
Personality Traits, Life Satisfaction and User Behaviour on Social Media

**UNIVERSITY
OF TWENTE.**

Robin Untiet

1974858

Bachelor Thesis in Psychology

1st Supervisor: Prof. Dr. Gerben Westerhof

2nd Supervisor: Dr. Joyce Karreman

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Abstract

Introduction: This study focused on identifying whether user behaviour within social media is correlated with personality traits and life satisfaction. Up until now, no research focused on the overall picture of performances inside social media and whether those can be related to before mentioned variables. However, it was expected that the six big personality traits (honesty, neuroticism, extraversion, agreeableness, conscientiousness, openness), as well as life satisfaction, show a differentiated pattern of relations with user behaviour.

Research Design and Methods: This cross-sectional study was conducted by using a correlational survey design of a convenience sample of students ($Mage = 21.86$ years, $SD = 2.13$) who had to reveal their daily user behaviour inside their used social media platforms. Hereby, the centre of attention laid on quantitative user behaviour that questioned the following aspects: time spend on social media, check-ins into social media, distributed likes or comments, posted pictures, texts or stories, and number of friends within social media. Next to this, their personality, by the Brief Hexaco Inventory, and their life satisfaction, by the Satisfaction with Life Scale, were assessed.

Results: Ahead of this research, it was hypothesised that personality traits and life satisfaction would show a great number of diverse correlations with user behaviour on social media. However, this could not be confirmed by this study since it ascertained only a few significant relations between them. Therefore, most of the findings were contrary to previous hypotheses and had to be rejected. Nevertheless, the hypothesis that more extraverted persons have more friends within social media is confirmed by the data.

Discussion: The findings of this study were unexpected since most of the hypotheses had to be rejected which is probably related to the lack of reliability and validity of the Brief Hexaco Inventory. Additionally, the corona crisis, as a new bias, might have influenced the user behaviour of participants regarding the usage of social media which could have distorted the results.

Key words: user behaviour, personality traits, life satisfaction, social media

Nowadays, social media is a modern way of communication and a daily function used for social interactions. Meanwhile, 3.8 billion people worldwide use social media in their everyday lives which makes it a huge contributor to our recent life in society (Statista, 2020). Since social media is used by so many people worldwide, knowing what indicators are associated with user behaviour would contribute to a better understanding of individuals social media use. One variable that contributes to a better understanding of the implemented behaviour patterns inside social media is the personality that is examined with the six big personality traits (honesty, neuroticism, extraversion, agreeableness, conscientiousness, openness) (Buettner, 2017). Additionally, determining whether life satisfaction is related to social media use could be helpful for individuals to improve their life satisfaction based on the outcomes of this study. That is why this study will investigate to what extent user behaviour on social media is related to the big six personality traits and life satisfaction.

User behaviour inside social media can hereby be referred to as the main interest within this study. As Whiting and Williams (2013) already stated, people use social media for several reasons, for instance, searching for entertainment, information, or social interactions with friends. However, most of the time previous research did not concentrate particularly on user behaviour within social media, respectively, if it was the case, research was often more focused on qualitative aspects of user behaviour inside social media as the content of posts (Ma & Leung, 2019; Seidmann, 2013). To get a different point of view and to acquire new knowledge, this study will set the focus on quantitative user behaviour within social media. Quantitative user behaviour is thereby related to the following aspects: time spend on social media, check-ins into social media, distributed likes, or comments, posted pictures, texts or stories, and number of friends within social media.

In the interest of clarity, a little preview is presented at this point that demonstrates the following steps. Firstly, the different personality traits will be assessed and explained within this research. Further, already known relations between them and certain aspects of user behaviour will be described. Hereby, it is important to emphasise that there is a diversified pattern of relations between personality traits and different ways of using social media. Afterwards, life satisfaction will be defined, followed by an accurate explanation of what is formerly known from previous studies about life satisfaction and its relation to social media use. Thereafter, it will be elaborated about possible benefits and aspects this study could bring up, while a hypotheses table will provide an overview of all derived assumptions of this study.

