Internet and Socialization: How Internet use influences online and offline relationships

Ilaria Buonomo (1), Isabella Cipriani (2), Simone Piperno (2), Ilaria Saddi (2), Caterina Fiorilli (2)

(1) Dipartimento di Psicologia dei Processi di Sviluppo e Socializzazione, Facoltà di Medicina e Psicologia, Università Sapienza, Rome, Italy;
(2) Libera Università Maria Santissima Assunta (LUMSA), Rome, Italy

Address correspondence to: Ilaria Buonomo, via degli Scipioni 22 – 00192, Roma (RM), Italy. Ph.: +39.327.69.100.99; E-mail: i.buonomo@yahoo.it

Abstract

Objectives. According to the literature, it is not yet clear whether the digital natives' use of Internet represents a risk or a resource. This study aimed to investigate the relationships between Internet use and the emotional and social offline dynamics. Specifically, we hypothesised that high versus low problematic use of internet was associated with students' social adjustment. We expected to find that students with high problematic use of internet show more social, behavioural, and emotional problems than students with low problematic use of internet.
Material and methods. Participants were 177 students from 4 middle schools in Central Italy, aged 11 to 15 (50% females). Five questionnaires were administered: the Child Behavior CheckList (CBCL) to measure social, emotional and behavioural problems, the Crozier Shyness Questionnaire to measure shyness and the UCLA Loneliness Scale to measure loneliness. For internet misuse we used the Generalized Problematic Internet Use Scale and 3 questions to assess activities and time spent on the internet.
Results. The higher the preference for online interactions of the internet adopted by students to regulate mood, the higher the internalization problems recorded. Moreover, the higher preference for online social interactions adopted by students and the negative outcomes due to the Internet use, the higher the externalization problems displayed.
Conclusions. Consistently with the literature our results seem to confirm the negative effect of the internet misuse on socio-emotional features. We discuss the relationship between internet use (related to mood regulation, negative social consequences and preference for online interactions) and social-emotional adjustment.

Keywords: Internet, socialization, online relationships, loneliness, shyness.

Introduction

The recent technological development has led to a digitalisation of communications and relationships: this is particularly true for those belonging to the younger generation we call digital natives. This label was coined by the writer Mark Prensky (2001), referring to the generation of people born in USA after 1985, year of pc mass diffusion and the first Windows operating systems. According to Ferri (2011), in Italy we fixed the beginning of the digital generation in the late 90s. Two distinctive features of digital natives are the symbiosis with virtual reality and the use of some particular tools by which is possible to achieve it (pc, smartphone, tablet). These tools are like "extensions of social sphere" for this generation. While the current "twenty-somethings" generation, although part of the "young" population, distinguishes virtual reality from reality itself, digital

natives fluctuate, without interruption, from one to another, in a wide range of daily life contexts. In a previous work, Joiner et al. (2013) distinguished and compared first and second generation of digital natives, considering the first generation as made by people born after 1980, and the second generation as made by people born after 1993. Their results showed that Second generation digital natives had more positive attitude towards the Internet. In particular, this group showed higher Internet Identification scale scores, and lower Internet anxiety scores, when compared with the First generation. The scores in the Identification scale can be explained because of the pervasive Internet use that is typical of this generation: in fact, the scale measures the involvement of the subjects in the Internet users community.

At this moment, according to the literature, it's not clear whether digital natives' Internet userepresents a risk or a resource. One of the theories according to which it constitutes a risk, is the Disengagement Theory by Henderson, Zimbardo and Graham (2002). This theory bases itself on the Internet paradox, namely the idea that the Internet, while facilitating communication, could reduce the offline social engagement. On the other side, according to Stimulation Theory (Baiocco, 2011), using the Internet to communicate is a great resource for socio-relational enrichment. Lee (2009) further explored these hypotheses by introducing two alternatives: 1. the Displacement hypothesis, that assumes young people's use of internet reduces the amount of time they spend with family and friends; 2. the Increase hypothesis, similar to Baiocco's Stimulation theory, that assumes that using Internet helps young people to increase social interactions. This last hypothesis could be read doubly: as a Rich-get-richer hypothesis or as a Social Compensation one. The first one states that people with good social competencies increase them by benefiting from the Internet communication tools; the second hypothesis, states that people with poor social resources use the same tools to help themselves in communicating better with others.

