

## Is Personality Related to Risks Associated with Smartphones?

### Abstract

This study investigates the risks associated with smartphone addiction by personality and cellular company. The results relate to personal background, personality, smartphone usage, smartphone satisfaction, level of exposure to risks, and correlations between the variables. A significant but partial correlation was found between personality and smartphone addiction, satisfaction, and level of risk. Smartphone addiction is positively correlated with extraversion ( $r = .21, p < .01$ ). Satisfaction is correlated positively with extraversion ( $r = .28, p < .01$ ), agreeableness ( $r = .41, p < .01$ ), and conscientiousness ( $r = .38, p < .01$ ), and negatively with emotional stability ( $r = -.57, p < .01$ ). Risk is negatively correlated with agreeableness ( $r = -.17, p < .05$ ). Differences between cellular companies in satisfaction, risk, and smartphone addiction were examined. A significant correlation ( $F(4, 145) = 2.96, p < .05$ ) was found in the level of smartphone addiction, but no differences in smartphone satisfaction or the level of risk associated with smartphones ( $F(4, 145) = 2.96, p > .05$  and  $F(4, 145) = .45, p > .05$ , respectively). The results show that personality greatly affects phone usage and exposure to risks, regardless of cellular type, and that reducing smartphone usage may be beneficial.

**Keywords:** smartphone addiction, smartphone, smartphone risk, personality, big five personality traits.

### Introduction

Smartphones entered our lives more than a decade ago to improve our quality of life. Few people foresaw the fast development of the cellphone and its negative effects on our lives. The cellphone quickly developed into a smartphone and became man's best friend. Most people today own smartphones, including teenagers and children who first encounter smartphones at an early and critical age. A survey conducted by the American Psychological Association (APA), published in 2015, found that 53% of children between the ages of 8 and 12 already own a tablet computer, and 24% own a smartphone. Smartphones have many useful functions, causing people to be dependent on them and carry them around wherever they go (car rides, classrooms, and workplaces). Moreover, smartphones are even present during times spent with friends and family, as well as intimate situations (a first date, a child's birthday party, the bedroom, and the bathroom). A survey that was conducted on 1,649 higher-education students found that they spend 97 minutes a day sending and reading text messages, 118 minutes surfing the

Internet, 41 minutes on Facebook, and 51 minutes talking on the phone (Junco & Cotten, 2012).

The smartphone is a combination of a cellphone and a computer, and it existed in the industrial market long before it entered the consumer market (Querashi, 2012). The smartphone is equipped with the abilities needed and required by the consumers. It can be used to display pictures, play games, play video recordings, navigate, take photographs, play and record audio and video strips, send and receive email, connect to wireless Internet, and much more. The variety of smartphone functions has turned it into a status symbol in the social lives of young adults and adolescents (Roberts & Pirog, 2012). A great future, still unknown, lies ahead for the smartphone, which will probably continue to develop and have positive as well as negative effects that will change the face of society.

## Research Literature

### *Smartphones*

Many studies conducted over the past decade show that, despite their positive contributions to our lives, smartphones also have a negative effect on us. For example, Takao *et al.* (2009) found that overuse of smartphones may negatively affect work performance and one's relationships with family, friends, classmates, and teachers. Although only a decade has passed, it seems that much information is missing in the world of research because of the quick development of smartphones and the big consumer demand. According to analyst firm Gartner, more than 1.5 billion smartphones have been sold worldwide in 2017—2.7% more than in 2016 (TheMarker, 2018).

The need for research on smartphones exists in almost all areas: education, driving, health, society, parenting, and more. Most studies show that there is a need for supervision and regulations for smartphone use spanning all ages and genders, because many dangerous deficiencies are already appearing in consumers. For example, Vaidya and Vaidya (2016) explore the social consequences of the growing widespread usage of phones, and claim that it reduces face-to-face communication, causes visual impairments resulting from radiation-induced impairments, increases the chances of involvement in car accidents because of driver distraction, and causes many more problems. Smartphones are even used in areas where it is forbidden, such as hospitals, courts, and gas stations.

### *Personality Types*

To understand how smartphones control people's personal lives, studies were conducted using personality tests. These tests show that certain personality traits may be significantly related to smartphone addiction (Bianchi & Phillips, 2005; Butt & Phillips, 2008; Ehrenberg *et al.*, 2008).

