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Research Article

Does Social Media Usage Threaten Future Human Resources by Causing Smartphone Addiction? A Study on Students Aged 9-12

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Abstract

Social media usage and smartphone addiction vary according to gender, Internet access plan, and smartphone ownership. In childhood, uncontrolled social media usage opens the way to cases of smartphone addiction. This study investigates the interactions among the factors of time spent on social media, gender, and smartphone ownership with social media usage and examines the links between social media usage and smartphone addiction. In addition, the study aims to provide recommendations based on the results regarding the negative effects of social media overuse and smartphone addiction on children. In this empirical study, the data on perceptions concerning social media usage and smartphone addiction were gathered using a questionnaire completed by 1,147 children aged 9-12 studying in the public schools. Subsequently, data have been analyzed with the program SPSS 24.0 and presented in tables. The findings show the factors of time spent on social media, gender, and smartphone ownership to have an impact on social media usage. The results also provide support for the effect of social media usage on smartphone addiction.

Keywords

Social media • Smartphone addiction • Students • Children • Individual self-management

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Developments in information and communication technologies have profoundly influenced social life as well as society's ability to access information. In other words, differences can be observed in the ways information is gotten about events taking place in the national and international arena (Mansell, 1999; Sangrà & González-Sanmamed, 2010). The Internet, the most important communication tool of our time, has rapidly spread throughout the world since its inception and has deeply shaken areas. It has even brought crucial transformations to traditional media. This situation has opened the way for the Internet to bring places closer together.

Since the 1970s, these technological developments have made it possible for new media to emerge. The direction of life has revealed mass media, telecommunications, and computer systems, once different and distinct from each other as an integrated communication system. This new style of media is called social media. Unlike traditional media, the presence of audiovisual and visual components used together in social media has caused new forms of content to emerge (Aktaş, 2013).

These developments in communication technologies have also improved the capacity of smartphones, thus expanding the limits of their use. This causes smartphones to be included more in everyday life. Users are so integrated with their smartphones that they have begun using smartphones almost the same as their clothes.

Today's children, being future human resources, are very important for organizations. Social media and smartphones lead a revolution by changing the method of managing human resources and organizations. As important factors of this revolution, social media and smartphones are useful tools for communication, innovation, and other organizational activities. The fact that smartphones are part of everyday life also causes some problems from the perspective of human resources and organizations. One research has shown smartphone addiction to affect imbalance in youths' brain chemistry (Akor & John-Mensah, 2017). Previous studies have revealed smartphone addiction to cause depression, anxiety (Matar Boumosleh & Jaalouk, 2017), stress, low academic performance (Samaha & Hawi, 2016), and low productivity (Duke & Montag, 2017). Li and Lin's (2017) study found a negative relationship among smartphone addiction, social capital in the workplace, and job performance. The greater children's mental health and the more they focus on learning, the more skillful and productive human resources they become in the future.

Limited research is found in Turkey on determining the variables that predict social media usage and smartphone addiction and are seen to have been conducted only in recent years. Although awareness exists in Turkey of the problem of children being confronted with digital hazards, not enough measures have been taken in this regard. As such, smartphone addiction has become an important research and debate issue as a type of addiction that develops based on the frequency of smartphone us-

age. In this context, research has focused on the issue that smartphone addiction can lead to both physical and mental problems, focusing specifically on the impact on youths' psychological development. The purpose of this study is to examine through empirical study the impact of the factors of time spent on social media, gender, and owning a smartphone on social media usage and the impact of social media usage on smartphone addiction. Based on this issue, the study is considered significant as it investigates social media use and the effects of smartphone addiction on children between the ages of 9 and 12.

Conceptual Framework

Social Media Usage

Social media has become a widespread communication environment which interests people of all ages, especially children and youths, for sending messages and sharing information and photos (Bozanta & Mardikyan, 2017; Livingstone, Olafsson, & Staksrud, 2013). Miller et al. (2016, p. 9) defined social media as "…the colonization of the space between traditional broadcast and private dyadic communication, providing people with a scale of group size and degrees of privacy that we have termed scalable sociality."

Facebook, Twitter, Instagram, YouTube, and LinkedIn are some of the most used social media sites. These sites differentiate themselves from each other in terms of function. For example, Facebook allows individuals to create a profile and share links, photos, conversations. YouTube is a video sharing website and anybody can watch videos without being registered (Knight-McCord et al., 2016). According to Boyd and Ellison (2008, p. 211), social media sites allow users to create a web-based profile and mutually share connections, ideas, and documents such as videos and photos with others within a bounded system.

