

Psychological Predictors of Young Adults' Use of Social Networking Sites

Kathryn Wilson, Post.Grad.Dip., Stephanie Fornasier, Post.Grad.Dip., and Katherine M. White, Ph.D.

Abstract

Young people are increasingly using social networking sites (SNSs) like MySpace and Facebook to engage with others. The use of SNSs can have both positive and negative effects on the individual; however, few studies identify the types of people who frequent these Internet sites. This study sought to predict young adults' use of SNSs and addictive tendency toward the use of SNSs from their personality characteristics and levels of self-esteem. University students ($N = 201$), aged 17 to 24 years, reported their use of SNSs and addictive tendencies for SNSs use and completed the NEO Five-Factor Personality Inventory¹ and the Coopersmith Self-Esteem Inventory.² Multiple regression analyses revealed that, as a group, the personality and self-esteem factors significantly predicted both level of SNS use and addictive tendency but did not explain a large amount of variance in either outcome measure. The findings indicated that extroverted and unconscientious individuals reported higher levels of both SNS use and addictive tendencies. Future research should attempt to identify which other psychosocial characteristics explain young people's level of use and propensity for addictive tendencies for these popular Internet sites.

Introduction

THE PROLIFERATION of social networking sites (SNSs) has created a phenomenon that engages millions of Internet users around the world, especially young people.^{3,4} Given the popularity of these sites and their importance in young people's lives to facilitate communication and relationships, it is important to understand the factors influencing SNS use, especially at higher levels, and to identify those who may be prone to developing addictive tendencies toward new communication technologies.⁵ As with other communication technologies,^{6,7} a useful starting point may be to examine the role of personality traits and self-esteem on young people's SNS use.

Researchers have confirmed repeatedly that the five-factor model of personality adequately accounts for and explains personality by taking the approach that personality consists of five traits: openness to experience (pursuing and appreciating all types of experience), conscientiousness (control, regulation, and direction of goals and impulses), extroversion (amount and intensity of interpersonal interactions), agreeableness (the type of interactions a person prefers to have with others), and neuroticism (degree of emotional adjustment and instability).⁸ Self-esteem is the subjective evaluation a person makes and maintains about himself or herself and the extent of belief in their capability, worth, and significance, which is conveyed through their attitudes and verbal behavior.² Due

to the recent introduction of SNSs, research investigating the intrapersonal characteristics of people who access these sites is limited. However, research investigating the personality and self-esteem of people who access the wider Internet, as well as use other technological innovations to connect with others (such as mobile phones), has been growing.

For instance, it was found that extroversion was negatively related to higher levels of Internet use among undergraduate students, suggesting that introverts had more spare time or were attracted to the Internet's online appeal.⁹ Agreeableness was also negatively related to higher levels of use, suggesting that those who do not get along with others spend their time on the Internet, as there are few demands for agreeable behavior. Lower scores on conscientiousness were also associated with high Internet use, perhaps due to the Internet's limited rules and unstructured policies. Similarly, other researchers revealed that introversion predicted general Internet use but also found neuroticism and openness to be predictors of time spent online.¹⁰

Other studies have distinguished between the various ways the Internet can be used and intrapersonal characteristics. For example, it was found that introverted and highly neurotic females frequently utilize the social services available on the Internet.¹¹ These researchers suggested that introverted and neurotic females may feel protected and safe when using the Internet to socially interact with others because it is essentially an anonymous, virtual environment.

Other researchers have found that openness to experience was positively and significantly related to the entertainment functions provided by the Internet,¹² suggesting that young adults using SNS might score high on openness to experience given that SNSs are a new innovation.

One study found that extroverted people used the Internet for instrumental purposes, such as researching, and extroverts rejected the use of the Internet for social purposes because they preferred social contact in more traditional contexts.¹³ A separate study also supported the finding that extroverts reject the Internet as a medium by which to communicate with others by identifying that extroverted young people, as opposed to introverts, preferred communicating with others offline.¹⁴ In addition, two studies found that neurotic people reported being comfortable and feeling a sense of belonging when interacting with others via the Internet.^{15,13}

A number of studies have investigated the intrapersonal characteristic of self-esteem as a possible predictor of Internet use. For example, one study investigated the communication choices participants made (face-to-face, e-mail, letter, or telephone) and self-esteem and found that participants with low self-esteem showed a greater preference for e-mail communication.¹⁶ Similarly, another study found that young people with low levels of self-esteem reported a high level of instant messaging use.⁷ These findings indicate that the Internet has the potential to relieve some of the social anxiety that people with low self-esteem often experience in more traditional interpersonal situations.¹⁷

Like all Internet applications, overuse of SNSs can lead to an array of social, psychological, physical, and other problems for young people.¹⁸ Griffiths¹⁹ speculated that the structural and design characteristics of a Web site seem to be particularly addictive. For example, he states that an interactive experience can satisfy the user's personal needs and therefore reinforce the behavior. This argument implies that SNSs can potentially encourage addictive tendency because these Internet sites promote interactivity.