One of the most common research questions is who are the most at risk for smartphone addiction: what are their personality traits, is smartphone addiction related to parenting styles, is it a cultural issue, a gender issue, an so on. Rees and Noyes (2007) showed that men are more likely than women to become addicted to online games. In research on addiction and its relation to personality, various types of questionnaires were used. One of the questionnaires used is the well-known NEO Personality Inventory (NEO PI), which examines people's personality traits according to the Five-Factor model (Big Five personality traits). This is a prominent multi-system model that was developed by psychologists Costa and McCrae (1992) and later refined by John and Srivastava (1999). As evident from its name, the model describes five traits that make up an individual's personality:

1. **Extraversion:** Extraverted people direct their energy outward. They are socially engaged, active, assertive, and adventurous. Introverted people, who score low on the extraversion scale, are shy, quiet, and cautious.
2. **Agreeableness:** Those who score high on agreeableness are characterized by good-heartedness, tactfulness, cooperativeness, and generosity. Those who score low are cynical, harsh, rude, and selfish.
3. **Conscientiousness:** A high score on conscientiousness indicates a willingness to work hard, responsibility, practicability, and the ability to focus on goals. A low score indicates laziness, irresponsibility, enjoying the moment, and sloppiness.
4. **Emotional stability:** Emotionally stable people are calm, self-confident, and less emotionally reactive to situations. At the other end of the scale is neuroticism, a term used here as similar but not identical to neuroticism in the Freudian sense. Neuroticism is similar but not identical to being neurotic in the Freudian sense (i.e., neurosis.) Some psychologists prefer to call neuroticism by the term emotional instability to differentiate it from the term neurotic in a career test. Neurotic people have feelings of inferiority and hysteria, and are full of anxiety. Neuroticism is related to the area in the brain responsible for negative feelings and anxiety, and is sometimes considered to consist of two separate components: anxiety and irritability.
5. **Openness to experience:** Creativity and the willingness to explore new intellectual avenues and pursue various interests, imagination, and a love of art are characteristic of individuals who rate high on openness to experience. At the other end of the scale, narrow-minded people are limited in their fields of interest.

Studies that examine smartphone usage by personality traits show inconclusive results (Davidovitch & Yavich, 2018). For example, Lane and Manner (2011) found that extraversion is very important in smartphone text-messaging, and neuroticism is positively related to emailing. In contrast, Igarashi *et al.* (2008) found that extraversion affects smartphone overuse, and neuroticism contributes to increased interactions. Cyders and Smith (2008) found that impulsive people have a higher tendency to overspend money,

gamble, abuse drugs, engage in dangerous sexual activity and, in general, do things they later regret.

### *Risks*

Many risks are associated with smartphones, some of which are direct risks (health problems, sleep problems) and some of which are indirect (social problems, depression). The risks may relate to various areas, for example: in the social realm, smartphone usage plainly reduces the ability of people to communicate. It causes them to have difficulty understanding intuition, lack eye contact and, in general, lose basic social skills that affect the ability to create romantic relationships or friendships. In a study conducted at the University of Illinois, it was found that romantic relationships are seriously damaged when one of the partners allows the phone to interfere with their face-to-face interaction by making phone calls and not being completely present. Among children, it was found that the fear of missing out (FOMO), alongside screen addiction, damages the development of social skills. It also contributes and is related to obesity, sleep problems, social problems, and academic problems at school. In the health realm, severe physical injuries such as hearing damage, blurred vision, and damage to the salivary glands are evident, and there are even studies that show a relationship to cancerous tumors. A recent study published in the journal *Jama Psychiatry* (Ra *et al.*, 2018) suggests that frequent use of the media may increase the chances of developing attention deficit hyperactivity disorder symptoms.

These risks develop from a primary risk of smartphone use, called "cellphone dependency", which is common mainly among teenagers and adolescents. According to Ahmed *et al.* (2011), the term "addiction" is usually used for alcohol and drug abuse. Addicted individuals become disconnected from their surroundings, and this is also what happens to adolescents who become dependent on their smartphones. Krithika and Vasantha (2013) showed that smartphone use by adolescents causes them to develop symptoms of behavioral addiction.

