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Use of Internet and its Addictive risk among Polish students – comparative analysis over a seven-year period

Abstract:

Our study reveals the psychosocial changes occurring in Polish students on the Internet in the last seven years. The study comprised two stages (2005 and 2012). The analyses indicated that while the Internet's intense use has lowered, the factors facilitating Internet risk addiction have become more pronounced. Such risk factors are: the manner of using the Internet (entertainment, pornography); relationships in the cyber community; and time spent online (the more time spent, the greater the risk of addiction). The lower the self-esteem the higher the risk of addiction. However, the percentage of people with Internet addiction symptoms has remained static.

Keywords:

internet addiction, use of Internet, satisfaction with life, polish students, prospective studies

Streszczenie:

W artykule zostaną zrelacjonowane badania, które dają obraz zmian w funkcjonowaniu psychospołecznym studentów polskich w Internecie na przestrzeni ostatnich siedmiu lat (2005 roku oraz 2012). Analizy wskazują, że zmieniła się intensywność użytkowania Sieci, zwiększyła się rola czynników ryzyka uzależnienia od Internetu takich jak: sposób korzystania z Sieci (rozrywka, pornografia); więzi w cyberspołeczeństwie, czas spędzany w Internecie (im więcej czasu tym większa podatność na uzależnienie). Nie zmienił się natomiast odsetek osób z objawami uzależnienia od Internetu na przestrzeni siedmiu lat.

Słowa kluczowe:

uzależnienie od Internetu, użytkowanie Internetu, satysfakcja z życia, polscy studenci, badania prospektywne

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Introduction

Our article analyses behaviours related to Internet usage by Polish students and compare these behaviours over a seven-year period (between 2005 and 2012). The first analogue Internet connection in Poland was established on 26 September 1990 (Malik, 2012). In 1994, the Polish government launched its own website. In that same year the Internet became available to all Polish citizens. The first Internet portal developed by Poles – Wirtualna Polska ("*Virtual Poland*") – was established in 1995. In April 1996, Telekomunikacja Polska offered anonymous access to the Internet via modems. In the 1990s the Internet was not widely available to the public (Rafa, 1995) and despite the Internet's huge development in the last 15 years, the quality of Internet connections in Poland and Slovakia remains very low, which limits access to this medium (Poznański P., 2010). A study conducted in 2012 by Centrum Badania Opinii Społecznej (*Public Opinion Research Center*) on a sample of 1,017 randomly chosen Poles revealed that 56% of Polish adults regularly (i.e. at least once a week) use the Internet. This figure is identical to one revealed in a similar study the year before. However, it represents a huge growth compared to 2002 when only 17% of adult Poles claimed to use the Internet regularly, and to 2006 when this figure amounted to 37%. It is expected that the number of Internet users will now grow more gradually and less spectacularly than over the last 10 years. The strongest predictors of Internet usage are age and educational background. However, the youngest generations acquire digital competencies regardless of other aspects conditioning their place in the social structure. Therefore, most of them are active Internet users. The older the subjects, the lower the number of Internet users. Almost all adult subjects with higher education use the Internet, as well as over two-thirds of respondents with secondary education. The lowest number of Internet users can be found among those subjects with only a basic education (CBOS, 2012).

Among studies concerning the influence of the Internet on human behaviour, one can identify three broad areas (Augustynek, 2001) which are closely related to the Internet's multi-functionality phenomenon:

1. Psychological determinants of Internet usage.
2. Psychological bonding aspects between the individual and the cyber community.
3. Descriptions of the predispositions towards Internet addiction (dysfunctional Internet use).

Psychological determinants in using the Internet

Internet services offered to users differ in technical requirements, number of users, and mostly in the style of communication and the goal towards which they are used. Studies

which analyse actions performed on the Internet arrive at consistent conclusions. People usually browse websites, play online, communicate with each other, look for cybersex, shop online, and download software, films and music files (Augustynek, 2010).

Internet usage style depends on several factors. A detailed analysis of this phenomenon was presented by J. Czapiński and T. Panek (2007). They found that the Internet is used more often by men than by women, and is most popular among people below 25, with at least secondary education, living in big cities, and professionally active or still learning/studying.

Psychological bonding aspects between the individual and the cyber community

The Internet has changed everyday life and blurred boundaries between the local and the global. Even more importantly, it has created new communication and interaction channels (Giddens, 2004).

