



# An Investigation of the Problematic Internet Use of Teacher Candidates Based on Personality Types, Shyness and Demographic Factors\*

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## Abstract

Researches proved that a new psychological disorder of problematic Internet use was associated with individual characteristics as loneliness, shyness, anxiety, depression, personality type, and self-cognition. But there appears to be little consensus about Problematic Internet Use disorder. Consequently the aim of study was to investigate correlation between Problematic Internet Use and individual characteristics. The research was carried out in Kafkas University, department of Turkish Education, elementary science education, classroom teaching, psychological counseling and guidance and early childhood education with 453 students. Problematic Internet Use Scale, The Eysenck Personality Questionnaire and Shyness Scale were administered to the study. In conclusion as a result of the research carried out, it was determined that there was a significant relationship between gender and department and this effect on the duration of the weekly Internet use and problematical Internet use, but that location Internet was connected to did not have any effect on problematical Internet use. While there was no significant relationship between class levels, there was a significant relationship between the age at which Internet was initially used and the lower dimension of excessive problematical Internet use. When problematical Internet use was examined for change dependent on the Internet use objectives, it was determined that students that played on-line games, chatted on the Internet and downloaded programs from the Internet were more liable to problematical Internet use. When it was examined whether personality types (lying, extraversion, neuroticism, introversion, psychosis) and shyness were precursors to problematical Internet use it was seen that, lying neuroticism and social benefit and Internet's negative effects were significant predictors of problematical Internet use and excessive use. In conclusion of the research it was seen that extraversion and psychosis were not predictors both in terms of problematical Internet use total points and also lower dimensions as well.

## Key Words

Problematic Internet Use, Personality Type, Shyness, Gender.

Using the Internet has rapidly become widespread, and it is attracting the attention of researchers not only with its for its positive impact on education, communication, occupational development, free time activities, and creativity (Brenner, 1997; Kraut

et al., 1998; Kubey, Lavin, & Barrows, 2001; Kuhlemeier & Hemker, 2007; Parks & Roberts, 1998), as well as its more negative impact in the fields of excessive computer use, invasion of privacy, violence in some games, and Internet addiction (Rice & Markey, 2009). Emphasizing the negative impact of Internet researchers have revealed that excessive Internet use can turn into an addiction and this can harm social relationships and persons that use Internet excessively gradually reduce their communication with their family and friends while placing more importance on friendships and relations in this virtual medium (Brenner, 1997; Parks & Robert, 1998; Young, 2004).

Even though the Internet use for ill intentions or excessive Internet use is referred as the Internet ad-

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diction or problematic Internet use in literature, no consensus has been reached to describe this pattern yet. Therefore, the same pattern is also named as the pathological Internet use, compulsive Internet use (Widyanto & Griffiths, 2006), cyberspace addiction, online addiction, and net addiction (Davis, Flett, & Besser, 2002; Hur, 2006) as well.

The problematic Internet use is defined as "the individual is not able to repress their desire for excessive Internet use and feels anxiety and burden when deprived, and this situation in turn affects their daily lives adversely" (Douglas et al., 2008). Goldberg (Young, 1998) describes the compulsive and excessive Internet use initially as "neurotic and irritable state when deprived". On the other hand, Shapira et al. (2003) has conceptualized this pattern as an impulse control disorder, defined as tension and excitation experienced before Internet use and relaxation and increase in pleasure sensation after Internet use. Shapira et al. (2003) have referred to the criteria used in the book DSM-IV (American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders), published by the American Psychiatric Association and including diagnostic criteria for psychiatric disorders, and they have indicated that individuals being prone to the problematic Internet use must have two characteristics. These characteristics are defined as "(1) excessive Internet use losing track of the time or engagement in the Internet with an irresistible impulse, (2) starting to have problems in relationships with friends, family, and work". Whereas, Rice (2005) has preferred to use the Internet addiction concept rather than the problematic Internet use term and defined this pattern as predisposition to compulsive Internet use interfering with the normal flow of the individual's life.

