

# “On the Internet No One Knows I’m an Introvert”: Extroversion, Neuroticism, and Internet Interaction

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## ABSTRACT

Social communication is one of the most common reasons for using the Internet. This paper examines how the personality characteristics of the user affect the meaning and importance of Internet social interaction in comparison with “real life,” face-to-face interactions. Forty subjects all of whom were familiar with using “chat” participated in this study. After a “chat” session, they were instructed to answer several questionnaires. It was found that introverted and neurotic people locate their “real me” on the Internet, while extroverts and non-neurotic people locate their “real me” through traditional social interaction. The implications of our results for understanding the user-net interaction, the “real-me” location, extroversion, neuroticism, and Internet interaction, and the treatment of social phobics are examined.

## INTRODUCTION

ONE OF THE MOST POPULAR SERVICES offered by the Internet is that of social communication.<sup>1</sup> Kraut et al.<sup>2</sup> carried out a longitudinal Internet study. Their main conclusion was that Internet use leads to loneliness and depression among its users. Conversely, McKenna and Bargh<sup>3</sup> found that, for people who felt that their identity carried a stigma with it, the anonymous Internet environment and the ease with which it is possible to find like-minded people helped them to build significant relationships with others. Some of them actually chose to meet their Internet respondent face to face and even entered into matrimony.

Amichai-Hamburger<sup>4</sup> criticized the work of Kraut et al.<sup>2</sup> on several counts. First, that it failed to take into account that the population of Internet users is not uniform but comprises many different personality types. Second, that it ignored the fact that the Internet does not provide only one service, which is taken up by all

its users, but rather, it provides a variety of services, which are used by different types of people in different ways according to preference. Therefore, the effect of this interaction between personality and Internet use is likely to vary among different individuals and similarly the impact on user well-being will not be uniform.

McKenna and Bargh<sup>5</sup> suggested that social interaction on the net has unique characteristics: (1) anonymity, the fact that relationships may be formed without the ubiquitous requirements of physical presence and proximity; (2) that the individual can choose when to log on and off and repeatedly rewrite what he/she wishes to say, which gives him/her far greater control than is usual for a relationship happening in real time. McKenna and Bargh<sup>6</sup> have gone on to suggest that there are two main motivators behind the tendency to interact with others on the Internet: self-related motives and social-related motives. Those for whom these needs are not satisfied through daily social interaction may attempt to fulfill them through

the Internet. McKenna and Bargh focused on the self-related needs and argued that, when the self cannot be expressed in the immediate environment, the individual will strive to find a social framework in which he/she can express his/her personality and needs. McKenna and Bargh<sup>3</sup> have based their concept of the real self on Rogers,<sup>7</sup> who argued that the discovery of the true self is an essential part of therapy. To achieve personal satisfaction, a person has to be able to express his/her real self in social interaction and receive social recognition for it. To assess the ability to express the personality layers significantly in communication with others, McKenna and Bargh<sup>6</sup> created an indicator called the "real me." This stands for the degree of ability to express fully the real self in a social environment.<sup>6</sup> Through their work that includes two extensive surveys of Internet users and two laboratory experiments, they were able to suggest that the tendency of people to build close and meaningful relationships on the net is mediated by the location of their "real me" on the Internet, rather than in the "real world."

One personality theory that may be strongly related to the concept of real-me and may give it a broader interpretation is the theory of the extroversion and neuroticism scale.<sup>8</sup> Hamburger and Ben-Artzi<sup>1</sup> demonstrated that extroverts and introverts neurotic and non-neurotic use different services in different ways when on the net. This study examines the interaction between the "real me" and the extroversion neuroticism scales through questionnaires completed by subjects who are regular users of "chat." It is predicted that (1) people who are introverts or neurotic because of their difficulties in social interactions will locate their "real me" through the Internet; and (2) extroverts and nonneurotic people will locate their "real me" through traditional social interactions.

## MATERIALS AND METHODS

### *Subjects and procedure*

Forty subjects, hi-tech workers (19 men and 21 women) who described themselves as chat users, ranging in age from 20 to 32 years ( $M =$

25), volunteered to participate. To refresh the experience of "chat," each participant was asked to enter the chat room #Israel in Dalnet and take part in a discussion for 20 min. They were then instructed to complete the following questionnaires.

### *Instruments*

*Real-me questionnaire.* This comprised four questions focusing on the ease with which subjects opened up to their Internet friends as opposed to their real-life friends. Two items were closed questions ("yes" or "no" answers): "Do you think you reveal more about yourself to people you know from the Internet than to real-life (non-Net) friends?" and "Are there things your Internet friends know about you that you cannot share with real-life (non-Net) friends?" Participants were then asked to rate their answers to the next two questions on a seven-point scale (1 being "not at all" and 7 being "a great deal"). Question 3 assessed the extent to which the respondent expresses different facets of self on the Internet than he or she does to others in "real life," Question 4 asked for the extent to which a respondent's family and friends would be surprised were they to read his or her Internet e-mail and newsgroup postings. The four items were scale standardized (to Z scores and then to T score), and then the average was found in order to form a "Real Me" index. The higher the score indicates that the "real me" is more firmly placed on the Internet. Reliability for the "real me" questionnaire was Cronbach's  $\alpha = 0.79$ .