J. Suler (1998) analysed the differences between virtual and real communication, which led to selecting nine differentiating factors:

- limited physical stimuli – no physical contact;
- fluidity of identity and anonymity – the ability to hide some aspects of one's identity and to create a new identity for the sake of online relations;
- equal statuses – everyone is allowed to speak their mind on the Internet, regardless of social status;
- crossing spatial boundaries – contact is possible regardless of the distance separating the interlocutors;
- stretching and concentrating time – virtual space creates a unique time space characterized by the stretching of passing time;
- availability of many contacts – no limitations regarding the number of interlocutors along with a simultaneous possibility for selecting them according to one's preferences;
- permanent recording – entire Internet conversations may be archived and saved as files;
- different states of consciousness – when sitting at a computer one may feel the control reality and may experience different states of consciousness;
- rapid conclusion of conversation – users may leave the conversation any time.

R. Kubey i M. Csikszentmihalyi (2002) said that: "For growing numbers of people, the life they lead online may often seem more important, more immediate and more intense than the life they lead face-to-face. Maintaining control over one's media habits is more of a challenge today than it has ever been" (p. 70).

Internet addiction

The debate over Internet addiction has been taking place since the mid-1990s. The official discussion regarding this subject was started unintentionally by I. Goldberg (1996), who formulated "as a joke" a set of diagnostic criteria for an imaginary, in his opinion, phenomenon called *Internet Addiction Disorder* (IAD). Paradoxically, what began as a joke soon became the current diagnostic canon. IAD syndrome is a complex and diverse phenomenon which "is characterised by an internal compulsion to stay on the Internet." The author says: "Pathological Computer/Internet Use Disorder is the suggested name for a disorder in which people overuse computers to the extent that such a use causes them distress. Such a use has a detrimental effect on their physical, psychological, interpersonal, marital, economic, or social functioning. A parallel unofficial disorder would be 'workaholism' and the parallel official DSM-IV diagnosis would be "Pathological Gambling (DSM-IV)."

Symptoms that indicate Internet addiction include:

- spending more and more time at the computer at the cost of other hobbies;
- neglecting family or professional (or school) duties because of the computer;
- family conflicts arising due to the computer;
- lying to significant others regarding the amount of time spent at the computer;
- trying to control the amount of time spent at the computer;
- spending more and more money for computer hardware, software, accessories as well as computer books and magazines;
- reacting with irritation or even aggression, when it is hard or impossible to use a computer (Woronowicz, 2001).

IAD can be found as a disorder in Diagnostic and Statistical Manual V (DSM-V) as well in (Holden, 2010). IAD as a behavioral addiction still needs further research for effective diagnostic criteria.

Internet addiction and internet use are described in the literature as Problematic Use of Internet (PIU) (Dell'Osso, Altamura, Allen, Marazziti, Hollander, 2006). Young Internet Addiction Test (IAT), which was a base for measurement in this study, is qualified as one of the methods for PIU as well (Moreno, Jelenchick, Cox, Young, Christakis, 2011). Some authors underline the compulsive nature of Internet use (Greenfield,1999; Meerkerk, Eijnden, Franken, Garretsen, 2010) by comparing Compulsive Internet Use (CIU) to Internet use and behavior. Such diversified approaches can be found to the nature of Internet Addiction and internet use as: *Excessive Internet Use* (Hansen, 2002), *Internet Addiction Syndrome* (IAS) (Jakubik, Popławska, 2003) or *netaholism, netaddiction* (Woronowicz, 2001).

The factors facilitating IAD may be inherent in the Internet itself or in the addicted person. In order to be able to exhaustively answer the question why the Internet

has addictive potential, we have to return to the issue of its many-sidedness and individually examine its various functions (the most important are its informative, communicative, economic, entertaining and technical functions). Because of these functions Internet addiction is not a uniform phenomenon. Each function constitutes a separate addictive factor; therefore at least five types of Internet addiction can be described: compulsive searching for information, downloading files; addiction to online interpersonal contact; compulsive buying, bidding in online auctions; compulsive virtual games playing, taking part in quizzes, online gambling, and so on including an addiction to cybersex and pornography as a unique type of "online addiction"; and addiction to computers themselves and the technical side of the Internet (e.g. compulsive hacking).

