

Personal Issues of Social Networks: Towards Safe Surfing

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ABSTRACT

In this paper, the authors make an attempt to analyze, with help of some statistical data, basic personality traits influenced by active interaction with social networks. The hypotheses that active users of social networks have a high level of neuroticism and a low level on the scale of "conscientiousness" have been confirmed. In addition to the traditional psychological approaches to diminishing the influence of aggressive factors, the authors propose to extend in some way the functionality of Internet browsers.

Keywords: personality traits, neuroticism, openness, conscientiousness, social network, active user, safe browsing.

1. INTRODUCTION

Today, when the Internet is omnipresent and available through many devices, it is becoming increasingly difficult not to be caught in a net and to be free of its influence (fall into a "network" and not to find yourself being under its influence). In the modern world, people are overwhelmed by a stream of virtual information which changes and transforms them [1,2,9]. Therefore, the study of a personality in the context of new social and virtual phenomena is becoming increasingly topical.

Numerous studies have shown that social networks involve more than half of all Internet users. In Russia, this figure is lower than in the rest of the world, but it is growing rapidly [4]. According to the survey conducted in 2009 among the Moscow students aged from 18 to 23, 78% of the respondents were active participants of virtual social networks. Their involvement was as follows: a

member of a single network - 4.5%, two networks - 12.3%, three networks - 32.8%, four networks - 28.2%, and five or more networks - 22.2% [1]. The study made at the Penza State Pedagogical University in 2014 suggests that *Vkontakte* has become a true social network for young people. 99% of respondents have an account in a social network, and all of them have expressed a preference for *Vkontakte*, followed by *Odnoklassniki*, *Moi Mir* (Russian popular social networks) and then, in a descending order, Facebook, LiveJournal, Twitter and others. The majority of the respondents had accounts in several social networks [6].

Clearly, the multi-network social factor is the basic behavior model of young people in the virtual social space [1,8,11,12]. What are the reasons behind this situation? The root of the problem lies primarily in the personality of the user. The authors have attempted to identify specific personality traits of the active users of social networks that is, to look at the problem from the inside, making a sketch of the personality of an active social network user.

Yet another interesting question is: "If the present life is Internet-based, can we make this surfing safe?" It is especially important in the case of social networks, when their user is involved in active multi-aspect interactions and is under the pressure of different factors caused by these interactions. The authors will discuss some technological solutions that can be implemented in the Internet browsers to decrease the negative influence on social network-susceptible users.

2. THE PROBLEM SETUP

An *active user of a social network* is a person who spends over three hours per day on the social network, browses a large number of pages, and administers discussion groups [2,3,9,10]. The criteria of addiction to social networks are:

- regular daily visits and updating the homepage(s),
- continuous online mode for more than four hours a day;
- irritability and anxiety in the absence of the opportunity to visit the page of a social network;
- daily need to watch for updates on the page regardless of the owner's location;
- regular translation of personal experiences into the "status" of the social page;
- growing preference for online communication over communication in person,

etc.

Taking into account the fact that active users of social networks prefer special forms of communication and staying in the virtual sphere, for contrast comparison the authors matched their traits with the traits of those who do not visit social networks. To describe personality traits, the authors relied on the dispositional model "The Big Five Personality Traits" (for example, [7]). The following hypotheses were proposed.

1. *Active users of social networks should exhibit high levels of neuroticism.*

Neuroticism reflects a general tendency to experience negative affective states such as fear, sadness, irritation, anger, guilt, and disgust. Individuals with high levels of neuroticism are prone to irrational ideas, low impulse control, and low resistance to stress. Concernment, hostility, impulsivity and vulnerability to stress which constitute the essence of neuroticism, may indicate difficulties in communicating in the real world, lack of self-confidence, proneness to addictions and escape from reality, which encourages the person to increasingly use social networks. Accordingly, the authors assumed that the active user of social networks should display high levels of neuroticism.