Social media is a form of communication among people that is not limited by space or time all kinds of discussions and sharing can be done. In general, social media is created by exchanges and dialogues among people on the Internet. Social media includes social networks and collective groups. People arrange their organizations, set up friendships, and advertise in the context of product service, ideas, and objects (Solis, 2010; 6).

In 2017, "We Are Social," an official site, conducted research on defining the breadth of social media use and reached the following conclusions (Wearesocial.com, 2017): (a) Among social media platforms, Facebook was at the forefront for that year. The platform continues its dominance with the application Facebook Messenger in second and WhatsApp in third place. YouTube is in fourth place. (b) world's population, 54% use the Internet. Of this 54%, visit social networks. (c) Social media users

in the world had increased by 5% compared to 2016 data. (d) Turkey is 12th in total number of social media accounts. (e) Turkey ranks 9th among country countries who spend the most time on the social media.

According to Dorinsight's technology research results, the average frequency of smartphone usage has increased over the last 2.5 years in Turkey. According to the findings, 39% of smartphone users change their smartphones every two years in Turkey. Of the rest, 44% change their phones every three years and 11% change their smartphones every year (Digitalage.com, 2017). One study (Dinleyici, Carman, Ozturk, & Sahin-Dagli, 2016) determined the average daily social media use in Turkey for any device to be 2 hr 32 min.

Livingstone et al. (2013) studied 25,000 students in 25 European countries, including Turkey. Their study results showed almost 50% of children to have public profiles in Turkey, Poland, and Hungary, although 35% of children did not have information on online safety in Turkey or Italy. Kılınç and Doğan (2014) surveyed 352 middle school students, including 7th- and 8th-grade students, studying throughout the city of Kayseri in Turkey to identify the relationship between gender and Internet access habits. They determined that the more one stays online the more prone one is to addiction; moreover, male students are more prone than female students. Knight-McCord et al. (2016), in their study in the United States' Southeast in 2015, discovered the most of the 353 students (76%) use social media 1-10 hours each day. Another study revealed that overuse of social media mobile applications can trigger mobile addiction (Salehan & Negahban, 2013). Furthermore, due to social media's features of accessibility and usability anytime and anywhere, social media can be seen as the addictive factor (Babacan, 2016).

Smart Phone and Smart Phone Addiction

Smartphones, which can connect to the Internet, are both a phone and a computer, and can connect to a screen or external keyboard, have doubled in use compared to mobile phones in many countries, including the United Kingdom and the United States. Smartphones, which have a higher level of computing capability than ordinary mobile phones, offer users a variety of applications to do almost anything they can do on a computer (Mac Sithigh, 2013). The development of smartphones has been very rapid, which has led to older phones being withdrawn from the market. The widespread use of smartphones stems from how they allow users to stay connected instantly, anytime and anywhere (Kim et al., 2014; Malinen & Ojala, 2012; Park & Lee, 2011). Smartphone addiction is defined as "…a set of symptoms such as disregard of harmful consequences, preoccupation, inability to control craving, productivity loss, and feeling anxious and lost" (Wang, Lee, Yang, & Li, 2016, p. 217 as cited in Casey, 2012).

Children spend most of their time using their smartphones, usually in the family environment at home. This situation reduces children's communication with family and guidance from family during the developmental period of gaining self-control as an ability (Doh, Rhim, & Lee, 2016, p. 322; Olson, Bates, & Bayles, 1990).

Despite studies on the use of smartphones and their effects on users being mostly directed towards sales and marketing, this issue has also been addressed through psychiatric and psychological dimensions. Repetitive behavioral disturbances that impair functionality in daily life and interpersonal relationships are understood as addiction. Significant disturbances such as overdoing certain behaviors, continuing pleasurable behaviors outside of the real world, developing tolerances to repetitive behaviors, experiencing difficulty in controlling behaviors, and being unable to prevent repetitive behavior are evaluated within the scope of addiction (Noyan et al., 2015, p. 74).

Lee et al. (2014) conducted research on smartphone addiction in Korea and found a relationship between time spent on smartphones and smartphone addiction. Lin et al. (2015) and Roberts, Petnji, and Manolis (2014) concluded in their studies that time spent on smartphones and amount of use impact smartphone addiction. Additionally, gender is the significant factor in addictive activities. Females were discovered to spend more time on smartphones than males (Roberts et al., 2014). They determined that the more one stays online, the more prone one becomes to addiction; moreover, male students are more prone than female students.