The dependency that smartphones create opens the door to every possible danger, and one of the biggest and most common dangers is the loss of ability to realize the immediate or imminent danger. This situation creates a serious weakness that leads people into dangers they would probably not encounter in the outside world or have the ability to make better decisions about. The inability to make controlled decisions when using screens exposes people to great risks such as loneliness, which is greater on phones than in the outside world, and may lead to overt use of sexuality, suicide, and a search for creative ways to feel needed and important in society. Seo *et al.* (2012) conducted research in Korea and found that smartphone addiction in adolescents is strongly correlated with physical symptoms, depression, anxiety, delinquency, and aggression.

An example of the risks associated with smartphone use can be found in a study by Kaiser-Heller (2018), who explains how cyberbullying, exclusion

from WhatsApp and Facebook groups, and postings of sexual pictures or videos on social media can damage a child's feeling of wellness. This negatively affects the child's ability to effectively cope with reality, which eventually leads to feelings of dissatisfaction, lack of creativity, and lack of personal and professional self-fulfillment. FOMO is a common risk associated with smartphone addiction among youngsters. It is characterized by feelings of uneasiness and anxiety, sometimes accompanied by high levels of stress, caused by preoccupation with the fear that others are having satisfying experiences without us, that others have something that we lack, or that we may be missing out on something in life because of wrong choices that we made. Those who suffer from FOMO stop paying attention to real life. They turn to social media in an attempt to find balm for their pain, anxiety, and loneliness (Scott, 2020).

In this study, we use the NEO PI to examine the risks associated with addiction to various types of smartphones. Studies show that addiction is related to personality type. Here, we examine whether personality type can predict more than just the probability of smartphone addiction, but also what risks we may be exposed to as a result of smartphone addiction: the risk for feelings of depression and loneliness, the risk for overexposure and social compliance, and more. In addition, we examine whether the type of phone can predict the type of risk, for example, whether Apple smartphones cause lower self esteem than Samsung smartphones, or whether old-fashioned phones hold the same risks as smartphones.

## Method

### *Research Hypotheses*

1. Correlations exist between personality traits (extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience) and smartphone addiction.
2. Correlations exist between personality traits (extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience) and smartphone satisfaction.
3. Correlations exist between personality traits (extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience) and the level of risk in using smartphones.
4. Differences exist between the various cellular companies (iPhone, Samsung, Huawei, and Xiaomi) in the level of smartphone addiction.
5. Differences exist between the various cellular companies (iPhone, Samsung, Huawei, and Xiaomi) in the level of smartphone satisfaction.
6. Differences exist between the various cellular companies (iPhone, Samsung, Huawei, and Xiaomi) in the level of risk in using smartphones.

<i>Subjects</i>	1
	2
The number of subjects who participated in the research was 150. The subjects answered all the research questionnaires. The number of men was 74 (49.3%) and the number of women was 76 (50.7%). The ages of the subjects were between 18 and 62 years ( $M = 26.85$ , $SD = 7.19$ ). Concerning marital status, 119 subjects (79.3%) were single, 30 subjects (20.0%) declared they were married, and 1 (0.7%) declared he was divorced. Concerning the level of education, 3 subjects (2.0%) declared to have elementary-level education, 62 subjects (41.3%) declared to have high-school-level education, and 85 subjects (56.7%) declared to have academic-level education.	3 4 5 6 7 8 9 10 11
We examine the differences between the various cellular companies. The number of subjects using iPhone smartphones was 39 (26.0%), 67 subjects (44.7%) reported using Samsung smartphones, 3 subjects (2.0%) reported using Huawei smartphones, 23 subjects (15.3%) reported using Xiaomi smartphones, and 18 reported "other".	12 13 14 15 16 17
<i>Sample</i>	18
	19
The sample was heterogenous and each subject was chosen randomly. We examined subjects from all areas of Israel owning cellphones between 1 and more than 10 years. The largest population was of subjects owning phones for at least 10 years (51.7%), and the smallest population was of those owning phones between 3 and 5 years (6.7%). We believe that the research conclusions apply to the general population as well.	20 21 22 23 24 25 26
<i>Research Tools</i>	27
	28
We used four questionnaires:	29
<b>1. Personal and background information.</b> This questionnaire includes four items, which are related to the personal background of the subjects (gender, age, marital status, and level of education).	30 31 32
<b>2. NEO PI.</b> This questionnaire (Walensky, 1998) is a limited version including 44 items, which examine the personality of each subject.	33 34
<b>3. Questionnaire on phone usage.</b> This questionnaire includes 20 items, which examine the level of phone usage and addiction of the subjects.	35 36
<b>4. Satisfaction and risk questionnaire.</b> This questionnaire includes 41 items, which examine the satisfaction of the subjects from their phones and the risks to which they are exposed. Questions 1–15 relate to satisfaction, and the other questions relate to risks. Questions 13, 14, and 15 are reverse questions. We later eliminated questions 11 and 31 because they did not correlate with the other questions.	37 38 39 40 41 42 43 44

