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Studia Psychologica nr 8, 107-127

2008

Studia Psychologica
UKSW
8(2008) pp. 107-130

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ABSTRACT

In contemporary psychology information and communication technology (ICT) have become the object of study. Especially, the relationship between self and virtual space was explored (Hermans, 2004; Hevern, 2004; Ligorio & Spadaro, 2005; Talamo & Ligorio, 2001; Turkle, 1995). Various interactions between self and Internet activity were discovered, in which virtual identity plays an important role. On the one hand these interactions are a chance to discover and develop the self through online experience, but on the other hand they might be destructive for individual life (Davis, 2001; Young, 1998). Dialogical Self Theory may propose some new ideas and interpretations which will allow to understand better the influence of Internet on human beings.

The sample used in the research presented here includes 339 participants – high school pupils, college students and employees. The Canonical Correlation Analysis and Discriminant Analysis were applied to estimate predictors of pathological Internet use operationalizated in Rowinski's (2006) questionnaire.

The results show that emotional aspect of online and offline behavior are the strongest predictors of dysfunctional Internet use. The feelings connected with motives Self and Other defined by Hermans, with intensive positive feelings in valuation of Internet and with negative feelings in valuation of close relationship have the strongest impact on dysfunctional Internet use. Positions that depend on the Internet use are probably the most dominant in a multivoice system of the self. At the same time positions related to offline reality are marginalized. The dialogical nature of the self might be limited to intensive interaction based on online activity. To check this hypothesis, however, further research is needed.

Key words: dialogical self, feelings, Internet activity, dysfunctional Internet use

1. INTRODUCTION

In terms of development contemporary society can be described as the Society of Information (SI). In SI information plays a crucial role, as does its distribution and storing, i.e. Information and Communication Technology (ICT). Computers have now become main work tools. Oddly enough, the simplest binary language (0-1) and its physical counterpart, the electron, have become the foundations of contemporary civilisation (Bolter, 1984). The binary system and the invention of the transistor made it possible for computers to be used on a mass scale (Bolter, 1984), which, in turn, brought on the creation of the Internet – a net of connected computers. The "global village" (McLuhan, 1997) has allowed for creating realities which are no longer merely potential.

Nonetheless, the notion of virtuality can have negative connotations. First of all, the definition of the word "virtuality" in a general social context is incorrect. Levy (2002) points to the Latin origins of the word virtual (*virtus*), which stems from the idea of potentiality. Therefore, it is not synonymous with unreality, commonly associated with cyberspace. Moreover, the author's own experience and observations suggest that the existence of virtual realities can significantly influence one's functioning in the real world. Additionally, cultural context plays an important part. Culture is reflected in the Internet, while the Internet is, in turn, reflected in culture of the information societies. Things that were out of reach for many, mostly due to financial issues, are accessible online. The net can be a source of many, otherwise inaccessible, experiences (Plandri and Green, 2000).

Apart from bringing one closer to other cultures, the Internet allows one to express those aspects of the self which were previously repressed (Kiesler, 1997). Avatars, online games, and RPG permit one to build a similar or completely different self image. Most likely, anonymity, a significant characteristic of the web, plays a very important part here. It facilitates experiencing oneself in different roles, social as well as individual, which can significantly influence ones personal development. The dialogical self theory (Hermans, 2001) may prove to be extremely inspiring when applied to the description and explantation of online behaviour.

The DS theory became a foundation for the work of such scholars as Hevern (2004; 2005), Ligorio and Pugliese (2004), and Talamo and Ligorio (2001). Communication through the Internet is a basic function of this mass medium. Hevern (2005) calls it "a human digital ecology". The web provides a common environment for people of different cultural backgrounds and possibly even creates a new type of culture, based on interpersonal relationships between Internet users. Everyone is provided with a choice of different types of communication channels that other types of media do not provide. Hevern (2004) explains various directions this communication can take: 1) one-to-one, 2) one-to-many, 3) many-to-many. Personally, I would also add 4) many-to-one. There is a net of connections and interactions between Internet users with no strictly defined technical or social hub. What is, then, the significance of this form of communication within the framework of the dialogical self theory?

The Internet can generate certain unique I-positions, which are activated through the use of it (see Palandri and Green, 2000; Reid, 2002; Wolf, 2000; Turkle, 1997). The interaction between man and technology creates a new quality. In the debate concerning the interaction between man and technology both negative (Postman, 1993) and positive (Rheingold, 1993; Suler, 1998) views appear. However, the outcomes of an interaction between technology and human being, are highly unpredictable and depend on many factors, such as culture or intensity of Internet use in a given society. The literature on the subject provides examples of negative aspects of Internet use, namely addiction (Griffiths, 1998; Grohol, 1999; Postman, 1993; Young, 1996; 1998; 1999; 2003; 2004). This paper, however, applies a more general definition of dysfunctional Internet use, which does not necessarily imply a clinical diagnosis. There is an ongoing debate among scholars regarding Internet addiction and so far no conclusive result has been reached (see Beard, 2001).

