
Social networking: a matter of character?

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Abstract: Over the last couple of years, online social networks such as Facebook have tremendously grown in popularity, especially among students. The technological advancements proceed faster than the understanding of the psychological factors behind this development. While motivations and gratifications related to Facebook usage have been investigated thoroughly, this study additionally focuses on the influence of underlying personality factors. However, instead of the commonly used Big Five, the characteristics narcissism, shyness and loneliness are investigated among undergraduate and graduate students. The results indicate that a high score on narcissism causes a higher Facebook usage and that the sub construct uniqueness/entitlement is the most important. The results also indicate a negative influence of loneliness on Facebook usage, while shyness seems irrelevant.

Keywords: Facebook comparison; Facebook usage; Facebook personality; social networks; Facebook attitude; Facebook narcissism; Facebook shyness; Facebook loneliness.

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1 Introduction

This paper is organised as in the following sections: introduction, literature review, methodology, results, contributions to social networking research and limitations and future research.

Social media and networks are the essence of today's internet. The essence of the web changed from monologue to a user-oriented social network that creates content and connects people on a global level. While the significance of the driving force social networking is clearly recognisable, the driving force behind human online behaviour is practically new ground compared to traditional media such as television, print and radio. The question is thus not why the social web enjoys such a great popularity, but what intrinsic human factors underlie this rise in activity.

In order to shed more light on the nature of social networking behaviour, the social network Facebook will function as a basis for this study. It is likely the fastest-growing community of them all and draws interest among scientists, economists and the public. Facebook is a social networking service and website launched in February 2004, operated and privately owned by Facebook, Inc. As of January 2012, Facebook has more than 800 million active users.

On the part of the scientific community, there are basically three main research fields that have been investigated since the upcoming of Facebook. Firstly, the concept of self-presentation has been the core of several researches (DiMicco and Millen, 2007; Zhao et al., 2008). Secondly, the underlying motivations and gratifications of becoming part of the Facebook community or using it permanently are central to studies of Joinson (2008), DiMicco et al. (2008) and Schilliger (2010). The third main topic of research seems to be trust and privacy concerns related to the social network Facebook (Govani and Pashley, 2007; Acquisti and Gross, 2006; Dwyer et al., 2007).

While these research topics have been investigated thoroughly, there seems to be less literature about the influence of the personality and its numerous dimensions. Previous research (Butt and Phillips, 2008; Landers and Lounsbury, 2006; Amichai-Hamburger and Vinitzky, 2010; Ross et al., 2009) mainly investigated the personality driven behaviour behind Facebook usage with the five factor model (FFM) (McCrae and John, 1992). However, based on recent studies (Mehdizadeh, 2010; Orr et al., 2009) this research argues that the Big Five no longer suffice as means of measuring personality driven online behaviour nowadays. As a consequence, this research pursues a new approach in replacing the broad personality dimensions of FFM with better-suited aspects that assess the source of human online behaviour. This research argues that the sparsely investigated dimensions narcissism, shyness and loneliness need to be the examined in order to get deeper insight in the actual driving forces of today's Web 2.0.

2 Literature review

2.1 The influence of personality on internet usage

Although there are several methods of assessing the human personality, there is one model that has been used most in past research: the FFM by McCrae and John (1992). The FFM of personality is a hierarchical organisation of personality traits that divides personality in five different dimensional traits.

The first trait is openness. It covers the willingness of an individual to be open and curious about unusual ideas and alternative approaches as well as the appreciation for art, emotion and adventure. The second trait, conscientiousness, is about the tendency to show self-discipline, act dutifully, and aim for achievement. It is therefore more about planned rather than spontaneous behaviour. Extraversion, as the third factor, reflects the

tendency to positive emotions, energy and the willingness to seek for stimulation in the company of others, thus how sociable a person is. The fourth dimension, agreeableness, is about the tendency to be compassionate and cooperative rather than suspicious and antagonistic towards others. Individuals with high a level of agreeableness are generally trusting, sympathetic and cooperative. Neuroticism is the fifth and last factor of the Big Five. It covers the tendency to experience unpleasant emotions such as anger, depression and vulnerability very easily. Highly neurotic individuals therefore mostly suffer from psychological distress.

