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Exploring the Relationship of Personality, Loneliness, and Online Social Support with Interned Addiction and Procrastination

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The prevalent use of internet among young generation is interfering negatively with their academic, social, and psychological functioning. Internet users, particularly students, indulge in a multitude of online activities that may distract them from their important routine assignments. In an effort to explore its antecedents and consequences, the present study investigated role of personality traits (extraversion and neuroticism), loneliness, and online social support in initiating internet addiction and its impact on procrastination. Role of age, gender, and level of education in internet addiction and procrastination were also explored. Internet Addiction Test (Young, 1998), Extraversion and Neuroticism subscales of International Personality Item Pool (Goldberg, 1999), Wittenberg Social and Emotional Loneliness Scale (Wittenberg, 1986), Online Social Support Network Scale (Moody, 2001), and General Procrastination Scale (Lay, 1986) were administered on 301 students (109 males, 192 females), with age ranging between 14 to 33 years, from different educational institutes of Islamabad. Results revealed no relevance of age, gender and education to internet addiction. Neuroticism, social, loneliness, and online social support were found significantly positively related to internet addiction. Furthermore, internet addiction was found significantly associated with procrastination after statistically controlling the effects of age, gender, neuroticism, loneliness, and online social support. The results bear significance in the academic settings, as internet addiction and procrastination may affect academic performance and interpersonal relationships of students.

Keywords. Internet Addiction, Extraversion, Neuroticism, Loneliness, Online social support, Procrastination

The Diagnostic and Statistical Manual of Statistical Disorders (DSM–5; American Psychiatric Association, 2013) has listed a

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condition close to internet addiction as "Internet Gaming Disorder" (described as compulsive online gaming that may result in distress) in Section-III (p. 795), highlighting it as a condition that needs further research. The closest term for "addiction" in DSM-IV-TR (4th ed., text rev.; American Psychiatric Association, 2000) is substance dependence disorder. Young (1996) defined internet addiction as an impulse control disorder. She presented a definition for internet-related disorder called Pathological Internet Use (PIU) adapted from the DSM-IV (4th ed., American Psychiatric Association, 1994) criteria for pathological gambling. The definition required that the individual should meet five out of eight criteria for addiction which include preoccupation with internet, need for a longer time to spend online, repeated attempts to reduce internet use withdrawal when reducing internet use problems with time management, environmental distress (social, educational or occupational), deception around time spent online, and mood modification through internet use (Young, 1998). Internet addiction has also been labeled as a subtype of technological addiction (Griffiths, 1999) which involves human-machine interactions and includes behaviors such as playing video games, amusement machines, and the use of computers (VanGelder, 2003; Widyanto & McMurran, 2004). The present research has followed Young's (1998) criterion of internet addiction (adapted from DSM-IV), as the data were collected for this study prior to the availability of *DSM-V* in Pakistan.

The positive outcomes associated with internet-related activities have been documented in some recent studies, which suggest that participation in online activities can provide social and psychological benefits for the individual (Cummings, Sproull, & Kiesler, 2002; Shaw & Gant, 2002). Internet may provide information and opportunities for interaction to socially isolated groups such as parents of disabled children (Blackburn & Read, 2005), people suffering from social anxiety (Campbell, Cumming, & Hughes, 2006), and people with medical problems (Fogel, Albert, Schnabel, Ditkoff, & Neugut, 2002). However, harmful consequences of internet overuse are much higher in magnitude as reported in various studies. Sanders, Field, Diego and Kaplan (2000) examined the association of internet use with depression and social isolation among adolescents. Low internet users were found to have better relationships with family and friends as compared to high internet users. Similarly, Akin and İskender (2011) also found an association of internet addiction with depression, anxiety, and stress. Whang, Lee, and Chang (2003) found that internet addicts were extremely sensitive to negative emotions in interpersonal relationships and also experienced increased anxiety in interacting

with people whom they did not know quite well. Internet addiction has also been associated with low self-esteem (Widyanto & Griffiths, 2011) and problems with time management (Brenner, 1997). Other studies have also suggested that internet overuse may result in academic difficulties for the students (Chen & Peng, 2008) and may also be cause of underachievement (Balduf, 2009). More recently, internet addiction has been found positively associated with procrastination (Davis, Flett, & Besser, 2002; Lavoie & Pychyl, 2001; Wretschko, 2006), particularly among students who frequently use internet for academic work or social networking (Uzun, Unal, & Tokel, 2014). Internet overuse may lead individuals to delay academic tasks, which results in missed deadlines and low academic scores.

Factors Leading to Internet Addiction

Research has suggested that internet addiction may arise from various factors such as depression or stress (Yadav, Banwari, Parmar, & Maniar, 2013), anxiety (Azher et al., 2014) or work stress (Chen et al., 2014). However, personality factors (Amichai-Hamburger & Ben-Artzi, 2003; Hardie & Tee, 2007; Wolfradt & Doll, 2001), loneliness (Hardie & Tee, 2007; Moody, 2001), and online social support (Moody, 2001) have also received particular attention as risk factors for internet addiction.

The Five Factor model (FFM; Costa & McCrae, 1992) has been widely researched as predictor of various behaviors related to addiction (Ball & Schottenfeld, 1997; Terracciano, Löckenhoff, Crum, Bienvenu, & Costa, 2008). In this context, extraversion and neuroticism have gained special attention (Amichai-Hamburger & Ben-Artzi, 2003; Hardie & Tee, 2007; Wolfradt & Doll, 2001). An extravert person is likely to be sociable, outgoing, and less reserved (John, 1990) and is likely to be equally interactive in face-to-face settings, as well as online situations. In contrast, an introvert is likely to prefer online media for social interaction, as s/he feels inhibited in face-to-face settings (Mesch, 2012). An extravert does not feel such inhibitions, and therefore, does not rely solely on the internet for social interaction (Amichai-Hamburger, 2005). Thus, extraversion seems to be negatively associated with internet addiction. A neurotic individual, on the other hand, is likely to be insecure and worry-prone (John, 1990) and is more vulnerable to experience negative feelings (Costa & McCrae, 1980). Thus, neuroticism has been found positively associated with excessive use of internet to relieve feelings of distress. Zamani, Abedini, and Kheradmand (2011) found that individuals with higher levels of neuroticism were more likely to indulge in

overuse of internet to deal with feelings of distress and despair. Gombor and Vas (2008) and Serin (2011) also found neuroticism as a strong predictor of internet addiction. Wolfradt and Doll (2001) and Amichai-Hamburger and Ben-Artzi (2003) associated neuroticism (positively) and extroversion (negatively) with internet addiction. Hardie and Tee (2007) also found that internet-over users showed high neuroticism, low extroversion, greater social anxiety, and obtained more online social support rather than face to face communication.