*Statistical Analysis*

We used descriptive statistics to describe the variable characteristics. Pearson-correlation tests were used to examine the array of correlations between personality traits and phone usage, satisfaction, and risk. Also, one-factor analysis of variance (ANOVA) was performed to examine the differences between the various cellular companies in satisfaction, risk, and cellphone usage. The internal reliability of all the items in each factor was assessed by Cronbach's alpha.

**Results**

The current study examines personality traits, smartphone addiction, satisfaction, and risks associated with smartphones. Table 1 shows that all the means are relatively intermediate, with the mean of the "agreeableness" variable being high-average ( $M = 3.72$ ) and the mean of the "risk" variable being low-average ( $M = 2.27$ ). For all study variables, a range corresponding to the theoretical range of the scale was obtained and no abnormal scatter was found indicating very wide variance or lack of variance. For all variables, Cronbach's alpha reliability was tested. For the "risk" variable, the reliability was found to be particularly high (0.94), and for all other variables, the reliability was found to be medium-high.

**Table 1.** *Descriptive statistics of the study variables*

Variables	Mean	SD	Theoretical Range	Actual Range	A
1. Extraversion	3.21	.65	1-5	1.5-4.7	.74
2. Emotional Stability	2.80	.76	1-5	1.3-4.7	.84
3. Agreeableness	3.72	.59	1-5	2.4-5	.73
4. Conscientiousness	3.67	.57	1-5	2.5-4.8	.71
5. Openness to Experience	3.41	.63	1-5	1.5-4.7	.76
6. Smartphone Addiction	3.50	.66	1-6	1.8-5.2	.84
7. Satisfaction	3.46	.60	1-5	1.8-4.8	.87
8. Risks	2.27	.84	1-5	1-4.9	.94

Source: Davidovitch & Yavich. 2018.

**Table 2.** *Pearson correlations between the study variables*

Variables	1	2	3	4	5	6	7
1. Extraversion	-						
2. Emotional Stability	-.27**	-					
3. Agreeableness	.19*	**46-	-				

4. Conscientiousness	.27**	**35-	.47**	-			
5. Openness to Experience	.24**	.02	.16*	.32**	-		
6. Smartphone Addiction	.21**	.03	.05	.07	.02	-	
7. Satisfaction	.28**	**57-	.41**	.38**	.07	.00	-
8. Risks	-.01	.11	*17-	-.14	-.13	.17*	-.16

\*\*p < .01, \*p < .05

Source: Davidovitch & Yavich. 2018

In addition to the dispersion and reliability measures, Table 2 shows the Pearson correlations between the study variables.

- In testing the first hypothesis that personality traits are related to smartphone addiction, a positive correlation was found between extraversion and smartphone addiction ( $p < .01$ ,  $r = .21$ ). However, no correlation was found between the other personality traits and smartphone addiction.
- In testing the second hypothesis that personality traits are related to smartphone satisfaction, positive correlations were found between satisfaction and extraversion ( $p < .01$ ,  $r = .28$ ), agreeableness ( $p < .01$ ,  $r = .41$ ) and conscientiousness ( $p < .01$ ,  $r = .38$ ). Also, a negative correlation was found between satisfaction and emotional stability ( $p < .01$ ,  $r = -.57$ ). However, no correlation was found between openness to experience and satisfaction.
- In testing the third hypothesis, a negative correlation was found between risk and agreeableness ( $p < .05$ ,  $r = -.17$ ). However, no correlation was found between the other personality traits and risk.

To test the research hypotheses concerning the differences in satisfaction, risk, and smartphone addiction between the various cellphone types (iPhone, Samsung, Huawei, and Xiaomi), we conducted one-way ANOVA. In testing the fourth hypothesis that there are differences between the various cellphone types in the degree of smartphone addiction, a significant correlation was found ( $F(4, 145) = 2.96$ ,  $p < .05$ ) (Table 3), confirming the hypothesis. However, to examine the source of the differences, a subsequent Scheffe analysis was conducted post hoc, and it was found that the degree of iPhone addiction (Mean = 3.77, SD = 73) was indeed significantly higher than that of Xiaomi (Mean = 3.21, SD = 67) ( $p < .05$ ).