Negative hypotheses about Internet use are often verified by measuring problematic/pathological internet use (PIU), defined as a multidimensional syndrome that consists of cognitive, emotional and behavioural problems in offline life. The cognitive-behavioural model of PIU distinguishes between specific PIU and generalized PIU. The first describes a pathological Internet use for a particular purpose, whereas the second refers to a more global set of symptoms (Davis, 2001). Several researches have shown that a problematic use of internet has a significant relationship with emotional, social and behavioural problems, such as loneliness (Kim et al., 2009; Ang et al, 2012), shyness (Ozturk et al., 2011), depression (Park et al., 2013; Koronczai et al., 2013), anxiety (Caplan, 2006; Lee et al., 2012), aggressive behaviours (Holtz et al., 2011).

In the current study we aimed to further understand and explore Lee's Displacement hypothesis: as claimed by the author, this hypothesis consider the quantity of time people displace from offline social interactions to the online ones. We analysed how digital natives qualitatively spend their time both online and offline.

For these reasons, and starting from this debate, our research aimed to understand the relationships between Internet use and the emotional and social offline dynamics. Specifically, we hypothesised that high versus low problematic use of internet is associated with students' social adjustment. More specifically, we expected to find that students with high problematic use of internet showed more social, behavioural, and emotional problems than students with low problematic use of internet.

Material and methods

Participants were 177 middle school students (F = 50%), aged 11 to 15 (M = 12.30, DS = .972) from 4 middle schools in central Italy. Data were collected by using self-report questionnaire.

Generalized Problematic Use of Internet evaluated by using the Generalized Problematic Use of Internet Scale-2 (GPIUS - 2, Caplan, 2010; Italian version by Fioravanti et al., 2013). This scale consists of 15 items, answered with an eight point Likert scale (1 = totally disagree, 8 = totally agree). The items measure Preference for Online Social Interactions, Mood Regulation, Negative outcomes, Cognitive Preoccupation, Compulsive Use and Deficient Self-Regulation (which is the sum of Cognitive Preoccupation and Compulsive Use). In the present study we analysed students' answer to the Preference for Online Social Interactions, Mood Regulation and Negative Outcomes variables.

Loneliness was measured by the UCLA Loneliness Scale (Russel, 1996). The scale consists of 5 items, measured with a four point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = always). The items ask how often they feel alone or isolated. The measure is reliable, as the Cronbach's Alpha ranges from .89 to 94 and the test-retest reliability is r=.73.

Shyness was measured by the Crozier Shyness Questionnaire (Crozier, 1995). This scale consists of eight items, measured with a three point Likert scale (1 = no, 2 = I don't know, 3 = yes). The items describe everyday situations that would be embarrassing, asking if they actually feel that way.

Child Behavior was measured by the Child Behavior CheckList - Youth Self Report version (CBCL, Achenbach et al., 2001). This scale consists of 112 items in a six-month time period. These 112 questions are scored using a three-point Likert scale (0=not true, 1= true sometimes, 2=often true). This scale gives eight syndrome scales: anxious/depressed, withdrawn/depressed, somatic complaints, social problems, thought problems, attention problems, rule-breaking behaviour, aggressive behaviour. These scales group into two factors: internalizing problems and externalizing problems. Furthermore, it measures six DSM-oriented scales (consistent with DSM IV - TR diagnostic categories: affective problems, anxiety problems, somatic problems, ADHD, oppositional defiant problems, conduct problems). Finally, the YSR measures competence scales for activities, social relations, school and total competence, with 11 additional questions.

Lastly, 3 questions were asked in order to know: 1) daily time amount spent using the internet; 2) kind of devices (own and others' personal computer or smartphone) used to access the Internet; 3) kind of activities carried out (social networking; role playing; blogging, reading blogs or websites; searching for information; messenger/e-mail).

The classes involved were chosen randomly, with prior approval by the principals, teachers and parents. We explained in each class what the purpose of the research was and gave the instructions for completing the questionnaires. During the compilation two researchers were available for students to clarify any compilation or language doubt.

