



## Internet addiction's effect on likeability and rapport

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### ABSTRACT

The Internet Paradox refers to findings that demonstrated that the increase in communications brought about by Internet usage actually had negative effects on user's psychological well-being and social involvement. This study proposes that face-to-face contact promotes the development of rapport and thereby individuals that use the internet excessively will lack these necessary social skills. Specifically, we investigate whether, through use of telephone communications, average users ratings of likeability and rapport would differ when speaking to excessive internet users. This experiment utilized previously unacquainted individuals who conversed by telephone while discussing both, a cooperative and an adversarial task. Results indicate that excessive users were more likely to be depressed and socially inhibited, and also were rated as having a lower level of rapport and likeability. Further research is required in order to explain the role of personality in excessive internet usage.

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### 1. Introduction

Over the past decade worldwide internet use has grown dramatically with an estimated 305.5% growth rate (Internet World Stats, 2008). With this rise in internet usage has come an increase in technological communications (Kraut et al., 1998). This type of interaction requires an external verbalization of thoughts, similar to face-to-face communications. The current trend in society is for individuals to socialize with others through computer-mediated communications, a new form of communications technology (Kraut et al., 1998). This form of interaction provides the individual with an increase in time to respond, as well as the ability to edit and review any thoughts before they are shared. Could the psychosocial benefits of verbal interaction and socialization actually play a role in this person's clinical health? The amount of time that people spend conversing through instant messenger as opposed to actual peer interactions may play a role in how they deal with life's stressors. New technologies are altering self-perceptions, as well as, individual's life satisfaction (Green et al., 2005).

Present research in the field of psychology focuses on the benefits of this type of interaction, claiming that it has the capability of teaching its users to multitask, and affords them the opportunity to expand their social networks beyond physical limitations. Budman (2000) has even suggested that the future of psychotherapy lies in computer-mediated communications due to cost effectiveness and ease of use. Carlbring and Andersson further explored this area in 2006, and posit that internet delivered self-help programs may demonstrate some promising results in treating panic disorder.

Their review included findings that these online programs were equally as effective as in-vivo exposure treatments for social phobia in university students (Tillfors et al., 2008). Other positive aspects of Internet usage concentrates on the removal of the individual as a physical entity, and thereby highlighting personality instead of surface qualities such as physical appearances (Joinson, 1998).

Despite these findings, it appears as though this method of communication may be hindering the social growth of a number of individuals. Since some people may be choosing to spend more time communicating through virtual means, they may begin to lack interpersonal skills in verbal interactions. This emerging aspect of communication is relatively unexplored and has the potential to be relevant for clinical treatments. Therefore, the current study will investigate the role that computer-mediated communications play in the likeability and rapport of college level students who have been reared in this type of society.

The Internet Paradox refers to findings that demonstrated that the increase in communications brought about by Internet usage actually had negative effects on user's psychological well-being and social involvement (Kraut et al., 1998). Internet use can displace valuable time that people spend with family and friends, which leads to smaller social circles and higher levels of loneliness, stress, and depressive symptoms (Nie, Hillygus, & Erbring, 2002). It appears as though as the Internet continues to develop, more individuals are exhibiting dependent behaviors and may possess Internet Addictions (Young, 1996). The consequences of excessive usage have been documented as neglect of academic, work, and domestic responsibilities, disruption of relationships, social isolation, and financial problems (Egger & Rauterberg, 1996; Griffiths, 2000; Young, 1996).

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Internet research about a person's online habits suggests that some online behaviors do have harmful offline consequences. This research indicates that access, anonymity, and autonomy are the aspects of online communications that aid in the surfacing of psychopathology when the individual is offline (Suler, 2004). In fact, some psychologists believe that traumatic experiences tend to cause certain people to gravitate towards excessive Internet usage. Therefore, it is believed that these excessive behaviors actually function to reduce anxiety as a strategy to manage stress (Hardie & Tee, 2007). However, other researchers, most notably Denegri-Knott and Taylor (2005), believe that the Internet is the cause of the problem rather than the effect. Their hypothesis suggests that the Internet provides a medium through which individuals can act out their psychological pathologies.

Socially inhibited individuals, as the evidence suggests, tend to be lonely, lack necessary social skills to form and develop close interpersonal relationships, and harbor negative perceptions of others (Wittenberg & Reis, 1986). In addition, social problem solving and empathy are less developed in socially inhibited people (Bengtsgard & Bohlin, 2001). These results suggest that socially inhibited people are already at risk for socio-emotional problems (Rubin, Hymel, Mills, & Rose-Krasnor, 1991) and therefore, may have their problems compounded when factoring in excessive Internet usage. This study addressed this issue and predicted that people who are predisposed to social inhibition will use computer-mediated communications to socialize without entering real world situations.