Loneliness is a perceived discrepancy between an individual's actual and desired social relationships (Peplau & Perlman, 1982). Feelings of loneliness resulting from lack of social interaction may lead individuals to turn to internet over use for fulfillment of social needs leading to internet addiction (McKenna, Green, & Gleason, 2002). Weiss (1973) highlighted that loneliness is not exclusively a result of personality or situational factors, but a product of their combined effects. Loneliness results when social interactions fall short of supplying social requirements. He distinguished between social loneliness (feelings of distress and boredom due to absence of a social network or social integration) and emotional loneliness (feelings of emptiness due to lack of intimate relationships). An emotionally lonely person feels anxious and empty, whereas the socially lonely person experiences boredom and threats for being socially marginal.

Studies investigating relationship between internet addiction and loneliness have yielded mixed results. Shaw and Gant (2002) found that greater use of internet was linked with a decline in loneliness and an enhancement in perceived social support. Cummings, Sproull, and Kiesler (2002) also reported that active participation in online activities was associated with increased social networking benefits, including the development of a stronger community orientation and making new friends. Oldfield and Howitt (2004) also found that those who spent more time online were less likely to be lonely. On the contrary, Hardie and Tee (2007); Engelberg and Sjoberg (2004); and Caplan (2003) reported a positive relationship between internet addiction and loneliness. McKenna, Green, and Gleason (2002) provided a possible explanation for this positive relationship that lonely individuals may be unsatisfied with their face-to-face social interactions and may attribute this failure to their lack of social skills. Thus, they may turn to the internet for social interaction, which in turn, may cause internet addiction. Some other studies (Morahan-Martin, 2005; Morahan-Martin & Schumacher, 2000) also showed that loneliness had a strong association with internet overuse or addiction. Moody (2001) investigated the relationship between loneliness and internet addiction, and found that internet addicts had

greater levels of emotional loneliness, but lower levels of social loneliness. The study also found that a large score on Online Social Support Network Scale was associated with greater levels of emotional loneliness. Internet use mediated the effects of emotional loneliness by providing the over-users with a greater sense of belonging. It may be argued that social loneliness also leads to internet overuse, as the individual is unable to derive satisfaction from his/her social relationships, and has to rely on online communication to fulfill social interaction needs. Furthermore, neuroticism has also been positively associated with loneliness (Neto & Barros, 2000). Thus, these two factors may make an individual prone to internet addiction, leading to further negative consequences such as procrastination.

One of the most harmful consequences of internet addiction seems to be procrastination (Sirois, 2014; Wretschko, 2006). Literature suggests that internet seems to be a significant distracting factor for students, directing their attention away from the studies towards trivial activities (Uzun, Unal, & Tokel, 2014; Yang & Tung, 2007). Internet may engage individuals in aimless surfing, which results in delaying of important tasks at hand (Lavoie & Pychyl, 2001). Procrastination is a behavioral mechanism used to avoid the stress or feelings of anxiety that is related to starting or completing any task or decision (Fiore, 2006). Schouwenburg and Lay (1995) defined procrastination simply as putting off acting on one‘s plan, which may develop into a habitual activity. Thakkar (2009) has proposed two reasons for procrastination. First, many gadgets of modern technology (such as cell phones, video games, and computers) provide the individuals with distractions and temptations, such as surfing the web, hanging out on social networking websites, checking emails, and playing games that lead to delay of important tasks. The other reason for procrastination and internet addiction may be the development of postmodern values such as preference for social contacts, appreciation, and pleasure. While labeling internet addiction as a post-modern phenomenon, Butler (2002) and Sellinger (2004) found that students often report internet activities preferable to tedious academic work. Students with post-modern values would delay academic tasks in order to achieve immediate pleasures associated with social contact. Sirois (2014) also suggested that being absorbed in a pleasurable task on the internet may provide a temporary escape from stressful situations, which may lead to procrastination. People tend to have a preference for pleasant tasks rather than unpleasant ones; and the more unpleasant the task the more one is likely to avoid it (Lewin, 1935). Thus, post-modern value orientation has been found to be linked with academic procrastination (Dietz, Hofer, & Fries,

2007). This argument has also been supported by Thakkar (2009) who reported that at least 50 percent students procrastinate chronically due to internet overuse. Providing further support to this argument, Chen and Peng (2008), Klassen and Kuzuku (2009), and Zarick and Stonebraker (2009) also found compulsive internet use to be associated with procrastination.

Procrastination has been found related with personality variables. Van Eerde (2003) and Steel (2007) have reported large negative correlations between procrastination and conscientiousness. The procrastinating individual cannot compel himself to complete the tasks at hand. In the absence of self-discipline, the individual is likely to be distracted and may procrastinate. However, as extraversion and neuroticism are most relevant to loneliness, online social interaction, and internet use, the present study explores the role of only these two factors in internet addiction and procrastination. Furthermore, procrastination has also been positively associated with neuroticism (Watson, 2001). Thus, it may be argued that neuroticism, loneliness, internet addiction, and procrastination are connected in a vicious cycle, with higher neuroticism leading to higher loneliness, resulting in internet overuse, further leading to procrastination, which in turn leads to negative consequences such as poor academic performance; increased anxiety and stress; poor interpersonal relationships; and more reliance on internet activities.

Among the demographic variables, gender differences in internet addiction have been documented with mixed results. Some studies (Egger & Rauterberg, 1996; Morahan-Martin & Schumacher, 2000; Scherer, 1997) reported higher prevalence of internet addiction among men, while Leung (2004) found that most of the problematic internet users were young women. Petrie and Gunn (1998) found that problematic internet use was equally distributed among men and women. However, as results of recent studies (Akhter, 2013; Ha & Hwang, 2014) indicate that internet addiction is more prevalent among men; it may be assumed that internet addiction is higher among men than women. With respect to age, Kubey, Lavin, and Barrows (2001) found that younger students were more likely to be internet addicted. Blinka and Šmahel (2009); Kim et al. (2006); and Wang, Zhou, Lu, and Deng (2011) also reported that internet over-use was prevalent among younger individuals due to curiosity and thrill of internet browsing. In contrast, Kandell (1998) reported that internet addiction was most prevalent among university students.

Research in Pakistan

Though internet addiction is a well researched phenomenon in general, and a few studies (Hussain & Pervez, 2001; Javed & Iqbal, 2010; Nawaz & Pervez, 1999) have been carried out in Pakistan, which have explored important dimensions of internet over-use. In general, research in Pakistan on this subject is relatively scarce, and is limited to a few areas of study. For example, exploring the nature of attitudes towards internet, Nawaz and Pervez (1999) found that the overall attitude of parents towards the internet was positive as parents considered internet helpful for their children's educational and intellectual enhancement. Hussain and Pervez (2001) and Khan, Khan and Bhatti (2011) have also reported positive attitude of students towards internet and chatting. Exploring the motives for internet use, Ali and Aslam (2008) found that teenagers used the internet merely for entertainment purposes, whereas, university students used it for achieving educational objectives.