Several studies indicate that cyberspace is not addictive per se. However, its multifunctionality may be its addiction. This is because the Internet allows us to perform various activities and to comprehensively satisfy many human needs, such as: "information hunger", communication with other people, acceptance, and belonging to a group, freedom from restrictive behaviour norms (Suler, 1996). K. Young (1998) discovered in her studies, and other authors confirm it (Auoil, Siedlaczek, 2011; Casale, Fioravanti, 2011; Kormas, Critselis, Janikian, Kafetzis, Tsitsika, 2011; Kittinger, Correia, Irons, 2012; Fioravanti, Dettore, Casale, 2012; Durkee, Kaess, Carli, Parzer et al., 2012; Smahel, Brown, Blinka, 2012), that addicted persons are much more likely than other people to make use of services allowing interaction with other Internet users (chat rooms, online games, discussion groups, electronic mail). Therefore, interactivity seems to be one of the most crucial Internet features. The aforementioned study results suggest that higher susceptibility to Internet addiction is characteristic of persons looking online for sexual, erotic or pornographic materials (Young, 1998; Casale, Fioravanti, 2011; Kormas, Critselis, Janikian et al., 2011).

Among subjective factors that facilitate Internet addiction are – apart from a sense of internal control – coexistence of other addictions (Ko, Yen, Yen et al., 2012), mood disorder (Tsitsikai, Critselis, Louizou, et al., 2011; Christakis, Moreno, Jelenchick et al,. 2011; Muller, Ammerschlanger, Freisleder et al., 2012; Ko, Yen, Yen et al., 2012), loneliness and social anxiety (Fioravanti, Dettore, Casale, 2012; Yen, en, Chen et al., 2012; Ko, Yen, Yen et al. 2012), self-destructive behaviours (Tsitsikai, Critselis, Louizou et al., 2011), positive conditioning experiences (Aouil, Siedlaczek, 2011) and a subjective happiness (Cao, Sun, Wan et al., 2011; Akin, 2012).

The studies also indicate that addicted user's personality traits are very important. The analyses suggest that low self-esteem is also significant (Stiegr, Burger, 2010; Wartberg, Sack, Petersen, Thomasius, 2011). A personality dimension from Costa, McCrae's Five Factor Model that is most strongly correlated with dysfunctional Internet use levels is extraversion/introversion, which is manifested in the sphere of interpersonal contacts in

a manner completely different from the real world. Kraut (see also: Aouil, Siedlaczek 2011) proved that the extraversion level is a kind of "bridge" – indicating the relation between one's emotions and the way they use the Internet. People with a higher extraversion score derived more satisfaction from their online presence and demonstrated a lower sense of loneliness and higher self-esteem. On the contrary, introverts felt more lonely on the Internet, and their self-esteem was lowered (Aouil, Siedlaczek, 2011). Emotionality of Internet users in the context of susceptibility to IAD is represented by neuroticism (Andreassen, Torsheim, Brunborg, Pallesen, 2012).

Research indicates that approximately 6%-14% of Internet users met IAD criteria (Greenfield, 1996; DeAngelis, 2000). Polish research in this area is rare and based on non representative samples that are too small or on surveys conducted merely online (Kaliszewska, 2010). The number of Polish Internet users who meet IAD criteria is 12% (Poprawa, 2007).

Materials and methods

Because of the Internet's growing significance in all everyday aspects and because the Internet developed dynamically in Poland after 2000, the following aims for this study were selected:

1. Diagnosing style changes in Internet use by Polish students over a seven-year time period.
2. Diagnosing symptoms of dysfunctional Internet use (IAD symptoms).
3. Establishing a relationship between IAD symptoms and self-esteem and satisfaction with life.

Our studies were conducted in two stages. The first was carried out in 2005 and included 220 Polish students taking full-time courses in economics (Tab. 1).

In this part of the study an original tool was used – the Internet Perception Scale (Dembińska, 2005). The questions suggested by Young (1996) were used to diagnose IAD and were included in the scale. The study's second stage was conducted in 2012, and included a similar group of Polish students (232) taking courses in economics, again analysed using the Internet Perception Scale. During the second stage two additional tools were used: the Self-Esteem Scale SES (Łaguna, Lachowicz- Tabaczek, Dzwonkowska, 2007) and the Satisfaction with Life Scale SWLS (Juczyński, 2001).

The study was conducted referring to the following inclusion factor:

- First year economics majors(the main aim was not to include students majoring in Informatics);
- Full-time students.

Table 1. Characteristics of the subject group.

No.	Year of conducting the study	*N*	Women [%]	Men [%]	Mean age [years]
1.	2005	220	62.3	37.7	20.23
2.	2012	232	61.6	38.4	20.38

The study was design to maintain participant anonymity and confidentiality. To gain a representative sample, the study was conducted in class, using the traditional method: paper and pencil. Using this method enabled us to interpret results for the Polish student population.

