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INTERNET ADDICTION

1. Introduction

With the expansion of Internet accessibility, newspapers started reporting on the phenomenon of Internet addiction; for example in Great Britain in 1995, in the USA in 1996 (Griffiths 1998). In 1995 Newsweek reported that 2-3% of Internet users who spent most of their leisure time on-line were addicted to the Internet. Just as television had been once, the Internet, too, was accused of contributing to the decay of family values, morals and the emergence of other social ills (Pratarelli, Browne & Johnson 1999). Perhaps the first empirical survey regarding the excessive use of the Internet that can lead to addiction was carried out in 1996 by K.S.Young (Griffiths 1998), followed by others (Brenner 1997; Egger 1996; Thompson 1996, qtd. in Griffiths 1998). The results of this survey triggered an ongoing debate among experts from various fields (physicians, psychologists, sociologists) about whether a person can become addicted to the Internet (Chou, Chou & Tyan 1998; Gackenbach & Ellerman 1998; Griffiths 1998; Grohol 1999; Healy 1999; Joinson 1998; Tapscott 1998; Wallace 1999; Young 1996, 1997, 1998) and what distinctions could be made between the "standard" types of addiction to drugs — the so called substance addictions — and the addiction to the Internet as behavioral addiction (Larkin & Griffiths 1998; Morse et al. 1998; Pratarelli Browne & Johnson 1999).

The aim of the present article is to establish whether Internet addiction exists, and if it does, what are its definitions and which are the typical signs of Internet addiction. The article also examines the existing surveys on Internet addiction and compares their results to the results of an empirical study on the signs of Internet addiction conducted in the year 2000 among the population of Slovene students in the third year of secondary school.

2. The definitions of Internet addiction

Certain individuals use a certain substance in certain ways, thought at certain times to be unacceptable by certain other individuals for reasons both certain and uncertain. (Burglass & Shaffer 1984, qtd. in Larkin, Griffiths 1998)

Young's (1996) use of the concept of Internet addiction in her pioneer study triggered a heated debate about the issue among various experts. Before that, the terms technological addiction (Griffiths 1998) and computer addiction (Shotton 1991, qtd. in Griffiths 1998) had already been used. I agree with Larkin and Griffiths's opinion that any definition of addiction bears serious consequences, especially for the following groups: people generally categorized as addicted, people having problems with addict-like behavior who have not yet been categorized as addicted, people whose status will change with the change of the definition, the social support service network responsible for each of these three groups, the researchers who study this phenomenon and politicians.

The question is whether Internet addiction exists at all, and if it does, how to define it. Opinions on the subject differ, but they could be categorized as follows:

1. Some think that only chemical substances physically ingested into a body can cause addiction.
2. Some believe that the expression «addiction» can only be used in the case of drug consumption (Rachlin 1990; Walker 1981, qtd. in Young 1999). Most surveys about addicted individuals have been limited to samples of alcohol and drug abusers, who were at the time being treated for addiction (Craig 1995; Lang 1983, qtd. in Greenberg, Lewis & Dodd 1999). But the question what can be designated as a drug remains open.
3. Some researchers have widened the scope of the concept of addiction in order to include behavior not resulting from consuming a substance — for example: gambling (Griffiths 1990, 1995, qtd. in Griffiths 1998 and Young 1999), playing computer games (Keepers 1990, qtd. in Young 1999; Griffiths 1993, qtd. in Griffiths 1998), overeating (Lesieur & Blume 1993, qtd. in Young 1999; Orford 1985, qtd. in Griffiths 1998), excessive physical exercise (Glosser

1976, qtd. in Griffiths, 1998; Morgan 1979; Furst & Gerome, qtd. in Young 1999), pair bonding (Peele & Brodsky 1975, qtd. in Young 1999), excessive watching of television (Winn 1983, qtd. in Young 1999), the Internet (Young 1996, 1999; Griffiths 1998; Pratarelli, Browne & Yohnson 1999).

In the past, research has been oriented towards the addicted individual demanding treatment or reacting inappropriately for a given social structure. More recently, research has focused on the phenomenon of addiction among the student population because the student population is not alienated from the social environment and does not differ radically from the average population. This implies that the potential population of addicts is changing. Considering the extended definition of addiction, we are all potential candidates for some type of addiction. With such a broad concept, the question of whether addiction is a disease or just purely symptomatic, appears to be imminent. In other words: where is the boundary between the normal and the abnormal.