In recent years, studies on the interruptive variables for problematic Internet use have increased. The influence of demographic variables such as gender, age, class level, Internet access, computer and Internet introduction age, etc. and the influence of the personal differences such as personality type, loneliness, self-confidence, and self-efficacy on the problematic Internet use have been investigated (Shapira et al., 2003). The literature has revealed that demographic characteristics such as age (youngsters under the age 25 are more inclined), gender (males are more inclined) and class level (freshmen university students are more inclined) have an effect on the problematic Internet use (Brenner, 1997; Kubey et al., 2001; Morahan-Martin & Schumacher, 2000; Scherer,

1997). Some of these investigations have manifested that women and men use the Internet for different purposes (Colley & Maltby, 2008; Kim & Davis, 2009). Whereas women use the Internet for scanning general and academic information, communicating, maintaining romantic relationships, and shopping in general, men use the Internet for playing games, listening to music, watching movies and downloading various programs and software mostly. These studies have also shown that problematic Internet use behavior of men is more prevalent than that of women's (Kim & Davis, 2009; Morahan-Martin & Schumacher, 2003). However, some studies have reported that the problematic Internet use does not vary significantly with gender (Chak & Leung, 2004; Odacı, 2011). There are also a number of studies manifesting that women are more inclined to the problematic Internet use than men (Bölükbaş, 2003; Ceyhan & Ceyhan, 2007; Kubey et al., 2001; Odacı & Kalkan, 2010; Öztürk, Odabaşoğlu, Eraslan, Genç, & Kalyoncu, 2007; Scherer, 1997).

Amichai-Hamburger and Ben-Artzi (2000) think that there is relationship between the problematic Internet use and personality type and note that neurotic individuals use the Internet to ease their loneliness and communicate with other people without having face-to-face contact. It was demonstrated that especially neurotic women find the Internet communication more suitable for them and prefer on-line communication to face-to-face communication (Amichai-Hamburger, Wainapel, & Fox, 2002). Other researchers, on the other hand, have demonstrated that computer communication medium may support and facilitate for neurotic people to chat in the Internet since it is a more flexible medium enabling the persons to control what they say and write an answer whenever they want and maintaining an anonymous communication (Curtis, 1997; McKenna, 1998; Ward & Tracey, 2004).

In recent years, researchers have studied the relationship between cyber world established by means of the Internet and inhibition, which leads to serious problems in some individuals. At this point researchers are attempting to answer which one of these augments the effect and frequency of the other. Inhibition is defined as the anxiety and nervousness in individuals when they reveal their thoughts or reactions in their interpersonal relations, and it includes feelings such as quietness, concern, tension and anxiety. Timid individuals have difficulty to communicate with others even though they are

eager to communicate with them since they have low esteem and have difficulty managing this desire. Therefore, they go out less often, speak less and prefer to be isolated from many social stages. Thus, timid people who limit social communications have trouble in meeting new people and establish friendships, and in turn they have trouble in enjoying social settings as well (Zimbardo, 1977 cited in Saunders & Chester, 2008). It is known that people with higher inhibition levels are less outgoing, lonely, depressed and have lower self-confidence (Peterson, 1988). Therefore, it is thought that whether the Internet users who spend more time in the virtual world than the real world tend to do so since they are timid or whether there is a relationship between the shyness and problematic Internet use. However, it is not clear yet whether the recent wide Internet use leads to inhibition or timid people are inclined to the obsessive and problematic Internet use.

