



School Burnout and School Engagement in Adolescents: The Mediator and Moderator Role of Facebook Addiction

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Abstract

In this study, the mediating and moderating role of Facebook addiction in the relationship between school burnout, and school engagement was investigated. The study group comprised of 283 students continuing to 6th, 7th, 8th and 9th grades. The data were collected by School Burnout Inventory, School Engagement Scale and Facebook Addiction Scale. As a result of the correlation analysis, a significant positive correlation was found between school burnout and Facebook addiction. Also, school engagement was negatively related to school burnout and Facebook addiction. The structural equation model findings indicated that Facebook addiction had a partial mediating role between school burnout and school engagement. The results of the bootstrap analysis supported the significance of the partial mediating role. Besides, as a result of the regression analysis, it was found that Facebook addiction had a differentiating role in the relationship between burnout and school engagement. Research findings are discussed in light of the literature. It is recommended to carry out studies to prevent social media addiction and to enhance conscious technology use. These studies are considered to contribute to reduce school burnout of the students and increase their school engagement.

Keywords

School burnout
Facebook addiction
School engagement
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Introduction

Adolescence is a period of development in which physical, psychological and social changes are experienced at a higher rate than any stage of life (Salmela-Aro, Savolainen, & Holopainen, 2009). Increasing academic expectations during adolescence, the difficulty of dealing with increasingly complex situations such as learning and adapting to various roles make an adolescent's life open to stressful experiences (Ge, Lorenz, Conger, Elder, & Simons, 1994). School, as the first social environment of an adolescent after the family, emerges as an important interaction area where these experiences can be clearly observed (Salmela-Aro, Muotka, Alho, Hakkarainen, & Lonka, 2016; Salmela-Aro, Upadyaya, Hakkarainen, Lonka, & Alho, 2017; Zucoloto, de Oliveira, Maroco, & Campos, 2016).

School offers an important developmental context for adolescents (Eccles, 2004). During school hours, students do not only acquire knowledge and skills but also develop their own perspective as a member of social groups and society. The social and emotional experiences of school life influence the students' desire for lifelong learning (Finn, 1993; Finn & Rock, 1997; Henry & Slater, 2007; Linnakyla, 1996; Şahan & Duy, 2017; Yuksek & Solakoglu, 2016). Previous research (Cole, Peeke, Dolezal, Murray, & Canzoniero, 1999; Harter, 1996; Gerard & Buehler, 2004; Jessor, 1991; Seroczynski, Cole, & Maxwell, 1997) revealed that the students' perception of the school environment and school experiences have relationships with various adaptation behaviors. Accordingly, dislike of school is associated with internal and external problem behaviors and reduced quality of life (Jessor, 1991).

Engagement in school activities is crucial in the academic achievements of students and in development as a competent member of society (Ryan & Patrick, 2001). Researchers, educators, and politicians increasingly focus on students' school engagement in the process of compensating students' drop-out rates, low academic success, burnout due to school demands, and problems of alienation in a school context (Fredricks, Blumenfeld, & Paris, 2004). The students with higher school engagement achieve success and show better personal adjustment at school life and later. On the other hand, the students who experience psychological exhaustion by the school are more likely to experience other negative psychosocial consequences such as academic failure, dropout, and school burnout (Salmela-Aro et al., 2009).

School burnout is a relatively new phenomenon (Salmela-Aro, Kiuru, Pietikainen, & Jokela, 2008). Although burnout is generally seen as a problem related to work-life (Maslach, Jackson, & Leiter, 1996), it is useful to work in the school environment in the context of a student's work. Although students do not work, psychologically basic activities can be seen as "work". Students participate in the classroom environment and fulfill the tasks assigned by the school to pass exams and achieve a degree of success. Therefore, the concept of burnout has also been included in the school context (Kiuru, Aunola, Nurmi, Leskinen, & Salmela-Aro, 2008).

Burnout emerges as a result of the difficulty of dealing with the demands encountered mostly in academic settings (Zucoloto et al., 2016). In general, school burnout can be thought of as a chronic stress response to school as a consequence of the differences between the expectations of students and the others and the competences of the students for the students' success at school (Frydenberg & Lewis, 2004). School burnout, emotional exhaustion that includes burnout due to school demands or the signs of chronic fatigue and tension, is defined in three dimensions as cynical and detached attitudes towards school (depersonalization) and feeling inadequacy as a student (Schaufeli, Martinez, Pinto, Salanova, & Bakker, 2002). Although these dimensions are useful for understanding the wellbeing of students, it is important to reveal causal relationships between these factors in gaining insight into the processes leading to the emergence of school burnout (Parker & Salmero-Aro, 2011).