Although personality factors play an important role in excessive Internet usage, physiological effects also exist. In face-to-face interactions, the brain is able to read a continual cascade of emotional signs and social cues that are instantaneously used to guide our ensuing actions. This area of the brain, or the orbitofrontal cortex, serves as the center for empathy, and uses this social scan to ensure that our physical behaviors keep our interactions on track by inhibiting impulses that would upset the other individual (Beer, Shimamura, & Knight, 2004). Online communications reduce this role of the orbitofrontal cortex in communication by encouraging disinhibition. (Morahan-Martin & Schumacher, 2000; Suler, 2004). This can either inhibit or facilitate positive behaviors offline. For example, a socially inhibited person can learn how to communicate with others online and then transfer these new skills to face-to-face encounters. On the other hand, the possibility exists that individual's use of the Internet may hinder their social development by under activating their orbitofrontal cortex. This would result in an inability to carry on the flow of a conversation, or create a lower level of rapport, and then ultimately decrease their likeability.

Results from previous research demonstrated that individuals tend to reveal more personal or embarrassing information through computer-mediated communications than when interacting with another person in a face-to-face interaction (Joinson, 1998). Although it appears as if some individuals may lack inhibition when communicating through the Internet, little research has been done to note what psychological side effects this may produce. By controlling for level of Internet usage, this research will be better equipped to measure the effect of online communications on an individual's likeability and ability to build rapport. Our hypothesis suggests that participants who use the internet excessively will be rated as being less likeable, and also be rated as having lower levels of rapport than average Internet users.

The ability of individuals to verbalize their emotions is one of the keys to leading a healthy lifestyle (Pennebaker, 1997). More specifically, when people are capable of expressing emotions outwardly, through spoken or written language, they are better able to understand themselves, cope with stressors, and deal with life's problems more effectively. However, previous research did not

take into account those individuals that may rely on socialization through technology.

It is predicted that excessive computer-mediated communications usage will negatively impact likeability and rapport building ability for individuals in the high usage category. If this hypothesis is supported, then computer-mediated forms of social interaction may actually hinder rather than enhance development of social skills. Therefore, the clinical implications of this line of research would be advantageous in determining various different treatment methods for individuals that possess difficulties socializing through face-to-face interactions.

## 2. Methods

### 2.1. Participants

Data for this study included 74 undergraduate female students enrolled in introductory psychology classes at Hofstra University. Participants were run in dyads in 20 min sessions. The university provides free e-mail addresses and Internet access to all students; therefore ensuring that each individual had access to the many different forms of computer-mediated communication tools. Participation was voluntary and satisfied requirements for course credit. All participants were naïve to the hypothesis and were treated in accordance with the "Ethical Principles of Psychologists and Code of Conduct" (American Psychological Association, 1992).

### 2.2. Materials

This study required use of two analog, landline-based telephones for participants to contact the each other. The experimenter also used a stopwatch to ensure the telephone conversation did not exceed the designated time limit. A Denpa MP-38 Digital Voice Recorder was used to record the telephone conversations for future coding.

### 2.3. Procedures

The study involved two separate phases. The first phase included data collection through a campus-wide survey that allowed the researcher to pre-select participants based on usage of computer-mediated communications. The second phase involved a telephone conversation between two participants, where each rated the interaction with regard to rapport and likeability.

#### 2.3.1. Phase I: mass screening

At a designated recruiting session, participants were surveyed en mass through paper-and-pencil measures to determine if they were qualified to proceed to Phase II of the study. Upon completion of the informed consent, participants were asked to complete the Internet Addictions Test (Widyanto & McCurran, 2004), which measured the extent to which Internet usage interfered with their daily living. This questionnaire is made up of six factors, which include salience, excessive use, neglecting work, anticipation, lack of control, and neglecting social life. These factors show good internal consistency and concurrent validity. The participants were also given the Type D Scale-14 (DS14) (Denollet, 2005), which provides a tool for the assessment of Type D personality, or the joint tendency toward negative affectivity and social inhibition. The results of this measure are internally consistent, stable over a 3-month period, and not dependent on mood and health status; and therefore depict a true estimate of the individual's level of social inhibition. Participants also completed the Beck Depression Inventory – Second Edition (BDI-II; Beck, Steer, & Brown, 1996) to assess for level of depression. This questionnaire did not contain any identifying information about participants other than a random six digit series

created by participants in order to be contacted for use in the second phase.