These five basic dimensions served as a basis for several researches on the field of personality and internet usage.

Guadagno et al. (2008) dedicated their research to the internet phenomenon blogging and whether the different Big Five traits predicted the attitude towards it. The results indicate that people who are high in openness to new experience and high in neuroticism are likely to be bloggers.

Amiel and Sargent (2004) focused on the individual differences in internet usage motives. Their findings demonstrate that different personality types cause different patterns of internet use. Individuals who score high on neuroticism mostly use the internet to feel a sense of 'belonging' and to be informed. Extraverts reject the communal aspects of the internet and made more goal-oriented use of internet services.

Also, Tuten and Bosnjak (2001) investigated the relationship between personality and web usage. They found out that openness to experience was positively related to using the web for entertainment and product information, while neuroticism was negatively related to web usage.

2.2 The influence of the Big Five on Facebook

In recent years, not only the relationship between the Big Five factors and the usage of the internet has been investigated, but also the influence on the usage of Facebook.

Butt and Phillips (2008) state that individuals who are highly open to new experiences are likely to try out new methods of communication such as Facebook to seek out new experiences. Furthermore, a low score on conscientiousness is according to them negatively related to the use of the internet, because it fosters procrastination.

Landers and Lounsbury (2006) demonstrated that a low score on agreeableness causes less offline friendships and therefore fewer friends who can be added to Facebook. Amichai-Hamburger and Vinitzky (2010) came to the result that extraverted individuals generally have more Facebook Friends than introverted individuals. Ross et al. (2009) state that extraverted people belong to more Facebook Groups and people who are less emotionally stable are using the Wall more often than less neurotic individuals. The reason may be that they see the advantage of having more time to formulate their messages and improve the communication of personal information.

Despite the fact that the Big Five served as a basis for several researches and that single relationships have been found, neither Ross et al. (2009) nor Amichai-Hamburger and Vinitzky (2010) were able to prove the relationship between the FFM and the intensity of Facebook usage.

Ross et al. (2009) came to the conclusion that the Big Five might be too abstract to assess the relationship between one's personality and the usage of Facebook. It thus does not really serve as a proper measure of personality as far as social networks are

concerned anymore. They came to the conclusion that more narrow personality traits such as narcissism and shyness might be more suitable as a predictor of Facebook usage.

2.3 Narcissism, shyness and loneliness as predictors

The character trait narcissism has been the core of studies by Buffardi and Campbell (2008) and Mehdizadeh (2010). They showed that people with high levels of narcissism engage in frequent use of Facebook. According to those researchers, a reason might be that the social network Facebook encourages users to engage in self-promoting and superficial behaviours, such as writing status updates and posting photos of themselves. Narcissism is a pervasive pattern of grandiosity, an exaggerated sense of self-importance and need for admiration (Oltmanns et al., 2006). Narcissists do not focus on interpersonal intimacy, warmth, or other positive aspects of relational outcomes. Instead, they use relationships to appear popular and successful (Campbell, 1999).

The results of the research by Orr et al. (2009) showed that shyness seems to have a significant influence on the usage of Facebook. The concept of shyness is characterised by anxiety reactions such as tension and discomfort and an inhibition of normal social behaviour when in the presence of others (Buss, 1980).

According to Orr et al. (2009), shy individuals tend to spend more time on Facebook than less shy individuals. Moreover, they tend to have a more favourable attitude towards the social networking site.

According to the research of Baker and Oswald (2010), individuals with a high level of shyness feel stronger associations between Facebook use and friendship quality. Therefore, online social networks such as Facebook provide shy people with a comfortable environment to interact with other people.

Furthermore, Sheldon (2008) demonstrated that socially anxious people see Facebook as means of reducing loneliness. A possible reason for this might be that shy and socially anxious people tend to feel more comfortable maintaining social relationships rather online than face to face (Ebeling-Witte et al., 2007). Nevertheless, lonely people do not seem to have a very active social life and therefore might care less about online social networks.