Golembiewski (1989) presents a model that has been determined to predict important aspects of success and wellbeing. This model shows that burnout evolves in stages consisting of eight different clusters that represent increasingly incompatible situations. According to the model, cynicism first develops and follows emotional exhaustion and inadequacy that presents a stronger process of burnout

(Golembiewski, 1989; Taris, Le Blanc, Schaufeli, & Schreurs, 2005). On the other hand, the model of Leiter (1989) seems better in some empirical investigations than in Golembiewski's (1989) model for explaining burnout (Lee & Ashforth, 1993). This model states that emotional exhaustion is the first component of burnout and leads to a sense of cynicism and inadequacy as a strategy of ineffective coping (Leiter, 1989). In further research, Taris et al. (2005) revealed that emotional exhaustion has both direct and indirect effects on feelings of inadequacy through sarcasm. Parker and Salmela-Aro (2011), on the other hand, concluded that emotional exhaustion was experienced due to school demands and cynicism towards school and then predicted feelings of inadequacy for students.

When the relationship between school burnout dimensions and gender differences is examined, it is evident that females and males may experience school stressors in different ways. Accordingly, the females report feelings of being bored with school burnout and feelings of inadequacy as a student, while the males report the dimension of sarcasm (Salmela-Aro, Kiuru, & Nurmi, 2008). Some findings show that the females are more vulnerable to competitive learning conditions, more exposed to stressful situations, and more vulnerable to adverse effects (Ge, Conger, & Elder, 2001; Kessler & McLeod, 1984). As a result, the females experience more school burnout (Salmela-Aro et al., 2017). Nevertheless, the females tend to perform in school better than the males (e.g., Pomerantz, Altermatt, & Saxon, 2002) and are more interested in school (Martin, 2004). On the other hand, the males report that they find the lessons unrelated and boring because of their cynical attitudes towards education (Eccles & Midgley, 1989).

There is considerable evidence that academic motivation, school engagement, and academic achievement are reduced during the transition to high school in early adolescence (Eccles & Midgley, 1989). The effects of school transition can be explained by the stage-environment fit theory. According to this theory (Eccles & Midgley, 1989), positive changes occur when the changes in the needs of adolescents are accompanied by changes in school facilities. The negative consequences, therefore, arise when the needs of the adolescents do not match the opportunities provided by the school. Thus, the school environments where students are equipped to their current level of competence and interest are more motivated to learn and strengthen school engagement. This is especially important during the transition from primary school to high school or vocational high school (Eccles & Midgley, 1989). Also, Salmela-Aro et al. (2009) assert that the adolescents who follow the secondary school academic path experience more burnout than their peers who experience vocational pathways. Fundamental schools generally give more emphasis on school studies and have higher expectations for students. This situation leads to an increase in school burnout and fatigue (Roderick & Camburn, 1999). Nevertheless, vocational schools may be more attractive for the students who are average or below average in academic education, and so their school burnout is reduced and their motivation is increasing in the context of vocational education which is suitable for their interests (Salmela-Aro et al., 2009). Besides, being focused on success rather than being focused on learning (Tuominen-Soini, Salmela-Aro, & Niemivirta, 2008) and the effect of peer groups (Kiuru et al., 2008) are associated with school burnout.

The Demands-Resources Model is important in terms of creating a resource for school burnout and school engagement (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). According to this model, "demands" is a structure that requires physical and/or psychological effort and consequently is associated with psychological and physical tension. Sources define functions that serve the achievement of business goals that trigger personal growth and development and thus reduce their demands (Schaufeli & Bakker, 2004). According to The Demands-Resources Model, overworking demands such as workload and academic pressure can negatively affect mental health by lowering the student's energy and causing stress and then burnout, as well as motivational processes related to lack of competence to effectively deal with these demands can also maintain dismissal and spiritual withdrawal (Demerouti et al., 2001). However, the availability of resources, such as high self-efficacy and perceived support, expresses a motivational process that supports the student's commitment to school work and life satisfaction. According to this, the demands are determined to challenge the study goals and stress and school burnout, resources are functional in achieving these goals and predicting

school engagement by providing high self-efficacy (Salmela-Aro & Upadyaya, 2014; Vasalampi, Salmela-Aro, & Nurmi, 2010). Also, in a recent study, Salmela-Aro et al. (2014) state that school burnout predicts a decrease in school engagement in the next period based on the demands-resources model. Similarly, Tuominen-Soini and Salmela-Aro (2014) suggest that school burnout predicts a decrease in school engagement in the next period.

School engagement generally refers to positive emotions of learners towards the school, teachers and friends, and active involvement in learning and activities related to the school (Furlong et al., 2003; Jimerson, Campos, & Greif, 2003). School engagement is conceptualized as a multi-dimensional structure consisting of behavioral, emotional, and cognitive components (Fredricks et al., 2004; Wang & Peck, 2013). Behavioral engagement includes positive behavior, obeying school rules, not being in destructive behavior (Connell, 1990), and participating in school-related activities (Finn, 1993; Hospel, Galand, & Janosz, 2016). Cognitive engagement includes learning motivation, valuing tasks assigned at school (Ames, 1992), having self-control on learning strategies such as planning, observing, and evaluating (Zimmerman, 1990; Salmela-Aro & Upadyaya, 2012). Emotional engagement includes positive emotional responses (Skinner & Belmont, 1993; Erentaitė, Vosylis, Gabrielavičiūtė, & Raižienė, 2018) and personal identification and belonging (Voelkl, 1997).