3. The signs of Internet addiction

If we accept that Internet addiction actually exists, the following question should be asked: how do we recognize an Internet addict? Young (1996) developed a short questionnaire with 8 questions adapted from the criteria for the pathological gambling disorder (following the Diagnostic and Statistical Manual of Mental Disorders — 4th Edition). Young (1996) set the criteria according to which all her respondents who scored five or more affirmative responses were operationally defined as "Internet-dependent", but such a definition seems arbitrary and unattested for. She supports her choice by the fact that the number five corresponds to the standard used for the pathological gambling disorder. That same year, Goldberg (qtd. in Chou, Chou & Tyan 1998) defined 6 criteria for the definition of — as he calls it — the Internet Addiction Disorder (IAD), that is, a disorder caused by Internet addiction. The **first criterion** is tolerance; the **second criterion** is withdrawal, the **third criterion** is related to a more frequent and longer use of the Internet than initially planned. The **fourth criterion** applies to a constant desire or failed attempts of reducing or controlling Internet use. The **fifth criterion** is a large amount of time spent on activities connected

to Internet use (on-line purchase of books, testing out new browsers etc.). The **sixth criterion** is the neglect of important social, professional or other activities and uninterrupted use of the Internet even when physical, social, professional and psychological problems arise.

Griffiths (1998) claims that the following types of behavior are characteristic of Internet addicts:

1. Salience — This occurs when the particular activity becomes the most important activity in the person's life and dominates their thinking (preoccupations and cognitive distortions), feelings (cravings), and behavior (deterioration of socialized behavior).

2. Mood modification — This refers to the subjective experiences that people report as a consequence of engaging in the particular activity and can be seen as a coping strategy (i.e., they experience an arousing "buzz" or a "high" or paradoxically tranquilizing feel of "escape" or "numbing").

3. Tolerance — This is the process whereby increasing amounts of the particular activity are required to achieve the former effects.

4. Withdrawal symptoms — These are the unpleasant feeling states and/or physical effects that occur when the particular activity is discontinued or suddenly reduced (e.g., the shakes, moodiness, irritability, etc.).

5. Conflict — This refers to the conflicts between the addict and those around them (interpersonal conflict), conflicts with other activities (job, social life, hobbies and interests), or from within the individual themselves (intrapsychic conflicts) that are concerned with the particular activity.

6. Relapse — This is the tendency for repeated reversions to earlier patterns of the particular activity to recur and for even the most extreme patterns typical of the height of the addiction to be quickly restored after many years of abstinence or control.

Analyzing the criteria of all three authors, some convergence and overlapping can be found. All three mention a high level of tolerance in the time of use (if a person increases the time of usa in order to achieve a former effect, this is a sign of addiction); the loss or neglect of important professional, social or other activities due to prolonged use of the Internet

(this feature is designated by Griffiths as the conflict with other people and activities) and a crisis in the form of anxiety, neurosis, agitation at the reduction or interruption of Internet use. Both Young and Griffiths mention that the subjects feel overcharged with Internet activities, while Young and Goldberg also mention that the individuals fail to control Internet use and use the Internet for a time longer than originally planned. Only Young mentions lying about Internet use and about using the Internet to escape from problems. Griffiths mentions the change of mood as a sign of addiction, and, along with Goldberg, the continuation of its use despite numerous problems. Goldberg also mentions a criterion that is, considering all of the surveys, probably not valid, i.e. that the addicts mostly engage in activities somehow connected with Internet use.

In the opinions of many experts, the main obstacle for the study of this problem in the future is the denial of the existence of addiction, which is due to a positive social attitude towards the Internet and the encouragement of its usage for the purposes of work and education.

4. The problems of diagnosing Internet addiction

Compared to drugs in the narrow sense of the word, the Internet is socially much more acceptable and positively evaluated, as it allows for many different types of activities. A part of its popularity is due to books emphasizing the psychological and functional advantages of Internet use in everyday life (Rheingold 1993, qtd. in Turkle 1995), not to mention all the user's guides and handbooks. According to Young (1999), the main problems for diagnosing Internet addiction are to be found in the following factors:

1. The Internet is a highly publicized technological device, which renders the definition and diagnosis of Internet addiction very difficult.

2. As of yet, there are no generally accepted criteria for defining Internet addiction. The disorder defined as «pathological gambling» appears to be most similar to the definition of Internet addiction. If we take addiction to gambling as a model, we might define Internet addiction as an impulse control disorder.

We could conclude that the main difficulty lies in the definition of the terms themselves. What is Internet addiction, what are its signs, how many of the signs are necessary in order to diagnose addiction,

what role does the time of use play, who is addicted to the Internet and how to identify problems?

5. Method

The research included secondary school population, i.e., 1194 students in the 3rd year of twenty different secondary schools in Ljubljana. 465 students attended vocational schools, 289 technical schools and 440 grammar schools. 678 of the students were female and 516 were male. The classes were chosen randomly.