National literature reveals that problematic Internet use is related to the high population of young people, widespread Internet use rate and socio-economic factors such as unemployment in Turkey (Öztürk et al., 2007). A section of the investigations focuses on the adolescents especially. There are studies conducted, such as the role of the Internet on adolescent development (Bayraktar, 2001); problematic Internet use in teenagers who have psychiatric problems and who do not (Tahiroğlu et al., 2010); loneliness, depression and self-esteem levels as predictors of problematic Internet use (Turnalar-Kurtaran, 2008); Internet addiction profiles in adolescents (Odabaşoğlu, Öztürk, Genç, & Pektaş, 2007); and again Internet addiction profile in adolescents (Günüç & Kayri, 2010). Investigations conducted on university students manifest that the primary studies in this field are on the Internet and its use especially. Ayaröğlu (2002) investigated the relationship between the Internet use and loneliness among female and male university students and Akınoğlu (2002) studied the effects of the Internet and computer use on prospective teachers who study different fields. On the other hand, Gürçan-Namlu and Ceyhan (2003) investigated the relationships between the computer anxiety and demographic characteristics, perceived personality characteristics and computer experiences of the prospective teachers, and they did not find a significant relationship between these variables.

Some of the studies on the problematic Internet use in the national level were conducted in the psychiatric field (Köroğlu et al., 2006; Odabaşoğlu et al., 2007) and other psychiatric disorders accompany-

ing problematic Internet use specifically were investigated. On the other hand, Ceyhan and Ceyhan (2007) studied the relationship between the problematic Internet use levels and focus of control, antisocial tendency and social norm adjustment levels. They demonstrated that focus of control and antisocial tendencies are significant predictors of the problematic Internet use behavior, and adjustment to social norms is not a significant predictor. Tutgun (2009) studied the problematic Internet use of prospective teachers in terms of various demographic properties. This study revealed that male students inclined to the Internet use more than females, and that freshmen students had tendency more than the senior students did. It was also manifested that prospective teachers who use the Internet for more than 5 years and more than 8 hours a day are more inclined to the Internet use as well. Based on the field variable, students enrolled in the *CEIT* (Computer Education and Instructional Technology) department were more prone to the problematic Internet use however there was no significant variation in the problematic Internet use among science-mathematics, social fields and fine arts departments. Çağır and Gürçan (2010) investigated the relationship between the problematic Internet use levels and perceived good behavior and loneliness levels of high school and university students, and found a positively significant relationship between the problematic Internet use and loneliness and a negatively significant relationship with good behavior.

There are scale studies on the problematic Internet use in the national literature as well. Keser-Özcan and Buzlu (2005) developed "cognitive-state scale in the Internet" for determining the problematic Internet use among university students and Ceyhan, Ceyhan and Gürçan (2007) developed the "problematic Internet use scale", and Günüç and Kayri (2010) developed the "Internet addiction scale" for determining Internet addiction among adolescents.

Studies in the literature reported that university students who have Internet access obligation and opportunities more prevalent than those of the other individuals in the society exhibit higher levels of problematic Internet use risks than those of the other groups (Morahan-Martin & Schumacher, 2003). Hence, Ceyhan and Ceyhan (2007) and Ceyhan et al. (2007) emphasized that university students are more vulnerable to negative effects of the Internet since the university setting presents easier and faster Internet access and the Internet

is used for more number of purposes. They indicate that university students are a rather significant group to study the problematic Internet use. Furthermore, they report that university students are faced with establishing close relationships with their surroundings owing to developmental characteristics of the young adolescent stage they are in and that they become a significant risk group for the problematic Internet use. Therefore, they emphasize that there is need for various researches to understand Internet use behavior and problematic Internet use of university students. This matter is more substantial for university students who are prospective teachers specifically. It is vital that prospective teachers who are to raise next generations stand in front of the students as role models who are competent in social relationships and successful in family and professional relationships. Based on these reports and national literature on the subject, it is clear that there are no investigations conducted to reveal the relationship between personality types and inhibition.

The study demonstrates whether the problematical Internet use shows any significant differences related to demographic factors (gender, class level and department, and location of Internet access). At the same time it was aimed to examine the relationship between personality type and shyness and Internet use duration and problematical Internet use. In this context the sub-problems of the research were stated as follows:

1. Do problematical Internet use and PIUS's sub-scales show a significant difference in comparison to gender, class level and department, and location of Internet access?
2. Is there a significant relationship between problematical Internet use and PIUS's sub-scales and duration of Internet use and the age at which Internet was initially used?
3. Is there a significant relationship between problematical Internet use PIUS's sub-scales and the intended use?
4. Is there a significant relationship between problematical Internet use and PIUS's sub-scales and personality types (lying, extraversion, neuroticism, introversion, psychosis) and shyness?