### 2.3.2. Phase II: telephone conversations

Using results gathered from Phase I of the study, female participants were assigned to dyads comprised of high or average computer-mediated communications usage. High usage was defined as scoring at or above 40 points on the Internet Addictions Test, indicating either occasional or frequent problems due to use of the Internet, such as excessive time spent online, and was approximately 25% of the users surveyed. Average usage was defined as below 40 points, demonstrating Internet use that is within normal limits, or as having control over their usage. Prior to beginning this second phase, high and average usage individuals were linked with another user who was within the average range. For this second phase of the study, participants were instructed to report to one of two Hofstra University research laboratories. Upon their arrival, participants were asked to complete an informed consent that clearly stated the purpose of the study. They were then given a cover story where they were told that we were attempting to measure social relations through telecommunications by requiring them to speak with another participant over the telephone. Participants were then asked to engage in a telephone conversation with another participant. They were informed that the other participant was located at another research lab located on the Hofstra campus. The participants' conversations focused on two main topics, used previously in research by Bernieri, Gillis, Davis, and Grahe (1996). They were asked to discuss an adversarial topic about their beliefs on abortion, as well as a cooperative topic on planning a trip. These conversation subjects were counterbalanced for order across conditions. In order to ensure that both participants' remained completely anonymous, both were instructed to refrain from stating their last names or any other information pertaining to their identity. The examiner kept track of the 5 min time limit given for each of the two conversations, and then instructed the participants to promptly ending the conversation.

Following these interactions, the participants each filled out the Rapport Questionnaire (Tickle-DeGnan & Rosenthal, 1990), assessing the level of the connection felt during the conversation. This scale measures the participant's level of rapport in the interaction, their view of their partner's rapport, and their interpretation of the total interaction. Participant's then completed the Reysen Likability Scale, which measures the degree of likeability of a targeted source (Reysen, 2005). These scales were both administered via paper-and-pencil. Upon completion, each participant was debriefed as to the true nature of the research, thanked for their time, and given credit for participating.

The data was analyzed using the Statistical Program for Social Sciences version 16.0 (SPSS 16.0) to determine whether there is an interaction between likeability, degree of social inhibition, and usage of computer-mediated communications.

### 3. Results

The data consists of the likeability and rapport scores made by the average Internet usage participants when rating the high ( $n = 21$ ) or other average ( $n = 16$ ) Internet usage participants. All statistical analyses were done using independent samples *t*-tests. An alpha level of .05 was used on all statistical tests. The high internet usage group yielded a lower mean likeability ( $M = 56.5$ ,  $SD = 9.6$ ) compared to the average internet usage group ( $M = 62.8$ ,  $SD = 7.0$ ),  $t(35) = 2.308$ ,  $p = .027$ . Also, when an excessive Internet user was rated on their level of rapport in conversation ( $M = 54.91$ ,  $SD = 10.33$ ), this was also significantly lower when compared to an average internet user ( $M = 61.88$ ,  $SD = 6.94$ ),  $t(35) = 2.41$ ,  $p = 0.019$ . A trend was also found when rating the

**Table 1**  
Demographic characteristics of study participants.

		N	Percent of sample
Gender	Male	0	0
	Female	74	100
Age	16–20	67	90.5
	21–25	6	8.1
	26–30	1	1.4
Race	White	54	72.9
	African American	8	10.8
	Hispanic	9	12.2
	Asian	3	4.1
	Other	0	0

Note. The values represent the number of participants that fell within a given demographic. The total number of participants that took part in the study was 74, but were paired to form 37 dyads.

interaction as a whole, with lower overall ratings for conversations with excessive Internet users ( $M = 101.71$ ,  $SD = 22.13$ ), when compared to average users ( $M = 113.56$ ,  $SD = 13.71$ ),  $t(35) = 1.88$ ,  $p = 0.054$ . However, when the participants were asked to rate their own characteristics of rapport in the conversations, excessive users ( $M = 56.76$ ,  $SD = 8.33$ ) were not statistically different from average users ( $M = 58.06$ ,  $SD = 8.27$ ),  $t(35) = .473$ ,  $p = .640$ . Excessive internet users also produced a higher mean score on depression ( $M = 14.43$ ,  $SD = 8.56$ ) and social inhibition ( $M = 12.53$ ,  $SD = 6.82$ ) compared to the average internet usage group's depression ( $M = 6.44$ ,  $SD = 5.88$ ),  $t(35) = -3.198$ ,  $p = .003$ , and social inhibition ( $M = 7.56$ ,  $SD = 5.50$ ),  $t(35) = -2.378$ ,  $p = .023$ . The excessive users also did not differ significantly when questioned as to total number of social groups ( $M = .86$ ,  $SD = .96$ ) as compared to average users ( $M = .69$ ,  $SD = .95$ ),  $t(35) = -.535$ ,  $p = .596$  (see Table 1).

### 4. Discussion

This study found that excessive Internet users were rated as being less likeable and less capable of building rapport than average Internet users, as rated by other average Internet users. Findings of the present study show statistically significant differences between the two groups with regard to these measures; however, no difference existed when these participants were asked to rate themselves in the interaction. This suggests that although other normal users rated the excessive user as being less capable of building rapport, these high users perceive themselves as being equally adept. These results provide support for the hypothesis that excessive Internet usage may negatively impact a number of individuals.