Materials and procedures

A questionnaire of a wider scope was developed, but present article focuses only on the addiction scale. I used an adapted sign scale developed by K.S. Young. Her scale consisted of 20 questions. For this survey, the questions were turned into statements. Those irrelevant for the student population participating in the survey were deleted. Thus I designed a scale of fourteen positive and negative claims and tested it on a pilot sample. The students were supposed to answer with 1–5, where 1 = I disagree completely, 2 = I disagree, 3 = I partly agree, 4 = I agree, 5 = I agree completely.

1. I always stay on-line longer than planned.
2. I never neglect school because of the time spent on the Internet.
3. I spend more time on-line than with my friends.
4. I have met many people through the Internet.
5. Others constantly complain that I spend too much time on-line.
6. I always check my e-mail before everything else.
7. If somebody asks me what I do on the Internet, I always answer nicely and tell the truth.
8. I can't wait to get back on-line.
9. Without the Internet, my life would not be as happy, interesting and fulfilled.
10. If anyone disturbs me while I'm on-line, I turn angry and nasty.
11. I never loose any sleep because of the Internet.
12. I do not feel overcharged because of the Internet.
13. If anyone asks me how long I have been on the Internet, I try to conceal the truth.
14. I prefer going out with my friends to spending time on the Internet.

I conducted a factor analysis, using the principal components analysis and oblimin rotation. The averages and standard deviations (SD) were calculated for individual variables. Only the students who marked their answers were included.

Results and discussion

Factor analysis — the principal components factor analysis and oblimin rotation — excluded two factors. The first factor accounted for 48% of the entire variance, the second for 9%. Together they accounted for 57% of the entire variance.

The study of individual factor loadings did not prove strongly expressed common attributes, since all of the questions referred to signs of addiction. As both methods of factor extraction produced two factors, the first of which was strongly positively loaded, and the second one strongly negatively loaded, I considered a one-dimensional scale to be the appropriate way of presenting these results. The fact that the first factor accounted for almost 50% of the variance, while the second one only accounted for 9%, their correlation being 0.57, should also be considered. The reliability of the sign scale of addiction was tested according to the Cronenbach's alpha. In this case, Alpha was very high, 0.9157, which implies a high level of reliability.

We can conclude that — compared with the highest possible sum of 70 points — the students displayed few signs of addiction, which is also confirmed by the sum of averages (30, 51 points). (The N differs for individual variables, but the deviations are small and the sum of averages can give us a satisfactory picture of the state of all variables.) The results are so low that it is possible to say that the survey among 3rd year students of Ljubljana secondary schools proved that the students display very few signs of addiction. Thus the question whether it is at all plausible to speak of the phenomenon of Internet addiction remains open. But the truth is that a survey on drug addiction among the whole population would probably show the same low percentage of addicts. The highest results are those referring to controlling the use, which implies that the Internet is a highly attractive medium, so that it often happens that students use it for a period of time which is longer than planned. Next come the results of the statement that the students neglect

school due to the prolonged use of the Internet. In the third place comes the variable referring to how the subjects cannot wait to get back on-line and lose sleep over the Internet, how they check e-mail boxes first, meet new people via the Internet and get annoyed when asked about what they are doing on-line is. In this case they become unfriendly and resort to lying. Other variables follow. The reason is probably the fact that the Internet is not yet overly accessible and most of the students are unable to use it everyday.

As the sample included few students with many signs of addiction, I decided to conduct an analysis of the extremes in order to compare the students with more signs of addiction to those with fewer signs. I was interested in whether there are any statistically relevant differences between those displaying more signs, who could be designated as addicts, and the non-addicted students. From the group of all the students who answered the questions referring to addiction (981 subjects, including those who did not answer all of the questions), I created a group of students who scored highly on average (giving answers 4 or 5 and therefore displaying many signs of addiction) and another group of students scoring low, answering mostly with 1 or 2 (displaying few signs). I found that no one gave the highest answers (4 or 5) to all of the 14 variables. There was only one person who answered 5 to 12 variables.