### Method

#### Model and Participants

The research was conducted using the relational scan model (Karasar, 2005). In this model the degree of mutual change between two or more vari-

ables is examined. The research population consisted of 453 students from the Kafkas University, Education Faculty, department of Turkish education (n=68), psychological counseling and guidance (n=64), elementary science education (n=47), classroom teaching (n=105) and early childhood education (n=93). The groups gender composition was %46.5 female (n=210) and %53.5 male (n=243).

#### Measurement Tools

A personal information form to determine the participating student's gender, age, department, class, and data on their Internet access was used. Together with this a questionnaire prepared by the researchers in order to determine the students Internet use objectives. In order to determine the level of problematical Internet use of the students, "Problematical Internet Use Scale" (PIUS) developed by Ceyhan, Ceyhan and Gürcan (2007), in order to determine the students personality types "Eysenck's Personality Type Scale" was adopted for Turkish by Karancı, Dirik, and Yorulmaz (2007) and in order to determine the shyness level of the students the "Shyness Scale developed by Cheek (1990) and adopted to Turkish by Güngör (2001) was used.

### Results

#### Findings on Gender

The students problematical Internet use shows a significant difference when analyzed by gender ( $t_{(451)}=5.03, p<.01$ ). At the end of the analysis it was seen that the men both in the total ( $\bar{x}=61.95$ ) and at the sub dimensions of PIUS had higher points than girls ( $\bar{x}=52.80$ ). This situation shows that men have more tendency toward problematical Internet use in comparison to girls.

#### Findings Related to Class Level

Class level did not show a significant difference for the PIUS's sub scales which were excessive use ( $F_{(3, 450)}=1.08, p>.05$ ), or social benefit and comfort ( $F_{(3, 450)}=.93, p>.0$ ), negative effects of Internet ( $F_{(3, 450)}=.269, p>.05$ ) and the problematical Internet use total points ( $F_{(3, 450)}=1.50, p>.05$ ).

#### Findings Related to the Departments

When problematical Internet use was analyzed in relation to the departments it was determined that Elementary Science Education students had more significantly higher points in the PIUS Internets negative

effects sub dimension, ( $\bar{x}=24.01$ ) both compared to department of Turkish education students ( $\bar{x}=23.61$ ) and the Early Childhood Education students ( $F_{(5, 448)}=2.78, p<.05$ ). Also the total problematical Internet use points of Elementary Science Education students ( $F_{(5, 448)}=1.08, p>.05$ ) was significantly higher than the Early Childhood Education students. This finding can be interpreted as the fact that Science teachers were more inclined towards problematical Internet use in comparison to Early Childhood Education and Turkish education students.

#### Findings Related to Computer Access

Although there was no significant difference for the total PIUS, Internets negative effects sub-scale and the social benefit-comfort sub-scale points between students with and without computers; the students with computers in the excessive use sub-dimension had higher points ( $t_{(451)}=2.13, p<.05$ ). This finding can be interpreted as students who have a computer have a tendency for excessive Internet use. However computer access did not create a significant difference for the PIUS total and other sub-factors. In this context if a person is inclined to excessive Internet use they do not necessarily need to have their own computer. They will be able to access the Internet from different sources such as Internet cafes or school or friends.

#### Findings Related to Internet Access Location

The Internet access location did not show a significant difference in relation to total PIUS and sub-scales. This finding can be interpreted as the Internet access location doesn't have a significant effect on problematical Internet use.

#### Findings Related to Computers and the Age at Which Internet was used

As a result of the analysis using the Pearson coefficient on the replies to the "How old were you when you first used a computer and Internet?" question which was evaluated in respect of the relation between total PIUS and sub-scales, a negative and significant relation ( $r=-.17, p<.01$ ) was found for excessive Internet use sub-dimension. This finding can be interpreted in a way that students who start using the internet and computers at an early age tend to use the internet problematically. The fact that the relation between the total PIUS and other sub-scales and the Internet use age was not significant, can be interpreted as, the Internet use age cannot be linked to problematical Internet use.