A number of theoretical frameworks have been developed from the fields of educational, developmental, and social psychology related to school engagement. Motivational Models, Participation-Identification Model, Social Control Theory, and Engagement Theory are important theories of these approaches. According to the motivational models, optimal development occurs in environments where basic human needs are met (Eccles, Early, Fraser, Belansky, & McCarthy, 1997). For example, some motivation researchers (Eccles et al., 1993; Eccles & Midgley, 1989) focused on school characteristics and "perfect harmony" between students' basic needs such as ability, independence, and relationship (Connell, 1990; Deci & Ryan, 1985; Skinner, 1995). Accordingly, children learn with pleasure in the appropriate emotional atmosphere structures where students can develop their talents, act independently and establish relationships (Connell & Wellborn, 1991; Eccles et al., 1993, 1997).

The participation-identification model proposed by Finn (1989) emphasizes the active involvement of the learner and the emotions that emerge as a natural consequence of the identification with the school. This model is the first model to deal with the emotional and behavioral dimensions of school engagement concept separately. Finn (1993) defined identification as having an internalized sense of belonging that will make students feel that they are clearly part of the school and that school has an important place in the student's life. The level of engagement will increase to degree that the student is identified with school (Osterman, 2000). Finn (1989) believes that participation in school activities will allow students to have a sense of belonging to the school. Therefore, participation comes before the identification. In the participation-identification model, it is suggested that the student's identification with the school is important in preventing problem behaviors such as dropping out of school and committing a crime (Finn, 1989).

The theory of social control suggests that establishing social bonding will lead to a buffer against the risk factors of an individual's life (Hirschi, 1969). Hirschi (1969) argues that building a bond with a positive institution, like school, is an effective way to control unusual behaviors. On the other hand, inadequate social networks increase the risk of mistake and crime (Catalano, Haggerty, Oesterle, Fleming, & Hawkins, 2004). The researchers studying on theory of social control studied on the concepts of engagement to school and not engaged at school, which included emotional dimensions of school engagement. Hawkins and Weis (1985) defined social ties as developing attachment to peers, academic and social engagement to school, and believing in school rules. According to the social control theory, strong social ties support the promotion of positive behaviors and prevention of problem behaviors (Hawkins, Guo, Hill, Battin-Pearson, & Abbott, 2001). The theory of engagement focuses on the importance of creating a strong emotional attachment to school and school staff (Bretherton, 2005). According to the theory of engagement, children are connected to the caregiver to feel safe. As a true

institution, it can be thought of as a figure of engagement that provides security, comfort, and support in the school (Cernkovich & Giordano, 1992).

School engagement is accepted as regarded as an important antecedent for the psychological and educational development and it is thought to improve students' academic performance (Fredricks et al., 2004). This engagement is associated with high academic achievement, measured by both school-grade and standard-test scores (Glanville & Wildhagen, 2006). School engagement is also negatively associated with dropout and positively related to resiliency. The children who are interested in school tend to study harder to improve their performance rather than leave school when they have a low or unsuccessful grade. School engagement also prevents adolescents from risky behavior. If students do not do school assignments after school, this situation may lead to negative behaviors such as crime, alcohol and substance abuse, early sexual activity, and reduced academic participation (National Research Council and the Institute of Medicine, 2004). There is a positive relationship between school engagement and academic success (Finn & Rock, 1997), social support from family (Simons-Morton & Chen, 2009), and peer communication (Ryan, 2000). On the other hand, there is a negative relationship between school engagement and early sexual experiences and risky sexual intercourse (Voisin et al., 2005). Ripski and Gregory (2009) concluded that the female students' school engagement was higher than their male peers.

According to the findings of the research by Chang, Chiu, Lee, Chen, and Miao (2014), which was conducted on 2315 high school students, school engagement serves as an important protective factor against internet addiction. According to the findings of research conducted by 2368 university students and examined the relationship between Facebook usage frequency, participation in activities on Facebook, and student engagement, Facebook usage predicts student engagement significantly in a negative way (Junco, 2012). According to the findings of American Association for Higher Education research which was conducted on 31500 university students in the first year from 114 different universities, the students who spend more time on social websites experience some more difficulty in improving their effective studying skills and using time effectively (Junco & Heiberger, 2009). Considering the results of these research, it could be concluded that as students spend more time on Facebook, their academic achievement and school engagement decrease.

The widespread use of information and communication technologies such as a computer, telephone, internet, and social media can affect students' learning environments and well-being at school and increase the risk of problematic internet use (OECD, 2015). Along with the widespread use of the internet and smartphones, the usage of internet and social media by teenagers in school-age has increased considerably. According to the Turkey Statistical Institute (2016), the use of social media is the most common type of social network. According to the Turkey Statistical Institute (2013), which investigates the information technology and media usage of children between the ages of 6-15, the average age of starting to use the internet is 9 and 53.5% of individuals in the 6-15 age group use the internet for social media networks.