The model used in our study- based on Augustynek's theory (2001) and exploring psychological determinants of Internet behaviour over a seven-year period, included the following variables (Fig.1.):

a) Internet usage modes - include small talk, entertainment, discussion groups, pornography, e-mail, online shopping, looking for information, and aimless surfing.
b) Addiction symptoms – according to Young's previously quoted criteria.
c) Self-esteem – generalised positive or negative attitude towards oneself, which includes a component related to beliefs and opinions concerning oneself, as well as an emotional component related to accepting and liking oneself (Łaguna, Lachowicz- Tabaczek, Dzwonkowska, 2007; Łaguna, 2010).
d) Satisfaction with life – general assessment of one's quality of life in relation to the criteria set by oneself (Juczyński, 2001).

Figure 1. Prospective research model based on Augustynek theory (2001) exploring psychological determinants of Internet behaviour over a seven-year period.

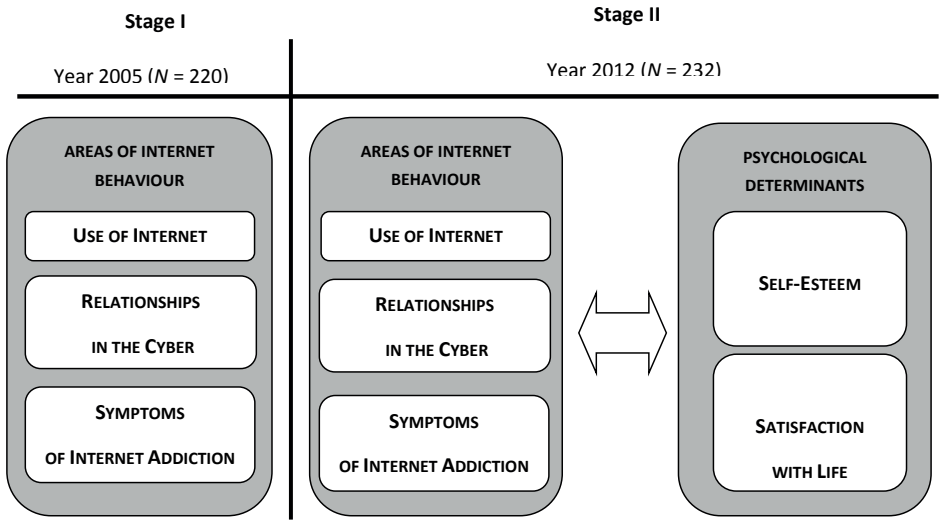

Figure 1. Prospective research model based on Augustynek theory (2001) exploring psychological determinants of Internet behaviour over a seven-year period.

Results

Our study, conducted over a seven-year period, included a comparative analysis of psychosocial aspects in using the Internet's psychological behaviour determinants among Polish students. The first aspect which reveals significant differences is the time spent online – subjects questioned in 2012 spent more time on the Internet than those questioned in 2005, $\chi^2(1, N = 452) = 98.33$, $p < .001$.

Analysis of Internet usage modes by students from both stages (Tab. 2 and Tab. 3) indicates that now and seven years ago the dominant function was information, with communication coming second.

Differences in Internet usage over time were analysed with the Kruskall-Wallis test. No statistically significant differences in Internet usage for entertainment were found, $p > .05$. However, in using other online services, statistically significant differences were revealed. At present students use the Internet less often for small talk, $\chi^2(1, N = 452) = 10.35$, $p = .001$, but use it more often for participating in discussion groups, $\chi^2(1, N = 452) = 10.49$, $p = .001$, looking for pornography, $\chi^2(1, N = 452) = 7.27$, $p = .017$, e-mailing, $\chi^2(1, N = 452) = 19.07$, $p < .001$, online shopping, $\chi^2(1,N=452) = 119.92$, $p < .001$, looking for information, $\chi^2(1, N = 452) = 9.57$, $p = .002$, and "aimless" surfing, $\chi^2(1, N = 452) = 19.52$, $p < .001$.

Table 2. Internet usage in 2005 – stage I of the study.