#### Findings Related to Internet Use Duration

The correlation test carried out showed that the relation between problematical Internet use and its sub-scales and the weekly Internet hours use ( $r=.38, p<.01$ ), was significant and in a positive direction (between the negative effects of Internet and the use duration ( $r=.40, p<.01$ ); social benefit and comfort sub-scale and use duration ( $r=.28, p<.01$ ); excessive use and Internet use duration ( $r=.27, p<.01$ )). In addition to these analyses the group was divided into as those using the Internet for longer than 10 hours and those using it for less and a t test and total PIUS points were evaluated. The results of this analysis supported the other findings and showed that students using the Internet for longer than 10 hours (PIUS;  $\bar{x}= 55.15$ ), in comparison to those using it less than 10 hours (PIUS;  $\bar{x}= 69.52$ ) were more inclined for problematical Internet use ( $t_{(451)}=-6.06, p<.01$ ).

#### Findings Related to Internet Use Objectives Questionnaire

In order to determine the students Internet use objectives, a questionnaire comprising 6 articles was used. The questionnaire questions that could be answered with a simple "Yes" or "No" were each analyzed with the t-test for unrelated measurements.

**Findings Related to Item 1:** While there was no significant difference between students saying "Yes" to the question "I carry out scientific research on the Internet" and those saying "No" in terms of PIUS total, negative effects of Internet and the social-comfort sub-scales; the points of those that said no on the sub dimension of excessive use ( $\bar{x}=15.93$ ) was significantly higher ( $t_{(451)}=2.34, p<.05$ ) than those saying yes ( $\bar{x}=14.37$ ). This finding can be interpreted as those students that use the Internet for scientific research do not have the tendency for excessive Internet use.

**Findings Related to Item 2:** Between the students that said "yes" and "no" to the question "I play online games on the Internet." there was a significant difference for excessive use ( $t_{(451)}=5.40, p<.01$ ), social-benefit comfort ( $t_{(451)}=3.38, p<.01$ ), Internets negative effects sub-scale ( $t_{(449)}=4.52, p<.01$ ) and the total PIUS points ( $t_{(451)}=5.27, p<.01$ ). This finding can be interpreted as those students saying they play online games on the Internet are more inclined for problematical Internet use than those who said they didn't.

**Findings Related to Item 3:** Although there was

no significant difference between students that said "yes" and "no" to the "question *"I listen to music on the Internet, watch films, and download programs,* in the sub scales of excessive Internet use, social-benefit comfort; there was a significant difference for sub scales of negative effects of Internet ( $t_{(451)} = 2.49, p < .01$ ) and total PIUS points ( $t_{(451)} = 2.18, p < .05$ ). It was also seen in the total PIUS points ( $\bar{x} = 59.67$ ) of students that "yes" to the question *"I listen to music on the Internet, watch films and download programs"* and those said "no" and their sub scale of negative effects of Internet ( $\bar{x} = 55.44$ ) had significantly higher points.

**Findings Related to Item 4:** There was no significant difference in the total PIUS points ( $t_{(451)} = .28, p > .05$ ) and sub scales the between students that said "yes" and "no" to the "question *"I read the daily news from the Internet"*.

**Findings Related to Item 5:** There was a significant difference in terms of total PIUS points and sub-scales of social-benefit comfort, negative effects of Internet, excessive Internet use between students that said "yes" and "no" to the *"I chat on the Internet"* question. The students having said "yes" to this question had significantly higher points in both total PIUS points ( $\bar{x} = 62.40$ ), and in the three sub scales than those that said "no" ( $\bar{x} = 51.86$ ).

This finding can be interpreted as those students having said yes to the question of Internet chat are more inclined towards problematical Internet use than those that said no.