Generally, smartphone addiction shows through symptoms such as not being able to stay away from the phone, frequently checking the phone, insomnia, and deterioration of sleep quality due to excessive smartphone use. One of the most fundamental elements underlying smartphone addiction is the ability to connect to the Internet with it. As the Internet use grows, so does addiction to smartphones. In other words, Internet addiction has also been reflected onto smartphones and has affected smartphone addiction (Sevgi, 2013).

Research Hypotheses

Based on the previous studies mentioned above, the following hypotheses have been developed to test whether the factors of social media, gender, and owning a smartphone impact social media usage and the impact of social media usage on proclivity toward smartphone addiction.

H1. A significant relationship exists between student gender and time spent on social media.

H2. Student gender significantly and positively impacts social media usage.

H3. Student gender significantly and positively impacts proneness to smartphone addiction.

H4. Time spent on social media positively impacts social media usage.

H5. Time spent on social media positively impacts proneness to smartphone addiction.

H6. Social media usage positively impacts proneness smartphone addiction proneness.

Method

Participants and Procedure

Permission was obtained from the directors of the primary and secondary schools in the Arhavi District of Artvin in Turkey for carrying out the research. All students were invited to participate in the survey during a regular school lesson reserved for guidance and direction on Wednesday every week in December, 2017. Explanations for the purpose of the study and how to fill out the scale were made to the students before beginning the application. The universe of this research comprises the 1,151 students aged 9-12 in primary (4th grade) and secondary (5^{th}, 6^{th} and 7^{th} grades) schools in Arhavi district of Artvin in Turkey. The universe of study was determined by considering the increasing social media usage and overuse of smartphones among students under 13. To investigate this situation, all students studying in primary and secondary schools in Arhavi were thus identified as a sample; 1,147 students participated voluntarily, resulting in a 99.7% response rate from the students. This participation rate is acceptable for field screening.

Data Collection Tools

For the purpose of collecting quantitative data in the study, quantitative data collection tools have been applied separately. In this study, demographic and nominal information have been used to determine which factors have an impact on participants' levels of social media usage. The Social Media Usage Scale has been used for determining participants' perceptions of social media usage and the Smartphone Addiction Proneness Scale (SAPS) for determining their perceptions of smartphone addiction. Both scales were made on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Social Media Usage Scale. The Social Media Usage Scale, developed by Küçükali (2016), is made up of 15 items. Two items were excluded from the scale due to low reliability ($\alpha < .70$). The purpose of the scale (13 items) is to measure participants' perceptions of social media usage. Regarding the scale's reliability and validity study, Cronbach's alpha has been calculated as .716.

Confirmatory factor analysis was performed primarily to determine the factor structure of the Social Media Usage Scale. In this context, sampling appropriateness

was confirmed starting with the Kaiser-Meyer-Olkin index (*KMO* = .86) and Barlett's test (χ^2 = 2583.707, *df* = 78, *p* < .001). Maximum likelihood and varimax vertical rotation techniques were applied in order to determine the scale's structural validity. The scale consists of only one factor and 15 components/items whose loadings vary from .46 to .66. The scale's explained variance is 29.55%. As the next step, confirmatory factor analysis was performed on these 13 items (see Table 1).

Smartphone Addiction Proneness Scale (SAPS). The Smartphone Addiction Proneness Scale (SAPS) was developed by Kim, Lee, Lee, Nam, and Chung (2014) and aims to measure respondents' perceptions of smartphone addiction based on the extent to which a respondent regards disturbance from adaptive functions, virtual life orientation, withdrawal, and tolerance. The SAPS is made up of 15 items and the reliability of the first version was verified with a Cronbach's alpha of .880 (Kim et al., 2014, p. 5). The SAPS was adapted into Turkish for this study. Reliability and validity of the scale for this study calculated Cronbach's alpha as .777.

Confirmatory factor analysis has been performed to examine the factor structure of the SAPS. In this study, the original version of the scale has four factors. In accordance with the results of factor analysis, the four factors have been combined into just one factor. As a result of confirmatory factor analysis, three items with item loadings less than .17 were omitted from the scale, leaving 12 items in the final version of the scale. The correlation coefficients between factors range from .17 to .76. The significance of a factor loading will depend on the sample size. A sample size of 1,000 with a loading of 0.162 can be considered significant (Field, 2009, p. 644). Also, sampling appropriateness was confirmed starting with the Kaiser-Meyer-Olkin index (*KMO* = .87) and Barlett's test (χ^2 = 4333.008, *df* = 66, *p* < .001). Maximum likelihood and varimax vertical rotation techniques were applied to determine the SAPS's structural validity. The scale's variance is 39.027%. Subsequently, confirmatory factor analysis was performed on these 12 items. Results of the reliability and validity tests are shown in Table 1.

