite their extensive use of social media, they may still successfully fulfill their academic responsibilities. The composition of the research group with academically successful students indicates their aptitude for coping with challenges. In Turkey, socio-economic status is a decisive factor for academic success, contributing to the resilience of academically successful students. Resilient students are those who achieve academic success despite facing various challenges (Avci, 2022).

Another variable examined for its impact on academic achievement is academic procrastination. Research findings indicate that academic procrastination is a meaningful predictor of academic achievement. Students who complete their academic tasks on time tend to have higher academic achievements. Specifically, students who set goals, plan their time effectively, possess a high level of learning motivation, can easily focus their attention, and make decisions easily (Zacks and Hen, 2018; Grunschel et al., 2013) are likely to achieve higher academic success. The obtained results align with the findings of numerous studies investigating the impact of academic procrastination on academic achievement (Balkis, 2013; Ucar et al., 2021).

The research also explored future time perception and self-control as predictors of social media addiction. While studies on time perception are often evaluated within Zimbardo's five-dimensional framework, this study adopted Husman and Shell's theory, which considers future time perception in four dimensions. The study found that connectedness and speed dimensions are significant predictors, while distance and value dimensions are not. Individuals who establish a connection between their current actions and future goals in terms of connectedness (Husman and Shell, 1996) are less likely to experience problems with social media addiction. Regarding the speed dimension, individuals who manage their time well, do not procrastinate, and work step by step toward their goals (Gjesme, 1979) are likely to have lower social media usage hindering their goals. The value dimension expresses the value an individual places on their goals. If school courses serve as tools for future goals, the value assigned to these courses increases (Husman, 1998; Jenkins-Marsan, 2002). The inability to establish a connection between value and social media addiction may stem from inadequate future goals or a perception that current activities lack value for their goals. Breadth is a dimension that reflects the extent to which an individual sets distant future goals. Individuals with a high future time perception set goals for the distant future (Daltrey and Langer, 1984; Nuttin, 2014). Those with goals plan their current actions accordingly and do not get distracted by tools like social media that may divert them from their goals. Perhaps social media users' goal is to plan for opportunities on that platform.

Self-control is the ability of an individual to manage their emotions, thoughts, and behaviors (Tangney et al., 2018). Individuals with the ability to control themselves can resist the allure of short-term pleasurable activities such as social media usage. The findings of this study indicate that self-control is a significant predictor of both social media addiction and academic procrastination. The explanatory power of self-control is notably high for both variables. High levels of self-control are associated with a lower incidence of social media addiction among students. Furthermore, students with high self-control tend to complete their academic tasks on time without procrastination. These findings are in line with existing literature. Research conducted by Kim et al. (2008) on adults revealed that self-control predicts online game addiction. Sagar (2021) found that self-control is a significant predictor of social media addiction in university students. In a study on university students, Uzun et al. (2020) concluded that self-control predicts academic procrastination. Another study focusing on 21-year-olds engaged in online gaming found that self-control predicts addiction (Kim et al., 2008).

This research examined the direct and indirect effects of self-control and future time perception on social media addiction and academic procrastination, as well as the direct and indirect impact of social media addiction on academic achievement through academic procrastination. The results indicate that social media addiction does not predict academic achievement or academic procrastination. However, academic procrastination emerged as a predictor of academic achievement. Self-control is a robust predictor for both social media addiction and academic procrastination. Among the four sub-dimensions of future time perception, speed strongly predicts both social media addiction and academic procrastination. Additionally, the commitment sub-dimension of the future time perspective predicts social media addiction, while the value sub-dimension predicts academic procrastination. Conversely, value is not a significant predictor for social media addiction, and commitment is not a meaningful predictor for academic procrastination. The distance dimension shows no relationship with any variable.

The findings indicate that future time perception, particularly in connectedness and speed, significantly influences academic procrastination and social media addiction. In light of this, educational programs should be developed to equip students with the skills to set future goals and plan for their achievement, starting from the early stages of education. Such programs can help students become more goal-oriented and reduce procrastination behaviors (Husman and Shell, 2008). Additionally, the study highlights the detrimental effect of academic procrastination on academic achievement, underscoring the importance of universities providing support in areas such as time management, motivation, and the prioritization of academic tasks. Evidence suggests that interventions targeting these skills can mitigate procrastination and improve academic performance (Grunschel et al., 2013). To address the negative impact of social media addiction on academic outcomes, universities could also implement awareness programs that encourage students to manage their social media use more effectively. These programs could aim to mitigate the adverse relationship between social media engagement and academic achievement (Giunchiglia et al., 2018).

LIMITATIONS

The participants in this study are students from a highly ranked university, and therefore, the findings reflect academically successful students. It is necessary to replicate the research on a different sample that includes students from universities with lower entrance scores to ensure the generalizability of the results. Data were collected through self-reported measures provided by the participants. This data collection method presents certain limitations, such as the potential for social desirability bias. Particularly in the context of social media addiction, participants may have reported behaviors that align more with socially accepted norms rather than their actual behavior. Additionally, the findings of this study are based on cross-sectional data, which limits the ability to make definitive cause-and-effect conclusions. The inferences drawn are more reflective of correlational relationships. To establish causal relationships, future research should consider employing longitudinal designs. Lastly, the study did not account for the socio-economic and cultural differences among participants, which may influence the relationship between social media addiction and academic achievement. The dynamics of this relationship could vary across students from diverse socio-economic backgrounds.

CONCLUSION

This study examined the relationships among future time perspective, self-control, social media addiction, academic procrastination, and academic achievement. The results highlight the significant influence of self-control and future time perspective components, particularly speed and connectedness, in reducing social media addiction. These factors indirectly influence academic procrastination and achievement, highlighting self-control's central role in academic outcomes. Although social media addiction did not directly predict academic achievement, its association with academic procrastination indirectly affects achievement outcomes.

The results indicate that self-control and speed are the strongest predictors within this model, significantly contributing to both reduced social media addiction and improved academic performance. These findings underscore the importance of enhancing students' self-control and time management skills to mitigate procrastination and promote academic success. Future research should examine interventions that target self-control and future time orientation to further elucidate their impact on students' academic behaviors and overall achievement.

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