2.4 Overview of the present study

This present study first of all investigates whether there are differences in Facebook usage between students studying in their home country and students attending a University abroad. Then, this study aims to shed more light on the character traits that underlie this behaviour. In past researches, the FFM was mostly used to investigate the relationship between character traits and one's attitude. Recent researches of Ross et al. (2009) indicated that the Big Five appear to be too broad for measuring such a relationship. Therefore, based on the findings of Buffardi and Campbell (2008), Mehdizadeh (2010) and Orr et al. (2009), this study examines the effects of narcissism, shyness and loneliness in order to get more insight into more subtle factors influencing the attitude towards social networks such as Facebook.

The following hypotheses are tested:

- H1 Students studying abroad show a higher level of Facebook usage than students studying in their home country.
- H2 Individuals with high narcissism scores will be correlated with a higher amount of Facebook intensity.
- H3 Individuals with high scores on loneliness will be correlated with a lower amount of Facebook intensity.
- H4 Individuals with high scores on shyness will be correlated with a higher amount of Facebook intensity.

3 Methodology

3.1 Sampling

The aim of this research is to investigate to what extent Facebook usage differs among students studying abroad or in their home country. A total of 24 students from Germany and 17 German students attending universities abroad participated in the present study. The sample was comprised of 21 men and 20 women, having an average age of 22.63 years ($SD = 1.50$). Due to practical limitations, the population from abroad is mostly enrolled in Dutch universities.

3.2 Data collection

The students (friends and acquaintances of the researcher) were randomly recruited via Facebook. They were asked to participate in a study about Facebook usage. They were merely selected on the basis of whether they were online at that time. Upon agreement to take part, participants were sent a link to an online-survey. Participants were also assured that all information would be kept anonymous. Upon completion, participants were asked if they wanted to get informed about the results of the study. The gathered data was imported to SPSS and analysed with several statistical methods such as factor and regression analyses.

3.3 Material

Since the study was about the online social network Facebook, participants were also required to complete an online questionnaire in order to stay as close to the question at issue as possible. The questionnaire consisted of the following elements:

- 1 A brief introduction about the aim of the study as well as the risks and benefits associated with participation.
- 2 A set of three demographic questions about the gender, age and place of university of the participants.

- 3 The Revised Cheek and Buss Shyness Scale (Cheek, 1983) consisting of 13 items that measure the concept of shyness with a five-point Likert scale from ‘Very uncharacteristic’ (1) to ‘Very characteristic’ (5). The RCB is one of the most widely used measures of shyness and it does not take too much time to complete. Furthermore, not only its internal consistency ($\alpha = 0.86$) and test-retest reliability ($r = 0.88$) is strong, but also its discriminant validity (Hopko et al., 2005).
- 5 The narcissistic personality inventory (NPI) with 29 items (Kansi, 2003). The NPI-29 is a forced-choice measure of narcissistic tendencies. It provides not only a total narcissism score, but also scores for the four sub-factors leadership/power (eight items), exhibitionism/self-administration (seven items), superiority/arrogance (six items) and uniqueness/entitlement (eight items). This version of the NPI is well suited for our population and has proper test-retest correlations (0.93 for total narcissism, 0.89 for leadership, 0.80 for exhibitionism, 0.64 for superiority and 0.74 for uniqueness) (Svindeth et al., 2009). Also, internal consistencies for the sub-factors leadership ($\alpha = 0.70$) and exhibitionism ($\alpha = 0.64$) were adequate, however the coefficients for uniqueness ($\alpha = 0.51$) and superiority ($\alpha = 0.52$) appear to be insufficient (Svindeth et al., 2009). Therefore, these two factors will not be included in the data analysis.
- 5 The social and emotional loneliness scale for adults – short version (DiTommaso et al., 2004) consisting of 15 items. The SELSA-S also produces a total score for loneliness as well as scores for three sub-factors of loneliness. These are family (five items), romantic (five items) and social (five items). Participants will rate their level of agreement with a five-point Likert scale from ‘Strongly disagree’ (1) till ‘Strongly agree’ (5). This scale has been chosen due to the fact that the concurrent and discriminant validity has been established, while internal consistency for the subscales are highly sufficient ranging from 0.87 to 0.90 (DiTommaso et al., 2004). Moreover, Cramer and Barry (1999) evaluated seven popular measures of loneliness and concluded that the SELSA-S is best suited due to its high internal consistency.
- 6 The sixth part of the questionnaire is to assess the basic use, attitude and intensity of the participants towards Facebook. It consists of seven items adapted from the Facebook questionnaires of Ross et al. (2009) and Ellison et al. (2007), because the internal validity was highly sufficient at a level of 0.83. Unless provided, the five-point Likert scale ranged from ‘strongly disagree’ (1) to ‘strongly agree’ (5).