2. *Active users of social networks manifest high rates of personality openness.*

Openness to experience [7] characterizes those individuals who are willing to accept and support new ideas and unconventional values. They experience both positive and negative emotions more intensively than closed individuals do. Open individuals tend to question authority and are ready to support new ethical, social, and political ideas. Openness to communication, new things, and changes may prompt the person to expand his or her circle of contacts, to have a desire to express oneself and show oneself (in our case, largely in the social network than in the real life). A moderate number of contacts and activities off-line paves the way to craving for virtual communication, thus the authors assumed that the active user of social networks should exhibit high level of openness to various experience.

3. *Active users of social networks show low rates of personality conscientiousness.*

Conscientiousness primarily entails self-control, which in addition to controlling emotional reactions is correlated with active processes of planning, organizing, and implementing activities or some of their stages. Conscientious people or people with high integrity (in this context) are purposeful, strong-willed, determined, and uncompromising persons. Therefore, the authors assumed that conscientiousness (implying competence, order, sense of duty, commitment to success, self-discipline, and diligence) would not be a typical quality for active users of social networks. The authors also relied on the fact that spending time in the Internet tends to imply anonymity (and thus impunity), high speed of communication, and disorderly (incessant) exchange of information, which aligns in a disposition with respect to conscientiousness.

To identify personal traits, the authors used the NEO PI-R methodology – the Revised NEO Personality Inventory, designed by Paul T. Costa Jr. and Robert McCrae [7]. Active users of social network were identified using a questionnaire designed for determining the level of cyber-communicative addiction [5]. This questionnaire was used as a validated method not so much for identifying the individuals dependent on social networks, but rather for detecting active users, who were categorized as such if they had over 50% of the maximum score.



Figure 1 Average scores across five basic personality traits for two groups of subjects.

3. STATISTICAL RESULTS

The authors carried out the study on the identification of specific personality characteristics of active users of social networks in the period from February to May 2015. The sample included 60 people: 30 active users of social networks and 30 people who do not use social networks. The groups were homogenous with respect the most valuable characteristics. Men and women were represented equally; their ages ranged from 22 to 36; of both the city and the countryside residents were represented. Despite the fact that social networks studies implicitly assume large number of examinees nevertheless, results for small homogeneous groups correlate with the results for larger groups quite well [13].

Using the NEO PI-R methodology, the authors received the following results (see Figures. 1 and 2). The

graphs show average figures and standard deviations for each of the five basic factors for active users of social networks and the control group.

The graph makes it possible not only to assess the intensity and the correlation degree of personality factors in each sample, but also to compare the average figures between the groups. The standard deviations in the two groups did not differ significantly, allowing the authors to use the averages for preliminary comparison between the groups.

As the authors may see, active users of social networks exhibit a higher degree of openness, neuroticism, and extraversion, as compared with the control group. Those who are not engaged in social networks have higher scores on agreeableness and conscientiousness. However, the comparison of average figures does not give the authors sufficient grounds to confirm or refute the