Social media networks are quite widely and commonly used in Turkey. Research shows that Turkey is ahead of many countries in terms of social media usage (Kemp, 2020). In Turkey, there are 62 million active internet users and about 58 million people connect to the internet with mobile devices. 54 million of these users actively use social media. Internet users spend on average 2 hours and 51 minutes a day on social media networks. There are 37 million Facebook users in Turkey. After Google and YouTube platform Facebook is the third most visited web site in Turkey (Kemp, 2020). Especially in recent years, although the number of Facebook users has decreased, it is still at the top in terms of a number of users.

Andreassen, Torsheim, Brunborg, and Pallesen (2012), who stated that Facebook addiction can be regarded as a specific form of internet addiction used the six-dimensional conceptualization previously developed in addiction when defining the concept of Facebook addiction: salience, tolerance, mood modification, relapse, withdrawal, conflict (Brown, 1993; Griffiths, 2005). Andreassen et al. (2012)

developed the Facebook Addiction Scale by reviewing the research on addiction. Facebook addiction refers to the desire for spending too much time on Facebook and feeling an urge to use Facebook more and more. The unsuccessful attempts to quit Facebook are also a sign of addiction.

Research shows that Facebook addiction can lead to personal, social, and academic problems. Facebook addiction is positively associated with relationship dissatisfaction (Elphinston & Noller, 2011), depression, anxiety, and insomnia (Koc & Gulyagci, 2013) and negatively associated with subjective well-being (Uysal, Satici, & Akin, 2014). Also, spending time on Facebook is negatively associated with self-esteem (Kalpidou, Costin, & Morris, 2010). Facebook addiction negatively affects life satisfaction and social feelings of security (Akin & Akin, 2015). Social networking can lead to relationship problems in real life and a decline in academic achievement (Kuss & Griffiths, 2011). As Facebook usage and the number of friends on Facebook increases, academic success and academic cohesion are decreasing. Kalpidou et al. (2010) found that increasing the number of friends on Facebook in the first years of the university negatively affected academic and emotional harmony, and Facebook addiction caused adaptation problems at school and made it difficult to cope with school-related stress. Facebook addiction can cause students to waste their time (Ulusu, 2010).

The academic failure of adolescents at school and having problems with their friends and teachers at school can cause school burnout. In this case, students may feel academically inadequate. On the other hand, stress reactions such as tension and fatigue can be given to the school. By losing motivation about the school as another way, students can start to find lessons meaningless and think that the school is useless. The students who feel school burnout may express themselves in different areas. One of these areas may be the internet environment where a lot of young people spend their time. The students who want to succeed on the internet or forget about school problems may tend to use Facebook more. Salmela-Aro et al. (2017), in a longitudinal study for the adolescents between the ages of 12-14 and 16-18, concluded that school burnout predicts internet addiction. Also in this study, it is suggested that the adolescents in the age group 12-13 who scored high in the sarcasm sub-dimension of school burnout can develop internet and social media addiction by seeking meaning and value out of school. Similarly, Haapasalo, Välimaa, and Kannas (2010) revealed that school burnout caused excessive internet use. Walburg, Mialhes, and Moncla (2016) emphasize that the students with high burnout scores can use Facebook as an escape tool to escape from themselves as a result of perceiving a gap between what they want to be ideally and what they really are and reveals that school burnout predicts Facebook addiction. Also, in this study, it was concluded from the fact that the female students get bored from school work and the male students perceive themselves as a student predicted Facebook addiction (Walburg et al., 2016). Based on the research results discussed above, it can be said that the students experiencing burnout at school are in the risk group regarding social media use and Facebook addiction. Using Facebook may be an escape mechanism that mediates students' emotional regulation.

In light of the previous research, it can be said that Facebook addiction is positively related to school burnout and negatively related to school engagement. Facebook addiction also plays a role in mediation and moderation by increasing the negative effect of school burnout on school engagement. In particular, understanding the relationship between Facebook addiction and school engagement and school burnout, which may disrupt social relations and decrease academic achievement, may contribute to clarifying and resolving this relationship that parents and teachers perceive as a problem. When the relevant literature is examined, it is seen that there is only one study addressing the relationship between school burnout and Facebook addiction (Walburg et al., 2016) and also research that deals with school burnout and school attachment with internet addiction which is a behavioral addiction (Salmela-Aro et al., 2017). No research findings were found in which the combination of these three variables were examined in Turkey. Therefore, it is considered that this study will fill a gap in the field. The aim of this study is to investigate whether Facebook addiction has a mediating and differentiating role in the relationship between burnout and school engagement.

Method

Study Group

The participants of the study consisted of 283 students (51 students (18%) in the 6th grade, 82 students (29%) in the 7th grade, 81 students (28.6%) in the 8th grade and 69 students (24.4%) in the 9th grade) who are being educated in Turkey's three major cities (Istanbul, Kocaeli, and Sakarya). Of the participants 116 (41%) students are female and 167 (59%) students are male. The ages of the participants are ranged between 11 and 15 ($M = 13.36$, $SD = 1.2$). The students voluntarily participated in the research. Informed consent was obtained from the students who participated in the study.