The findings of this research are similar to those of the *Internet paradox* (Kraut et al., 1998). According to Kraut, the negative effects of Internet usage may result from two factors. They state that the displacement of social activities may be one reason for these effects because people spend the majority of their time online and therefore, are unable to participate in face-to-face social activities. This factor was not supported in the present study, where the total number of social groups between conditions did not differ significantly. However, Kraut's second factor, which may be more relevant, is the displacement of strong ties because the quality of online relationships are lower than that of face-to-face relationships. When an individual becomes accustomed to conversing through technological mediums, they are sacrificing the beneficial properties of actual face-to-face encounters.

The results also show that individuals that use the internet excessively rate themselves as being more depressed and socially inhibited than average users. These findings replicate prior research which has indicated that individuals who report excessive Internet usage demonstrate higher emotional loneliness, or lack of

a truly intimate tie, but an equal amount of social loneliness, or lack of a network of social relationships with peers, when compared to a group whose usage fell within the normal range (Moody, 2001). These findings are particularly relevant because emotional loneliness has been linked to the presence of a romantic partner within an individual's social network (Green, Richardson, Lago, & Schatten-Jones, 2001). Therefore, individuals that use the Internet to excess may not be engaged in a romantic relationship, and in turn experience greater emotional loneliness. This suggests that the impact of the Internet on real world socialization is more complex than previously thought. Combining the results of this data, along with the data on emotional loneliness, depressed or socially inhibited individuals may be drawn to excessive internet usage.

Future studies should examine different patterns of Internet usage to determine the extent to which these behaviors can be detrimental to a person's psychological well-being. For example, this study focused exclusively on female college students, but it appears that groups of differing ages, socioeconomic status, and gender may use the Internet differently. For example, individuals with lower socioeconomic statuses are less likely to have access to the Internet and are therefore, are less likely to spend excessive time online. Lower cost of Internet services or increased access to online communications may allow for these findings to become more applicable to individuals not found on a college campus. Therefore, future studies should consider different age groups, as well as both genders, as possible contributing factors to the interaction between likeability, rapport, and excessive Internet usage. Furthermore, this study focused on instant messaging and e-mail as the primary computer-mediated communication tools. However, new technologies exist that allow individuals to verbally communicate on the Internet while viewing each other through digital video cameras. Do these results generalize to these newer forms of computer-mediated communications? This area is one in which needs to be probed further by future research.

Since the Internet's conception, a tremendous amount of data has emerged about trends in the field of psychology that have been affected by the phenomenon known as cyberspace. However, a direct relationship has not yet been formed with this field in relation to psychological services. Demonstrating a relationship between the variables of computer-mediated communication and a person's likeability and rapport may help explain the increase in seeking psychological counseling on college campuses, as well as the increase in symptom severity of patients (Benton, Robertson, Tseng, Newton, & Benton, 2003).

The potential clinical benefits for this line of research are extensive. This study may begin to create a trend in research which to address the possible connection between Internet usage and psychopathology in a systematic manner. It may help provide a reason for the growing number of adolescence with inability to express themselves adequately in face-to-face interactions. These areas would provide a greater depth to this line of research, and therefore contributes to its clinical significance.

A limitation of this study is that we were unable to control or measure the length of time individuals have been excessive users, such that it is not known how excessive Internet usage over an extended period of time will affect a person's psychological and physical well-being. Current research focuses on the effects of initial Internet use within the first two years of Internet exposure (Joinson, 1998). To determine any potential long-term effects of Internet usage, researchers need to conduct longitudinal research beyond the first two years of exposure. However, due to the relatively short history of computer-mediated communications, the significance of any findings would be minimized due to the rapid expansion of the Internet.

Another limitation was that we were unable to control for the possibility of webcam usage that may take place during the com-

puter-mediated communications. This may pose a significant impact on the findings, which suggest that excessive internet users lack practice in the necessary face-to-face interactions. Future research should control for new technologies that permit individuals to communicate through electronic mediums that replicate face-to-face communications.

Although instant messenger and e-mail have potential benefits to some members of society with regard to socialization, it appears as though individuals with social skills problems choose to spend more time on the internet. In order to fully understand computer-mediated communications and its effects on our society, research must be able to keep up with the ever-changing technological innovations. However, as these advancements continue, it appears as if the field of psychology is focusing solely on the potential benefits of technology and not taking into account the full extent to which it can be detrimental to one's psychology well-being. Ongoing research that delves into Internet usage and its psychological side effects must continue in order to accurately assess the damage that may be caused on the new generations of individuals being socialized through the Internet.

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