Results

Firstly, we calculated students' mean scores on Preference for Online Social Interactions, Mood Regulation and Negative Outcomes and split the group in up and down the mean (by using the criterion on +/- 1 standard deviation for each sub-scale). We obtained six sub-groups: high vs low Preference for Online Social Interactions; high vs low Mood Regulation; high vs low Negative Outcomes. Consequently, the sample was reduced to 76 subjects for POSI sub-groups, to 71 subjects for Mood Regulation sub-groups and to 19 subjects for Negative Outcomes sub-groups.

Secondly, we performed ANOVA analyses, in order to explore differences between each couple of variables' sub-groups on Loneliness, Shyness and Psychopathology scores. Considered that the 19 subjects from the Negative Outcomes subgroups had only high variable scores, we

randomly selected 19 subjects with low Negative Outcomes scores, in order to perform ANOVA analysis.

Table 1 shows students' mean scores and standard deviation for high and low sub-groups on GPIUS sub-scales.

Table 1. Descriptive Statistics for each sub-group

	N	M	SD
LPOSI[a]	40	1.00	0.00
HPOSI[b]	36	6.44	0.91
LMOOD[a]	36	1.11	0.15
HMOOD[b]	35	6.23	0.84
LNEG[a]	19	1.53	0.74
HNEG[b]	19	4.82	1.17

Note. n = number of participants. M = Mean. DS = Standard Deviation. a = Low levels for, respectively, POSI, Mood Regulation and Negative Outcomes variables. b = High levels for, respectively, POSI, Mood Regulation and Negative Outcomes variables.

Among all the sub-groups, the higher mean score is HPOSI score, while the lower is LPOSI score. Table 2 shows each sub-groups mean scores on internalizing problems variables.

Table 2. Mean and DS scores for each sub-group – Internalizing Problems

	Anxiety-Depression[a]		Withdrawn-Depression[a]		Somatic Complaints[a]		Anxiety Problems[a]		Somatic Problems[a]		Internalizing Problems[a]		Shyness[b]		Loneliness[c]	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
LPOSI	4.25	3.46	2.57	2.99	3.20	2.70	2.57	2.02	2.17	2.09	10.02	7.53	1.57	0.43	1.94	0.56
N=40																
HPOSI	7.83	5.88	4.33	3.60	4.77	3.68	3.889	2.78	2.77	2.56	16.94	12.25	1.80	0.45	2.24	0.68
N=36																
LMOOD	4.53	3.86	2.67	2.99	3.11	2.77	2.75	2.25	2.28	2.11	10.31	8.11	1.68	0.51	1.92	0,62
N=36																
HMOOD	8.23	5.72	4.11	3.66	4.43	3.41	4.00	2.50	2.65	2.29	16.77	11.34	1.79	0.45	2.25	0.69
N=35																
LNEG	6.84	5.76	3.58	3.53	4.16	2.83	4.47	4.95	2.58	2.17	14.58	10.52	1.76	0.39	2.26	0.63
N=19																
HNEG	7.73	4.82	4.94	4.18	5.89	3.82	3.95	2.44	3.58	2.76	18.58	11.38	1.68	0.44	2.28	0.69
N=19																

Note. a = as measured by CBCL. b = as measured by Crozier Shyness Questionnaire. c = as measured by UCLA Loneliness Scale. M = Mean. SD = Standard Deviation.

Overall, groups with high variable levels (HPOSI, HMOOD, HNEG) show higher internalizing problems mean scores than groups with low levels. Table 3 shows each sub-group mean scores on externalizing problems and other problems variables.