Measurement Tools

School Engagement Scale: The scale which was developed by Fredericks, Blumenfeld, Friedel, and Paris (2005) was adapted to Turkish by Akin et al. (2013a). The scale consists of three subscales and 19 items. The high scores on the scale indicate a high level of school engagement. The total scores that can be obtained from the scale vary between 19 and 95. The scale is measured on a 5-point Likert scale (1 = never – 5 = always). The sub-dimensions of the scale can also be calculated. The scale consists of behavioral engagement (5 items) emotional engagement (6 items) and cognitive engagement (8 items). The confirmatory factor analysis showed that the three-dimensional model was a good level of fit. The test-retest reliability coefficients of the scale were calculated as .78 for the total score and as .63, .68, .67 respectively. The item-total test correlations of the scale were calculated between .26 and .71. The results of the independent t-test to examine the significance of the difference between lower 27% and upper 27% groups' items were found to be significant. In this study, Cronbach's alpha internal consistency reliability coefficient of the scale was found as .87 for the total scale and as .65, .81, .80 for behavioral, emotional, and cognitive engagement, respectively.

School Burnout Inventory: The inventory which was developed by Salmela-Aro et al. (2009) was adapted to Turkish by Akin et al. (2013b). The scale consists of 9 items. There are no reverse items on the scale and the high scores indicate a high level of school burnout. The scores that can be obtained from the scale vary between 9 and 54. The scale is measured on a 6-point Likert scale (1 = strongly disagree – 6 = strongly agree). The confirmatory factor analysis showed that the one-dimensional model was a good level of fit. The test-retest correlation coefficient of the scale was calculated as .75. The corrected item-total correlations of the scale were found between .35 and .64. The independent t-test results to examine the significance of the difference between the upper 27% and the lower 27% of the scores were found to be significant. Cronbach's alpha internal consistency coefficient of the scale was calculated as .83 in this study.

Bergen Facebook Addiction Scale: The scale which was developed by Andreassen et al. (2012) was adapted to Turkish by Akin, Demirci, and Kara (2017). The scale consists of 18 items and six sub-scales with each 3 items. There is no reverse-scored items on the scale. The high scores on the scale indicate a high-level of Facebook addiction. The scores that can be obtained from the scale vary between 18 and 90. The scale is measured on a 5-point Likert scale (1 = rarely – 5 = very often). The confirmatory factor analysis for BFAS showed a good level of fit for the six-dimensional scale. The internal consistency reliability coefficients of BFAS were calculated as .74, .81, .85, .76, .90, .80 for the subscales and .93 for the total. The corrected item-total correlations of the scale change between .50 and .72. The independent t-test results to examine the significance of the difference between the lower 27% and the upper 27% groups' item were found to be significant (Akin et al., 2017). The results of the validity and reliability analyses on the data obtained from the 6th, 7th, 8th, and 9th-grade students, which constitute the study group of the scale in this study, are given in the findings section.

Data Analysis Techniques

The construct validity of the Facebook Addiction Scale in the adolescent sample was tested using confirmatory factor analysis. The reliability level of the measurement tool was analyzed by calculating Cronbach's alpha internal consistency coefficient. The item analysis was examined with the corrected item-total score correlation. The LISREL and SPSS programs were used for the validity and reliability analysis.

In the study, the mediating role of Facebook addiction between school burnout and school engagement was examined with the structural equation model (Kline, 2015). After the model was tested, the bootstrap analysis was applied through 10000 resamblings to evaluate the significance of the mediation (Hayes, 2013). In this study, the AMOS program was used to test the mediation of Facebook addiction between school burnout and school engagement variables. Various fit indices are used to evaluate the fit of the model. It is suggested that the values of RMSEA and SRMR should be below .08 (Schumacker & Lomax, 2004), the value of χ^2/df should be below 3, the values of CFI and TLI should be above .90 (Schermelleh-Engel & Moosbrugger, 2003; Schumacker & Lomax, 2004). It is also stated that when the multiple models are tested, the model with low values of AIC and ECVI should be preferred (Kline, 2015).

In the study, the moderating role of Facebook addiction in the relationship between school burnout and school engagement was examined by the hierarchical regression analysis. The procedure recommended by Baron and Kenny (1986) was followed when the role of the moderator variable in the study was examined. First of all, the total scores of all variables should be standardized. In the hierarchical regression analysis that follows, first, the independent variable is included, second, the mediator variable is included, and finally, the interaction of the independent variable and the moderator variable is included in the regression equation. The significant changes that this interaction will bring to the value of R^2 which indicates the significance of the moderating variable.

Results

The Psychometric Properties of the Facebook Addiction Scale for Adolescent Sample

The Facebook Addiction Scale developed by Andreassen et al. (2012) was adapted to Turkish by Akin et al. (2017) in a sample of university students. In this study, the validity and reliability of the Facebook Addiction Scale in the adolescent sample was examined.

Construct Validity

The confirmatory factor analysis was performed to evaluate the 6-dimensional structure of the scale in its original form. The fit index values of the hypothesized model were found to be acceptable: $\chi^2_{(120, N=283)} = 201.13$, $\chi^2 / sd = 1.68$, $p < .001$; CFI = .99; TLI = .99; SRMR = .036; RMSEA = .049 CI (.037 - .061). The factor loads of the items in the scale vary between .60 and .87. The measurement model is presented in Figure 1.