**Findings Related to Item 6:** There was no significant difference between students that said "yes" and "no" to the question *"I use Internet for e-mails."* in terms of total PIUS points, negative effects of Internet, and the social-benefit comfort sub scales; but the points of those that said "yes" in the excessive sub scale ( $\bar{x} = 55.03$ ), was significantly higher ( $t_{(451)} = 2.17, p < .05$ ) than those said "no" ( $\bar{x} = 13.73$ ). This finding can be interpreted as those students that use the Internet for emails are more inclined towards problematical Internet use than those having said no.

#### **Finding Relating to Personality Types and Shyness**

In this study it was aimed to examine the relationship between personality type and shyness and Internet use duration and problematical Internet use and the sub-factors of problematical Internet use such as excessive use, social benefit, and the negative effects of Internet.

According to the results of the regression analysis carried out in predicting the total points from the

problematical Internet use that was obtained from the personality types and shyness scale, there was a medium level significant relationship between problematical Internet use and personality types and shyness ( $R = 0.33, R^2 = 0.11, p < .01$ ) When the T-tests in respect of the significance of the regression coefficients was examined it can be seen that lying, neuroticism, and shyness were all predictors on problematical Internet use. Extraversion and psychosis is not significantly related.

According to the results of the regression analysis carried out in predicting the excessive use lower dimensions of PIUS in respect of personality types and shyness, there was a medium level significant relationship between personality types and shyness and lower dimensions of excessive use ( $R = 0.26, R^2 = 0.07, p < .01$ ). When the t-tests in respect of the significance of the regression coefficients were examined it can be seen that, only lying and neuroticism are significant predictors on the lower dimensions of excessive Internet use. Extraversion and psychosis and shyness do not have a significant effect on the lower dimension of excessive use, PIUS.

According to the results of the regression analysis carried out in predicting the lower dimensions of social benefit PIUS against personality types and shyness, there was a medium level significant relationship between personality types and shyness and social benefits lower dimension ( $R = 0.38, R^2 = 0.14, p < .01$ ). When the t-tests in respect of the significance of the regression coefficients were examined it can be seen that, only lying, shyness, and neuroticism are significant predictors on the social lower dimensions of benefits. Extraversion and psychosis and shyness do not have a significant effect on the social lower dimensions of benefits.

According to the results of the regression analysis carried out in prediction of the PIUS negative effects of Internet according to personality types and shyness, personality types, (lying, extraversion, neuroticism, introversion, psychosis) and shyness have a medium level significant relationship with lower dimensions of the negative effects of Internet ( $R = 0.26, R^2 = 0.07, p < .01$ ). When the T-tests in respect of the significance of the regression coefficients was examined it can be seen that only lying, neuroticism, and shyness are significant predictors on the lower dimensions of the negative effects of Internet extraversion and psychosis is not significantly related to the lower dimensions of the negative effects of Internet. This finding can be interpreted as follows; individuals with neurotic and introverted traits that also lie are affected by the negative effects of Internet. Extraversion and psychosis and shyness do not have a significant effect

on the negative effects of Internet.

### Discussion and Conclusion

Today, the importance of Internet in accessing and sharing information, is on the increase, and the fact that its positive and negative effects on the youth is also on the increase has created the need to carry out research on problematical Internet use. It is from this perspective, whether demographic features (gender, class level, computer ownership, Internet access location, the age at which Internet use was initiated and the duration of Internet use) that were considered to be related to problematical Internet use and Internet use objectives influenced problematical Internet use was examined within the scope of this study. At the same time whether personality types (extraversion, neuroticism and lying and psychosis) also acted as a predictor in problematical Internet use was examined.

As a conclusion of the research carried out it was determined that there was a significant relationship between gender and department and the weekly Internet use times and its effect on problematical Internet use; and in addition there was a significant relationship between the existence of a computer at the domicile (home or hostel) of the students and the lower dimensions of excessive Internet use. However contrary to expectations, the location of connection to the Internet did not have an effect on the problematical Internet use. Thus, it can be concluded that students with Internet addiction tendencies can achieve access to the Internet, even if not in their homes (Arisoy, 2009; Odabaşoğlu et al., 2007; Young, 1998).