Table 3. Mean and DS scores for each sub-group – Externalizing Problems and Other Problems

	Rule-breaking Behavior[a]		Aggressive Behavior[a]		Oppositional Defiant Problems[a]		Conduct Problems[a]		Externalizing Problems[a]		Social Problems[b]		Affective Problems[b]		Attention and Hyperactivity Problems[b]	
	M	DS	M	DS	M	DS	M	DS	M	DS	M	DS	M	DS	M	DS
LPOSI	3.72	4.21	6.63	5.80	3.00	2.30	3.45	4.78	10.35	9.54	2.92	3.23	3.65	3.08	4.00	3.11
N=40																
HPOSI	4.94	5.38	10.42	6.78	3.39	2.15	5.33	5.99	15.36	11.39	5.75	4.44	6.50	5.28	5.42	3.62
N=36																
LMOOD	3.44	4.22	6.25	5.77	2.50	1.95	3.44	4.97	9.69	9.60	3.22	3.69	3.86	3.24	3.72	2.92
N=36																
HMOOD	3.29	3.46	8.40	6.29	3.06	2.36	3.37	4.22	11.69	9.34	4.89	4.16	6.29	4.90	4.40	3.62
N=35																
LNEG	2.37	2.99	6.89	5.16	2.79	1.96	2.32	2.85	9.26	7.19	4.63	3.90	4.47	4.95	4.42	2.89
N=19																
HNEG	6.53	5.22	11.95	6.39	4.16	2.29	7.16	6.13	18.47	10.61	6.31	4.26	7.36	4.66	7.00	3.46
N=19																

Note. a = Externalizing behavior, as measured by CBCL. b = Other Problems, as measured by CBCL.. M = Mean. SD = Standard Deviation

Overall, groups with high variable levels (HPOSI, HMOOD, HNEG) show higher internalizing problems mean scores than groups with low levels.

HPOSI students showed significantly higher mean scores than their colleagues LPOSI on the following sub-scales: anxiety and depression ($F_{(1,74)}$= 10.726, p <.01), withdrawn and depression ($F_{(1,74)}$= 5.393, p <.05), somatic complaints ($F_{(1,74)}$= 4.601, p <.05), social problems ($F_{(1,74)}$= 10.214, p <.01); aggressive behaviour ($F_{(1,74)}$= 6.908, p <.05), affective problems ($F_{(1,74)}$= 8.460, p <.01), anxiety problems ($F_{(1,74)}$= 5.638, p <.05); internalizing problems ($F_{(1,74)}$= 8.988, p <.01), externalizing problems ($F_{(1,74)}$= 4.348, p <.05), total problems ($F_{(1,74)}$= 9.212, p <.05), shyness ($F_{(1,74)}$= 5.028, p <.05), loneliness ($F_{(1,74)}$= 4.559, p <.05).

HMOOD students showed significantly higher mean scores than their colleagues LMOOD on the following sub-scales: anxiety and depression ($F_{(1,69)}$= 10.269, p <.01), affective problems ($F_{(1,69)}$= 6.072, p <.05), anxiety problems ($F_{(1,69)}$=4.922, p <.05), internalizing problems ($F_{(1,69)}$= 7.669, p <.01), loneliness ($F_{(1,69)}$= 4.452, p <.05).

HNEG students showed significantly higher mean scores than their colleagues LNEG on the following subscales: rule-breaking behaviour ($F_{(1,36)}$= 8.333, p <.01), aggressive behaviour ($F_{(1,36)}$= 7.188, p <.05), attention deficit and hyperactivity problems ($F_{(1,36)}$= 6.204, p <.05), conduct problems ($F_{(1,36)}$= 9.747, p <.05), externalizing problems ($F_{(1,36)}$= 9.814, p <.01)

Discussion

Considering the results and according to our hypothesis, our study confirms that a high problematic use of Internet is associated with high social, emotional and behavioural problems. Specifically, students with high levels of Internet use as a way to regulate mood show more internalizing problems (affective problems, anxiety, depression, loneliness) than students with low levels; students with high levels of negative outcomes owing to Internet use show more externalizing problems (aggressive and rule braking behaviours, conduct problems, attention deficit and hyperactivity problems), than students with lower negative outcomes; finally, students with high preference for online social interactions show higher levels of both problematic conditions than students with lower preference.

Starting from the Displacement hypothesis (Lee, 2009), we aimed to better understand how people with high use of the internet manage their offline social interactions. GPIUS measures social negative consequences owing to the use of Internet: it's interesting to consider that in our sample, people with high scores for this variable have aggressive behaviours and conduct problems. This is consistent with the literature, especially when studying video gaming activities (e.g. Holtz et al., 2011). It would be useful to better understand the relationship between externalizing problems, the way they influence offline relationships and the use of the internet.