Javed and Iqbal (2010) reported that the major online activities of students (particularly males) included watching movies, songs, porn sites, and chatting. With respect to the consequences of internet overuse, Rajani and Chandio (2004) found that increased use of internet was responsible for increased loneliness in society, depression, distant social relations, and weak family communication. Suhail and Bargees (2006) concluded that excessive internet use could lead to educational, physical, psychological and social problems. Ansari (2008) studied the changing patterns of interpersonal communication due to internet, and concluded that internet use may promote greater individualism and loneliness. Asdaque, Khan, and Rizvi (2010) found that excessive use of the internet interfered with the academic performance of the students and also minimized their social activities. The present research explores the relationship of personality traits, loneliness, and online social support with internet addiction and procrastination, as this relationship has not yet been explored in Pakistan with student population. Students may be particularly vulnerable to internet addiction in the present era of information technology, as they have to rely on the internet in order to stay up-to-date with academic tasks.

Hypotheses

In the light of literature reported above, following hypotheses were developed:

1. Neuroticism, loneliness (emotional & social), and online social support positively relate to internet addiction.
2. Extraversion negatively relates to internet addiction.
3. Males and younger students are more likely to be addicted to the internet than females and older students respectively.
4. Internet addiction may positively relate to procrastination, after statistically controlling the effects of demographic factors, neuroticism, loneliness (emotional & social), and online social support.

Method

Sample

The sample consisted of 301 students, 109 male (M_{age} = 25.18, *SD* = 4.23) and 192 female (M_{age}=19.75, *SD* = 2.74) students. All participants were internet users, studying in different schools, colleges, and universities of Islamabad. Some students who had just completed their education and were currently on internship or training were also included in the sample. Thus, the sample helped to compare the level of internet addiction among students of different age groups and different educational levels. The participants ranged in age from 14 to 33 years (*M* = 21.7, *SD* = 4.2). The distribution of participants with respect to level of education was Matriculation (*n* = 16, 5%), F.A./F. Sc (*n* = 23, 7%), B.A./B. Sc./BS (n =148, 49%), M.A./ M.Sc./MS/M. Phil (*n* = 43, 14%), and internees who had just passed the master‘s degree programs in different subjects (*n* = 71, 23%).

Measures

The following measures were used for the present study.

Internet Addiction Test (IAT). It is a 20-item questionnaire that measures mild (scores range 20-49), moderate (scores range 50-79), and severe (scores range 80-100) levels of internet addiction (Young, 1998). Items are rated on a 6-point scale, ranging from 0 *(does not apply)* to 5 *(always)*. The lowest level of internet addiction is 0 and the highest level of internet addiction is 100. Widyanto and McMurran (2004) report that the items reflect six underlying dimensions of internet addiction: Salience, Excessive use, Neglect of Work, Anticipation, Lack of Control, and Neglect of Social Life. The authors also reported significant correlations between the six factors of IAT, ranging from .23 to .62. Concurrent validity of the IAT was

established by correlating each of these factors with average time of general internet use and average time of internet use for solely personal reasons. Factor 1 (Salience) was found to be positively correlated with average internet use (r =.26) and personal internet use (r =.32). Factor 2 (Excessive Use) also positively correlated with average internet use (r =.27) and personal internet use (r =.34). Factor 5 (Lack of Control) was also found to be positively correlated personal use of the internet (r =.22). Nonsignificant correlations were found for the other factors (Widyanto & McMurran, 2004).

International Personality Item Pool (IPIP). Extraversion and Neuroticism were assessed by using the Extraversion and Neuroticism subscales of IPIP (Goldberg, 1999). The subscales consist of 10 items each, rated on a 5-point scale (1 = *very inaccurate* to 5 = *very accurate*). Items 1 to 10 measure the level of Extraversion and items 11 to 20 assess the degree of Neuroticism. In Extraversion scale, items no. 2, 4, 6, 8, 10, 12, and 14 are negative items which are reverse-scored in the analyses. For Neuroticism scale, item no. 12 and 14 are negative items and are reverse-scored. Goldberg (1999) reported alpha coefficients of .91 for both the Neuroticism and Extraversion subscales. The convergent validity of the IPIP has been found by correlating the scales with the Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992). The values of correlation ranged from .63 to .93 (Goldberg, 2000).

The original IPIP pool contains items that are scored for Emotional Stability (e.g. "I feel relaxed most of the time") instead of Neuroticism (Goldberg, 1999). For the purpose of present research, the facet of personality under consideration was Neuroticism, hence scoring for emotional stability was reversed. Individuals scoring low on Emotional Stability were ranked high on Neuroticism, as has been done by Hardie and Tee (2007).

Wittenberg Social and Emotional Loneliness Scale. Loneliness was measured by Wittenberg Social and Emotional Loneliness Scale (Wittenberg, 1986). The scale consists of two (5-item) subscales reflecting Emotional Loneliness (for example, ―There is no one I have felt close to for a long time"; item 4) and Social Loneliness (for example, ―Idon't get much satisfaction from the groups I participate in"; item 2). Items 1, 2, 3, 6, and 7 assess the level of Social loneliness, whereas items 4, 5, 8, 9, and 10 measure the level of Emotional Loneliness. Items 1, 2, 4, 8, and 10 are positive indicators of loneliness and are forward-scored. Items 3, 5, 6, 7, and 9 are reverse-scored, for being negative indicators of loneliness. Wittenberg (1986) reported alpha coefficients of .78 for Emotional Loneliness and .76 for Social Loneliness. The convergent validity of

the instrument was established by correlating it with the University of California, Los Angeles Loneliness Scale (UCLA; Russell, Peplau, & Ferguson, 1978). The value of correlation for the Social Loneliness Scale was .81 and for the Emotional Loneliness Scale was .59 (Robinson, Shaver, & Wrightsman, 1991).

Online Social Support Network Scale. Online social support was measured with a set of six questions developed by Moody (2001). The scale assesses social support from internet activities and consists of questions such as ―When I have a problem, I usually go online to contact my friends" (item 1). Items are rated on a 5-point scale (1 = *not like me* to 5 = *a lot like me*). All of the items are positive and assess the level of support acquired from online social networks. Hardie and Tee (2007) found that the online social support scale showed good reliability (α= .85).

General Procrastination Scale (GPS). Procrastination was assessed through Lay's General Procrastination Scale for students (Lay, 1986). This instrument is unidimensional, and measures one's general tendency to procrastinate. The instrument consists of 20 items. The items are rated on a 5-point scale (1 = *extremely uncharacteristic* to 5 = *extremely characteristic*). Items 3, 4, 6, 8, 11, 13, 14, 15, 18, and 20 are reverse-scored, as they are negative indicators of procrastination. Items 1, 2, 5, 7, 9, 10, 12, 16, 17, and 19 are positive items and are forward-scored. This scale measures the tendency to put off tasks in a number of nonacademic and academic domains. It includes statements such as, ―A letter may sit for days after I write it before I mail it" (item 5). The word ‗Christmas' in item 16 (―I always seem to end up shopping for birthday or Christmas gifts at the last minute") was replaced with ‗festival', as it was unsuitable for the sample under study. This was done in accordance to the fact that the sample consisted mainly of Muslim participants, and Christmas is not celebrated by Muslims. Lay (1986) conducted a validity study by administering the General Procrastination Scale and seven other scales (such as neurotic disorganization & rebelliousness) on 110. It was found that high-procrastination scorers took longer time to return the questionnaires.