4 Results

4.1 Reliability of the scales

Due to the fact that this research made use of approved empirical scales, the internal consistency of the scales in use was excellent.

The Revised Cheek and Buss Shyness Scale (Cheek, 1983), consisting of 13 items, has a reliability of 0.86. The α of the NPI with 29 items (Kansi, 2003) was also highly sufficient with a score of 0.86. The social and emotional loneliness scale for adults (DiTommaso et al., 2004) consisting of 15 items has an alpha of 0.85. Also, the construct

of Facebook usage was highly reliable. Its Cronbach's alpha is 0.82. Thanks to the high internal validity of the instrument, no items had to be removed during the data analysis.

Table 1 Internal consistency of the four scales

Construct	Internal validity (α)	Number of items (n)
Shyness	0.86	13
Narcissism	0.86	29
Loneliness	0.85	15
Facebook usage	0.82	7

4.2 Differences between students at home and abroad

This research aims to investigate whether there are differences in Facebook usage of students attending a university in their home country and students studying abroad. There was a marginally significant difference between the groups as determined by a one-way ANOVA ($F(1.39) = 3.50, p = 0.07$). A t-test revealed that the students in their home country have a lower usage of Facebook than students abroad ($M = 2.92, SD = 0.80$ versus $M = 3.39, SD = 0.76, p = 0.07$). This provides evidence for H1, however, has to be further tested.

Table 2 Means and standard deviations of Facebook usage among students at home and abroad

Construct	Students at home		Students abroad		t	p
	Average	SD	Average	SD		
Facebook usage	2.92	0.80	3.39	0.76	-1.11	0.07

4.3 Underlying personality factors

As H2 predicted, individuals with high narcissism scores will tend to a higher amount of Facebook intensity with $p < 0.001$ and a β of 0.53. The main construct narcissism consists of four sub constructs: leadership/power, exhibitionism/self-administration, superiority/arrogance and uniqueness/entitlement. A second regression analysis of with these factors reveals that the sub construct uniqueness/entitlement seems to be highly influential ($p = 0.00, \beta = 0.47$) on the usage of social networks such as Facebook. Moreover, the factor loneliness reaches a marginally significant level ($p = 0.09, \beta = -0.24$), which offers slight evidence for H3. Shyness seems to be insignificant ($p = 0.38, \beta = 0.18$). Therefore, H4 can not be proven.

Table 3 Influence of independent variables narcissism, loneliness and shyness on Facebook usage – regression analysis ($n = 41$)

Construct	β	t	p
Narcissism	0.48	3.42	0.00***
Loneliness	-0.24	-1.75	0.09
Shyness	0.18	0.89	0.38

Notes: $R^2 = 0.31$.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

While loneliness seems to be marginally significant, shyness shows a non-significant effect. However, these two constructs probably belong together, due to the fact that shyness mostly leads to loneliness. In order to shed more light on this issue, a factor analysis was performed. The 13 items of shyness and 15 items of loneliness were analysed by a factor analysis to see which items might reveal a new combined factor. The varimax rotation provided a new significant factor ($p = 0.03$), which can be seen in Table 4. All items have primary loadings of at least 0.30. Judging by the items, the factor in question deals with a certain anxiety of intimacy and close relationships to other people. Therefore, the new factor is simply called fear of intimacy.