Another finding in the study is that gender has a significant effect on the problematic Internet use and males are more prone to the problematic Internet use than females. However, there is no consensus formed in the literature regarding which gender is in the risk group for the problematic Internet use (Chang & Law, 2008). Whereas some researchers establish that women are more inclined to the problematic Internet use (Leung, 2004; Soule, Shell, & Kleen, 2003; Young, 1998), some reveal that men are more prone to Internet addiction (Chou & Hsiao, 2000; Scherer, 1997).

Findings on the effect of the class level on the problematic Internet use demonstrate that there are no significant differences among classes in terms of the problematic Internet use, as similar to Brenner's (1997) study. Notwithstanding, there are studies in the literature reporting that freshmen university students are more prone to Internet addiction (Kubey et al., 2001; Morahan-Martin &

Schumacher, 2000; Scherer, 1997; Tutgun, 2009).

The age of introduction to Internet is a factor that is related to problematical Internet use (Ko, Yen, Liau, Huanga, & Yen, 2009). However in this study a significant relationship between age of introduction to Internet and problematical Internet use and Internets negative effects, and the lower dimensions of social benefits was not found but a significant relationship between excessive uses was found. This finding indicates that as the age of introduction to Internet gets smaller, the tendency for excessive use increases and tendency for problematical Internet use also increases as well.

Investigations were conducted to reveal whether the problematic Internet use varies according to the Internet use purposes. It was clear that students who play on-line games, chat in the Internet, and download programs in the Internet are more prone to the problematic Internet use than students, who do scientific research in the Internet, keep up with daily news, and use the Internet for electronic mail forwarding and receiving. Moreover, it was reported that students who use the Internet for social networking (to interact and chat with other people) are more prone to the problematic Internet use (Caplan, 2002; Douglas et al., 2008; Li & Chung, 2006). Furthermore, students who use the Internet to pass time are more prone to obsessive Internet use than those who use the Internet for study purposes (Montag, Jurkiewicz, & Reuter, 2010). This finding points to the relationship between the problematic Internet addiction and social networking (face book, twitter, etc.). The finding also manifests that individuals, who engage in on-line games, discussion forums and chat tools enabling synchronous communication within the social networking feel more accepted by the society, owing to the social relationships established in the virtual platform and thus receive emotional support and spend hours in these virtual environments (Douglas et al., 2008). In this context, it can be stated that students who are prone to the problematic Internet use access the Internet more for entertainment activities such as listening to music, watching movies, chatting, downloading various software and programs and playing on-line games. Similarly, van Rooij, Schonmakers, van de Eijnden and van de Mheen (2010) reported that individuals who play on-line games are more prone to the problematic Internet use. On the other hand, there are investigations supposing that playing on-line games may be described as a sub group of the problematic Internet use as well (Ng & Wiemer-Hasting, 2005; Wan & Chiou, 2006). In any case, it was clear that students who use the

Internet for conducting research, reading daily news and e-mail processes perceive the Internet as a tool and are not inclined to the problematic Internet use (van Rooij et al., 2010). Li and Chung (2006) defined the Internet use with four dimensions as the social function, informative function, time-spending function and virtual affectivity function of the Internet. They expressed that the relationship between the informative function and problematic Internet use is at a low level in comparison to the other functions because the individuals who access the Internet for informative functions use the Internet for purposes that are more limited and in a controlled manner. Future investigations should study research questions concerned with the "obsessive on-line players" concept as a sub category of the problematic Internet use. Furthermore, future investigations should focus specifically on the effects of gender on on-line games, e-mailing, on-line shopping and information sharing, which are the components of the Internet addiction.