Although numerous definitions of Internet addiction exist, many of them refer to the substance-dependence criteria of the *Diagnostic and Statistical Manual Fourth Edition* (DSM-IV) to define it.¹⁹ This definition purports that Internet addiction, like other technological addictions, consists of six central components: salience, mood modification, tolerance, withdrawal symptoms, conflict, and relapse.^{19,20} In line with this definition, some researchers revealed that the symptoms of withdrawal (negative physiological or psychological response to not engaging in the behavior), loss of control (engaging in the behavior more than intended), and salience (the activity dominating thoughts or behavior) were indicative of mobile phone addiction.⁵ Therefore, in order to adequately assess not only level of SNS use but addictive tendencies toward their use, the scale developed by Walsh et al.⁵ (see also Ehrenberg et al.⁷) has been adapted for use in the present study as a measure of SNS addictive tendencies.

Hardie and Tee²¹ found that high levels of emotional loneliness, social anxiety, neuroticism, and low levels of extroversion contributed to Internet addiction. These results are perhaps unsurprising given introverts often avoid large social occasions and prefer to spend time in solitary activity, thus making them prone to Internet addiction.¹¹ Likewise, it is not entirely unexpected that highly neurotic people would be prone to Internet addiction, as these people often feel they

are misinterpreted in face-to-face social situations and therefore might prefer online interactions where they feel less restrained.¹³ With similar results to other studies,^{22,23} Armstrong et al.²⁴ found that low self-esteem predicted addictive Internet use as measured by the Internet Related Problem Scale (IRPS). Similar to Walsh et al.'s⁵ measure of addictive tendencies, the IRPS captures some of the DSM-IV criteria for substance-dependence, such as withdrawal, craving, and tolerance. In addition, Ehrenberg et al.⁷ found that low levels of self-esteem predicted young adults' instant messaging addictive tendencies.

Drawing on previous research examining related communication technologies, this study aims to test the role of personality and self-esteem in the context of young adults and their level of SNS use. In addition, the study aims to investigate whether these intrapersonal characteristics predict young adults' addictive tendencies toward the use of SNSs.

Materials and Methods

Participants

A total of 201 (46 males, 153 females) currently enrolled students at a major Australian university were recruited for this study (ethics approval number 0800000159). Inclusion criteria required participants to be between 17 to 24 years old ($M = 19.07$, $SD = 1.86$) and to have a personal page on an SNS site. On average, participants reported using their SNS 4 days per week ($M = 4.49$, $SD = 2.06$) and reported logging on to their SNS nearly 10 times per week ($M = 9.97$, $SD = 10.21$).

Measures

NEO Five-Factor Inventory (FFI). The 60-item NEO-FFI¹ measured participants' level of agreement (1, *strongly disagree*, to 5, *strongly agree*) for statements on five 12-item scales: Neuroticism ($\alpha = 0.85$), Extroversion ($\alpha = 0.78$), Openness ($\alpha = 0.69$), Agreeableness ($\alpha = 0.75$), and Conscientiousness ($\alpha = 0.84$).

Coopersmith Self-Esteem Inventory (SEI). The 25-item SEI² assessed participants' evaluative attitudes toward themselves (*like me* or *unlike me*) in areas of academic, social, family, and personal experience ($\alpha = 0.85$).

Time spent using SNSs. Participants reported the average number of hours per week they spend using their SNS.

Addictive tendencies scale. Based on previous research,^{5,7} the addictive tendencies scale ($\alpha = 0.76$) comprised three items measuring level of salience ("One of the first things I do each morning is log onto a social networking Internet site [e.g., MySpace or Facebook]"), loss of control ("I find it hard to control my use of a social networking site [e.g., MySpace or Facebook]"), and withdrawal ("I feel lost when I cannot access my social networking site [e.g., MySpace or Facebook]").