First of all, it should be clear what traits are. A trait refers to a certain characteristic of someone's personality that distinguishes individuals from each other. The six major traits that will be examined within this paper were derived from the HEXACO model (Ashton & Lee, 2009). These traits are divided into honesty, neuroticism, extraversion, agreeableness, conscientiousness, and openness to experience (Zhang & He, 2010). Firstly, the trait honesty is characterised by a trustworthy, fair, sincere, and truthful personality that is honest to their fellow human beings (Ashton, Lee, & Son, 2000; Lee & Ashton, 2004). Secondly, neuroticism displays an emotionally unstable personality that is anxious and most threatened by minor details (Ma & Leung, 2019). Thirdly, extraversion can be defined as a trait that is related to an energetic and outward-directed personality. Someone who is socially active and prefers being around other people (Ma & Leung, 2019). The trait agreeableness can be described as a careful, modest, and caring personality that is friendly and non-judgemental in talks or discussions (Ma & Leung, 2019). Furthermore, the trait conscientiousness is responsible for a highly goal-oriented personality that invests a lot of effort into fulfilling their dreams. Highly conscientiousness people are competent and possess high self-control (Ma & Leung, 2019). Lastly, the character properties of the trait openness are described as an open-minded person who is fascinated by new experiences and ideas. These people think out of the box and are enthusiastic and interested in multiple subjects (Ma & Leung, 2019).

Concerning the trait honesty and its relationship with social media use does not exist many works of literature. However, Hall and Pennington (2013) ascertained that honesty is associated with the trait conscientiousness which indicates that more honest people would probably behave relatively similar as more conscientious people regarding social media use which will be described later.

With regard to the impact personality traits have on social media use, neuroticism is related to various aspects of social media use like chatting, revealing personal information or searching for support (Amichai-Hamburger, Wainapel, & Fox, 2002; Correa, Hinsley, & de Zúñiga, 2010; Ross et al., 2009). When using social media, highly neurotic people appreciate the possibility to communicate with other persons via a screen, to avoid face-to-face conversations (Blackwell, Leaman, Trampusch, Osborne, & Liss 2017). Furthermore, Ma and Leung (2019) and Seidmann (2013) added that they probably cherish the opportunity social media platforms offer, to seek for acceptance and social contact without being physical around other human beings. Because of the facilitation in expressing themselves by using

social media in postings of thoughts and opinions, social media is valued as an outlet of their feelings.

Regarding extraversion, Correa et al. (2010) and Ma and Leung (2019) stated that more extraverted persons show higher use of social media. Hereby, they value mostly the opportunity to stay conveniently in contact with their friends and relatives for strengthening their social relations (Blackwell et al., 2017).

Concerning agreeableness, Wilson, Fornasier, and White (2010) as Wang (2013) found out that there was no relationship between the trait and a higher or lower social media use. However, it was noticeable that more agreeable persons often like to share information about themselves (Wang, 2013). Moreover, they care about the content and receiving messages from their friends and relatives and often check their profiles. Additionally, commenting on other profiles is extremely joyful for them compared with less agreeable individuals (Ma & Leung, 2019).

Highly conscientious people are more goal- and success-oriented and are not easily distracted from their tasks, which could explain the negative correlation between conscientiousness and spending time on social media platforms (Ross et al., 2009; Wilson et al., 2010). Further, conscientious people do not like to present themselves or others online and are more careful in sharing information or pictures on the internet (Ma & Leung, 2019; Seidman, 2013).

More open people also show heavy use and an affinity of different feature usage inside social media (Ross et al., 2009). With respect thereto, J. H. Kim and Kim (2019) and Seidmann (2013) explained that open people often have a wide range of friends in social media. They like being connected with others and prefer postings on other profiles. Additionally, they are not concerned about revealing personal information on their profiles and like to plan activities online (Ma & Leung, 2019).

After presenting the great number of overall relations between the six big personality traits and social media use the second independent variable of this study which is life satisfaction has to be introduced. The term life satisfaction can be defined as the general perception of the recent life situation (Diener, Emmons, Larsen, & Griffin, 1985; Veenhoven, 1996). Knowing to what extent life satisfaction is related to social media use can help individuals to improve their life satisfaction with regard to the outcomes of this study. By determining whether and which aspects of social media use can increase life satisfaction, it

could be possible to advise people or prohibit them from implementing certain aspects inside social media to maintain or strengthen their life satisfaction. Moreover, as in earlier studies implicated, life satisfaction has a legitimated reason to be measured within this research since J. H. Kim and Kim (2019) and Wang (2013) also ascertained that social media use can increase life satisfaction and that people who have a high life satisfaction post more personal information on social media. Furthermore, it is verified that there exists a salient positive relation between life satisfaction and number of check-ins (Wang, 2013). While life satisfaction is estimated as a kind of state that is related to the recent perception of one's life (Corrigan, Kolakowsky-Hayner, Wright, Bellon, & Carufel, 2013), personality traits symbolise a more stable and fixed attitude within the life of everyone (Zhang & He, 2010). Therefore, this research could provide a better understanding of how to improve one's long-term state by using social media.