No.	Use of Internet	**"never" / "rarely"**		**"sometimes"**		**"often" / "always"**	
		Number of answers N	[%]	Number of answers N	[%]	Number of answers N	[%]
1.	Small talk	40	18.18	50	22.73	130	59.09
2.	Entertainment	48	21.81	83	37.73	89	40.46
3.	Discussion groups	145	65.90	60	27.28	15	6.82
4.	Pornography / cybersex	196	89.10	16	7.27	8	3.63
5.	E-mail	27	12.28	79	35.90	114	51.82
6.	Online shopping	100	45.46	103	46.82	17	7.72
7.	Looking for information	5	2.27	69	31.36	146	66.37
8.	Aimless surfing	20	9.10	97	44.10	103	46.80

Table 3. Internet usage in 2012 – stage II of the study.

No.	Use of Internet	**"never" / "rarely"**		**"sometimes"**		**"often" / "always"**	
		Number of answers N	[%]	Number of answers N	[%]	Number of answers N	[%]

1.	Small talk	49	21.1	88	37.9	95	40.9
2.	Entertainment	37	15.9	101	43.5	94	40.5
3.	Discussion groups	121	52.2	85	36.6	26	11.2
4.	Pornography / cybersex	185	79.7	33	14.2	14	6.0
5.	E-mail	8	3.4	61	26.3	163	70.3
6.	Online shopping	57	24.6	142	61.2	33	14.2
7.	Looking for information	0	0	24	27.0	65	73.0
8.	Aimless surfing	66	28.4	122	52.6	44	19.0

As mentioned before, in 2005 and again in 2012, one of the most important Internet functions is the communicative one. The subjects' relationships with the cyber community established solely through the Internet and by means of other media has not changed, $p > 0.05$, over seven years.

One of the Internet's greatest dangers is its addictive potential. Addiction symptoms were analysed during both stages. The study showed that the number of persons endangered with addiction according to K. Young's criteria has not changed significantly, $p > .05$. Internet users who met IAD criteria was approximately 12% in 2005 and 9% in 2012.

However, analysing individual symptoms revealed (Tab. 4) that the following symptoms now have a significantly higher occurrence rate: "problems with controlling time", "escaping from problems", and "undertaking unsuccessful attempts at limiting the time spent online." On the other hand, "lengthening the time spent online" is now lower. Still, "thinking about the Internet", "risk of losing relationships", "devoting an exaggerated amount of time" and "lying to significant others" is not significantly different.

Table 4. Internet addiction symptoms in the subject groups from both stages of the study.

No.	**Symptoms of Internet addiction**	**Stage I 2005**	**Stage II 2012**
1.	Controlling time**	87.3 [%]	95.7 [%]
2.	Thinking about the Internet	11.4 [%]	14.2 [%]
3.	Escaping from problems*	23.6 [%]	32.8 [%]
4.	Lengthening the time**	31.4 [%]	20.7 [%]
5.	Attempts at limiting*	19.1 [%]	27.6 [%]
6.	Risk of losing relationships	11.8 [%]	9.1 [%]
7.	Spending exaggerated amount of time	33.2 [%]	28.4 [%]
8.	Lying to significant others	8.6 [%]	11.6 [%]

*p <0.05, **p < 0.01

A very important factor facilitating addiction is the amount of time spent online. Comparative analyses reveal that at present subjects spend significantly **more time on the Internet**.

The risk of **Internet addiction correlates** with:

- low **self-esteem,** $r_s = -.25$, $p < .001$;
- contacts **limited to** the Internet, $r_s = .29$, $p < .001$, and contacts in the Internet and beyond it, $r_s = .19$, $p = .003$;
- the amount of time spent online every week, $r_s = .19$, $p = .004$;
- Internet usage rate in looking for **pornography**, $r_s = .20$, $p = .003$;

and **entertainment,** $r_s = 0.18$, $p = .007$.

The proposed model of regression turned out to be significant, $F_{4,227} = 13.49$, $p < .001$, and explains the dependent variable in 18%, $R^2 = .18$. The predictors of Internet addiction are:

- self-esteem, $\beta = -.21$, $t = -4.03$, $p = .001$;
- contacts limited to the internet, $\beta = .25$, $t = 4.03$, $p < .001$;
- time spend online every week, $\beta = .20$, $t = 3.21$, $p = .002$;
- Internet usage rate in looking for pornography, $\beta = .16$, $t = 2.60$, $p = .010$.

"Satisfaction with life" does not correlate directly with "Internet addiction", but analyses indicate that the lower the satisfaction with life, the higher:

- the time spent on online entertainment, $r_s = -.16$, $p = .012$;
- the time spent on aimless Internet surfing, $r_s = -.14$, $p = .031$;
- the time spent on online pornography $r_s = .15$, $p = .021$.