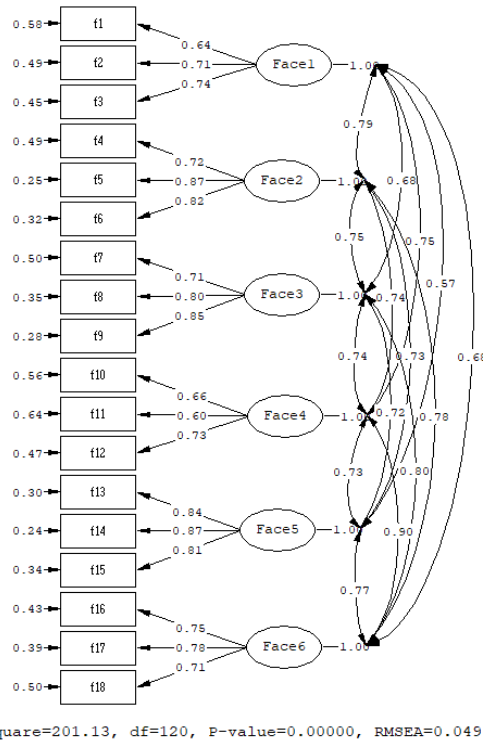


Figure 1. Path Diagram and Factor Loads of Facebook Addiction Scale

Item Analysis and Reliability

The item analysis was performed to determine the predictive power and discrimination of the scale items. The corrected item-total score correlations of the items in the scale are .54 to .55 for salience, .65 to .73 for tolerance factor, .60 to .70 for mood modification, .42 to .56 for relapse, ranging from .71 to .76 for withdrawal and .57 to .63 for conflict dimension. Cronbach's alpha coefficient of the Facebook Addiction Scale is .93 for the total score of the scale, .72 for salience factor, .83 for tolerance, .81 for mood modification, .66 for relapse, .86 for withdrawal. and .76 for conflict factors. The findings are presented in Table 1.

Table 1. Corrected Item Total Test Correlations, Means and Standard Deviations of Facebook Addiction Scale

Factor	Cronbach's a	Item No	\bar{X}	Ss	r _{it}	r _{itf}
Salience	.72	1	1.85	1.23	.46	.55
		2	1.95	1,34	.54	.56
		3	1.94	1,33	.58	.54
Tolerance	.83	4	2.05	1.38	.62	.65
		5	1.86	1.30	.72	.73
		6	1.89	1.38	.69	.70
Mood Modification	.81	7	1.81	1.31	.59	.60
		8	1.78	1.23	.63	.67
		9	1.87	1.30	.68	.70
Relapse	.66	10	1.71	1.23	.56	.43
		11	1.93	1.34	.47	.42
		12	1.94	1.36	.59	.56

Table 1. Continued

Factor	Cronbach's a	Item No	\bar{X}	Ss	r_{it}	r_{itf}
Withdrawal	.86	13	1.94	1.38	.63	.76
		14	1.95	1.40	.70	.76
		15	1.97	1.39	.67	.71
Conflict	.76	16	1.94	1.36	.64	.57
		17	1.86	1.34	.65	.63
		18	1.67	1.25	.58	.57

r_{it} = Item total score correlation for total score,

r_{itf} = Item total score correlation for factor

Correlation Analysis and Descriptive Statistics

The correlations between school burnout, Facebook addiction, and school engagement scores of the students, the means, the descriptive statistics, and the reliability values of the scales are presented in Table 2.

Table 2. Descriptive Statistics and Pearson Correlation Coefficients Related to Research Variables

Variables	School Burnout	Facebook Addiction	School Engagement	\bar{X}	Ss	Skewness	Kurtosis
School Burnout	1.00			23.45	9.37	.302	-.428
Facebook Addiction	.54**	1.00		33.91	15.82	.717	-.428
School Engagement	-.57**	-.46**	1.00	70.91	12.60	-.327	-.583

*** $p < .01$

As shown in Table 1, there are significant relationships between school burnout and Facebook addiction and school engagement. The results of the analysis indicate that school burnout is positively related to Facebook addiction ($r = .54, p < .001$) and negatively related to school engagement ($r = -.57, p < .001$). There is a negative relationship between Facebook addiction and school engagement ($r = -.46, p < .001$). Before testing the structural equation model, it was examined whether the predictive variables had normal distribution by looking at the skewness and kurtosis values, and it was concluded that the data had a normal distribution. The skewness values of the variables are between $-.327$ and $-.717$, and the kurtosis values are between $-.428$ and $-.583$. Since the values of variation of growth factor (VIF) are below the value of 10, it was considered that there is no multiple connection problem.