Table 1
Distribution of Participants by Numbers of Friends in Social Media, Smartphone ownership, Internet, Time spent on Social Media, and Demographic Information

Variables	Cronbach's Alpha (α)	Factor Loadings	KMO	Approx. χ^2	*df*	Variance (%)	Significance (*p*)
Social Media Usage Scale	.716	.399-.661	.862	2583.707	78	29.547	.000
SAPS	.777	.170-.755	.891	4333.008	66	39.027	.000

Data Analysis

The package software program, SPSS 24.0, was used to analyze the data. The demographic variables (gender, time spent on social media usage, having an Internet

plan for the smartphone, and owning a smartphone) were cross-tabulated using the chi-square. Afterwards, correlation, chi-square, independent t-test, one-way ANOVA, and simple linear regression analyses were conducted in consideration of the related data and findings obtained in this study.

Results

Demographic Information

Data regarding students' demographic results were evaluated using frequency and percentage values. Table 1 displays descriptive statistics on the study sample's gender, age, having internet and a smartphone, friends, and time spent on social media.

Table 2
Distribution of Participants by Numbers of Friends on Social Media, Smartphone ownership, Internet, Time spent on Social Media, and Demographic Information

Daily Allowance (in Turkish Liras)	*n*	Percent (%)	Numbers of Friend on the most used social media site	*n*	Percent (%)
1	155	13.5	1-100	556	48.5
2	207	18.0	101-500	238	20.8
3	338	29.5	501-1000	27	2.4
4	42	3.7	1001-1500	5	0.4
5	296	25.8	1501-2000	4	0.3
6-9	63	5.5	>2000	7	0.6
10	46	4.0	No Friend	310	27.0
Total	1,147	100.0	Total	1,147	100.0
The Most Used Social Media	*n*	Percent (%)	Time Spent Using Social Media	*n*	Percent (%)
Facebook	234	20.4	Never	242	21.1
Twitter	13	1.1	<10 minutes	177	15.4
Instagram	141	12.3	10-30 minutes	282	24.6
LinkedIn	1	0.1	30-60 minutes	231	20.1
MySpace	6	0.5	1-2 Hours	121	10.6
YouTube	401	35.0	2-3 hours	50	4.4
AskFm	3	0.3	3-4 hours	13	1.1
Last Fm	2	0.2	4 or more hours	31	2.7
Never Use	346	30.1	Total	1,147	100.0
Total	1,147	100.0			
Smartphone has Internet	*n*	Percent (%)	Smartphone ownership	*n*	Percent (%)
Has	456	39.8	Has	494	43.1
Doesn't have	691	60.2	Doesn't have	653	56.9
Total	1,147	100.0	Total	1,147	100.0
Age Groups	*n*	Percent (%)	Grade in School	*n*	Percent (%)
9	118	10.3	4th Grade	175	15.3
10	259	22.6	5th Grade	186	16.2
11	395	34.4	6th Grade	723	63.0
12	375	32.7	7th Grade	63	5.5
Total	1,147	100.0	Total	1,147	100.0
How Internet packet is gotten	*n*	Percent (%)	Gender	*n*	Percent (%)
Buy myself	46	4.0	Male	561	48.9
My family buys for me	1,101	96.0	Female	586	51.1
Total	1,147	100.0	Total	1,147	100.0

The results show the following percentage ranges: 48.9% of the participants are male (n = 561) and 51.1% are female (n = 586); 34.4% of the participants are 11 years old and 10.3% are 9 years old. 35.0% use YouTube's social network and 0.1% of them use LinkedIn. 24.6% spend 10 to 30 minutes on social networks and 1.1% spend 3 to 4 hours on social networks. 56.9% do not own a smartphone, while 43.1% do. 60.2% do not an Internet plan for their smartphone, and 39.8% do. 96.0% of participants' family buys their Internet plan and 4.0% of them buy it themselves. 48.5% have between 1 and 100 friends on their most used social network and 0.3% have 1,501 and 2,000 friends. 63.0% are sixth graders in secondary school and 5.5% are seventh graders. 29.5% have a daily allowance of 3 Turkish Liras, and 3.7% have 4 Turkish Liras.