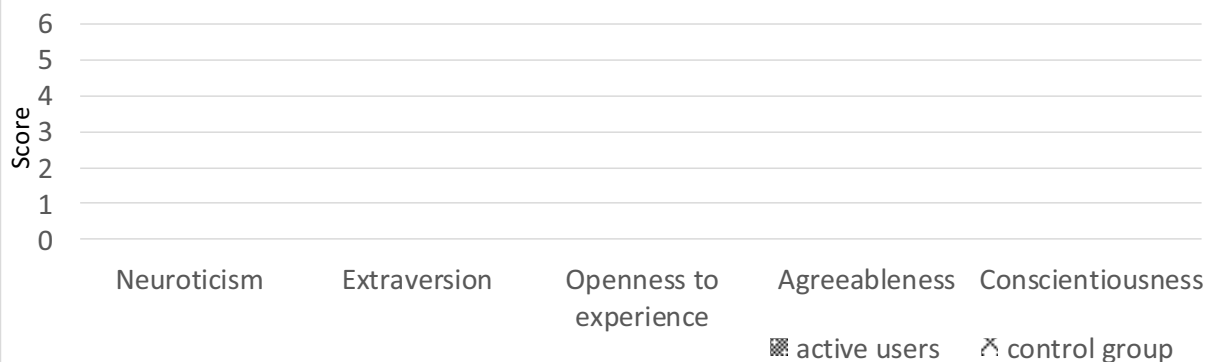


Figure 2 Standard deviation across five basic personality traits for two groups of subjects.

hypotheses, which the authors put forward in their study; thus the authors should turn to the statistical method of comparing two independent populations.

To process the results the authors used the standard StatSoft Statistica 6.0 software package. Since the study samples consisted of two unbound aggregates, the U-Mann-Whitney test was applied for comparing the groups in pairs and finding statistically significant differences between them. Before applying the test, the samples were checked for compliance with the constraints of its applicability.

The results of comparing the group of active users of social networks and the control group in terms of neuroticism are presented in Table 1.

Table 1. U-values for neuroticism in both groups

Rank Sum Group 1	Rank Sum Group 2	U	p-level
Active users	Control group	117.0000	0.003654
1096.0000	734.0000		

Our hypothesis on the high levels of neuroticism among active users of social networks was confirmed. The experimental group and the control group appeared heterogeneous in terms of this factor. For comparing the scores of social networks active users and the control group, the authors made a search of the group with the intensely manifested parameter of “neuroticism” using the method of rank sum assessment. As it can be seen from the data, the control group has the lowest rank sum, which indicates the lower value of neuroticism among those respondents. Accordingly, the assumption concerning the negative affective states (fear, sadness, irritation, anger, guilt, and disgust), propensity to irrational ideas, low impulse control and low stress resistance, concernment, hostility, and impulsivity as typical features of active users of social networks has been confirmed. Due to their personal features, such people become vulnerable to stress, have difficulty in communicating in the real world, are insecure, have a proneness to addictions and escape from reality, all of which contribute to their active use of social networks.

Table 2 presents the results of comparing the groups according to the factor of “openness to experience.”

Table 2. U-values for openness to experience in both groups.

Rank Sum Group 1	Rank Sum Group 2	U	p-level
Active users	Control group	192.0000	0.096748
961.0000	869.0000		

The hypothesis that the active users of social networks will have high scores on the scale of “openness to experience” has not been confirmed. The group of active users and the group of those who do not use social networks have turned out to be homogeneous, with nearly equal rank sums. In our opinion, this may be explained by the similarity of the manifestations of openness to experience in social networks and in direct communication. Acceptance and support of new ideas and unconventional values are important both for the users of social networks and for those who are not involved in virtual communication. The results show that the scores of both groups are a little above average, which suggests that the subjects experienced both positive and negative emotions more intensively than the closed individuals, and while the active users of social networks expressed their feelings online, the respondents from the control group would live through their personal experience in real life.

The hypothesis that active users of social networks will have a low level on the scale of “conscientiousness” has been confirmed. As data in Table 3 show, the two groups of subjects turned out to be heterogeneous, and the respondents who do not have accounts in social networks have a greater rank sum.

Table 3. U-values for conscientiousness in both groups.

Rank Sum Group 1	Rank Sum Group 2	U	p-level
Active users	Control group	93.0000	0.002578
832.0000	998.0000		

Conscientiousness, manifested to a greater degree in those who do not have accounts in social networks, primarily implies self-control. In addition to controlling emotional reactions, it may correlate with more active planning, organizing, and implementing activities and their particular stages. This may have the following explanation. Conscientiousness, implying competence,

order, sense of duty, commitment to success, self-discipline and diligence, is not typical for the active users of social networks due to the anonymity in the virtual world. This derives from the high speed and low depth of communication constructed in this space, and also from the fact that spending time in a social network does not imply any reference point and the point of completion; it is based entirely on the incessant exchange of information.