This brings us to the question of whether dysfunctional Internet use (DIU) can in fact be considered within the context of the dialogical self theory. Virtual environment is capable of creating/activating I-positions. It is merely an assumption, although grounded in observation and associated literature not directly concerned with the theory (Gackenbach, 1998; Joinson, 2003; Kiesler, 1997; Tidwell et al., 2002; Turkle, 1997; Wallace, 2001). Accordingly, there are two aspects of Internet use:

1. activation of or reinstating the stream of dialogue among positions, which in one's actual environment are marginalised for various reasons. Hermans (2004, p. 310) described this as "moving from background to foreground". It is particularly visible in the case of online help (Grohol, 1998; King & Moreggi, 1998; Suler, 1998), where Internet users express experiences previously unexpressed or even repressed;
2. introducing new positions into the personal repertoire; acting as a promoter (which means that it is possible to meet via Internet a person who can introduce a new position in my personal repertoire or can change the dialogues among positions, see Hermans, 2004). Joinson (2003) describes this in much detail in connection with dysinhibition behaviour online (negative aspect), while Turkle (1997) focuses on the positive aspect. The same process can also occur through role reversal or experimenting with an identity.

Depending on its function in a person's life, the Internet can contribute either to personal growth or deprivation. The literature on the subject attempts to define dysfunctional Internet use by means of certain criteria related to behavioural patterns of the Internet user (Young, 1996; 1988a; 2003; 2004; Griffiths, 1998, 2000).

The discernible symptoms of the above mentioned dysfunction can be divided into two categories. The first one is related to the technical aspect of the internet, even though its applications themselves do not appear to be addictive (Young, 1998; Joinson, 2003). Nonetheless, related research indicates that certain

Internet functions are preferred by people with particular disorders. Many scholars closely associate DIU with the socio-affective functions of the net (Aviram and Amichai-Hamburger, 2005; Haythornthwaite et al., 1998; Joinson, 2003; King and Moreggi., 1998; Lin, 2005; Morahan-Martin and Schumacher, 1998; Peris et al., 2002; Weiser, 2001; Wallace, 2001; Young, 1996).

The second category is related to psychological dispositions (see Gasiul, 2003). In case of Internet addiction the psychological disposition can be described as a lack of fulfilment of belonging need in my environment (i.e. uncertainty in human relationships – it may also be called more generally *diathesis*.). This could be crucial in some cases of dysfunctional Internet use. A number of cases found in the literature on the subject (Young, 1996; Griffiths, 2000) indicate that dysfunctional Internet use can be prompted by the need of contact, of talking to each other, of sharing, belonging, or adventure. In some cases, the social aspect of online communication is so engrossing that the Internet user finds it impossible to switch off the computer (King, 1998; Griffiths, 2000). This behaviour could correspond to motive S (the basic motive in valuation theory; self-enhancement, self-maintenance) or O (the second basic motive in valuation theory, which signifies "longing for contact and union with the other"; Hermans and Hermans-Jansen, 1995, p. 21). Hevern (2005) indicates the special role played by Hermans' S and O motives, which define self image in the virtual world. They can also play an important part in creating the virtual self. The relational aspect of the Internet provides an opportunity to fulfil certain potentials or motives which are not feasible in real life (McKenna and Bargh, 1998; Murray, 2000; Bargh, 2002; Zhao, 2005).

From the point of view of the dialogical self theory (Hermans, 2001, 2003) DIU can be analysed as a lack of dialogue between specific positions within the dialogical self, the case of stiffening or split of the system. Is dysfunctional Internet use (DIU), responsible for preventing the dialogue between different parts of the self? Although this text does not directly answer that question, analysing only the data from the author's PhD dissertation, it may certainly be a starting point for further research.

2. METHOD

2.1 PROCEDURE

This research was conducted using the manual paper-and-pen method, in three separate urban centres in Poland: Warsaw, Rzeszów, and the Tricity District of Gdańsk, Sopot, and Gdynia. Sets of tests were given out to be filled in at home. The subjects had a week or two to complete the tests. All calculations were made using STATISTICA 7.1 software, except the factor analyses and calculations of reliability within the framework of the theory of generalizability, in which cases SPSS 12PL software was used.

2.2. PARTICIPANTS

The final analysis incorporates data from 339 subjects (59% from Warsaw, 20% from the Tricity district, 21% from Rzeszów), whose age varied from 17 to 57. Table 1 contains results for men and women.