Results

Multiple regression analysis for time spent using social networking sites

Given its substantial positive skew, an inverse transformation was applied to the dependent variable of time spent using an SNS. A standard multiple regression was performed

to examine the impact of the personality factors (openness to experience, conscientiousness, extroversion, agreeableness, neuroticism) and self-esteem on the amount of time (in hours) participants spent using an SNS per week (see Table 1). As a group, these variables significantly predicted participants' SNS use, $F(6, 192) = 3.14, p < 0.01$, accounting for 8.9% of the variance. The significant predictors were conscientiousness and extroversion. Participants scoring lower on conscientiousness and higher on extroversion reported spending more time using an SNS.

Multiple regression analysis for social networking site addictive tendencies

A standard multiple regression was performed also examining the impact of personality factors and self-esteem on participants' SNS addictive tendencies (see Table 1). As a group, these variables significantly predicted participants' SNS addictive tendencies scores, $F(6, 194) = 2.99, p < 0.01$, accounting for 8.5% of the variance. The significant predictors were conscientiousness and extroversion. Participants scoring lower on conscientiousness and higher on extroversion reported stronger addictive tendencies towards using SNSs.

Discussion

The aim of the present study was to explore whether the personality and self-esteem of young adults can predict time spent using SNSs and addictive tendencies toward the use of SNSs. Participants scoring higher on extroversion spent more time using an SNS, a finding inconsistent with previous researchers who have typically concluded that extroverts do not view the Internet as a suitable replacement for face-to-face interactions.¹³⁻¹⁵ The findings of the present study suggest, however, that SNSs may offer to the wider Internet something unique that makes them more appealing to extroverts. For example, because extroverts tend to require a high level of stimulation and a large social network,⁸ the numerous functional abilities and unlimited contact with friends may be specifically attracting their attention. Based on the conceptualization of Griffiths²⁰ that the Internet is a tool assisting people to access their objects of interest, it is likely that extroverts may become overly involved with the opportunity to

connect with/reach out to others, as well as present and display information about themselves via SNSs. Participants scoring low on conscientiousness also were found to spend an increased amount of time using an SNS, in line with previous findings that unconscientious people are frequent users of the general Internet.⁹ It may be that students who score low on conscientiousness use SNS to occupy their time while procrastinating about completing other tasks, such as study.

Openness to experience did not have any impact on SNS use, which is inconsistent with previous research investigating Internet use.¹² It may be that SNS may no longer be as "new" an experience for some young people, so has lost some of its appeal for those eager to experience even newer activities. Agreeableness did not predict SNS use either, a finding inconsistent with Landers and Lounsbury,⁹ who found disagreeable people to spend more time on the Internet. However, these researchers did not differentiate between the different uses of the Internet, suggesting that while disagreeable people may use the Internet more often, they are not necessarily using it to engage with other people socially and may be using it for more functional purposes such as business-related interactions.

Neuroticism was not associated with increased levels of SNS use. Similar to agreeableness, previous research has demonstrated neuroticism to be significantly associated with time spent on the Internet.^{11-13,15} However, Tuten and Bosnjak¹² found that neuroticism was only a predictor of using the Internet for the specific purpose of seeking information (rather than socializing). It is likely that because of their insecure and anxious nature,⁸ neurotic young adults may not like the idea of posting photos and information about themselves on an SNS and instead prefer to use the Internet for other functions. Self-esteem did not influence SNS use, a finding inconsistent with previous findings that people with low self-esteem prefer online social interaction over face-to-face exchanges.^{16,17} As one researcher found, self-esteem can either increase or decrease depending on the tone of feedback received on people's virtual profiles;²⁵ therefore, it is possible that both people with high levels and people with low levels of self-esteem seek to use SNSs to confirm or as a means of increasing their feelings of self-worth in the hope of positive feedback from other users.

TABLE 1. MULTIPLE REGRESSION ANALYSIS FOR VARIABLES PREDICTING TIME SPENT USING A SOCIAL NETWORKING SITE (SNS) AND SNS ADDICTIVE TENDENCIES

Variable	R	R ²	β	t	p
<i>Prediction of time spent using a SNS</i>					
Openness to experience	0.30	0.09	-0.11	-10.47	0.14
Conscientiousness			-0.18	-20.40	0.02
Extroversion			0.27	30.34	0.00
Agreeableness			0.02	00.23	0.82
Neuroticism			0.16	10.66	0.10
Self-esteem			0.05	00.47	0.64
<i>Prediction of SNS addictive tendencies</i>					
Openness to experience	0.29	0.09	-0.06	-00.82	0.41
Conscientiousness			-0.15	-20.02	0.05
Extroversion			0.28	30.45	0.00
Agreeableness			0.04	00.49	0.62
Neuroticism			0.14	10.46	0.15
Self-esteem			-0.09	-00.87	0.39

The personality traits and self-esteem explained slightly less variance in addictive tendencies than they did in time spent using an SNS. Similar predictors influenced people's addictive tendencies as for their level of use. Extroversion was found to be associated with addictive tendencies, suggesting that extroverts may become overly reliant on SNSs because the interactive experience meets their need for stimulation and social interaction. Low scores on conscientiousness significantly predicted addictive tendencies. It is plausible that unconscientious young adults demonstrate addictive tendencies toward the use of SNS because unconscientious people tend to lack self-control.²⁶ There was no relationship between openness to experience, agreeableness, neuroticism, or self-esteem and self-reported addictive tendencies.