Conclusions

The Internet is an area currently experiencing dynamic development. In this context, Poland is experiencing major changes because of recent technological developments that ensured public access to the Web. The Internet is an important area of action for many people. Our studies regarding Internet usage by Polish students in the years 2005 and 2012, indicated the following:

- the intensity of Internet usage has changed (the subjects spend more time online, they spend less time on small talk, but more on discussion groups, pornography, e-mailing, shopping, looking for information and aimless surfing);
- now and seven years ago, the dominant function was informative, with the communicative function coming second;
- the factors facilitating Internet risk addiction have become more pronounced;
- the percentage of people with Internet addiction symptoms has remained static.

One reason behind increased Internet use is its growing availability society.

Our analyses revealed risk factors which positively correlate with the number of Internet addiction symptoms. Such **risk factors** are: **Internet usage** modes (entertainment, pornography); **relationships in the cyber community** (the number of contacts limited to the Web); low **self-esteem** and **time** spent online (the higher the time, the greater the risk). Regression analyses revealed the predictors of Internet addiction:

- higher number of contacts limited to the Internet,
- lower self-esteem,
- larger intensity of time spent online every week,
- larger usage rate in looking for pornography.

Though looking for entertainment is positively related to Internet addiction, it is not significant as its predictor.

The number of contacts limited to the Web significantly reflects interpersonal relations deprivation in the real world. Internet users can satisfy the basic human need for interpersonal contact in a virtual world. We assume that the stronger an unsatisfied need is for connection in the real world, the stronger the bond will be within the cyber community. The possibility of "personal" on-line interaction makes the Internet a much more attractive space for satisfying psychological needs than reality. Hence, contacts limited to the cyber community create the greatest Internet addictive risk in this research.

Contrary to assumptions, satisfaction with life is not directly related to Internet addiction. Satisfaction with life refers to one's global assessment; therefore it refers to previous experiences in various areas of life that can be more meaningful and richer when compared with Internet addiction consequences. On the other hand Internet addiction reveals only the intensity of Internet addiction symptoms. Therefore it is possible to clearly state whether one is addicted or not. Internet users with high symptoms scores might be on a different Internet addiction level and for that reason may not experience the psychological addictive consequences that could be connected with life satisfaction.

Our study reveals the changes occurring in the psychosocial functioning of Polish students on the Internet from 2005 to 2012. The risk-factor correlations identified here have become important clues for professionals developing preventive programs related to Internet risks (particularly Internet addiction). Practitioners of Internet addiction therapy should pay special attention to:

1. strengthening self-esteem, and
2. establishing relationships and contacts outside the Internet.

The level of satisfaction with life may not be directly connected with addiction symptoms; however, it is connected with the manner in which the Internet is used, and should be taken into account during therapeutic psychosocial Internet work.

References:

Akın A. (2012). The relationships between internet addiction, subjective vitality, and subjective happiness. *Cyberpsychology, Behavior, and Social Networking*, 15(8):404-10.

Andreassen C.S., Torsheim T., Brunborg G.S., Pallesen S. (2012). Development of a Facebook Addiction Scale. *Psychological Reports*,110(2):501-17.

Aouil B., Siedlaczek J. (2011). *Osobowościowe determinanty dysfunkcjonalnego korzystania z Internetu wśród uczniów gimnazjum, liceum oraz studentów* [Personal determinants of dysfunctional Internet usage among middle school, high school and university students] In: Aouil B, Czerwiński K, Wosik-Kawala D, eds. *Internet w psychologii, psychologia w Internecie [The Internet in psychology, psychology in the Internet]*. Toruń: Adam Marszałek, Gnieźnieńska Szkoła Wyższa Milenium, pp.101-235.

Augustynek A. (2001). *Osobowościowe determinanty zachowań internetowych.*[Personal determinants of Internet behaviour.] In: Haber L, eds. *Information micro community.* Kraków, AGH Uczelniane Wydawnictwa Naukowe, pp. 63-90.

Augustynek A. (2010) *Uzależnienia komputerowe. Diagnoza, rozpowszechnienie, terapia. [The computer addiction: diagnosis, epidemiology, therapy.]* Warszawa: Difin.

Cao H., Sun Y., Wan Y., Hao J., Tao F. (2011). Problematic Internet use in Chinese adolescents and its relation to psychosomatic symptoms and life satisfaction. *BMC Public Health.*, 14 (11):802.