Correlation Analysis

The correlations reveal social media usage to significantly and positively relate to smartphone addiction. A medium-level correlation has been determined between social media usage and smartphone addiction (r = .413, p < .01). Table 3 displays the inter-correlations results.

Table 3
Means, Standard Deviations, and Inter-Correlations for Variables (N = 1147)

Variables	*M*	*SD*	1	2
1- Social Media Usage	2.6255	.65435	1	.413**
2- Smartphone Addiction	1.9292	.77273		1

** = Correlation is significant at the 0.01 level (2-tailed).

Crosstabs Analysis

Three variables are examined in the cross table and compare how students get their internet plan, whether they have their own smartphones, and whether their smartphones have internet or not. Results show the cross relationships between all variables to be significant (p < .01). This study reveals that most students (n = 653; 56.93%) do not have their own smartphone, while the remaining students do (n = 494; 43.07%). Accordingly, 29.99% (n = 344) of the students are understood to have both their own smartphones and internet for their smartphones. Additionally, 27.81% (n = 319) of these students reported their families to buy the internet plan. The results of the cross table analysis are shown in Table 4.

Chi-square Analysis

Chi-square analysis was carried out to test if a relationship exists between the two categorical variables of time spent on social media and gender (Field, 2009). Results show the cross relationship between these variables to be significant (p < .01). This study reveals 21.1% of students spend no time on social media, while most students (n = 690; 60.1%) spend daily less than an hour on social media; 18.7% of students daily

Table 4
Cross Tabulation through the Variables of Owning a Smartphone, Having an Internet Plan, and Who Pays for the Internet Plan

Variable												
How Do You Get Your Internet Packet?	Chi-Square Value	Does Your Smartphone Have an Internet Plan?										
				Yes		No			Total			
				n	%		*n*	%		*n*	%	
I buy myself (with allowance)	19.328	Owns a smartphone	Yes		Yes	25	2.18%		9	0.78%		34	2.96%
			No		0.00%		12	1.05%		12	1.05%		
		Total				25	2.18%		21	1.83%		46	4.01%
My family buys for me	302.531	Owns a smartphone	Yes	Yes		319	27.81%		141	12.29%		460	40.10%
			No		112	9.76%		529	46.12%		641	55.88%	
		Total				431	37.58%		670	58.41%		1,101	95.99%
Total	323.456		Yes	Yes		344	29.99%		150	13.08%		494	43.07%
			No		112	9.76%		541	47.17%		653	56.93%	
		Total				456	39.76%		691	60.24%		1,147	100.00%

N =1,147 (Percentages are calculated over N*)*
Asymptotic Significance (2-sided) p < .01

spend more than an hour and this group can be considered at risk with regard to smartphone addiction (n = 184). The results of the cross-table analysis are shown in Table 5.

Table 5
Chi-square Analysis for Variable Time spent on The Social Media and Gender

Time Spent on Social Media	Gender			
	Percentage (%)	Male	Female	Total
No Time	*n*	101	141	242
	Spends time on social media (%)	41.7%	58.3%	100.0%
	Gender (%)	18.0%	24.1%	21.1%
	Total (%)	8.8%	12.3%	21.1%
Less than 10 minutes	*n*	80	97	177
	Spends time on social media (%)	45.2%	54.8%	100.0%
	Gender	14.3%	16.6%	15.4%
	Total	7.0%	8.5%	15.4%
10 to 30 minutes	Count	125	157	282
	Spends time on social media (%)	44.3%	55.7%	100.0%
	Gender	22.3%	26.8%	24.6%
	Total	10.9%	13.7%	24.6%
30 min. to 1 hour	Count	115	116	231
	Spends time on social media (%)	49.8%	50.2%	100.0%
	Gender	20.5%	19.8%	20.1%
	Total	10.0%	10.1%	20.1%
1 to 2 hours	Count	73	48	121
	Spends time on social media (%)	60.3%	39.7%	100.0%
	Gender	13.0%	8.2%	10.5%
	Total	6.4%	4.2%	10.5%
2 to 3 hours	Count	36	14	50
	Spends time on social media (%)	72.0%	28.0%	100.0%
	Gender	6.4%	2.4%	4.4%
	Total	3.1%	1.2%	4.4%
	Total	0.7%	0.4%	1.1%
3 to 4 hours	Count	8	5	13
	Spends time on social media (%)	61.5%	38.5%	100.0%
	Gender	1.4%	0.9%	1.1%
More than 4 hours	Count	23	8	31
	Spends time on social media (%)	74.2%	25.8%	100.0%
	Gender	4.1%	1.4%	2.7%
	Total	2.0%	0.7%	2.7%
Total	Count	561	586	1,147
	Spends time on social media (%)	48.9%	51.1%	100.0%
	Gender	100.0%	100.0%	100.0%
	Total	48.9%	51.1%	100.0%