In general, the intrapersonal characteristics accounted for only a small proportion of variance in both behavioral outcomes, suggesting that there are other factors underlying people's SNS usage, especially given evidence of other potential influences (e.g., motivation to communicate).²⁷ Some important practical applications, however, can be gained from the study's findings. For example, knowing that extroversion and unconscientiousness are predictors of SNS use and addictive tendencies may mean that Web developers can modify the features of their SNS to further attract people with these types of personalities. For example, SNS sites could be designed to display more stimulating and interactive features (e.g., webcams) that would appeal to extroverts or include more time-consuming games to appeal to those who are less conscientious. Importantly, the present findings can be used to inform psychologists, counselors, and educators within schools and universities of the types of young people who are likely to use SNSs at higher levels or develop a behavioral addiction toward the use of SNS. For example, as a preventative measure to combat the overuse of the Internet, which often leads to sedentary behavior, schools and universities could encourage extroverts to interact and socialize with others more offline, while unconscientious young people can be taught better time management and organizational skills to avoid procrastination via SNS use.

This study is one of the first to identify the intrapersonal characteristics of people who frequent SNSs, as well as those people who are likely to demonstrate SNS addictive tendencies, using a population that typically access SNSs. Despite these strengths, this study had several limitations. The generalization of the study's results is limited because the sample was predominately female and solely university students. Further, the scale reliability for addictive tendencies was slightly lower than expected, and item examination suggests that the scale may reflect impulse control difficulties in respect to SNS use rather than addictive tendencies per se. Future research should include more participants from a range of ages and locations and a more balanced gender ratio. In addition, longitudinal studies could be conducted to establish when, and for what reasons, frequent users and those with addictive tendencies reduce the time they spend using the sites and how any addictive tendencies are managed. More research is needed to establish valid and reliable measures of the addictive tendencies construct. Furthermore, to yield more accurate measures of use, future research should utilize objective measures (e.g., diary records or a computer program that records use unobtrusively).

Although personality and self-esteem were significant predictors of both time spent using SNSs and addictive tendencies, they did not explain a large amount of variance, indicating that other factors account for young adults' use of SNSs, which should be examined in future. For example, the SNS functions of posting information and photos about oneself may attract the attention of narcissistic people.²⁸ Also, sensation seekers have characteristics in common with extroverts, such as the need for stimulation and a large number of friends.²⁹ In summary, although personality and self-esteem explained only a small amount of variance in both SNS use and addictive tendencies, extroversion emerged as a positive predictor and conscientiousness as a negative predictor, of both time spent using SNSs and SNS addictive tendencies. However, despite these findings and their practical implications, it is imperative for researchers to continue to identify the psychosocial factors that influence some young adults to use at high levels and potentially to develop addictive tendencies toward this worldwide Internet phenomenon.

Acknowledgments

The authors thank Shari Walsh for assistance in the design of the study and Eric Livingston for assistance in data collection.

Disclosure Statement

No competing financial interests exist.

References

1. Costa PT, McCrae RR. (1992) *NEO PI-R professional manual*. Odessa, TX: Psychological Assessment Resources.
2. Coopersmith S. (1981) *Self-esteem inventories*. Palo Alto: Consulting Psychologists Press.
3. Baker J, Moore S. Distress, coping, and blogging: comparing new MySpace users by their intention to blog. *CyberPsychology & Behavior* 2008; 11:81–5.
4. Raacke J, Bonds-Raacke J. MySpace and Facebook: applying the uses and gratifications theory to exploring friend-networking sites. *CyberPsychology & Behavior* 2008; 11: 169–74.
5. Walsh SP, White KM, Young RM. (2007) Young and connected: psychological influences of mobile phone use amongst Australian youth. In Goggin G, Hjorth L, eds. *Mobile Media 2007. Proceedings of an International Conference on Social and Cultural Aspects of Mobile Phones, Media, and Wireless Technologies*. Sydney: University of Sydney, pp.125–34.
6. Phillips J, Butt S, Blaszczynski A. Personality and self-reported use of mobile phones for games. *CyberPsychology & Behavior* 2006; 9:753–8.
7. Ehrenberg A, Juckes S, White KM, et al. Personality and self-esteem as predictors of young people's technology use. *CyberPsychology & Behavior* 2008; 11:739–41.
8. Costa P, Widiger T. (2002) *Personality disorders and the five-factor model of personality*. 2nd ed. Washington, DC: American Psychological Association.
9. Landers RN, Lounsbury JW. An investigation of Big Five and narrow personality traits in relation to Internet usage. *Computers in Human Behavior* 2004; 22:283–93.
10. McElroy JC, Hendrickson AR, Townsend AM, et al. Dispositional factors in Internet use: personality versus cognitive style. *MIS Quarterly* 2007; 31:809–20.