I selected approximately 10% from the two samples, the upper and the lower extremes. The second group included all the students who chose 4 or 5 to answer five or more variables. There were 128 such students, or 13% of all the students. These represented the upper extreme. In the first group, I selected those who chose 1 or 2 to answers thirteen or fourteen variables. There were 147 such students, or 15% of all the students. These represented the lower extreme. Comparing the extremes, we can see that in the lower extreme (the students who answered mostly with 1 or 2) the majority of students were female, i.e. 107 (73%). In the upper extreme (the students who answered mostly with 4 or 5) the opposite is true; most of the students were male (77, or 60%), only 40% were female. A comparison as to the kind of school indicated that in the lower extreme nearly half of the students attended grammar schools (71, or 48%), they were followed by students attending

technical secondary schools (39, or 27%) and vocational schools (37, or 25%). In the upper extreme, the picture was again reversed. Most of the students attended vocational schools (66, or 52%), they were followed by the students attending technical secondary schools (32, or 25%) and grammar schools (30, or 23%). As to the place of origin of the students, no important differences between the extremes could be found, perhaps somewhat contrary to expectations. In both extremes, the majority consisted of students living at home — in the lower extreme 128 (87%) of the students lived at home, 16 (11%) were boarders and 3 (2%) lived elsewhere. In the upper extreme, the situation was similar — 114 (89%) of the students lived at home, 10 (8%) were boarders and 4 (3%) lived elsewhere. A comparison between the extremes in terms of grades also shows there are no major distinctions among the students in both groups. In both extremes, the average grade was C (79 or 54% in the lower extreme, 64 or 50% in the upper extreme), followed in the lower extreme by students with the average grades B and D (27 or 18%), while the average grade of 9 (6%) was A and the average grade of 4 (3%) was F. In the upper extreme, the average grade of 30 students (23%) was D, the average grade of 18 (14%) was B, the average grade of 8 students (6%) was A and the average grade of 7 students (6%) was F. Those were the expected values, similar to the entire sample.

Compared to the entire sample, the students in the upper extreme used computers at home more frequently. Just under half of them used computers every day, 24% used them for accessing the Internet, 22% used them for playing computer games, 11% used them for schoolwork. This sequence was the reverse of that of the entire sample. In addition to that, the чI-test was used to find the connection of the extremes to using computers at home and at friends' or relatives' houses in order to play computer games and use the Internet. The connection to the time of use was confirmed as well. Compared to the entire sample, the students from the upper extreme used computers at home (11% for the entire sample, 31% for the upper extreme), in school, at friends' or relatives' houses and in libraries more frequently. The utilization of the Internet differed as well. In the entire sample, the students used the Internet mostly for obtaining information, while in the upper extreme,

they used it mostly for chatting and sending e-mail. The comparison of the time of use indicated that in the upper extreme sample, the percentage of staying logged on to the Internet for over two hours a day was higher. The чI-test proved a connection to having Internet access at home, in libraries and in schools, and also to its use at home, at friends' or relatives' houses and in libraries. For the type of use, the hypothesis that there is a connection between addiction and using the Internet for sending e-mail, chatting, visiting erotic web pages, downloading program equipment, newsgroups, playing computer games and recording music can be accepted.

Among the students who manifested a higher number of addiction signs, the majority was male, which confirms the idea of the Internet as a masculine domain and the stereotype image of an addict being a young male (according to Griffiths 1998). At the same time, it is typical that half of them attend vocational schools, and the other half attend technical secondary schools or grammar schools. Most of them live at home. As to their academic success, the average grade of the majority was C, followed by D, B, A and F. As far as the education of the parents is concerned, most fathers as well as mothers had a high school diploma.

6. Conclusion

The Internet offers many possibilities for various types of use, and this decreases the ability to control it or at least renders control more difficult. The survey of the 3rd year secondary school students in Ljubljana confirmed that fact. A greater number of possibilities means more diverse utilization and a longer lasting pain relief; pain in the metaphorical sense includes loneliness, the feeling of not being accepted, the pressure of society, high expectations of important people etc. In addition to other options, we can use the Internet for communicating with people all over the world. This gives the individual an opportunity to get in touch with people and establish relationships, which can be very attractive. Young (1996, 1999) is worried about this aspect of the Internet and warns against the danger it presents for introvert people and those with social contacts who have to satisfy their social needs via the Internet. The Internet also offers additional advantages, namely anonymity, the possibility of interruption whenever desired, the possibility

of forming a new identity etc. Johnson (1998) thinks that the Internet is a medium which encourages unrestrained behavior. When on-line, people feel free of restrictions, limitations, and social censure. The individual can feel safe and concealed enough to be able to show all parts of his or her personality, all the suppressed emotions and desires he or she normally cannot cope with or has to hide due to social prejudice, and to ask about things he or she hardly dares think about in everyday circumstances. On the one hand, this is probably good, as it enables people to lose prejudice, but it can also present problems in coping with the double or split identity of an individual who leads a certain kind of life on the Internet, and a completely different kind of life off-line. The main attraction of the Internet is the fact that it induces a feeling of safety and thus encourages the expression of a whole spectrum of emotions. Usually, this stimulates the user to try it again. These advantages of the Internet can easily turn into disadvantages, as they increase the addictive potential of the Internet.

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