The Mediator Role of Facebook Addiction in Relationship between School Burnout and School Engagement

Following the correlation analysis, the full mediating role of Facebook addiction in the relationship between school burnout and school engagement was tested using the structural equation model. It was seen that the full mediation in the tested model did not show acceptable fit: $\chi^2_{(34, N=283)} = 123.636$; $\chi^2 / sd = 3.636, p < .001$; CFI= .93; TLI= .91; SRM = .072; RMSEA= .097 C.I. (.079 - .115), AIC= 122.957, ECVI= .435). Then, the relationship between school burnout and school engagement is included in the model and the partial mediator role of Facebook addiction was examined. The partial mediation in the tested model was found to show acceptable fit: $\chi^2_{(33, N=283)} = 78.76$; $\chi^2 / sd = 2.387, p < .001$; CFI= .95; TLI= .96; SRMR= .049; RMSEA= .070 C.I. (.050 - .090), AIC= 165.636, ECVI= .587. Since the full mediation model did not fit well and the values of AIC and ECVI of the partial mediation model are lower, Facebook addiction has been found to have a partial mediation role between school burnout and school engagement. In order to provide additional evidence for the significance of the indirect effects of the variables in the model, the bootstrap analysis was applied by selecting the 95% confidence interval and 10000 bootstrap samples. The structural equation model and the standardized path coefficients between the variables are shown in Figure 2.

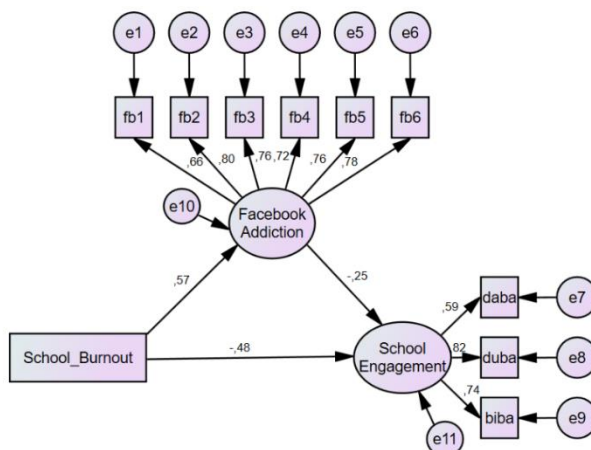


Figure 2. The Mediating Role of Facebook Addiction Between School Burnout and School Engagement

When the structural equation model results are examined, it was found that school burnout positively predicted Facebook addiction ($\beta = .57, p < .001, 95\% \text{ CI} = .48, .66$), Facebook addiction negatively predicted school engagement ($\beta = -.48, p < .001, 95\% \text{ CI} = -.60, -.36$) and school burnout negatively predicted school engagement ($\beta = -.25, p < .05, 95\% \text{ CI} = -.39, -.11$). When the indirect effects were examined, it was concluded that school burnout predicted school engagement through Facebook addiction ($\beta = -.15, p < .05, 95\% \text{ CI} = -.24, -.06$). The findings of standardized path coefficients for the model are presented in Table 3.

Table 3. Bootstrap Analysis Results on Testing the Mediator Role of Facebook Addiction Between School Burnout and School Engagement

			Bootstrapping 95% BCa Confidence Interval	
Direct Effects		Coefficient	Lower	Upper
School Burnout	→ Facebook Addiction	.574	.484	.656
School Burnout	→ School Engagement	-.482	-.606	-.355
Facebook Addiction	→ School Engagement	-.254	-.394	-.105
Indirect Effects				
School Burnout	→ Facebook Addiction → School Engagement	-.146	-.235	-.063

The Moderation Role of Facebook Addiction in Relationship between School Burnout and School Engagement

The moderation role of Facebook addiction in the relationship between school burnout and school engagement was analyzed by hierarchical regression analysis. The findings are presented in Table 4.

Table 4. The Results of Hierarchical Regression Analysis for Moderation Role of Facebook Addiction between School Burnout and School Engagement

Variable	B	Standard Error of B	β	R ²	R ² Change	F Change
Step 1						
School Burnout (ScB)	-.761	.066	-.565	.32	.32	131.954***
Step 2						
Facebook Addiction (FA)	-.173	.045	-.217	.35	.03	45.552***
Step 3						
ScB x FA	1.749	.644	.136	.37	.02	7.387**

Dependent Variable: School Engagement. *** $p < .001$

The results of the hierarchical regression analysis presented in Table 4 showed that school burnout ($\beta = -.57, p < .001$) and Facebook addiction ($\beta = -.22, p < .001$) predicted school engagement significantly in a negative way. Also, the interaction between school burnout and Facebook addiction predicted school engagement significantly in a negative way ($\beta = -.14, p < .01$). These results show that Facebook addiction has a moderator role between school burnout and school engagement.

Discussion and Conclusion

The purpose of this study was to investigate the mediation and moderation role of Facebook addiction in the relationship between school burnout and school engagement. In the study, the mediating role of Facebook addiction between school burnout and school engagement was examined with the structural equation model. After the model was tested, the bootstrap analysis was applied through 10000 resamplings to evaluate the significance of the mediation. The significant relationships were found between school burnout (the independent variable), Facebook addiction (the mediating variable), and school engagement (the dependent variable).