*EPQ-R.* The Eysenck Personality Questionnaire-Revised<sup>8</sup> was then administered. For the purposes of this study, the Extroversion Neuroticism scales only were calculated.

## RESULTS

Means and standard deviations for the study questionnaires are provided in Table 1. Pearson correlations among extroversion and neuroticism and the "real me" are shown in Table 2. An inspection of the correlation pattern indicated that extroversion and neuroti-

TABLE 1. MEANS AND STANDARD DEVIATIONS OF E-SCALE, N-SCALE, AND "REAL ME"

Variable	Entire sample		
	(n = 40)	Males (n = 19)	Females (n = 21)
E scale			
M	14.7	15.36	14.09
SD	5.45	5.21	5.71
N scale			
M	10.72	9.84	11.52
SD	5.21	4.92	5.45
Real me			
M	50.00	50.46	49.58
SD	7.82	6.54	8.98

cism correlate differently with "real me." Extroversion was negatively related to the "real me"; that is, extroverts locate their "real me" through face-to-face interaction, whereas neuroticism was positively related to the "real me," namely, that neurotic people locate their "real me" through Internet interaction. What seemed to be a difference in neuroticism between male and female participants was found to be not significant ( $Z = 1.02, p > 0.05$ ).

To examine our results further, we have cut participants' results on the extroversion and neuroticism scales by the median scores of each of the scale results to high and low. This has created four groups of subjects: (1) high on extroversion and high on neuroticism; (2) high on extroversion and low on neuroticism; (3) low on extroversion and high on neuroticism; and (4) low on extroversion and low on neuroticism. A between-subjects factorial design (ANOVA), 2 (Extroversion)  $\times$  2 (Neuroticism) was conducted on participants "real me" ratings. Results are shown in Table 3. There was a main effect for extroversion ( $F(1, 36) = 6.38; p < 0.016$ ). As we can see from Table 4, extroverts locate their "real me" in face-to-face interactions while introverts locate their "real

TABLE 3. ANOVA'S WITH "REAL ME" AS DEPENDENT ANOVA VARIABLE, EXTROVERSION AND NEUROTICISM AS MAIN EFFECTS, AND EXTROVERSION NEUROTICISM AS INTERACTION EFFECT

Variables	df	MS	F	p
Extroversion (E)	1	305.53	6.38	0.016
Neuroticism (N)	1	164.5	3.43	0.072
E $\times$ N	1	56.33	1.17	0.285

me" through the Internet. The neuroticism factor was found nearly significant ( $F(1,36) = 3.43; p < 0.072$ ). As we can see from Table 4, neurotic people locate their "real me" through the Internet, while nonneurotic people locate their "real me" in face-to-face interactions. There was no significant interaction. If we look at Table 4, it is important to note that the neurotic introverts were the highest on "real me" ( $M = 55.98$ ), while the lowest were the extrovert nonneurotics ( $M = 46.06$ ). These results strengthen the results we obtained with the Pearson correlations.

## DISCUSSION

It was found that introverted and neurotic people locate their "real me" on the Internet, while extroverts and nonneurotic people locate their "real me" through traditional social interaction. These results confirmed our predictions.

It would appear that the social services provided on the Internet, with their anonymity, lack of need to reveal physical appearance, rigid control of information revealed in the interaction, and the ease with which it is possible

TABLE 2. PEARSON CORRELATIONS AMONG EXTROVERSION AND NEUROTICISM AND "REAL ME"

Real me	Extroversion	Neuroticism
Entire sample	-0.45**	0.33*
Males	-0.48*	0.16
Females	-0.46*	0.46*

\* $p < 0.05$ .

\*\* $p < 0.01$ .

TABLE 4. MEANS AND STANDARD DEVIATIONS OF EXTROVERTS AND NEUROTICS "REAL-ME" RATINGS

Neuroticism scale	Extroversion scale	
	Extroverts	Introverts
Neurotics		
N	7	12
M	47.8	55.98
SD	8.73	6.02
Nonneurotics		
N	13	8
M	46.06	49.33
SD	4.7	9.25

to find like-minded people, provide an excellent answer to people who experience great difficulty in forming social contacts due to their introverted personality.

McKenna and Bargh<sup>6</sup> showed that relationships in cyberspace can and do move into real life, and this may provide significant hope for those who find it very difficult to build a connection and who are consequently very lonely.

The concept of a virtual world, which is sometimes used to describe the Internet, carries with it the idea that the Internet is some kind of replacement for the real world. However, our results indicate that, for introverts and neurotics, the Internet can play a vital role in providing the opportunity to express their "real me." The expression of the "real me" is not a minor aspect of life but a very crucial one. People who can't express their "real me" are prone to suffer from serious psychological disorders.<sup>7</sup> It is therefore important to continue research in this field that will enhance our knowledge of the interaction between the user and the Internet and its impact on well-being.

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