Procedure

Permission for using the instruments was obtained from the respective authors through email correspondence. After obtaining approval from the authors, the instruments were translated into Urdu by experts (bilingual lecturers of Applied Psychology Department), as

Urdu is the preferred language in Pakistan. The instruments were then back translated to assure that the original meanings of the items were maintained. After obtaining approval of the translated version of the measures into Urdu language and its back translation by the Departmental Committee of Psychology (IMCG, F-7/2, Islamabad), the questionnaires were administered to the sample. The sample was selected by using convenience and purposive sampling technique. Permission was obtained from the respective heads of the educational institutes as well as the class teachers for the administration of questionnaires in classroom settings, in the form of a booklet Participants were clarified that their participation in the study was voluntary and would be kept confidential and thanked for their cooperation.

Results

The main purpose of the present study was to explore how personality factors (extraversion, neuroticism) may lead to internet addiction, which in turn may lead to procrastination. For achieving the objectives of the study, Pearson Product Moment Correlation (PPMC) was performed in order to obtain preliminary support for the stated hypotheses. Further, regression analyses were performed to explore role of demographics (gender, age, level of education), personality factors (Neuroticism, Extraversion), loneliness, and online social support in internet addiction and procrastination.

Table 1

Pearson Correlation among Internet Addiction, Extraversion, Neuroticism, Loneliness, and Procrastination (N=301)

		No. of Items	α	1	2	3	4	5	6	7	8
1	IA	20	.92	-	.03	.23**	.18**	.09	.17**	.53**	.31**
2	EXT	10	.70		-	-.09**	-.32**	-.11	-.26**	.19**	-.06
3	NRT	10	.80			-	.22**	.23**	.17**	.02	.26**
4	SL	5	.66				-	.37**	.79**	-.03	.16**
5	EL	5	.64					-	.87**	.14*	.10
6	LON	10	.63						-	.07	.09
7	OSS	6	.77							-	.15**
8	PRC	20	.72								-

Note. IA = Internet Addiction; EXT = Extraversion; NRT = Neuroticism; SL = Social Loneliness; EL = Emotional Loneliness; LON = Overall Loneliness; OSS = Online Social Support, PRC=Procrastination.
*p< .05. **p < .01.

Table 1 shows Alpha coefficients for all scales indicating their acceptable levels of internal consistency. The correlation matrix reveals significant positive correlation of neuroticism, social loneliness, and online social support with internet addiction whereas extraversion and emotional loneliness have remained nonsignificant. This partially supports our stated hypotheses. Relationship of neuroticism, social loneliness, and internet addiction with procrastination has also been significantly positive supporting the hypotheses. As loneliness (whether social or emotional) reveals a positive relationship with internet addiction, composite score of loneliness would be used for further analyses of this study. . Thus, loneliness, in general, is assumed to be positively related to internet addiction.

For achieving the objectives of present study, multiple regression analysis was carried out. To analyze effects of demographic variables, neuroticism, extraversion, loneliness, and online social support on internet addiction, the first model of regression analysis is presented in table 2. In table 3, the effect of internet addiction on procrastination is analyzed after controlling the effects of demographic variables, neuroticism, extraversion, loneliness, and online social support.

Table 2

Multiple Hierarchical Regression of the Antecedents of Internet Addiction (N=301)

Model	Variables	*β*	*t*	*p*	R^2	ΔR^2	*F*	*p*
1	Age	-.31	-.28	.77	.008	.008	.78	.507
	Gender	-.16	-.22	.82				
	Education	-.06	-.70	.48				
2	Extraversion	.05	.93	.35	.047	.04	2.94	.013*
	Neuroticism	.20	3.4	.00**				
3	Loneliness	.13	2.62	.00**	.33	.28	21.19	.000*
	Online social support	.53	10.81	.00**				

*$p < .05$. **$p < .01$.

Results in Table 2 show overall, the model explains 33% variance in the dependent variable (i.e. internet addiction). In Block 1, gender, age, and education were entered to find out their effects on internet addiction among students. R^2 reveals a non-significant association of these factors with internet addiction by explaining .08% variance. In Block 2, personality factors (extraversion and neuroticism) were entered as independent variables. The combined effect of extraversion and neuroticism was significant by adding 4.7% variance in predicting internet addiction, and β-values indicate that

neuroticism appeared to be a stronger predictor of internet addiction. In Block 3, loneliness and online social support showed the strongest association with internet addiction, by adding 28% variance in the model.

Table 3

Multiple Hierarchical Regression of Internet Addiction on Procrastination (N = 301)

Model	Variables	*β*	*t*	*p*	R^2	ΔR^2	*F*	*p*
1	Age	-.31	-.78	.43	.06	.06	6.62	.00
	Gender	.16	1.42	.15				
	Education	-.06	-1.09	.27				
2	Extraversion	-.07	-1.33	.18	.10	.04	7.64	.00
	Neuroticism	.19	3.40	.00				
3	Loneliness	.03	.57	.56	.13	.03	4.18	.01
	Online social support	.15	2.79	.00				
4	Internet addiction	0.24	3.75	.00	.17	.04	14.12	.00

*$p < .05$. **$p < .01$.

In Block 1, age, gender, and education were entered to find out their effects on procrastination. It can be observed that demographic factors have a combined significant effect on procrastination and have explained 6% variance in the dependent variable. However, their individual contribution in determining procrastination has remained non-significant in terms of β-values . In Block 2, Personality factors (extraversion and neuroticism) were entered as independent variables. The combined effect of extraversion and neuroticism was significant by adding 10% variance in predicting procrastination.

β-values in Table 3 indicate that neuroticism significantly positively relates to procrastination. In Block 3, loneliness and online social support were entered. Their combined effect was significant by adding 3% variance in the model. Observing β-values of these variables revealed that online social support has a significant positive relationship with procrastination whereas loneliness remained non-significant. In Block 4, internet addiction appeared significantly positively related to procrastination by adding 4% variance in the model. Overall, the model explains 17% variance in predicting procrastination.

Discussion

The main objective of the study was to explore the antecedents and consequences of internet overuse. Internet overuse was taken as synonymous to internet addiction based on the criteria adapted from *DSM-IV* (4th ed., American Psychiatric Association, 1994) by Young (1998). For achieving the objectives of the study, the analyses of the study were carried out by using two regression models. In the first model, roles of personality factors (extraversion, neuroticism), loneliness and online social support in internet addiction were explored. In the second model, personality factors (neuroticism, extraversion), loneliness, online social support, and internet on procrastination were investigated. For both models, effect of demographic variables was controlled.