In this study it was examined whether personality types (lying, extraversion, neuroticism, introversion, psychosis) and shyness were predictors of problematical Internet use; it was seen that lying, neuroticism and shyness were significant predictors in terms of problematical Internet use and lower dimensions of the negative effects of Internet of excessive use, social benefits. However, it was determined that extraversion and psychosis do not have a significant effect on problematical Internet use. This finding can be interpreted as those individuals with traits of shyness and whose personality types lay on the lower dimensions of neuroticism and lying have a tendency towards problematical Internet use. A similar study carried out by Amichai-Hamburger and Ben-Artzi (2000), concluded that neurotic individuals were more prone to use the Internet in order to compensate for the feelings of loneliness. Also the same study emphasized that as the communication that is facilitated by Internet enables individuals to control what they want to say and to reply when they wish which makes it a flexible medium and thus makes it easy and encourages neurotic individuals to chat via Internet (Amichai-Hamburger, Winapel, & Fox, 2002). In addition, studies that show people with high levels of shyness are more introverted (neurotic,) lonely, depressive and have lower self-confidence (Peterson, 1988) existence of studies that show shy and neurotic individuals have started to spend more time in the virtual world as opposed to the physical world can be used as evidence to show that shy individuals find the Internet more suitable for social intercourse and communication. In addition to this, in their study that evalu-

ated the relationship between problematical Internet use and shyness Chak and Leung (2004), stated that shy individuals had a higher tendency toward problematical Internet use. As result of the study it was determined that extraversion and psychosis are not predictors for both total points for problematical Internet use and its lower dimensions. The fact that extraverts do not feel comfortable in the Internet medium is significant from the perspective of the research. This finding can be taken to validate the fact that extraverts loving to participate in various groups and parties, who have many friends and do not like to be alone and that are talkative and enterprising and who have active social activities (Pişkin, 2004) do not find spending time on the Internet attractive and they prefer face to face communication. On the other hand the fact that there was no relationship between problematical Internet use and psychosis, and psychotic individuals that are defined by their, egotistical, aggressive behavior that is uncompassionate and are individuals that lack feeling for others interests and their rights, also create problems in society and intentionally disturb people, can be interpreted as a lack of tendency by these people toward problematical Internet use problematical Internet use.

In other words, inhibited persons who have more limited interpersonal relationships, avoid interactions and are anxious to converse with others and thus prefer not to communicate face-to-face with others (Güngör, 2001) feel more comfortable in the Internet environment rather than in face-to-face settings to express their thoughts. This finding shows similarities with the meta-analysis study (Engelberg & Sjoberg, 2004) manifesting the problematic Internet use tendencies of timid people. In addition, Chak and Leung (2004) stated in a research evaluating the relationship between the problematic Internet use and inhibition that shy persons have higher tendencies for the problematic Internet use.

Research results show that extraversion and psychotics are not predictors both for the total score of the problematic Internet use and sub-dimensions. Extravert individuals do not feel at ease in the Internet environment and this finding is rather significant for the research. This data may be interpreted as a deduction verifying that extravert persons who enjoy participating in various groups and entertainment parties, have many friends, and do not like to stay alone and are outgoing, talkative, friendly, and active in social relationships (Pişkin, 2004) prefer face-to-face communication because they do not find the Internet interesting to pass time. On the other hand, the lack of a significant relationship be-



tween psychotics and the problematic Internet use may be interpreted that psychotic individuals, described as selfish, aggressive, insensitive, insensible to rights and well-being of others and create problems in the society and annoy other people on intention (Yazgan-İnanç & Yerlikaya, 2009), are more prone to the problematic Internet use.

In conclusion it can be said that neuroticism, lying, and shyness are predictors of teachers' candidates in terms of problematical Internet use. On the other hand attributes such as gender, department, location of Internet access, Internet use duration have significant effect on problematical Internet use. In the light of these results, protective guidance programs can be developed for teacher candidates in order prevent the rapidly increasing negative effects of Internet use on the teacher candidates and to promote awareness and provide information on the subject. The implementation of these programs can be in the form of optional/elective courses that illustrate the negative effects of Internet and guidelines on its productive and functional use.

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