N =1,147 (Percentages are calculated over N)
Asymptotic Significance (2-sided) p < .01

A significant relationship exists between time spent on social media and gender (= 34.147; $p < .01$). For these data, Cramer's V statistic is 0.173 out of a possible maximum value of 1. This indicates a medium association of gender with whether

males or females spend excessive time on social media. This can also be seen as a correlation coefficient with a medium effect size (Field, 2009). Chi-square test and symmetric measure values are highly significant ($p < .001$). Chi-square test and symmetric measures of the analysis are shown in Table 6. As such, the first hypothesis of this research (H1) "A relationship exists between student's gender and time spent on social media" has been accepted.

Table 6
Chi-square Tests and Symmetric Measures for Time Spent on Social Media by Gender

Chi-square Tests				Symmetric Measures		
	Value	*df*	Asymptotic Signif. (2-sided)		Value	Approx. Signif.
Pearson Chi-square	34.147	7	.000	*Phi*	.173	.000
Likelihood Ratio	34.868	7	.000	Cramer's *V*	.173	.000
Linear-by-Linear Assoc.	28.023	1	.000	Contingency Coefficient	.173	.000

Two-Way (Factorial) ANOVA-1

Two-way (Factorial) ANOVA is designed to simultaneously investigate the effects of more than one categorically independent variable with a dependent variable and how these variables interact (Field, 2009, p. 422). A two-way analysis of variance was conducted on the effects of two independent variables (gender, time spent on social media) on social media usage. Gender consists of two levels (male, female) and time spent on social media includes eight levels (spends no time, less than 10 minutes, 10-30 minutes, 30-60 minutes, 1-2 hours, 2-3 hours, 3-4 hours, and more than 4 hours). The effects of both time spent on social media and gender are statistically significant ($p < .05$). The main effect for gender yielded an $F_{(7, 1131)} = 11.99$, $p < .001$, indicating a significant difference between males and females. The other main effect for time spent on social media yields $F_{(1, 1131)} = 6.80$, $p < .01$, indicating a significant difference among its categories. Descriptive statistics for time spent on social media by gender are given in Table 7 with regard to the independent variable of social media usage. According to these results, students' gender and time spent on social media impact social media usage. Thus, the second and fourth hypotheses (H2: "Gender of students has a significant and positive impact on social media usage" and H4: "Time

Table 7
ANOVA Results and Descriptive Statistics for Social Media Usage through Time Spent on Social Media and Gender

Source	*SS**	*df*	*MS*	*F*
Corrected Model	6.026	15	4.02	10.56***
Time Spent on Social Media	31.95	7	4.45	11.99***
Gender	2.59	1	2.59	6.80**
Error	430.44	1,131	.38	

Note: $R^2 = .12$; adj. $R^2 = .11$; Dependent variable = Social Media Usage.
* Type III
**$p < .01$; ***$p < .001$

spent on social media has a significant and positive impact on social media usage") have been accepted.

Two-way ANOVA results show social media usage to differ through both students' gender and time spent on social media. First, males use social media more often (M = 2.78, SD = .63) than females (M = 2.48, SD = .64). Second, some multiple comparisons among time spent on social media are statistically significant; only the significant ones are tabled here because the overall results of multiple comparison results are too lengthy. In terms of students' intensity of social media use, the means for those who spend no time on social media are lower than for those who spend time at different frequencies (from less than 10 minute to more than 4 hours). As expected, with increases in the time spent on social media, the intensity of social media usage also increases. The means of students spending more than 4 hours a day on social media have the highest social media usage ($M_{\text{diff.}}$ = -.94, SD = .20) while those who spend no time on social media demonstrate the lowest (M = -.19, SD = .06).