Results of first regression model (Table 2) indicate that demographic variables (age, gender and level of education) have no impact on internet addiction. Though this does not support hypothesis 3; however, the results are consistent literature on this subject as mixed findings about the relationship of internet addiction with gender and age have been reported in earlier research (Egger & Rauterberg, 1996; Kandell, 1998; Kubey, Lavin, & Barrows, 2001; Leung, 2004; Scherer, 1997). Petrie and Gunn (1998) also found that problematic internet use was equally distributed among men and women. As internet use is increasing day-by-day in the present world, every individual may be equally liable to get addicted to the internet. This may indicate that internet addiction is not limited to any specific age, gender, or educational level.

Table 2 also indicates significant positive relationship of internet addiction with neuroticism, loneliness, and online social support, thereby supporting the first hypothesis. Results of present study are consistent with the findings of Wolfradt and Doll (2001); Amichai-Hamburger and Ben-Artzi (2003); and Hardie and Tee (2007). As a neurotic individual feels anxious and lonely (Neto & Barros, 2000), s/he is more likely to turn to the internet for engaging in different pleasurable activities and for deriving online social support. Furthermore, lonely (both emotionally and socially) individuals are equally likely to indulge in the overuse of internet for satisfaction of their social interaction needs. Loneliness and online social support explain maximum variance in internet addiction, indicating that lonely individuals prefer internet as a medium of communication, as it provides diverse opportunities for interpersonal communication such as social networking. Thus, they begin to rely on the internet for social

support (Caplan, 2003; Moody, 2001) and may develop internet addiction.

Table 2 also reveals that there is non-significant relationship between extraversion and internet addiction, which does not support the second hypothesis. It may be argued that the primary motivation for internet use among extraverts is interpersonal communication and not the compulsive use of internet as cited by Kraut, Kiesler, Boneva, Cummings, Helgeson, and Crawford (2002). Serin (2011) suggested that the extraverts are equally interactive in face-to-face as well as online settings. Thus, they may be able to use internet for social interaction without risk of internet addiction.

The second regression model (Table 3) indicates that internet addiction significantly positively predicts procrastination after controlling the effects of demographic variables, extraversion, neuroticism, and online social support, thereby supporting our hypothesis 4. Internet may provide a medium of distraction, leading to procrastination. The more one is likely to get sidetracked while using the internet, the more s/he is likely to procrastinate on important tasks. Aimless internet surfing often results in negligence of important academic or professional tasks. The results are consistent with the findings of previous studies (Lavoie & Psychyl, 2001; Davis, Flett, & Besser, 2002; Wrestcho, 2006). Furthermore, positive relationship between procrastination and neuroticism indicates that pleasurable internet activities are preferred by neurotic individuals to avoid feelings of distress and anxiety. Procrastinators may also obtain online support from internet by indulging in social networking while putting off important tasks. Thus, it may be argued that higher neuroticism may lead to internet overuse as individuals engage in pleasurable activities for avoiding stress and for deriving online social support. Internet overuse, in turn, leads to procrastination, which further leads to negative consequences such as poor academic performance, increased anxiety and stress, poor interpersonal relationships, and more reliance on internet activities.

Limitations and Suggestions

The present study involved only two personality factors (extraversion and neuroticism). All of the Big Five Personality Factors could be studied in association with internet addiction to enrich the results. Other variables such as parental surveillance and self-esteem may also be studied as predictors of internet addiction. For example, family dynamics and parental attitudes may lead an individual to

develop internet addiction, or being away from home may remove the constraints associated with over-use of the internet.

The instruments used in the present study were translated into Urdu. It would be appropriate if instruments are indigenously developed to represent local culture and practices related to internet overuse. Some methodological constraints also limited the scope of this study. Future research may be based on a larger and more representative sample consisting of a broader age range. For a wider context, individuals belonging to various fields may be invited to participate in the study. Sample size may also be increased for more representative results, and for exploring group differences in demographics with respect to internet addiction and procrastination.

Implications of the Present Study

As indicated by the results of the study, the personality trait of neuroticism may be a risk factor for internet addiction. Strategies for controlling internet addiction among individuals with neuroticism need to be developed, such as real-life interactive situations facilitating them to overcome loneliness, internet addiction, and procrastination.

A positive relationship between loneliness, online social support, and internet addiction indicates that feelings of loneliness compel the individuals to depend on online networking for social support. Internet usually provides much social support (through social networking, chat rooms, etc), the lonely individuals may begin over-using the internet to get rid of emotional and social emptiness. Individuals may be encouraged to identify feelings of loneliness and to tackle them in a constructive manner, for example, by expanding one‘s face-to-face social circle or by becoming part of a bigger social network.

Internet addiction may lead to procrastination, which may further lead to poor academic performance of students. Furthermore, the interpersonal relationships of students are also likely to suffer as time spent online increases. The possible risks of internet addiction and consequences of delaying important academic tasks need be highlighted. Parents, teachers, and members of civil society need to monitor the internet use habits of students.

Interventions for Internet Addiction and Procrastination

Internet addiction and procrastination seem to be responsible for students wasting much of their time online. Efforts need to be directed

to restrict this disabling scenario. Internet users may save themselves from addiction and procrastination by strictly following their schedule and by an organized surfing of the internet (Vermeer, 2012). They may divide their tasks into subtasks and make a timed schedule to help them complete their tasks on time without allowing any idle internet browsing. Problematic use of internet may also be avoided by using a separate computer or browser just for work, which may help to avoid procrastination.

Conclusion

The results reveal that neuroticism, loneliness, and online social support seem to be positively associated with internet addiction. Extraversion does not show a significant relationship with internet addiction. Gender, age and level of education are found to have no significant effect on internet addiction. Neuroticism, online social support, and internet addiction also show a significant positive association with procrastination.

References

Akin, A., & Iskender, M. (2011). Internet Addiction and Depression, Anxiety and Stress. *International Online Journal of Educational Sciences, 3*(1), 138-148. Retrieved from https://www.researchgate.net/profile/Murat_Iskender/publication/264550590_Internet_addiction_and_depression_anxiety_and_stress/links/549aa8ee0cf2d6581ab26eb7.pdf

Akhter, N. (2013). Relationship between internet addiction and academic performance among university undergraduates. *Educational Research and Reviews, 8*(19), 1793-1796. doi:10.5897/ERR2013.1539.

Ali, S., & Aslam, R. E. (2008). A Study about the Uses of Internet in Pakistan. *European Journal of Social Sciences*, *6*(4), 92-107. Retrieved from http://documents.mx/documents/uses-of-internet-in-pakistanresearch-by-doctor-shehzad-ali.html

American Psychiatric Association. (1994). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.). Washington, DC: American Psychiatric Association.

American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text revision). Washington, DC: Author.

American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

Amichai-Hamburger, Y. (2005). Personality and the Internet. In Y. Amchai-Hamburger (Ed.), *The Social net: Human behavior in cyberspace* (pp. 27-55). New York: Oxford University Press.