Table 1. Age of subjects with regard to gender

Examined groups	N	M	SD
Women	164	20.37	5.03
Men	175	21.56	5.65
Total	339	20.98	5.38

Social status of the subjects: 186 high school students (55.59% of the research group), 90 academic students (26.18%), and 63 professionals (18.23%).

2.3. MATERIALS

The research set consisted of the following questionnaires:

1. The Formal Characteristic of Behaviour – Temperament Inventory by Strelau and Zawadzki (1995) was applied. This questionnaire is based on Strelau's Regulative Theory of Temperament and consists of six scales: briskness (BR), perseverance (PE), sensory sensitivity (SS), emotional reactivity (RE), endurance (EN), and activity (AC). Its validity and reliability are satisfactory.
2. For personality assessment two separate tests were used: the NEO-FFI by Costa and McCrae adapted by Zawadzki, et al. (1998). This test consists of five scales: Conscientiousness (C), Agreeableness (A), Extraversion (E), Openness to experience (O), and Neuroticism (N). The second test used is the ACL test by Gough and Heilbrun (1983) translated by Zenomena Płużek. The scale consists of 37 subscales, which have been subjected to principal factor analysis with varimax rotation with Kaiser normalisation (KMO=0.925; Bartlett's test $\chi^2(528)=15369.66$; $p<0.001$). The *modus operandi* scale was excluded from analysis, resulting in five factors explaining 79.75% of the total variance.
3. For the assessment of strategies of coping with stress The Ways of Coping Questionnaire (WCQ) was applied (Folkman and Lazarus, 1988). This test contains eight scales shown in the table below.

Table 2. Coefficients of reliability results (N=319)[1]

Scale	Alpha	I.C.C.
Confrontation (CON)	0.454	0.122
Distancing oneself (DIS)	0.635	0.225
Self-control (SCON)	0.394	0.085
Seeking social support (SSS)	0.735	0.316
Accepting responsibility (ARE)	0.643	0.311
Escape (ESC)	0.580	0.133
Planned problem solving (PPS)	0.540	0.164
Positive revaluation (PRV)	0.646	0.207

Due to low reliability of Confrontation and self-control scales neither of them was included in further analysis.

4. 24-item version of Hermans' list of feelings (Hermans and Hermans-Jansen, 1995). Every feeling is assessed on a frequency scale in relation to four different spheres: everyday, in close relationships, on the Internet, and in ideal mood. The tool contains four different scales (Hermans, 1987; 1995): Positive Feelings (P; Cronbach's α : 0.87 – 0.90; ICC: 0.46 – 0.52); Negative Feelings (N; Cronbach's α : 0.79 – 0.84; ICC: 0.33 – 0.45), Motive S (S; Cronbach's α : 0.73 – 0.86; ICC: 0.40 – 0.61), Motive O (O; Cronbach's α : 0.77 – 0.84; ICC: 0.46 – 0.56).

Due to a high intercorrelation of the scales for the four spheres they were subjected to principal factor analysis with varimax rotation (KMO=0.76, Bartlett's $\chi^2(120)=3175.12$; $p<0.001$[2]). This resulted in finding five factors explaining 63.55% of the total variance.

Factor I (explains 14.19% of the total variance) – Unity and love (UL).

This factor has the highest correlation with motive O (+0.78), which corresponds to close relationships and is associated with positive feelings. The factor also incorporates motive O (+0.69) realised everyday, as well as positive feelings P experienced everyday (+0.64). The majority of adolescents and a large part of the students possibly still live with their parents, thus their family home exerts a stronger influence on their daily existence. The fulfilment

[1] The stated internal consistency coefficients (I.C.C.) from lowest to highest relate to the following valuation areas: how have you been feeling in the last few days, how often do you experience the feelings described below in relations with your family (closest relationships), how often do you experience the feelings described below when you use the Internet and how would you like to feel. All given coefficients have been calculated on a standard research test. (ICC – interclass correlation coefficient, see Aranowska, 2005).

[2] The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy tests whether the partial correlations among variables are small. Bartlett's test of sphericity tests whether the correlation matrix is an identity matrix, which would indicate that the factor model is inappropriate.

of the motive O is independent from the motive S. Hermans underlines that in these types of valuation positive feelings result from greater fulfilment of the motive O, rather than lower fulfilment of the motive S (Hermans, 1987; Hermans and Hermans-Jansen, 1995).

Factor II (explains 13.66% of the total variance) – Virtual self (VS).