**Table 3.** One-way analysis of variance (ANOVA)–Smartphone addiction 1

		N	Mean	SD		
Smartphone Addiction	iPhone	39	3.77	.73		
	Samsung	67	3.46	.62		
	Huawei	3	3.50	1.08		
	Xiaomi	23	3.21	.67		
2						
		Sum of Squares	df	Mean Square	F	Sig.
Between Groups		5.03	4	1.25	2.96	.02
Within Groups		61.59	145	.45		
Total		66.62	149			

		Mean Difference	Std. Error	Sig.	
iPhone	Samsung	.31	.13	.21	
	Huawei	.27	.39	.97	
	Xiaomi	.56	.17	.03	
Samsung	iPhone	-.31	.13	.21	
	Huawei	-.03	.38	1.0	
	Xiaomi	.24	.15	.64	
Huawei	iPhone	-.27	.39	.97	
	Samsung	.03	.38	1.0	
	Xiaomi	.28	.40	.97	
Xiaomi	iPhone	-.56	.17	.03	
	Samsung	-.24	.15	.64	
	Huawei	-.28	.40	.97	

Source: Davidovitch &amp; Yavich. 2018 4

**Table 4.** One-way analysis of variance (ANOVA)–Satisfaction 5

		N	Mean	Std. Deviation		
Satisfaction	iPhone	39	3.41	.66		
	Samsung	67	3.53	.57		
	Huawei	3	2.95	.76		
	Xiaomi	23	3.29	.57		
7						
		Sum of Squares	df	Mean Square	F	Sig.
Between Groups		2.09	4	.52	1.47	.21
Within Groups		51.75	145	.35		
Total		53.85	149			

Source: Davidovitch &amp; Yavich. 2018 8

In testing the fifth hypothesis that there are differences between the cellular types in the level of smartphone satisfaction, no differences were found between the groups ( $F(4, 145) = 2.96, p > .05$ ) (Table 4). 9 10 11 12

Also, in testing the sixth hypothesis that there are differences between the cellular types in the level of risk associated with smartphones, no differences were found between the groups ( $F(4, 145) = .45, p > .05$ ) (Table 4).

**Table 5.** *One-way analysis of variance (ANOVA)–Risks*

		N	Mean	Std. Deviation		
Satisfaction	iPhone	39	2.32	.89		
	Samsung	67	2.25	.88		
	Huawei	3	2.45	.40		
	Xiaomi	23	2.39	.80		
					6	
		Sum of Squares	df	Mean Square	F	Sig.
Between Groups		1.30	4	.32	45.	.77
Within Groups		105.02	145	.72		
Total		106.32	149			

Source: Davidovitch & Yavich. 2018

**In conclusion**, the hypothesis that personality traits are related to smartphone addiction was partially confirmed—a positive correlation was found between extraversion and smartphone addiction, but no correlation was found between the other personality traits and smartphone addiction. The hypothesis that personality traits are related to smartphone satisfaction was also partially confirmed: except for openness to experience, correlations were found between the personality traits and satisfaction. The hypothesis that personality traits are related to the degree of risk associated with smartphones was partially confirmed as well: a negative correlation was found between agreeableness and risks, but no correlation was found between the other personality traits and smartphone addiction.

In testing the differences between the various cellular types, the hypothesis that there are differences between them in the degree of smartphone addiction was confirmed, but no differences were found in satisfaction and in the degree of risk associated with smartphones.

## Conclusion and Discussion

In this study, we examined the personality traits of smartphone users with the aim of examining the level of smartphone addiction, satisfaction, and risk associated with smartphones, focusing on the effect of the various cellular types (iPhone, Samsung, Huawei, and Xiaomi) on these variables.