According to the results, a significant positive relationship was found between school burnout, and Facebook addiction. On the other hand, school burnout and Facebook addiction are negatively associated with school engagement. The structural equation model results revealed that Facebook addiction had a partial mediating role between school burnout and school engagement. Finally, the mediating role of Facebook addiction was tested with bootstrap analysis and the mediation role was found to be significant. As school burnout increases, school engagement decreases and Facebook addiction has a mediation role in this relationship.

In the study, the total scores of all variables were standardized before examining the moderation role of Facebook addiction between school burnout and school engagement. First, the independent variable was entered into the school burnout regression equation, and second, the moderator variable was included on Facebook addiction regression equation. In the third step, the interaction of school burnout and Facebook addiction were included into the equation. It has been found that this interaction significantly predicted school engagement in a negative direction. The results show that Facebook addiction has a moderation role in the relationship between school burnout and school engagement.

Facebook addiction plays a mediation role in the relationship between school burnout and school engagement, and also increases the effect of school burnout on school engagement. When those who have high Facebook addiction experience school burnout compared to those who have low, their attachment to school decreases more. When the related literature is examined, the research results supporting the mediator and differentiating role of Facebook addiction between school burnout and school engagement were found. Previous research suggests that stress-related variables may be a risk for internet addiction (Lam, Peng, Mai, & Jing, 2009), school burnout increases the likelihood of problematic Facebook use (Walburg et al., 2016) and excessive internet use (Haapasalo et al., 2010; Salmela-Aro et al., 2017) and also excessive internet use negatively predicts school engagement (Yeap, Ramayah, Halim, Ahmad, & Kurnia, 2016). Also, school engagement can play a preventive role for excessive internet use (Salmela-Aro et al., 2017). While school engagement reduces the use of information communication technologies such as social media use and online gaming, it can increase school-focused internet use (Qahri-Saremi & Turel, 2016).

From previous research, it could be concluded that Facebook addiction can lead to academic problems in school. Facebook addiction affects the school orientation negatively and makes it difficult to cope with the school stress (Al-Menayes, 2014, 2015; Junco, 2012; Yeap et al., 2016). The frequency of Facebook usage is negatively related to academic achievement and academic adjustment (Kalpidou et al., 2010). The use of Facebook predicts student engagement in a meaningful and negative way (Junco, 2012). The use of social networks can lead to relationship problems in real life and a reduction in academic achievement (Kuss & Griffiths, 2011). On the other hand, school engagement is an important protective factor against internet addiction (Chang et al., 2014) while school burnout was positively

associated with depression and negatively associated with school engagement and self-esteem (Fimian & Cross, 1986). Considering the previous research that Facebook addiction has a positive relationship with depression (Koc & Gulyagci, 2013) and negative relationship with self-esteem (Kalpidou et al., 2010), the role of Facebook as a mediator between school burnout and school engagement is important.

This research has some limitations. The study group of the research consisted of students at 6th, 7th, 8th, and 9th-grade adolescents. Future studies can examine the mediator role of Facebook addiction in different age groups. In order to increase the generalizability of the results, future studies will be useful to examine this relationship in samples with more representative. In addition, the analyses based on qualitative data can provide in-depth information to better understand the relationships between the concepts. Also, the data were collected by the School Burnout Scale, Facebook Addiction Scale, and the School Engagement Scale, which were based on self-report. The studies with teachers, family, and peer assessments can help achieve more detailed findings. Finally, conducting empirical and longitudinal studies on these variables may provide information on causal effects. Finally, since the research is based on cross-sectional data, it cannot provide evidence of causal relationships. Experimental and longitudinal studies about these variables can provide information about causal effects.

In conclusion, school burnout was found to be positively related to Facebook addiction, and these two variables were found to be negatively related to school engagement. Facebook addiction plays a partial mediator and moderator role in the relationship between school burnout and school engagement. School engagement and school burnout are important variables that affect the students' personal, academic, and social adjustment. Reducing students' burnout at school can increase their engagement to school, which can positively influence on general adjustment levels. In recent years, Facebook addiction, which is associated with the increase in the use of social media, is increasing with school burnout of the students and negatively affects school engagement. When Facebook usage of students does not reach the level of addiction and the usage period and intended use are healthy, it may be an opportunity for students to socialize and receive current information. However, if a student cannot control the use of Facebook, it may be necessary for the intervention of the family and to receive specialist support if necessary.

The preventive studies for internet addiction and the use of problematic social media in schools can help students to attach more importance to their real-life rather than their virtual life, to reduce school burnout and to increase their school engagement, thus regulate their personal, academic and social adjustment. Besides, elective courses can be included in secondary and high school curricula regarding the healthy and beneficial use of social media, especially Facebook. Based on the findings obtained from this study, the relationship between social networks such as Instagram, Twitter, and Snapchat, which are increasingly used among adolescents other than Facebook, with concepts that directly or indirectly affect school burnout, and school engagement, such as stress and depression, can be investigated. Also, these results can be re-tested on the students and the teachers of different age groups. For future research the studies with qualitative data will enable more clear consideration. It is thought that this study will contribute to the educational psychology literature in those days as the link between the education and internet and social media has increased.

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