This factor consists of thee scales associated with the internet. It has the highest correlation with positive feelings associated with the Internet P (+0.85) and the motive S (+0.82), as well as with the likelihood of fulfilling the motive O (+0.70) on the web. This type of valuation (+HH) Hermans describes as the most integrative combination of motives S and O in the valuation system (Hermans and Hermans-Jansen, 1995). Quality analysis of the content has not been conducted in this research. However, this configuration indicates high emotional involvement (very intensive feelings, which are related to session online or Internet use). According to Gasiul (2003) it also indicates strong involvement of the self. Persons who achieved high scores in this factor are strongly engaged in the Internet use (activity with prolonged time online). While it is mainly connected with the expansion of the self, as well as self-esteem, it could also stem from the need to interact with others as well as the sense of belonging to a support and share group.

Factor III (explains 13.11% of the total variance) – Negative Feelings (NF).

This factor consists of scales of negative feelings from three valuations: N general (+0.85), in close relationships (+0.63), and on the Internet (+0.59), which correlate negatively with positive feelings P (-0.48) experienced everyday, as well as the motive S related to the everyday life (-0.41). This pattern of valuation is related to a certain form of resistance in a situation where one attempts to defend one's status when his/her self-esteem is threatened (Hermans and Hermans-Jansen, 1995, p. 79). It is a common occurrence in situations where the need for self-sufficiency (self-maintenance) and expansion is prevented from being fulfilled. This valuation is characterised by feelings of anger and rage.

Factor IV (explains 12.54% of the total variance) – Ideal Experience (IE).

This realm includes defining a certain ideal state P (+0.88), S (+0.73), and O (+0.69). In this list of feelings, the participants answer the question "How would you like to feel?" Accordingly, it can be considered as a state one aims to achieve in one's life. This ideal is related to the integral type of valuations, i.e. one wants to fulfil motives S and O simultaneously and experience more positive and less negative feelings.

Factor V (explains 10.05% of the total variance) – Strengthening Oneself (SO).

This factor consists of motives related to family (+0.84) and general experience (+0.60) as well as positive feelings in close relationships P (+0.48; this scale has higher charges for factor I). Therefore, what we observe here is a fulfilment of motives in non-interpersonal relations (+S), as this factor correlates negatively, or not at all, with the scales of building interpersonal relations. It is possible that subjects achieving high scores in this factor strive for achieving their personal goals and become self-sufficient (self-maintenance) without considering the reactions of others. These persons are quite possibly also less dependent on their environment and are more original in their behaviour and self-expression.

5. The Internet Activity (IA) questionnaire (79 items) is used to explore the ways of connecting to the Internet, average time spent online, expertise in the use of Internet, frequency of using Internet applications, networking, and the level of Internet's dysfunctional use.

Twelve Internet services were tested using the classification by Batorski (2003). Due to inter-correlations for these questions being high (Kendall's $\tau > 0.8$) they were subjected to principal component analysis with varimax rotation (an isolation procedure similar to Weiser's procedure [2001] was applied). It has been assumed that it would be possible to recreate the two-factor structure of the Internet use based on socio-affective regulation (SAR) and goods and information acquisition (GIA) (Joinson, 2003; Weiser, 2001). The best solution, however, turned out to be a four-factor structure (KMO=0.71; $\chi^2(66)=783.22$; $p<0.001$), which accounts for 58% of the total variance.

Table 3. Matrix of rotated components

Net services	Component			
	GIA-FS	SAR-IS	GIA-SI	SAR-CH
Gambling online	0.849			
Shopping online	0.846			
Banking online	0.588			-0.460
Web administration	0.455			
Downloading files		0.778		
Instant messengers		0.725		
Games online		0.611		
Forums	0.396	0.473		0.313
Use for school purposes			0.818	
Browsing		0.396	0.558	
Chatting				0.712
E-mail			0.406	-0.510
Explained variance	19%	17%	12%	10%

The following components were found:
Component I – GIA style – Financial services (GIA – FS)

Using these services requires a certain amount of knowledge and familiarity with the Internet environment. This factor relates to the financial functions of the Internet (see: marketing functions factor – Leung (2004); Hills and Argyle (2003) achieved similar results, but charged negatively – Use-At-Home).

Component II – SAR style – Interactive services (GIA-IS)

This factor is characterised by interpersonal activity. It relates to the functions of the Internet which require entering interactions and communicating for various purposes. Similar results were achieved by: Leung (2004) – Social Interaction Oriented Function, Swickert, et al. (2002) – Leisure, Amichai-Hamburger and Ben-Artzi (2000) – Social Services, Paparachissi and Rubin (2000) – Interpersonal Utility.