In the theoretical section, we mentioned that many studies used personality traits to study smartphone addiction and found a strong relationship between smartphone addiction and extraversion. The results of our study also show that extraversion is positively correlated with smartphone addiction. We also examined the relationship between smartphone satisfaction and personality traits, which was not examined in previous studies, and found that extraversion,

agreeableness, and conscientiousness are related to increased smartphone 1  
satisfaction, while emotional stability is negatively correlated with smartphone 2  
satisfaction, meaning that emotionally stable people will not be satisfied with 3  
their smartphones. According to previous studies and the results of the current 4  
study, it seems that extraverts, who are more socially involved, impulsive and, 5  
in general, have a greater desire than others to experience life, tend to use their 6  
smartphones as a quick and easy way to achieve their needs, which puts them 7  
at risk. Regarding smartphone satisfaction, it is not surprising that extraverts 8  
are very satisfied with their smartphones, but it seems that agreeableness and 9  
conscientiousness are also related to satisfactin. This may be because it is easy 10  
for people with these personality types to achieve their goals and needs through 11  
smarphones (for example, smartphones help conscientious people be more 12  
organized through the calendar and task board). Surprisingly, emotionally 13  
stable people are not satisfied with their smartphones. This may be because 14  
smartphones make it difficult to emotionally detach, and using them often 15  
arouses a wide variety of emotions. 16

Regarding the various cellular types, no past research on smartphone 17  
addiction, satisfaction, and risk associated with smartphone addiction was 18  
conducted. The results of the current study show that there is no difference 19  
between the various cellular companies in smartphone satisfaction or risk 20  
associated with smartphone addiction, but iPhone users are more addicted than 21  
Xiaomi users. It can be concluded that most of the cellular companies use the 22  
same methods to keep users connected to their smartphones, and continuously 23  
update the devices so that they are easy to use or, in other words, easily 24  
addictive. 25

The current study shows that smartphone addiction is related to personality 26  
type and risk. In addition, it can be concluded that smartphones encourage 27  
users to be dependent on them and stop using their cognitive and emotional 28  
abilities, thereby making the users disabled or sick. It seems that people like 29  
to choose the easy path that requires less of an effort and less energy. It is easier 30  
for people to send someone their photo than to describe themselves to the other 31  
person and let the person get to know them though words, and it seems that 32  
people enjoy sending photos of their vacations more than actually enjoying the 33  
vacations. It seems that people are so afraid of missing out on life that they 34  
simply do miss out. So, until further research discovers ways to live with our 35  
technological friend, we recommend starting to train our anxiety as if it were a 36  
muscle and, like in the plank challenge, try to turn off the smartphone every 37  
day during an activity when it is difficult for us: on the first day for a minute, 38  
the next day for two minutes, and so on, until we strengthen our anxiety muscle 39  
and start enjoying our surroundings for a longer period and without suffering. 40

In the current study, it was found that risks associated with smartphones 41  
are related to the various cellular companies. Personality type serves as a key to 42  
dealing with the phenomonon of addiction. Specifically in the technological 43  
age, there is a need to examine how technology affects personality type so that 44  
we can teach people the proper way to use smartphones. The way to educate 45  
people on the proper use of technology is through the individual's personality. 46

## References

- Ahmed, I., Qazi, T. F., & Perji, K. A. (2011). Mobile phone to youngsters: Necessity or addiction. *African Journal of Business Management*, 5(32), 12512–12519.
- American Psychological Association. (n.d.). *Digital guidelines: Promoting healthy technology use for children*. Retrieved February 18, 2020, from <https://www.apa.org/helpcenter/digital-guidelines.aspx>
- Bianchi, A., & Phillips, J. G. (2005). Psychological predictors of problem mobile phone use. *CyberPsychology & Behavior*, 8(1), 39–51. <https://doi.org/10.1089/cpb.2005.8.39>
- Butt, S., & Phillips, J. G. (2008). Personality and self reported mobile phone use. *Computers in Human Behavior*, 24(2), 346–360. <https://doi.org/10.1016/j.chb.2007.01.019>
- Costa P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor (NEO-FFI) Inventory professional manual*. Psychological Assessment Resources (PAR).
- Cyders, M. A., & Smith, G. T. (2008). Emotion-based dispositions to rash action: Positive and negative urgency. *Psychological Bulletin*, 134(6), 807–828. <https://doi.org/10.1037/a0013341>
- Davidovitch, N., & Yavich, R. (2018). The impact of mobile tablet use on students' perception of learning processes. *Problems of Education in the 21st Century*, 76(1).
- Ehrenberg, A., Juckes, S., White, K. M., & Walsh, S. P. (2008). Personality and self-esteem as predictors of young people's technology use. *CyberPsychology & Behavior*, 11(6), 739–741. <https://doi.org/10.1089/cpb.2008.0030>
- Igarashi, T., Motoyoshi, T., Takai, J., & Yoshida, T. (2008). No mobile, no life: Self-perception and text-message dependency among Japanese high school students. *Computers in Human Behavior*, 24(5), 2311–2324. <https://doi.org/10.1016/j.chb.2007.12.001>
- John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102–138). The Guilford Press—A Division of Guilford Publications, Inc.
- Junco, R., & Cotten, S. R. (2012). No A 4 U: The relationship between multitasking and academic performance. *Computers & Education*, 59(2), 505–514. <https://doi.org/10.1016/j.compedu.2011.12.023>
- Kaizer-Heller, S. (2018, September 20). *Tz'zil mekuvan—Pgi'ot nafshiyot biladim uvivnei no'ar bareshet* [Online tone—Emotional harm to children and teenagers online]. *Psichologia Ivrit*. Retrieved February 18, 2020, from <https://www.hebpsy.net/articles.asp?id=3728> (in Hebrew)
- Krithika, M., & Vasantha, S. (2013). The mobile phone usage among teens and young adults' impact of invading technology. *International Journal of Innovative Research in Science, Engineering and Technology*, 2(12), 7259–7265.
- Lane, W., & Manner, C. (2011). The impact of personality traits on smartphone ownership and use. *International Journal of Business and Social Science*, 2(17), 22–28.
- Qureshi, H. (2012, July 16, July 23). *Apple: From iPhone 1 to iPhone 5—Evolution, features and future review*. Retrieved February 18, 2020, from