Two-Way (Factorial) ANOVA-2

A second two-way analysis of variance was conducted on the effects of the same two independent variables (gender, time spent on social media) on smartphone addiction. The effects of time spent on social media are statistically significant ($p < .05$), while gender is not significant. The main effect for time spent on social media yields an $F_{(7, 1131)} = 4.99$, $p < .001$, indicating a significant difference among certain categories. The other main effect for gender yields an $F_{(1, 1131)} = .128$, $p > .05$, indicating the effect for age to be insignificant. Descriptive statistics for time spent on social media by gender are given in Table 8 with regard to the independent variable of smartphone addiction. According to these results, student gender has no impact on smartphone addiction, while time spent on social media impacts smartphone addiction. Thus the third hypothesis (H3: "Gender of students has no significant impact on social media usage") is rejected. However, the fifth hypothesis (H5: "Time spent on social media significantly and positively impacts social media usage") has been accepted.

The second two-way ANOVA results show smartphone addiction to vary through time spent on social media but not significantly through gender. Insignificant mean values demonstrate males to be more prone to smartphone addiction (M = 2.03, SD = .77) than females (M = 1.83, SD = .77). Some multiple comparisons among time spent on social media are statistically significant. Only the significant ones are tabled here because the overall multiple comparison results are too lengthy. In terms of students being more prone to smartphone addiction, the means of those who spend more time (usually more than 4 hours) on social media are more prone to smartphone addiction than those who spend less time. Likewise, as the time spent on social media increases, smartphone addiction proneness also increases. Students using social me-

Table 8
ANOVA Results and Descriptive Statistics for Social Media Usage through Time Spent on Social Media and Gender

	Variable	*M*	*SD*	*n*
Male	Never Spend time	1.9818	.77859	101
	Less than 10 Minutes	1.9510	.71387	80
	10-30 Minutes	1.9853	.71303	125
	30-60 Minutes	2.0529	.84049	115
	1-2 Hours	2.0434	.78948	73
	2-3 Hours	2.1991	.62465	36
	3-4 Hours	2.3229	.90352	8
	More than 4 Hours	2.2283	.87372	23
	Total	2.0297	.76669	561
Female	Never Spend time	1.6312	.60898	141
	Less than 10 Minutes	1.8239	.81213	97
	10-30 Minutes	1.8461	.76773	157
	30-60 Minutes	1.8254	.81553	116
	1-2 Hours	2.1267	.75029	48
	2-3 Hours	2.0417	.67046	14
	3-4 Hours	2.3167	.30277	5
	More than 4 Hours	2.9271	.95788	8
	Total	1.8330	.76688	586

Source	*SS**	*df*	*MS*	*F*
Corrected Model	36.04	15	2.40	4.19***
Time Spent on Social Media	20.01	7	2.86	4.99***
Gender	.07	1	.07	0.13^{NS}
Error	648.26	1131	.57	

Note: R^2 = .12; adj. R^2 = .11; Dependent variable = Smartphone Addiction.
NS = Not significant.
* Type III; **p < .01, ***p < .001.

dia more than 4 hours a day have the highest mean difference ($M_{diff.}$ = -.63, SD = .14); those spending no time on social media demonstrate the lowest smartphone addiction proneness ($M_{diff.}$ = -.10, SD = .08).

Regression Analysis

Simple linear regression analysis has been carried out to test whether social media usage impacts smartphone addiction proneness. The results show social media usage as the control variable to contribute positively and significantly to predicting smartphone addiction proneness. The determined coefficient (R^2= .171) for smartphone addiction indicates 17.1% of the variance in the degree of smartphone addiction is affected by and explained significantly and positively through social media usage (β = .413, p < .01). Thus, the sixth hypothesis of this study (H6: "Social media usage has a positive impact on smartphone addiction proneness") has been accepted. The linear regression analysis results for smartphone addiction as the dependent variable are shown in Table 9a, Table 9b, and Figure 1.

Table 9a
Simple Regression Results Regarding the Impact of Social Media Usage on Smartphone Addiction Proneness

ANOVA[a]						
Model		*SS*	*df*	*MS*	*F*	*p*
1	Regression	116.810	1	116.810	235.684	0.000[b]
	Residual	567.488	1,145	.496		
	Total	684.298	1,146			

a. Dependent Variable: Smartphone Addiction Proneness
b. Predictors: (Constant), Social Media Usage

Table 9b
Simple Regression Results Regarding the Impact of Social Media Usage on Smartphone Addiction Proneness

Variables	*B*	Std. Error	*β*	*T*
Constant	1.12	.061		18.366
Social Media Usage	.425	.024	.413	17.956

$R = .413$; $R^2 = .171$; $F = 322.413$, $p < .01$.