Component III – GIA style – Seeking information (GIA-SI)

The functions included in this factor are closely associated with the informational aspect of the internet. Most likely it is connected with searching for information required for school, academic purposes, and exchange of information. It is a factor similar to Leung's Communication Oriented Function (2004), Information Exchange in Swickert, et al (2002), Paparachissi and Rubin's Information Seeking (2000), and Hamburger and Ben-Artzi's Information Services (2000).

Component IV – SAR style – Chatting (SAR-CH)

Chatting is one of the characteristic activities online. People meet in the virtual space to talk about different problems. This application is focused only on interpersonal interaction. The non-informational character of this factor is further intensified by its negative correlation with e-mail as a non-synchronic way of stimulating a conversation. The participants with high scores in this factor did not prefer either such communication online or using online banks.

A principal factor analysis with varimax rotation was also conducted on six different online relationships (KMO=0.697; Bartlett's test: $\chi^2(21)=352.819$, $p<0.001$). The best two-factors result has explained 35.1% of the total variance.

Table 4. Matrix of main factors

Type of online contact	**Factor**	
	VC	**NVC**
Internet-only acquaintances	0.859	
People with similar interests	0.553	
People one has no direct contact with	0.454	
Acquaintances from outside the Internet	0.376	0.341
Family		0.589
Love interest		0.527
Co-workers		0.361
Explained variance	21.36%	13.71%

The following factors were found:

Factor I – virtual contacts (VC)

Contacts with people met online and people whom one cannot meet in the real world have got the highest loadings in this factor. Therefore, these contacts are either practically nonexistent in a physical sense or not as intense as in the case of close relationships. The intensity of these relations is mainly expressed by communicating via Internet.

Factor II – non-virtual contacts (NVC)

In this type of contacts the Internet is not the main channel of communication. It has the highest correlation with the item of family. In this case physical contact is rather often and the Internet plays a completely different role than in virtual contacts. Physical contacts strongly influence the quality of online relations.

The second part of the test contains questions designed to operationalize DIU criteria according to Young definition (1998). The entire validation procedure has been described in detail by Rowiński (2006). The table contains reliability coefficients for the factors obtained in principal factor analysis with varimax rotation (Keiser's normalisation, KMO=0.95, Bartlett's $\chi^2(2701)=18078.857$; $p<0.001$). Eight factors explain 51% of total variance.

Table 5. Reliability measurements for the subscales of the Internet Activity test

Subscale	**N of items**	**M**	**SD**	**Total N=340**	
				Cronbach's ά	**I.C.C.**
Dominating online relationship	15	9.74	9.94	0.93	0.49
Concealing truth	7	4.27	5.50	0.91	0.59
Coping with stress	8	8.24	6.57	0.89	0.50
Problems in school (at work)	6	4.54	4.65	0.89	0.58
Withdrawal symptoms	5	5.69	4.36	0.84	0.52
Loosing control	7	2.09	3.54	0.84	0.42
Mood changes	4	2.08	2.92	0.86	0.61
Failed attempts at control	3	1.59	2.23	0.83	0.62
General Index	55	39.11	32.11	0.93	0.49

3. RESULTS

The previous statistical procedure was applied to use the verification procedure. This has been conducted in a twofold manner: the analysis of differences in the discriminant analysis model (DA) and canonical correlation analysis (CCA). For the purpose of comparison the data was divided into two subgroups: control group with the lowest quarter of general index (GI) of the

Internet Activity (IA) questionnaire (C) and criteria group with the highest scores of IA in general index (E, the highest quarter). For each of the eight subscales of the IA questionnaire there are statistically significant differences (ANOVA, $p<0.001$) between these groups.

Table 6. Mean values and standard variations in GI in IA test for compared groups

Groups	General Index	
	M	SD
Group C (N=82, female = 48)	15.21	8.46
Group E (N=82, female = 36)	114.88	33.99

All the variables, which in the MANOVA/ANOVA model differentiated the two groups, were inserted into the DA model: age, time spent online, SAR-IS style, SAR-CH, GIA-SI, VC, NVC, BR, PE, RE, AC, SUM, NEU, UCI, PPS, Strength, Unity and Love, Virtual self, Negative Feelings (19 variables).

The function (M Box=47.62; p=0.02; Sen Puri $p<0.05$) indicates a very good discrimination of the separated groups. Wilks' $\lambda=0.285$ is statistically significant at $p<0.001$ ($F=11.13$; df1=7; df2=137). The canonical correlation coefficient equals 0.84. The Mahalanobis distance D^2 equals 9.89 and is also statistically significant at $p<0.001$ ($F=30.3$; df1=7; df2=137).