Amichai-Hamburger, Y., & Ben-Artzi, E. (2003). Loneliness and Internet use. *Computers in Human Behavior*, *19,* 71-80. doi:10.1016/S0747-5632(02)00014-6

Ansari, Z. A. (2008). Internet and the changing pattern of interpersonal communication. *Frontier Women University Journal of social Psychology, 2*, 54-61.

Asdaque, M. M., Khan, M. N., & Rizvi, S. A. A. (2010). Effect of internet on the academic performance and social life of university students in Pakistan. *Journal of Education and Sociology*, *4*, 21-27.

Azher, M., Khan. R. B., Salim, M., Bilal, M., Hussain, A., & Mehvish, H. (2014). The Relationship between Internet Addiction and Anxiety among students of University of Sargodha. *International Journal of Humanities and Social Science, 4*(1), 288-293. Retrieved from http://www.ijhssnet.com/journals/Vol_4_No_1_January_2014/33.pdf

Balduf, M. (2009). Underachievement among college students. *Journal of Advanced Academics*, *20*(2), 274-294. doi:10.1177/1932202X090200020 4

Ball, S. A., & Schottenfeld, R. S. (1997). A five-factor model of personality and addiction, psychiatric, and AIDS risk severity in pregnant and postpartum cocaine misusers. *Substance Use and Misuse, 32*(1), 25-41. doi:10.3109/10826089709027295

Beard, K., & Wolf, E. (2001). Modification in the proposed diagnostic criteria for internet addiction. *Cyber Psychology and Behavior*, *4*, 377-383. doi:10.1089/109493101300210286

Blackburn, C., & Read, J. (2005). Using the Internet? The experiences of parents with disabled children. *Child: Care, Health and Development, 31*, 507-515. doi:10.1111/j.1365-2214.2005.00541.x

Blinka, L., & Šmahel, D. (2009). *Problematic internet use in the Czech Republic: Comparison across age groups*. Presented in the conference on quality of life in child and adolescent mental health. European Society for Child and adolescent Psychiatry. Budapest. Retrieved from: http://ivdmr.fss.muni.cz/english/...Groups.pdf

Brenner, V. (1997). Psychology of computer use: XLVII. Parameters of internet use, abuse and addiction: The first 90 days of the internet usage survey. *Psychological Reports, 80*, 879-882. doi:10.2466/pr0.1997.80.3.879

Butler, C. (2002). *Postmodernism: A very short introduction.* New York: Oxford University Press.

Campbell, A. J., Cumming, C. R., & Hughes, I. (2006). Internet use by the socially fearful: Addiction or therapy?. *Cyber Psychology and Behavior*, *9*(1), 69-81. doi:10.1089/cpb.2006.9.69

Caplan, S. E. (2003). Preference for online social interaction: A theory of problematic internet use and psychological well-being. *Communication Research*, *30*(6), 625-648. doi:10.1177/0093650203257842

Chen, Y. F., & Peng, S. (2008). University students' Internet use and its relationships with academic performance, interpersonal relationships, psychosocial adjustment, and self-evaluation. *Cyber Psychology and Behavior*, *11*(4), 467-469. doi:10.1089/cpb.2007.0128.

Chen, S. W., Gau, S. S., Pikhart, H., Peasey, A., Chen, S. T., & Tsai, M.C. (2014). Work Stress and Subsequent Risk of Internet Addiction among Information Technology Engineers in Taiwan. *Cyber Psychology and Behavior*, *17*(8), 542-50. doi:10.1089/cyber.2013.0686.

Costa, P. T., & McCrae, R. R. (1980). Still stable after all these years: Personality as a key to some issues in adulthood and old age. In P. B. Baltes & O. G. Brim, (Eds.). *Life span development and behaviour* (3rd ed., pp. 65-102). New York: Academic Press.

Costa, P. T., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI), professional manual*. Odessa: Psychological Assessment Resources.

Costa, P. T., & McCrae, R. R. (2006). Trait and factor theories. In J. C. Thomas and D. L. Segal (Eds.). *A comprehensive handbook of personality and psychotherapy: Personality and everyday functioning,* (Vol. 1, pp. 96-114). New Jersey: John Wiley & Sons.

Cummings, J. N., Sproull, L., & Kiesler, S. B. (2002). Beyond hearing: Where real-world and online support meet. *Group Dynamics: Theory, Research and Practice, 6*, 78-88. doi:10.1037//1089-2699.6.1.78

Davis, R. A. (2001). A cognitive-behavioral model of pathological Internet use. *Computers in Human Behavior, 17*(2), 187-195. http://dx.doi.org/10.1016/s0747-5632(00)00041-8

Davis, R. A., Flett, G. L., & Besser, A. (2002). Validation of a new scale for measuring problematic Internet use: Implications for pre-employment screening. *Cyber Psychology and Behavior, 5*, 331-345. doi:10.1016/s0747-5632(00)00041-8

Dietz, F., Hofer, M., & Fries, S. (2007). Individual values, learning routines and academic procrastination. *British Journal of Educational Psychology*, *77*(4), 893-906. doi:10.1348/000709906x169076

Egger, O., & Rauterberg, M., (1996). *Internet behavior and addiction* (Unpublished M.Sc thesis). Swiss Federal Institute of Technology, Zurich. Retrieved from http://alexandria.tue.nl/repository/books/587150.pdf

Engelberg, E., & Sjoberg, L. (2004). Internet use, social skills and adjustment. *Cyber Psychology and Behavior, 7*, 41-47. doi:10.1089/109493 104322820101.

Fiore, N. A (2006). *The Now Habit: A strategic program for overcoming procrastination and enjoying guilt-free play*. New York: Penguin Group.

Fogel, J., Albert, S. M., Schnabel, F., Ditkoff, B. A., & Neugut, A. I. (2002). Internet use and social support in women with breast cancer. *Health Psychology, 21*, 398-404. doi:10.1037/0278-6133.21.4.398

Griffiths, M. (1999). Internet addiction: Fact or fiction? *The Psychologist*, *12*(5), 246-250. Retrieved from http://www.academia.edu/429664/Griffiths_M.D._1999_._Internet_addiction_Fact_or_fiction_The_Psychologist_Bulletin_of_the_British_Psychological_Society_12_246-250

Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models. In Mervielde, I., Deary, I., De Fruyt, F. & Ostendorf, F. (Eds.) *Personality psychology in europe,* (Vol. 7, pp. 132-137). Tilburg: Tilburg University Press.

Goldberg, L. R. (2000). *International Personality Item Pool: A Scientific Collaboratory for the Development of Advanced Measures of Personality and Other Individual Differences* [online]. Available: http://ipip.ori.org/ipip/.