Apart from already existing studies measuring several relations between user behaviour, personality traits and life satisfaction (Hamburger & Ben-Artzi, 2000; Ma & Leung, 2019; Seidmann, 2013; Zhang & He, 2010), this study differentiates itself from these by its included age group that ranges from 18 to 30 years. This age group was chosen since it was expected that this group of people would possess a smartphone and would use at least one social media platform. Finally, this study attempts to provide a holistic picture of performances that are implemented inside social media by its users while checking for associations with personality traits and life satisfaction.

Concerning the hypotheses this research paper is dealing with, it is assumed that personality traits and life satisfaction are differentially related to diverse aspects of social media use. To offer a detailed overview of all specific assumptions a table was created that considers all hypotheses (Table 1). A hypotheses table as a form of representation was chosen to avoid confusion of the reader because of the high number of hypotheses. Hereby, the symbol “+” indicates an assumed positive relationship between the user behaviour item and a certain trait or life satisfaction. Vice versa, “-” assumes a negative relation between user behaviour and the two independent variables. Relations for which no literature could be found were marked with a “?”. In these cases, the study was unexpected regarding any outcomes.

Table 1

Hypotheses Table

| | Social media user behaviour | | | | | | | |
|--|----------------------------------|--|-----------------------------|--------------------------------|-------------------------|----------------------------|--------------------------|-------------------|
| | Time spend on social media daily | Check ins into social media accounts daily | Like other posts more often | Comment other posts more often | Number of text postings | Number of picture postings | Number of story postings | Number of friends |
| Personality trait honesty | - | - | - | - | - | - | - | - |
| Personality trait neuroticism | + | + | + | + | + | ? | ? | + |
| Personality trait extraversion | + | + | + | + | + | + | + | + |
| Personality trait agreeableness | ? | + | ? | + | ? | ? | ? | + |
| Personality trait conscientiousness | - | - | - | - | - | - | - | - |
| Personality trait openness to experience | + | + | + | + | + | + | + | + |
| Life satisfaction | + | + | ? | ? | ? | ? | ? | ? |

+ is equal to an expected positive relation

- is equal to an expected negative relation

? is equal to no expectation

Methods

Design

For this study, a correlational survey design was chosen. Moreover, it was a cross-sectional study and part of larger research measuring smartphone use. All in all, the research consisted of multiple smaller questionnaires and demographic questions. It was a combination of distinct measurements each researcher examined. Amidst the research, questions regarding the user behaviour within social media, the six big personality traits and life satisfaction were assessed. The dependent variable in this study was user behaviour while the independent variables were personality traits and life satisfaction.

Participants

The inclusion criteria for the target group within this research were set by their age, which means that this research only included participants that were between 18 and 30 years old and had sufficient English skills. Furthermore, participants had to use at least one social media platform. At the beginning of the research were 177 responses of participants counted. However, 39 participants did not fill out the questionnaire completely, six participants used no social media, one was older than 30 years and one got eliminated by univariate outlier analysis which is why in total 47 participants had to be excluded. The remaining 130 participants ranged in their age from 18 to 30 years with an average age of 21,86 years ($SD = 2,13$). 12 different nationalities of participants provided data for the research whereby most of the participants were Dutch (13,8%) or German (73,1%). 70% of all participants were females, 30% males. The sample consisted of 89,2% students, 7,7% of employees and 3,1% of people that were neither a student nor employed.

Materials

Concerning the user behaviour questions, the study focused on quantitative behaviour that was executed inside social media. Hereby, participants answered questions regarding their actions on maximal three of their most used platforms to get an impression of their usual performances. The eight aspects of user behaviour that were questioned (time spend on social media, check-ins into social media, distributed likes or comments, posted pictures, texts or stories, and number of friends within social media) were the dependent variable within this study. All used questions were newly constructed, and participants could answer them on a 7-point-Likert-scale. For the first two items (time spend on social media and how often someone checked his/her account) the answer range started by 1 with 5-15 minutes/times and went until 7 (more than 2 hours/more than 65 times), for the next items the answer options

were between 1 = never and 7 = multiple times a day. For the last item (number of friends) the range of answer options started from 1 = 0-50 until 7 = more than 1000. A sum score for each of the eight items was created based on the responses of the participants. For the research was irrelevant whether participants used one, two or three social media platforms. Their gained score for each aspect of the user behaviour items got calculated to one overall score. Average scores were avoided to prohibit data from being too much skewed. Therefore, the lowest possible composite score of an item was one, namely when a participant used only one platform and did not use that queried item which is why that person rated the item with one. The highest possible composite score that could be reached for a certain item was 21 that was received when a participant used three platforms and rated for all of the three platforms the same item with a seven.