Table 7. The discriminant function model with standardised significance weights and correlation coefficients

Variable	λ	partial λ	F	p	T	1-T	b	R
SAR-IS style	0.329	0.867	20.32	,001	0.73	0.27	,503	0.647
Virtual type contacts	0.303	0.941	8.35	,004	0.79	0.21	,323	0.523
Neuroticism	0.311	0.916	12.18	,001	0.62	0.38	,435	0.202
Time online	0.330	0.945	8.40	,004	0.75	0.25	,241	0.423
Conscientiousness	0.295	0.966	4.63	,033	0.87	0.13	-,233	-0.221
Virtual self	0.303	0.942	8.23	,005	0.81	0.19	,317	0.431
Unity and love	0.296	0.964	4.99	,027	0.84	0.16	-,245	-0.184
SAR-CH style	0.299	0.954	6.37	,013	0.86	0.14	,272	0.162

Standardized weights of the discriminant function indicate that the following variables have the strongest impact on the resulting function: SAR-IS style, NEU, VC and the virtual self. Subsequently, SAR-CH style, unity and love,

and SUM. Considering the value of correlations of particular variables with the discriminant function, four realms correlate rather highly. These are: the SAR-IS style of using the Internet, the virtual type of contacts, the virtual self, and time spent online. These four factors have the strongest connection with the discriminant function. The resulting function sanctions 89.6% accurate regrouping of observations. It is a high percentage of the classified cases. An assumed model of four variables (SAR-IS style, virtual type of contacts, virtual self, time spent online) sanctions a similar percentage (88%) of accurate classification (λ=0.45, $p<0.001$; C_R=0.80; D^2=4.89, $p<0.001$).

Table 8. Classification results

Numbers	Predicted group adherence		Total
	Group C	Group E	
Group C	74 (90.2%)	8 (9.8%)	82 (100%)
Group E	9 (11.1%)	72 (88.9%)	81 (100%)
Total	83	80	

According to Aranowska (1987) the statistical procedure of verification should provide two type of analysis: the difference test and the convergence test. The model of CCA has been applied to verify a level of two sets' convergence model (Barcikowski and Stevens, 1975; Stewart and Love, 1968). The first set contains the subscale of the IA test, while the second set (set of predictors) contains scales and factors comprised through factor analysis of the above mentioned questionnaires. The variables of age, experience, and time online were also introduced. The CCA procedure has also been applied. The table below contains general results of the CCA.

Table 9. Statistically significant canonical functions

Canonical pair	C_R	C_R^2	χ^2	df	P	λ Wilks	Extracted variance (VE)	R_C^2
First set (criteria) – U								
I	**0.814**	**0.66**	**717.70**	**288**	**0,001**	**0.078**	**0.52**	**0.35**
II	**0.619**	**0.38**	**412.02**	**245**	**0,001**	**0.231**	**0.08**	**0.03**
III	**0.551**	**0.30**	**275.88**	**204**	**0,001**	**0.375**	**0.06**	**0.02**
IV	0.441	0.19	174.01	165	0,301	0.539	0.06	0.01
V	0.349	0.12	113.04	128	0,824	0.669	0.07	0.01
VI	0.313	0.10	76.45	93	0,893	0.762	0.10	0.01
VII	0.296	0.09	47.41	60	0,881	0.845	0.04	0.00
VIII	0.271	0.07	21.54	29	0,839	0.926	0.06	0.00
Second set (predictors) – V								
I	**0.814**	**0.66**	**717.70**	**288**	**0,001**	**0.078**	**0.07**	**0.05**
II	**0.619**	**0.38**	**412.02**	**245**	**0,001**	**0.231**	**0.04**	**0.02**
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IV	0.441	0.19	174.01	165	0,301	0.539	0.03	0.01
V	0.349	0.12	113.04	128	0,824	0.669	0.02	0.00
VI	0.313	0.10	76.45	93	0,893	0.762	0.02	0.00
VII	0.296	0.09	47.41	60	0,881	0.845	0.02	0.00
VIII	0.271	0.07	21.54	29	0,839	0.926	0.02	0.00

C_R – canonical correlation coefficient, C_R^2- squared canonical correlation coefficient

A complex multiple determination for three significant pairs U-I, U-II, and U-III accounts for 40% of total redundancy (- the measure of how redundant one set of variables is, given the other set of variables). On the whole, eight canonical pairs explain 43%. Below are the results for the first canonical pair, which explains the highest percentage of variations in the given set of criteria. The remaining two pairs, which account for 3% and 2% of redundancy in the set of criteria, have been discussed earlier by Rowiński (2006).