Moreover, it seems that people with high use of Internet directed towards mood regulation have more internalizing problems. As found by previous authors (Davis, 2001; Arısoy, 2009; Oktan, 2011), people with social and emotional problems could try to manage their failures in life by using the Internet as a rewarding behaviour.

Finally, it seems that people with social and affective problems owing to high shyness, loneliness and internalizing problems prefer online social interactions. In a previous research, Tian (2013) showed that people with high social anxiety tend to have fewer social relationships, both online and offline, but their online relationships have more quality than the offline ones. This is consistent with Peter et al.'s study (2005), in which introverted adolescents felt more safe and more motivated in forming online friendships, than people with higher levels of extroversion. Despite this, it's possible that people who prefer online interactions because of their low social adjustment, could become dependent from their online relationships (Mazur et al., 2000).

Conclusions

The study demonstrated that online communication could reveal itself as a potential risk for social-emotional and behavioural problems or even as a symptom of them. It is possible that adolescents who feel lonely, isolated or extremely shy turn to social interactions online to meet their social needs. For these reasons, it's important to conduct further research about the relationship between these problems and the use of Internet, considering the mediating role of other variables, such as personality traits and self-esteem (Koronczai, 2013), in order to understand what kind of adolescents could be at risk for developing psychopathological symptoms.

Moreover, as found by Lee et al. (2012), a safe use of the internet during the preadolescents is mediated by Internet literacy and parental control. Considered that attachment style influences both online communications and offline relationships (Buote et al., 2009), it could be useful to prevent the association we found in this study between social-emotional problems and internet use by raising children, adolescents and parents awareness about internet risks, in terms of quality of life, behaviour, and social-emotional adjustment. More specifically, it would be useful to teach children and adolescents to properly use the web (e.g. become aware that anything people publish

online is no more private); to engage parents and teachers in learning how to prevent possible problems related to Internet use and to properly monitor the use of Internet in schools and at home; moreover, it would be of great interest to understand whether and how children's and adolescents' needs and expectations are related to Internet use. Finally, it could be of great interest to understand how parents influence the relationship among psychosocial needs and adolescents' use of Internet from a relational point of view.

Bibliography

1. Achenbach, T. M., Rescorla, L. A., 2001. *Manual for ASEBA School-Age Forms & Profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families.
2. Ang, R. P., Chong, W. H., Chye, S., Huan, V. S., 2012. Loneliness and generalized problematic Internet use: Parents' perceived knowledge of adolescents' online activities as a moderator. *Computers in Human Behavior*, 28 (4), pp. 1342-1347.
3. Arısoy, Ö., 2009. Internet addiction and its treatment. *Psikiyatride Guncel Yaklasimlar-Current Approaches in Psychiatry*, 1 (1), pp. 55-67.
4. Baiocco, R., Laghi, F., Schneider, B. H., Dalessio, M., Amichai-Hamburger, Y., Coplan, R. J., Flament, M., 2011. Daily patterns of communication and contact between Italian early adolescents and their friends. *Cyberpsychology, Behavior, and Social Networking*, 14 (7-8), pp. 467-471.
5. Buote, V. M., Wood, E., Pratt, M., 2009. Exploring similarities and differences between online and offline friendships: The role of attachment style. *Computers in human Behavior*, 25 (2), pp. 560-567.
6. Caplan, S. E., 2006. Relations among loneliness, social anxiety, and problematic Internet use. *CyberPsychology & Behavior*, 10 (2), pp. 234-242.
7. Caplan, S. E., 2010. Theory and measurement of generalized problematic Internet use: A two-step approach. *Computers in Human Behavior*, 26 (5), pp. 1089-1097.
8. Crozier, W., 1995, Shyness and self-esteem in middle childhood. *British Journal of Educational Psychology*, 65 (1), pp. 85-95.
9. Davis, R. A., 2001. A cognitive-behavioral model of pathological Internet use. *Computers in human behavior*, 17 (2), pp. 187-195.
10. Ferri, P. M., 2011. *Nativi digitali*. Bruno Mondadori.
11. Fioravanti, G., Primi, C., Casale, S., 2013. Psychometric Evaluation of the Generalized Problematic Internet Use Scale 2 in an Italian Sample. *Cyberpsychology, Behavior, and Social Networking*, 16 (10), pp. 761-766.
12. Henderson, L., Zimbardo, P., Graham, J., 2002. Social fitness and technology use: Adolescent interview study. *USA: Stanford University and Shyness Institute*. Available at: http://shyness.com/wp-content/uploads/2002/2000PalyInterviewStudy.pdf [Accessed March 2014].
13. Holtz, P., Appel, M., 2011. Internet use and video gaming predict problem behavior in early adolescence. *Journal of adolescence*, 34 (1), pp. 49-58.
14. Joiner, R., Gavin, J., Brosnan, M., Cromby, J., Gregory, H., Guiller, J., Moon, A., 2013. Comparing first and second generation Digital Natives' Internet use, Internet anxiety, and Internet identification. *Cyberpsychology, Behavior, and Social Networking*, 16 (7), pp. 549-552.
15. Kim, J., LaRose, R., Peng, W., 2009. Loneliness as the cause and the effect of problematic Internet use: The relationship between Internet use and psychological well-being. *CyberPsychology & Behavior*, 12 (4), pp. 451-455.