Table 4 Factor loadings and communalities based on a principle components analysis with varimax rotation for 28 items from the SELSA-S and revised cheek and buss shyness scale ($n = 41$)

<i>Items</i>	<i>Fear of intimacy</i>
I am shy with members of the opposite sex.	.32
In the last year I had a partner who made me happy.	.97
In the last year I had a partner/friend who gave me the support and encouragement I needed.	.96
In the last year I would have liked a closer relationship with another person.	.96
In the last year I would have liked a closer relationship with another person.	.91
In the last year I wish I had a closer relationship.	.99
When in a group of people, I have trouble thinking of the right things to talk about.	-.34

Note: Factor loadings $< .3$ are suppressed.

Another regression analysis was performed with the new factor fear of intimacy. The results show a significant relationship ($p = 0.04$, $\beta = 0.28$), which proves the importance of this new factor in the prediction of social network usage.

Table 5 Influence of independent variables narcissism, fear of intimacy on Facebook usage – regression analysis ($n = 41$)

<i>Construct</i>	β	<i>t</i>	<i>p</i>
Narcissism	0.51	3.76	0.00***
Fear of intimacy	0.28	2.08	0.04*

Notes: $R^2 = 0.31$.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5 Contributions to social networking research

This research investigated whether there are differences between students enrolled at a domestic University and students studying abroad. The analysis clearly showed that students abroad show a higher usage of Facebook than students studying in their home country. They might use Facebook more, because they see it as an opportunity to make new friends and stay in touch with their old ones back at home.

Furthermore, this research strived to pursue a new approach through investigating new personality dimensions that influence this social networking activity. As expected, this study successfully demonstrates that narcissist individuals indeed seem to have a higher Facebook usage, as the literature (Buffardi and Campbell, 2008; Mehdizadeh, 2010) indicated and the hypothesis proposed. As the detailed analysis revealed, this significant relationship can be explained with the fact that narcissist people tend to self-promotion, which can be perfectly carried out on Facebook. They can write status updates, post photos of themselves and show how many social relationships they have. Furthermore, loneliness was analysed as another new factor. While the literature suggested that socially anxious people see Facebook as means of reducing loneliness (Sheldon, 2008), this study expected loneliness to be contra productive. The results underline this expectation. The fourth hypothesis stated that shy people tend to have a higher level of Facebook usage, because online social networks provide shy people with a comfortable environment to communicate with others (Baker and Oswald, 2010). However, this hypothesis was not supported. A reason might be that shy people do not have many friends in real life and therefore do not have the possibility to communicate with them online.

Due to the fact that the factor loneliness only reached a marginally significant level and shyness non-significance, a factor analysis revealed a new construct: fear of intimacy. This has newly found factor was analysed with a regression analysis, which demonstrated the importance of this factor in the prediction of social networking behaviour.

This study explored the relationship between three new character dimensions and the activity on social networks. But more importantly, it demonstrated the need for further investigation of new and unconventional factors. The classical approach based on the FFM should be discontinued, while new factors such as the above should be the centre of future research.

6 Limitations and future research

The level of loneliness measured in the questionnaire was based on three aspects: family, friends and romantic partnership. Unfortunately, there was no option for people who have no partner at all. Therefore, people with no partner were automatically lonelier than people with a partner, which does not necessarily have to be that way. Moreover, the current study does not really give an impression of the general Facebook user, due to the fact that only students took part. It is therefore not representative for the whole Facebook community. Nevertheless, due to its explorative nature in contributes to the field and gives valuable insights for future research.

The fear of intimacy seems to be an important factor in the prediction of social networking behaviour. This has to be further evaluated. It might be interesting to which extent this intimacy influences the online exposure of one's own personality. Do these intimacy issues only affect intimate personal relationships with other people offline or does it inhibit the exposure of one's personality and feelings online, too? Future research should focus evaluate this properly.

Although the underlying personality factors should be the focus of attention for future research, one might examine to what extent social networks influence one's personality. Does a high activity on social networks reduce shyness and boost one's self esteem or

does it even have a negative influence on particular factors? Nevertheless, the field of research first of all has to lay the groundwork for these studies. Without knowledge about the most influential factors, an advanced research about the reverse impact seems premature.

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