Table 10. Correlations *r* and partial determinations r^2 for the first canonical pair

First canonical pair UV-I		
Set of criteria	**U – I**	
Canonical factor loadings	**R**	**r^2**
Dominating online relation	0.88	77
Concealing truth	0.67	45
Internet as a way of coping with problems	0.87	76

Problems at school (at work)	0.78	61
Withdrawal syndromes	0.61	37
Loss of control	0.67	45
Mood changes	0.63	40
Failed attempts to limit time	0.62	38
Extracted variance EV	52%	
Redundancy $\mathbf{R}_C^2$	35%	
Canonical correlation C_R	0.814	
Set of predictors	V-I	
Canonical factor loadings	R	r^2
Age	-0.25	06
Briskness	-0.22	05
Emotional reactivity	0.21	04
Planned problem solving	0.21	04
Time online	0.49	24
Conscientiousness	-0.39	15
Neuroticism	0.30	09
SAR – IS style	0.61	37
SAR – CH style	0.26	07
Strength	-0.33	11
Unity and love	-0.30	09
Virtual self	0.60	36
Negative feelings	0.26	07
Virtual type contacts	0.66	44

This function can therefore be used as a representation of the full dysfunctional Internet use syndrome. The predictors most strongly correlated with this function are those associated with the relational aspect of the Internet. The full DIU syndrome is linked to the following services: instant messengers, online games, downloading files, and discussion forums. The users of these services are more likely to interact with people they know solely through the Internet. DIU is negatively associated with Conscientiousness and Strength and positively associated with Neuroticism. Time spent online proved to be extremely significant, which was demonstrated in many research papers. Simultaneously, the variables of virtual self (positive correlation) and Unity and love (negative correlation) emerged as noteworthy.

It has been proved that feelings which are experienced online, some of the Internet application, time online and online friends can be the strongest predictors for dysfunctional Internet use. It is very important, that these applications allow internauts to create a new identity, to behave in a new manner. There is also a negative correlation between DIU (general index) and family relationship valuation.

4. DISCUSSION

The offered analyses prove that the system of emotional scales from the list designed by Hermans (Hermans and Hermans-Jansen, 1995) is one of the strongest predictors of dysfunctional Internet use. These are the only psychological dimensions which correlate so strongly with DIU. The remaining predictors refer to the possibilities given by the Internet. This confirms the results of the previous research which stressed the importance of applications providing socio-affective gratification (Aviram and Amichai-Hamburger, 2005; Haythornthwaite et al., 1998; Joinson, 2003; King et al., 1998; Lin, 2005; Morahan-Martin and Schumacher, 1998; Peris et al., 2002; Weiser, 2001; Wallace, 2001; Young, 1996). What interpretations based on these conclusions, could be proposed in terms of the dialogical self theory?

First of all, communication and interactions with Internet users have the highest statistical significance. It seems that the triad of net applications corresponding to socio-affective regulation, friends online, and Internet valuation can indirectly confirm the dialogical nature of this syndrome. This means that for those suffering from DIU interactions with other net users, and dialogue with them, is of utmost importance (Haythornthwaite et al., 1998; Joinson, 2003; King and Moreggi., 1998; Lin, 2005). The only negative correlation in this case refers to valuation related to close relationships. Therefore, intense online communication is directly linked to weaker communication with one's family (Young, 1999). These results, however, cannot be a basis for defining the cause-effect relationship. Assuming that the *diathesis* hypothesis (Gasiul, 2003) is correct, it can be concluded that this is caused by some fundamental deficiency in close relationships, which in turn leads to the initial over-intensified use of the Internet. Due to the positive experiences with other net users and web applications the Internet takes on a dysfunctional role, which consequently causes the close relationships to deteriorate. It is also visible that the interaction between an individual and the Internet depends on certain personal predispositions, i.e. culture and previous experiences. DIU is an example of the interaction between man and technology which has a destructive influence on man's life. In a different – positive – context, Hermans (2004; p. 315) mentioned the Internet potential role in introducing complexity and heterogeneity to the self.

From the point of view of the dialogical self theory this type of interaction can lead to diffusion of the self. In my presentation at the conference in Braga (Rowiński, 2006), I defined the virtual self only in terms of external I-positions. I was referring to those net applications which allow for a particular self creation. Since I had not yet conducted thorough research using the PPR (Personal Positoin Repertoire) method, I intuitively characterized Internet's effect on reconstructing the system of I-positions. However, during my presentation for prof. Hubert Hermans, on his visit at Cardinal Stefan Wyszyński University in Warsaw (28 V-1 VI 2007), he had asked me a question about it which I have later considered more intensively. Finally I reached the conclusion that the virtual self incorporates both internal and external positions (fig.1). Accordingly, it is a specific structure, an alliance of certain internal and external positions (see Hermans, 2004). This alliance