11. Hamburger YA, Ben-Artzi E. The relationship between extroversion and neuroticism and the different uses of the Internet. *Computers in Human Behavior* 2000; 16:441–49.
12. Tuten TL, Bosnjak M. Understanding differences in Web usage: the role of need for cognition and the five factor model of personality. *Social Behavior & Personality* 2001; 29:391–98.
13. Amiel T, Sargent SL. Individual difference in Internet usage motives. *Computers in Human Behavior* 2004; 20:711–26.
14. Goby VP. Personality and online/offline choices: MBTI profiles and favored communication modes in a Singapore study. *CyberPsychology & Behavior* 2006; 9:5–13.
15. Amichai-Hamburger Y, Wainapel G, Fox S. "On the Internet no one knows I'm an introvert": extroversion, neuroticism, and Internet interaction. *CyberPsychology & Behavior* 2002; 5:125–8.
16. Joinson AN. Self-esteem, interpersonal risk, and preference for e-mail to face-to-face communication. *CyberPsychology & Behavior* 2004; 7:472–8.
17. Harman JP, Hansen CE, Cochran ME, et al. Liar, liar: Internet faking but not frequency of use affects social skills, self-esteem, social anxiety, and aggression. *CyberPsychology & Behavior* 2005; 8:1–6.
18. Blaszczynski A. Internet use: in search of an addiction. *International Journal of Mental Health & Addiction* 2006; 4:7–9.
19. Griffiths MD. (1998) Internet addiction: does it really exist? In Gackenbach J, eds. *Psychology and the Internet: intrapersonal, interpersonal, and transpersonal applications*. New York: Academic Press, pp. 61–75.
20. Griffiths MD. Internet addiction. *Psychologist* 1999; 12: 246–50.
21. Hardie E, Tee M. Excessive Internet use: the role of personality, loneliness and social support networks in Internet addiction. *Australian Journal of Emerging Technologies & Society* 2007; 5:34–47.
22. Yang SC, Tung C. Comparison of Internet addicts and non-addicts in Taiwanese high school. *Computers in Human Behavior* 2004; 23:79–96.
23. Niemz K, Griffiths M, Banyard P. Prevalence of pathological Internet use among university students and correlations with self-esteem, the general health questionnaire (GHQ), and disinhibition. *CyberPsychology & Behavior* 2005; 8:562–70.
24. Armstrong L, Phillips JG, Saling LL. Potential determinants of heavier Internet usage. *International Journal of Human-Computer Studies* 2000; 53:537–50.
25. Valkenburg PM, Peter J, Schouten MA. Friend networking sites and their relationship to adolescents' well-being and social self-esteem. *CyberPsychology & Behavior* 2006; 9:584–90.
26. Hergenhahn B, Olson M. (2003) *An introduction to theories of personality*. 6th ed. Upper Saddle River, NJ: Prentice Hall.
27. Ross C, Orr ES, Sisic M, et al. Personality and motivations associated with Facebook use. *Computers in Human Behavior* 2009; 25:578–86.
28. Aviram I, Amichai-Hamburger Y. Online infidelity: aspects of dyadic satisfaction, self disclosure and narcissism. *Journal of Computer-Mediated Communication* 2005; 10. <http://jcmc.indiana.edu/vol10/issue3/aviram.html> (accessed May 11, 2008).
29. Lin JS, Tsai C. Sensation seeking and Internet dependence of Taiwanese high school adolescents. *Computers in Human Behavior* 2002; 18:411–26.

Address correspondence to:

Dr. Katherine M. White
 School of Psychology and Counselling
 Queensland University of Technology
 Victoria Park Rd, Kelvin Grove 4059
 Brisbane Queensland
 Australia

E-mail: km.white@qut.edu.au