Casale S., Fioravanti G. (2011). Psychosocial correlates of internet use among Italian students.*International Journal of Psychology*, *46*(4): 288-98.

Centrum Badania Opinii Społecznej (2012) (Public Opinion Research Center). *Korzystanie z Internetu 2012* [Internet usage in 2012] www.cbos.pl/SPISKOM.POL/2012/K_081_12.PDF.

Christakis D.A., Moreno M.M., Jelenchick L., Myaing M.T., Zhou C. (2011).Problematic internet usage in US college students: a pilot study.*BMC Med*., 22:9.

Czapiński J., Panek T. (2007). *Diagnoza społeczna 2007.Warunki i jakość życia Polaków. Raport. [Social diagnosis 2007. Objective and subjective quality of life in Poland. Report]*Warszawa: Pub: Rada Monitoringu Społecznego, 10.09.2007.

DeAngelis, T. (2000). Is Internet addiction real? *APA Monitor, 31*(4): 24-26.

Dell'Osso B, Altamura AC, Allen A, Marazziti D, Hollander E. (2006). Epidemiologic and clinical updates on impulse control disorders -A critical review. *European Archives of Psychiatry and Clinical Neuroscience, 256* (8):464–475. [PubMed: 16960655].

Durkee T., Kaess M., Carli V., Parzer P., Wasserman C., Floderus B, (2012).Prevalence of pathological internet use among adolescents in Europe: demographic and social factors.*Addiction*, 107(12): 2210-22.

Dembińska A. (2005). Nowoczesne technologie – szanse i zagrożenia dla rozwoju przedsiębiorczości. Ujęcie psychologiczne. [New technologies – chances and risks for the development of entrepreneurship. Psychological perspective]. *Górnośląskie Studia Przedsiębiorczości*, volume IV, 91-111.

Fioravanti G., Dèttore D., Casale S. (2012). Adolescent Internet addiction: testing the association between self-esteem, the perception of Internet attributes, and preference for online social interactions. *Cyberpsychology, Behavior, and Social Networking*, 15(6): 318-23.

Giddens A. (2004). *Socjologia [Sociology].* Warszawa: Wydawnictwo Naukowe PWN, p. 495.

Goldberg I. (1996) *Internet Addictive Disorder (IAD).Diagnostic criteria*. www.psycom.net/iadcriteria.html.

Greenfield, D. (1999). Psychological Characteristics of Compulsive Internet Use: A Preliminary Analysis. *CyberPsychology & Behavior, 2* (5):403-412. doi:10.1089/cpb.1999.2.403.

Hansen, S. (2002). Excessive Internet usage or 'Internet Addiction'? The implications of diagnostic categories for student users. *Journal of Computer Assisted Learning*, 18: 232-236.

Jakubik A., Popławska J.(2003). Zespół uzależnienia od Internetu (ZUI) a osobowość. [Internet Addiction Syndrome (IAS) and personality]. *Studia Psychologica*, *4*, (4): 123-131.

Holden, C. (2010). Psychiatry. Behavioral addictions debut in proposed DSM-V. *Science, 327* (5968): 93.5 *DOI:* 10.1126/science.327.5968.935.

Juczyński Z. (2001). *Narzędzia pomiaru w promocji i psychologii zdrowia [The tools of measurement in promoting and the health psychology]*. Warszawa: Pracownia Testów Psychologicznych.

Kaliszewska K. (2010). *Nadmierne używanie internetu. Charakterystyka psychologiczna. [Excessive Internet use. Psychological charateristics]*. Poznań: Wydawnictwo Naukowego UAM.

Kittinger R., Correia C.J., Irons J.G. (2012): Relationship between Facebook use and problematic Internet use among college students. *Cyberpsychology, Behavior, and Social Networking*, 15(6): 324-7.

Ko C.H., Yen J.Y., Yen C.F., Chen C.S., Chen C.C. (2012). The association between Internet addiction and psychiatric disorder: a review of the literature. *European Psychiatry*, 27(1):1-8.

Kormas G., Critselis E., Janikian M., Kafetzis D., Tsitsika A. (2011). Risk factors and psychosocial characteristics of potential problematic and problematic internet use among adolescents: a cross-sectional study. *BMC Public Health*, 11:595.

Kubey R., Csikszentmihalyi M. (2002)., Television Addiction Is No Mere Metaphor. *Scientific American*. February.