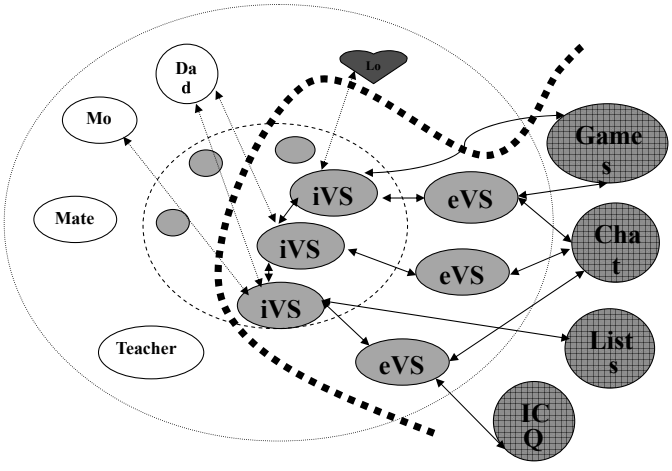
of I-positions could, potentially, be based on one, very prominent, I-position. Naturally, the Internet is the driving force behind these internal changes. I shall illustrate this with an example.

During the online game oGame (http://www.ogame.de) the player builds and develops his own solar system, develops his own planets, etc. In a sense, he is an emperor. Naturally, there are many other emperors. Were we to apply the PPR method to characterize relations between the positions of I within the self of the player, the external positions would probably include: my game (solar system), my army, my alliance. In a sense, we could also include "I-as-an-emperor". This position seems to be crucial, also in the context of previous interpretations. Now the "I-as-an-emperor" is playing, attacking and being attacked, even when I am not playing, I am sleeping or have abandoned the game. In a way, it is a physically independent form of my alter ego. External positions related to this game would be associated with: "I-as-a-strategist", "conciliatory", "intelligent", etc.

The healthy way of using the Internet would involve expressing different I-positions. The game could affirm certain I positions. It could even be exploratory and facilitate internal dialogue, which would further strengthen the dialogical nature of the self (Talamo and Ligorio 2001; Hevern, 2004; van Halen and Janssen, 2004). It is safe to assume that applications providing socio-affective gratification (Weiser, 2001) reconstruct the internal system of I-positions. Mainly through feedback from other net users, successful online activities, creating new self images, and experimenting with them, e.g. in games such as RPG (see: Chmielnicka-Kuter, 2005; Curtis, 1997; Turkle, 1997).

As opposed to functional ways of using the Internet, DIU is characterised by limited dialogue between I-positions within the personal repertoire (see Fig. 1).

Figure 1. Hypothetical relationship between I-positions in dialogical self



Young's criteria (1998) refer to the aspect of visible symptoms: the Internet user retreats from close relationships (severs external dialogue), spends more and more time online, looses control over the amount of hours spent on the web. His or her world gradually becomes restricted to virtual people and objects (Young, 1998).

In this context, the dialogue between internal and external positions would be increasingly restricted. In all probability, some positions, internal and external, would become isolated. The organization of I-positions would be either divided or dominated by certain parts. This is also visible on the level of language. Internet users often call the virtual reality the "online world", while the physical reality - their immediate surroundings - the "offline world". It is worth mentioning that initially the word "online" is not a marked word. I suppose that dysfunctional Internet use may also be considered at a linguistic level. So, we can observe reversal markedness (Marczewska, 2001). The word "offline" have become marked word comparing to the word "online". In relation to dysfunction it is the word "offline" that has strong connotations. This is due to the assigned value and meaning complexity. Online world - and not the real one as in a normal perception – becomes the basic and main point of reference.

Analysing these data in terms of democratic vs. autocratic structure dysfunction would be related to the autocratic structure, with clearly dominant positions relating to virtual self. This kind of structure can be deemed as vertical, with a hierarchy based on the positions of I relating to activities taken up on the Internet. The democratic structure would be characterised by a system of I-positions similar to a horizontal structure. In different individual cases the syndrome could have different structure of I-positions. The position "I-as-emperor" can play main role and be prominent in oGame.

Further research can use the PPR method in order to identify the dialogue between internal and external positions, without limiting the context to dysfunctional use. The dynamic aspect of the web is also worth considering. It can create a gateway to new experiences, which introduce new dynamics into the internal world of the Internet user. The research described above, rather complicated due to statistical procedures, is a basis for further exploration of the subject. The dialogical self theory (Hermans, 2001; 2004) gives a chance to find a new way of analysing online behaviour. The Internet itself is still very much a word-based environment. Without the ability to write the Internet user would be "dumb".

Analysing the text/speech provides the possibility of identifying positions of I (Hevern, 2004). For many, this is a tool for exceeding one's capabilities and one's own culture, thus increasing self-consciousness.

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