- <http://www.thenewstribes.com/2012/07/16/apple-from-iphone-1-to-iphone-5-evolution-features-and-future-review/> 1  
2
- Ra, C. K., Cho, J., Stone, M. D., De La Cerda, J., Goldenson, N. I., Moroney, E., Tung, I., Lee, S. S., & Leventhal, A. M. (2018). Association of digital media use with subsequent symptoms of attention-deficit/hyperactivity disorder among adolescents. *JAMA*, *320*(3), 255–263. <https://doi.org/10.1001/jama.2018.8931> 3  
4  
5  
6
- Rees, H., & Noyes, J. M. (2007). Mobile telephones, computers, and the Internet: Sex differences in adolescents' use and attitudes. *CyberPsychology & Behavior*, *10*(3), 482–484. <https://doi.org/10.1089/cpb.2006.9927> 7  
8  
9
- Roberts, J. A., & Pirog, S. F., III. (2013). A preliminary investigation of materialism and impulsiveness as predictors of technological addictions among young adults. *Journal of Behavioral Addictions*, *2*(1), 56–62. 10  
11  
12
- Scott, E. (2020, February 6). *How to deal with FOMO in your life: The origin of FOMO and how it affects our health*. Verywell Mind. Retrieved February 18, 2020, from <https://www.verywellmind.com/how-to-cope-with-fomo-4174664> 13  
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- Seo, C. M., Lee, J. H., Choi, T. Y., Kim, J. H., Shin, I. H., & Woo, J. M. (2012). Study for relations between smart-phone addiction level and Korea youth self report. *Journal of the Korean Society of Biological Therapies in Psychiatry*, *18*(2), 223–230. 16  
17  
18  
19
- Takao, M., Takahashi, S., & Kitamura, M. (2009). Addictive personality and problematic mobile phone use. *CyberPsychology & Behavior*, *12*(5), 501–507. <https://doi.org/10.1089/cpb.2009.0022> 20  
21  
22
- TheMarker. (2018, February 22). Larishona: Nefila bimchirot hasmartphonim berachavei ha'olam [Never before: A decline in smartphone sales worldwide]. Retrieved February 18, 2020, from <https://www.themarker.com/wallstreet/1.5845097> 23  
24  
25  
26
- Vaidya, A., Pathak, V., & Vaidya, A. (2016). Mobile phone usage among youth. *International Journal of Applied Research and Studies (iJARS)* *5*(3), 1–16. 27  
28
- Walensky, L. D., Gascard, P., Field, M. E., Blackshaw, S., Conboy, J. G., Mohandas, N., & Snyder, S. H. (1998). The 13-kD FK506 binding protein, FKBP13, interacts with a novel homologue of the erythrocyte membrane cytoskeletal protein 4.1. *Journal of Cell Biology*, *141*(1), 143–153. <https://doi.org/10.1083/jcb.141.1.143> 29  
30  
31  
32  
33  
34