Gombor A., & Vas, L. (2008). Comparing Internet affinity and the Big Five personality factors between Hungarian and Israeli medical students. *The Internet Journal of World Health and Societal Politics*, *5*(2). Retrieved from http://ispub.com/IJWH/5/2/10704

Ha, Y. M., & Hwang, W. J. (2014). Gender differences in internet addiction associated with psychological health indicators among adolescents using a national web-based survey. *International Journal of Mental Health and Addiction, 12*(5), 660-669. doi:10.1007/s11469-014-9500-7

Hardie, E., & Tee, M.Y. (2007). Excessive internet use: The role of personality, loneliness and social support networks in internet addiction. *Australian Journal of Emerging Technologies and Society*, *5*, 34-47. Retrieved from http://ictaugustine.pbworks.com/f/Excessive+Internet+Use.pdf.

Hussain, A., & Pervez, S. (2001). *Attitude of teenagers towards internet relay chat* (Unpublished M.Sc thesis). National Institute of Psychology, Quaid-e-Azam University, Islamabad, Pakistan.

Javed, M., & Iqbal, M. W. (2010). *A study of internet addiction amongst college level students* (Unpublished research report). Bahawalnagar Campus of Psychology. The Islamia University of Bahawalpur, Pakistan.

John, O. P. (1990). The big five factor taxonomy: Dimensions of personality in the natural language and in questionnaires. In Pervin, L.A. (Ed.), *Handbook of personality theory and research* (pp. 66-97). New York: The Guilford Press.

John, O. P., Robins, R. W., & Pervin, L. A. (2008). Handbook of Personality: Theory and research. (3rd ed.). New York: Guilford Publications.

Kandell, J. J. (1998). Internet addiction on campus: The vulnerability of college students. *Cyber psychology & Behavior, 1*(1), 11-17. doi:10.1089/cpb.1998.1.11

Khan, K. A., Khan, A. A., & Bhatti, R. (2011). Internet access, use and gratification among university students: A case Study of the Islamia University of Bahawalpur, Pakistan. *Chinese Librarianship: An International Electronic Journal, 31.* Retrieved from *URL:* http://www.iclc.us/cliej/cl31KKB.pdf

Kim, K., Ryu, E., Chon, M. Y., Yeun, E. J., Choi, S. Y., Seo, J. S., & Nam, B. W. (2006). Internet addiction in Korean adolescents and its relation to depression and suicidal ideation: A questionnaire survey. *International Journal of Nursing Studies*, *43*, 185-192. doi:10.1016/j.vijnurstu.2005.02.005

Klassen, R. M., & Kuzucu, E. (2009). Academic procrastination and motivation of adolescents in Turkey. Educational Psychology, *29*(1), 69-81. doi:10.1080/01443410802478622

Kraut, R., Kiesler, S., Boneva, B., Cummings, J. N., Helgeson, V., & Crawford, A.M. (2002). Internet paradox revisited. *Journal of Social Issues, 58,* 49-74. doi:10.1111/1540-4560.00248

Kubey, R. W., Lavin, M. J., & Barrows, J. R. (2001). Internet use and collegiate academic performance decrements: Early findings. *Journal of Communication, 51,* 366-382. doi:10.1111/j.1460-2466.2001.tb02885.x

Lavoie, J. A. A., & Pychyl, T. A. (2001). Cyberslacking and the procrastination superhighway: A web-based survey of online procrastination, attitudes, and emotion. *Social Science Computer Review*, *19*(4), 431-444. doi:10.1177/089443930101900403

Lay, C. H. (1986). At last, my research article on procrastination. *Journal of Research in Personality, 20*(4), 474-495. doi:10.1016/0092-6566(86)90127-3

Leung, L. (2004). Net-generation attributes and seductive properties of the Internet as predictors of online activities and Internet addiction. *Cyber Psychology and Behavior, 7*(3), 333-348. doi:10.1089/10949310412913 03

Lewin, K. (1935). *A dynamic theory of personality.* New York: McGraw Hill.

Locke, J. L. (1998). *Devoicing of society: Why we don't talk to each other anymore.* New York: Simon and Schuster.

Matsumoto, D., & Juang, L. (2012). *Culture and Psychology* (5th ed.). New York: Cengage learning.

McKenna, K. Y. A., & Bargh, J. A. (2000). Plan 9 from cyberspace: The implications of the internet for personality and social psychology. *Personality and Social Psychology Review*, *4*(1), 57-75. doi:10.1207/S15327957PSPR0401_6.

McKenna, K. Y. A., Green, A. S., & Gleason, M. E. J. (2002). Relationship formation on the Internet: What's the big attraction? *Journal of Social Issues*, *58*(1), 9-31. doi:10.1111/1540-4560.00246

Mesch, G. S. (2012). Technology and youth. *New Directions for Youth Development, 2012*(135), 97-105. doi:10.1002/yd.20032

Moody, E. J. (2001). Internet use and its relationship to loneliness. *Cyber Psychology and Behavior*, *4*, 393-401. doi:10.1089/109493101300210303

Morahan-Martin, J. (2005). Internet abuse—addiction? disorder? symptom? alternative explanations? *Social Science Computer Review*, *23*(1), 39-48. doi:10.1177/0894439304271533

Morahan-Martin, J., & Schumacher, P. (2000). Incidence and correlates of pathological Internet use among college students. *Computers in Human Behavior*, *16*(1), 13-29. doi:10.1016/s0747-5632(99)00049-7

Nawaz, I., & Pervez. (1999). *Attitude of teenage internet users and their parents towards internet* (Unpublished M.Sc thesis). National Institute of Psychology, Quaid-e-Azam University, Islamabad, Pakisatn.

Neto, F., & Barros, J. (2000). Psychosocial concomitants of loneliness among students of Cape Verde and Portugal. *The Journal of Psychology, 134*(5), 503-514. doi:10.1080/00223980009598232

Oldfield, B., & Howitt, D. (2004). *Loneliness, social support and Internet use.* Paper presented in the conference on Internet Research, Department of Psychology, University of Sussex, England.

Peplau, L. A., & Perlman, D. (1982). *Loneliness: A Sourcebook of Current Theory, Research, and Therapy.* New York: Wiley Interscience.

Petrie, H., & Gunn, D. (1998). *Internet "addiction": The effects of sex, age, depression and introversion*. Paper presented at the conference of the British Psychological Society, London.

Rajani, M. K., & Chandio, M. S. (2004). Use of Internet and its effects on our society. A paper presented for the National Conference on Emerging Technologies, Department of Psychology, University of Jamshoro, Pakistan. Retrieved from http://www.szabist. edu.pk/Publications/Session%20VIII%20Paper%20No%202%20(P%20157-161).pdf

Robinson, J. P., Shaver, P. P., & Wrightsman, L. S. (1991). *Measures of personality and social psychological attitudes*. San Diego: Academic Press.