16. Koronczai, B., Kökönyei, G., Urbán, R., Kun, B., Pápay, O., Nagygyörgy, K., Demetrovics, Z., 2013. The mediating effect of self-esteem, depression and anxiety between satisfaction with body appearance and problematic internet use. *The American journal of drug and alcohol abuse*, 39 (4), pp. 259-265.
17. Lee, B. W., Stapinski, L. A., 2012. Seeking safety on the internet: Relationship between social anxiety and problematic internet use. *Journal of anxiety disorders*, 26 (1), pp. 197-205.
18. Lee, S. J., 2009. Online Communication and Adolescent Social Ties: Who benefits more from Internet use?. *Journal of Computer-Mediated Communication*, 14 (3), pp. 509-531.
19. Lee, S. J., Chae, Y. G., 2012. Balancing participation and risks in children's internet use: The role of internet literacy and parental mediation. *Cyberpsychology, Behavior, and Social Networking*, 15 (5), pp. 257-262.
20. Mazur, M. A., Burns, R. J., Emmers-Sommer, T. M., 2000. Perceptions of relational interdependence in online relationships: The effects of communication apprehension and introversion. *Communication research reports*, 17 (4), pp. 397-406.
21. Oktan, V., 2011. The predictive relationship between emotion management skills and Internet addiction. *Social Behavior and Personality: an international journal*, 39 (10), pp. 1425-1430.
22. Ozturk, E., Kaymak Ozmen, S., 2011. An Investigation of the Problematic Internet Use of Teacher Candidates Based on Personality Types, Shyness and Demographic Factors. *Educational Sciences: Theory and Practice*, 11 (4), pp. 1799-1808.
23. Park, S., Hong, K. E. M., Park, E. J., Ha, K. S., Yoo, H. J., 2013. The association between problematic internet use and depression, suicidal ideation and bipolar disorder symptoms in Korean adolescents. *Australian and New Zealand journal of psychiatry*, 47 (2), pp. 153-159.
24. Peter, J., Valkenburg, P. M., Schouten, A. P., 2005. Developing a model of adolescent friendship formation on the Internet. *CyberPsychology & Behavior*, 8 (5), pp. 423-430.
25. Prensky, M., 2001. Digital immigrants, digital natives. *On the Horizon*, 9 (5), pp. 2-15.
26. Russell, D. W., 1996. UCLA Loneliness Scale (Version 3): Reliability, validity, and factor structure. *Journal of personality assessment*, 66 (1), pp. 20-40.
27. Tian, Q., 2013. Social Anxiety, Motivation, Self-Disclosure, and Computer-Mediated Friendship A Path Analysis of the Social Interaction in the Blogosphere. *Communication Research*, 40 (2), pp. 237-260.