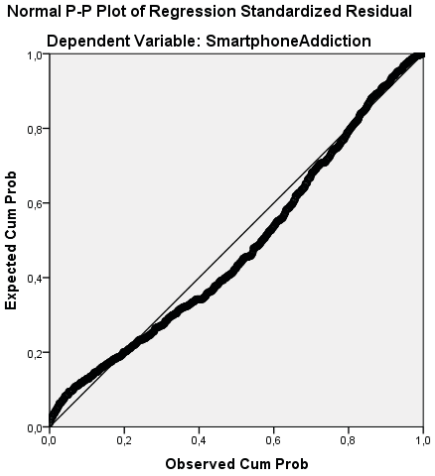

Figure 1. Cumulative probability plot, expected versus observed.

Discussion and Conclusion

Social media usage and smartphone addiction are increasing daily among children. This study has investigated the impact of gender, time spent on social media, and smartphone ownership on social media usage as well as the impact of social media usage on smartphone addiction. Additionally, the relationship among children's smartphone ownership, internet plan ownership, and internet plan obtainment has been investigated without developing a hypothesis. The current study found a significant relationship to exist between gender and time spent on social media (H1), which is consistent with previous research findings. Kılınç and Doğan (2014) determined in their research that male students use social media more than female students. This research shows stu-

dent gender and time spent on social media to impact social media usage (H2 and H4, respectively). This result is also consistent with previous studies (Knight-McCord et al., 2016). This research has also concluded that time spent on social media (H5) and social media usage (H6) impact smartphone addiction. Previous researchers have found similar results (Lee et al., 2014; Lin et al., 2015). In contrast, the third hypothesis (H3: "Student gender significantly and positively impacts smartphone addiction") was not statistically significant ($p > .05$). This result is not supported by previous research. Roberts et al. (2014) discovered females to spend more time on smartphones than males, and this leads to smartphone addiction. Finally, the sixth hypothesis (Social media usage has a positive impact on smartphone addiction) has been accepted. The result that social media overuse leads to smartphone addiction proneness was determined by Kılınç and Doğan (2014). Additionally, Salehan and Negahban (2013) found more social media usage to possibly trigger smartphone addiction. The current study reveals the percentage of children's smartphone and internet plan ownership to be high for the 9-12 age group, and families provided these to the children (27.8%). Children, like adults, are more connected to people, sometimes even family members and regardless of distance, through social media because of being able to share personal ideas or feelings without notifying others. In contrast, one can easily share these factors with all the friends registered to one's social media profile. Social media is an easy way to tell someone something that is difficult to say face to face without looking at them. One can also share ideas without worrying about what other people will think of them. Various social media applications have been developed for use with smartphones, and these applications enable online messaging, shopping, entertainment, and relaxation. Children report having used these attractive applications.

At the same time, this research has determined that social media usage impacts smartphone addiction. This result is consistent with previous studies (Lee et al., 2014; Lin et al., 2015; Roberts et al., 2014; Salehan & Negahban, 2013). The attractiveness of social media leads to smartphone overuse (Babacan, 2016). Children are so busy these days with social media and their smartphones that they forget to spare time for the loved ones around them (Doh et al., 2016; Olson et al., 1990). Often students decide to spend time with each other looking at their smartphones instead of studying, doing homework or going to afterschool classes. Depending on the frequency of this situation, spending a lot of time on one's smartphone (Knight-McCord et al., 2016) can become a habit. Therefore, children's families complain of them using their smartphones too much and depriving children of their smartphones is painful. As such, the desire to constantly use social media leads to smartphone addiction. Meanwhile, this study has concluded that children's families provide a basis for smartphone addiction by buying their internet plan. Families are recommended to allow children to Internet access and social media and smartphone use in a controlled manner using persuasion. Families and teachers have important roles in developing children's autonomy and

self-regulation for acquiring and keeping good habits (Doh et al., 2016; Olson et al., 1990). In addition, limiting children's screen time and encouraging children to simply communicate with others without using any interface are recommended. These measures will open the way for children to become more open and efficient human resources for cooperating in their future work life and organizational relationships.

This study has certain limitations. First, the sample size is relatively small. While 1,147 students participated in the survey, only the 494 (43.07%) who actually own a smartphone and the 344 (29.99%) who own both a smartphone and internet plan could therefore answer questions related to the use of social media and smartphones. Second, the data was gathered from only one district in Artvin. Therefore, the results of this study cannot be generalized. There are two directions for future research. First, a study over a larger population should be conducted to determine whether low-level smartphone and Internet ownership and use differ from this study. Second, many more students should be surveyed from different and larger districts to be able to generalize the results.

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