Russell, D., Peplau, L. A., & Ferguson, M. L. (1978). Developing a measure of loneliness. *Journal of Personality Assessment, 42*(3), 290-294. doi:10.1207/s15327752jpa4203_11

Sanders, C., Field, T., Diego, M., & Kaplan, M. (2000). The relationship of internet use to depression and social isolation among adolescents. *Adolescence*, *35*(138), 237-242. Retrieved from http://search.proquest.com/openview/1987360effdc745e976735c9bfa0e850/1?pq-origsite=gscholar

Scherer, K. (1997). College life on-line: Healthy and unhealthy internet use. *Journal of College Student Development, 38*, 655-665. Retrieved from https://www.researchgate.net/publication/279556817_College_Life_On-Line_Healthy_and_Unhealthy_Internet_Use.

Schouwenburg, H., & Lay, C. (1995). Trait procrastination and the big-five factors of personality. *Personality and Individual Differences*, *18*(4), 481-490. doi:10.1016/0191-8869(94)00176-S

Sellinger, M. (2004). *Connected schools*. London: Premium Publishing.

Serin, B. N. (2011). An examination of predictor variables for problematic *internet* use. *Turkish Online Journal of Educational Technology*, *10*(3), 54-62. Retrieved from http://eric.ed.gov/?id= EJ9449 27

Shaw, L. H., & Gant, L. M. (2002). In defense of the Internet: The relationship between internet communication and depression, loneliness, self-esteem, and perceived social support. *Cyber Psychology and Behavior, 5*, 157-171. doi:10.1089/109493102753770552

Silverman, T. (1999). The internet and relational theory. *American Psychologist, 54*, 780-781. doi:10.1037/0003-066x.54.9.780

Sirios, F. M. (2014). Absorbed in the moment? An investigation of procrastination, absorption and cognitive failures. *Personality and Individual Differences, 71*, 30-34. doi:10.1016/j.paid.2014.07.016

Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin*, *133*(1), 65-94. doi:10.1037/0033-2909.133.1.65

Suhail, K., & Bargees, Z. (2006). Effects of excessive internet use on undergraduate students in Pakistan. *Cyber Psychology and Behavior*, *9*(3), 297-307. doi:10.1089/cpb.2006.9.297

Terracciano, A., Löckenhoff, C. E., Crum, R. M., Bienvenu, O. J., & Costa, P. T. (2008). Five-factor model personality profiles of drug users. *BMC Psychiatry, 8*(1), 22. doi:10.1186/1471-244x-8-22

Thakkar, N. (2009). Why Procrastinate: An investigation of the root causes behind procrastination. *Lethbridge Undergraduate Research Journal, 4*(2), 1-12. Retrieved from https://www.uleth.ca/dspace/handle/10133/124

Uzun, A. M., Unal, E., & Tokel, S. T. (2014). Exploring internet addiction, academic procrastination and general procrastination among pre-service ICT teachers. *Mevlana International Journal of Education (MIJE), 4*(1), 189-201. doi:10.13054/mije.14.18.4.1.

Van Eerde, W. (2003). A meta-analytically derived nomological network of procrastination. *Personality and Individual Differences*, *35*, 1401-1418. doi:10.1016/S0191-8869(02)00358-6

VanGelder, S. C. (2003). Internet Addiction: Is the Internet a ~~"p~~athological agent" includable as a disorder separate from other psychiatric diagnoses?. *Journal of Addictive Disorders, 44,* 1-20. Retrieved from http://www.breining.edu.

Vermeer, A. (2012). How to Generally Reduce Procrastination. Retrieved from https://alexvermeer.com/limit-procrastination/

Weiss, R. S. (1973). *Loneliness: The experience of' emotional and social isolation.* Cambridge, Mass: MIT Press.

Wang, H., Zhou, X., Lu, C., Wu, J., Deng. X., Hong, L. (2011) Problematic internet use in high school students in guangdong province, China. *PLoS ONE*, *6*(5). doi:10.1371/journal.pone.0019660.

Watson, D. C. (2001). Procrastination and the five-factor model: A facet level analysis. *Personality and Individual Differences, 30*(1), 149-158. doi:10.1016/S0191-8869(00)00019-2

Whang, L. S., Lee, S., & Chang, G. (2003). Internet over-users psychological profiles: A behavior sampling analysis on internet addiction. *Cyber Psychology and Behavior*, *6*(2), 143-149. Retrieved from http://www.uam.es/personal_pdi/psicologia/pei/download/whang2003.pdf

Widyanto, L., & Griffiths, M. D. (2011). An empirical study of problematic internet use and self-esteem. *International Journal of Cyber Behavior, 1*(1), 13-24. doi:10.4018/ijcbpl. 2011010102

Widyanto, L., & McMurran, M. (2004). The psychometric properties of the Internet Addiction Test. *Cyber Psychology and Behavior, 7*(4), 445-453. doi:10.1089/cpb.2004.7.443

Wittenberg, M. T. (1986). *Emotional and Social Loneliness: An examination of social skills, attributes, sex role, and object relations perspectives* (Unpublished doctoral dissertation), Department of Psychology, University of Rochester, USA.

Wolfradt, U., & Doll, J. (2001). Motives of adolescents to use the Internet as a function of personality traits, personal and social factors. *Journal of Educational Computing Research, 24*(1), 13-27. doi:10.2190/anpm-ln97-aut2-d2ej

Wretschko, G. (2006). *Problematic internet use, flow, and procrastination in the workplace* (Unpublished doctoral dissertation), University of Witwatersrand, Johannesburg. Retrieved from http://mobile.wiredspace.wits.ac.za/bitstream/handle/10539/7122/Gisela%20Wretschko%20-%20Dissertation.pdf?sequence=1.

Yadav, P., Banwari, G., Parmar, C., & Maniar, R. (2013). Internet addiction and its correlates among high school students: A preliminary study from Ahmedabad, India. *Asian Journal of Psychiatry*, *6*(6), 500-5. doi:10.1016/j.ajp.2013.06.004.

Yang, S. C., & Tung, C. J. (2007). Comparison of internet addicts and non-addicts in Taiwanese high school. *Computers in Human Behavior, 23*(1), 79-96. doi:10.1016/j.chb.2004.03.037.

Young, K. (1996). Internet addiction: The emergence of a new clinical disorder. *Cyber Psychology and Behavior*, *3*, 237-244. Retrieved from http://www.netaddiction.com/articles/newdisorder.pdf

Young, K.S. (1998) *Caught in the Net: How to recognize the signs of Internet addiction and a winning strategy for recovery.* New York: John Wiley & Sons.

Zamani, B. E., Abedini, Y., & Kheradmand, A. (2011). Internet addiction based on personality characteristics of high school students in Kerman,

Iran. *Addict and Health*, *3*(3-4), 85-91. Retrieved from http://www.ncbi.nlm .nih.gov/pmc/articles/PMC3905535/

Zarick, L. M., & Stonebraker, R. (2009). I'll do it tomorrow the logic of procrastination. *College Teaching, 57*(4), 211-215. Retrieved from http://faculty.winthrop.edu/stonebrakerr/research/procrastination.pdf

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