Conscientiousness characterizes self-motivated, strong-willed, determined, and uncompromising individuals. Active social network users do not manifest these features because virtual communication, among other things, performs the function of relaxing tension and providing means to spend free time, which does not imply perseverance or working on yourself, which takes place in real life.

The authors do not discuss results relating Extraversion and Agreeableness because they do not demonstrate valuable and interesting properties in the domain under consideration.

4. FINAL REMARKS

To sum up, the authors can say that the results of the study have made it possible to identify typical personality traits of the active users of social networks, and confirmed the specificity of these features in comparison with the respondents who do not use them.

The results of this study contribute to the detailed study of the influence the social networks exercise on the human personality. This clarifies the reasons behind the preference of virtual communication. This makes it possible to expand the scholarly understanding of the individual in the context of virtual communication and create a portrait of a modern person in cyberspace.

The features that the authors have identified may serve as markers for a diagnostician. Thus, for example, identifying the adolescents with higher scores of neuroticism and low values of conscientiousness among the diagnosed groups, the authors can determine the risk group and conduct additional diagnostics concerning their possible addiction to social networks.

The individually typological features of active social network users, which the authors described above,

may become the basis for designing preventive programs for working with people from risk groups involving Internet- and cyber-communicative addictions. Assuming that the identified distortions of personality traits are one of the causes of addiction, the authors may develop therapeutic interventions (training programs, individual counseling programs) aimed at the normalization of personality traits, for example, at decreasing the rates of openness to experience, or finding ways to satisfy the increased openness, strengthen conscientiousness, etc.

Above The authors discussed “traditional” psychological ways to fix personal problems caused by interactions in social networks. However, now there are modern facilities to handle these problems, which allows us not to rule out the Internet completely for the users from the risk zone but to help them to diminish aggressive factors. It can be considered as a development of the idea of Repetitive Strain Injury Software, which is intended to prevent/reduce injuries and discomforts relating to computer use.

I. If a high level of *neuroticism* of an active user of social network is detected, here are some of the possible solutions:

- The person can maintain a meaningful dialogue with no more than four interlocutors. The browser should limit the number of simultaneously open active social networks or dialogues/chats.
- If within one dialogue/chat the user uses relatively short messages with “simple” linguistic structure and the response time for received messages is relatively short, a message with a recommendation to form a more lengthy and complicated posts is issued. If the user does not follow the recommendation, it is necessary to disable these connections. Of course, its program implementation is not easy due to the personal characteristics of particular users and requires careful dynamic statistical estimation of the thresholds of “simplicity” and “shortness.”
- Intensive use of expressive lexicon (relative to the total volume of messages) and other emotionally colored means of communication (capitalization, punctuation, emoticons, etc.) should be monitored

and limited. It requires extended researches to identify this kind of content and to implement programmatically reasonable reaction on its presence.

- The browser should limit the number of daily viewed images of personal galleries and news feeds. It should monitor the daily number of *likes* and *dislikes* put by the user.

II. Active users of social networks with low level of *conscientiousness* are characterized by low self-control that, aside from controlling emotional reactions, correlates with active processes of planning, organizing, and implementing activities or some of their stages. If a user exhibits a low level of conscientiousness, it seems appropriate to proceed in the following way. Once the limits mentioned above have been reached, the browser proposes to solve a logical task or a brainteaser/puzzle. If the user rejects this proposition or spends too much time trying to do it, the browser prevents his or her further work. Yet another case is to propose some kinds of calligraphic exercises.

III. If a high level of *openness* of an active user of a social network is detected, he/she should be transferred from the social network to the sites of similar themes, but such that do not involve interaction with the user.

It is easy to see that these recommendations obviously require not only some program support in a browser but also an involvement of the concepts of Semantic Web/Web 3.0 concerning site metadata management.

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