Łaguna M., Lachowicz-Tabaczek K., Dzwonkowska I. (2007). Skala samooceny SES Morrisa Rosenberga – polska adaptacja metody [Polish adaptation of Rosenberg Self-Esteem Scale]. *Psychologia Społeczna*, 2,164-176.

Łaguna M. (2010). *Przekonania na własny temat i aktywność celowa* [Beliefs about oneself and purposeful activity]. Gdańsk: GWP. p. 84.

Malik A. (2011). Prawdziwy początek Internetu w Polsce – sensacyjne odkrycie. [The real beginnings of the Internet in Poland – sensational discovery.] *Komputer Świat*. http://www.komputerswiat.pl/nowosci/wydarzenia/2011/40/prawdziwy-poczatek-internetu-w-polsce---nieznany-fakt.aspx

Meerkerk, G.J., van den Eijnden, R.J.J.M., Franken, I.H.A, Garretsen, H.F.L. (2010) Is compulsive internet use related to sensitivity to reward and punishment, and impulsivity? *Computers in Human Behavior, 26 (*4): 729-735.

Moreno, M.A., Jelenchick, L., Cox, E., Young, H., Christakis, D.A. (2011). Problematic Internet Use Among US Youth: A Systematic Review. *Archives of Pediatrics & Adolescent Medicine, 165* (9): 797–805. doi:10.1001/archpediatrics.2011.58.

Müller K.W., Ammerschläger M., Freisleder F.J., Beutel M.E., Wölfling K. (2012). Addictive internet use as a comorbid disorder among clients of an adolescent psychiatry - prevalence and psychopathological symptoms. *Z Kinder Jugendpsychiatr Psychother*., 40(5):331-9.

Poprawa R. (2007). W pułapce Internetu. Kontrowersje, fakty, mechanizmy. [Trapped in Internet. Controversies, facts, mechanisms] In: M.Jezierski, ed. *Nowe media – stan obecny I możliwości rozwoju* [*New media – current state and perspectives*]. Toruń: Wydawnictwo UMK.

Poznański P. (2012). *Trudno o dostęp, niskie prędkości. Internet w Polsce wciąż luksusem.* [Limited access, low speeds. The Internet in Poland remains a luxury.] http://wyborcza.biz/biznes/1,100896,8532658,Trudno_o_dostep__niskie_predkosci__Internet_w_Polsce.html.

Rafa J. (1995). *Jaki będzie polski Internet?* [How will the Internet in Poland look like?] http://www.wsp.krakow.pl/papers/psi.html.

Smahel D., Brown B.B., Blinka L. (2012) Associations between online friendship and Internet addiction among adolescents and emerging adults. *Developmental Psychology*, 48(2): 381-8.

Stieger S., Burger C. (2010). Implicit and explicit self-esteem in the context of internet addiction. *Cyberpsychology, Behavior, and Social Networking*, 13(6):681-8.

Suler J. (1996) *Why is the thing heating my life? Computer and Cyberspace Addiction at the <<Palace>>*. http://www.rider.edu/`suler/psycyber/eatlife.html.

Suler J. (1998) *Adolescent in cyberspace. The Good, the Bad, and the Ugly*. http://www.rider.edu/`suler/psycyber/adoles.html.

Tsitsikai A., Critselis E., Louizou A., Janikian M., Freskou A., Marangou E., Kormas G., Kafetzis D. (2011). Determinants of Internet addiction among adolescents: a case-control study. *Scientific World Journal*.,11: 866-74.

Wartberg L., Sack P.M., Petersen K.U., Thomasius R., (2011). [Psychopathology and achievement motivation in adolescents with pathological internet use]. *Prax Kinderpsychol Kinderpsychiatr.*, 60(9):719-34.

Woronowicz B. (2001) *Bez tajemnic o uzależnieniach i ich leczeniu [Addictions and their treatment without secrets]*, Warszawa: IPiN.

Yen J.Y., Yen C.F., Chen C.S., Wang P.W., Chang Y.H., Ko C.H.(2012). Social anxiety in online and real-life interaction and their associated factors. *Cyberpsychology, Behavior, and Social Networking*, 15(1):7-12.

Young K.S. (1998). Internet addiction: The emergence of new clinical disorder. *Cyber Psychology and Behavior,* 1: 237-244.

Young K.S. (1998). Internet addiction: The emergence of new clinical disorder. *Cyber Psychology and Behavior*, 1: 237-244.