The next scale this research paper was dealing with was the Brief Hexaco Inventory (BHI) that measured the independent variable personality traits with its six traits honesty, neuroticism, extraversion, agreeableness, conscientiousness, and openness to experience (De Vries, 2013). It is a shorter version of the HEXACO-PI-R and contained 24 items instead of 60 to spare the participants some questions (Lee & Ashton, 2019). Nevertheless, it has still a high test-retest stability and the BHI restated the construct validity correlations of the HEXACO-PI-R with a quite great accuracy (De Vries, 2013). An example question for the calculation of the single traits would be for honesty "I find it difficult to lie". For neuroticism "I am afraid of feeling pain" and for extraversion "I easily approach strangers". Agreeableness was queried by the question "I tend to quickly agree with others" and conscientiousness with "I make sure that things are in the right spot". For the last trait openness were questions asked like "I have a lot of imagination" (see Appendix B2).

Furthermore, after the calculation of Cronbach's Alpha for all six traits, the study came up with the following results. Testing alpha reliability for the trait honesty generated a poor Cronbach's Alpha value of .50. For neuroticism (Cronbach's Alpha = .32) unacceptable and for extraversion (Cronbach's Alpha = .54) poor values. For agreeableness (Cronbach's Alpha = .48) unacceptable and for conscientiousness (Cronbach's Alpha = .57) again poor results. For openness to experience was also an unacceptable Cronbach's Alpha value scored of .43. Regarding these findings, Dinić (2018) also determined low-reliability scores within her study by using the BHI for examining the six personality traits. Further, within the original article of De Vries (2013), the author verified inside two different studies two times agreeableness as the trait with the lowest alpha reliability.

Concerning the validity of the BHI, factor analysis was conducted. Hereby, it should be noted that for the Kaiser-Meyer-Okin (KMO) measurement a value above .50 was considered as acceptable but values above .60 are preferred. For honesty, it measured six degrees of freedom and a KMO value of .60, while Bartlett's Test of Sphericity was 32,13 ($p < .001$). It was found one Eigenvalue that was above one who was responsible for 40.61% of the variance. The four items belonging to honesty were one-dimensional and the factor loadings varied between .56 and .70. Regarding neuroticism, one item had to be deleted to regain one-dimensionality. The item was "I have to cry during sad or romantic movies". The factor loadings varied from .52 until .72 and the KMO was .54 (Bartlett's Sphericity 7.45, 3 df, $p = .059$). One eigenvalue above one explained 42.50% of the variance. With regard to extraversion, the KMO indicated a score of .62 and six degrees of freedom (Bartlett's Sphericity 53.98; $p < .001$), while there was one eigenvalue over one that was responsible for 44,78% of the variance. The four items of extraversion were one-dimensional, and the factor loadings varied from .43 until .81. Concerning agreeableness, one item had to be excluded to avoid two-dimensionality. The item was "I tend to quickly agree with others". Therefore, only three degrees of freedom appeared, the KMO was .60 (Bartlett's Sphericity 19.44; $p < .001$) and the factor loadings were from .68 until .71. The remained one eigenvalue explained the variance of 49.08%. The four items of conscientiousness were one-dimensional. Moreover, the KMO value was .66, by six degrees of freedom (Bartlett's Sphericity 45.63; $p < .001$) and one Eigenvalue above one that described 44.61% of the variance. Factor loadings were between .55 and .71. The trait openness to experience contained six degrees of freedom and a KMO of .57. Bartlett's Test of Sphericity indicated a value of 22.93 ($p < .001$). Further, there was one Eigenvalue above one that explained the variance for 37.80%. The four items of openness were one-dimensional, and the factor loadings were from .54 until .69.

The answer options within this test ranged from 1 "strongly disagree" to 5 "strongly agree" for each item. The scores of each item got added to a sum score and then divided by the number of questions that made up the single trait. All traits, except neuroticism and agreeableness which were constructed out of three items, were composed of four items to achieve an average score. Achieving a five in any of these traits would indicate that the person is very honest, neurotic, extraverted, agreeable, conscientious, or open and achieving a one would indicate the opposite.

The BHI as a personality test was selected for this study because of the low number of 24 items to avoid an overload of questions for the participants to prevent inattention and fatigue.

Since every measured dimension of it only included four items no more items got removed than necessary to remain one-dimensionality. As this was not given at the beginning for the two traits neuroticism and agreeableness, one item had to be removed each.

For the measurement of life satisfaction, the “Satisfaction with Life Scale” (SWLS) was used (Diener et al., 1985). This scale queried the second independent variable of this study and contained five items that were assessed by a 7 point-Likert-scale, ranging from 1=strongly disagree to 7=strongly agree. An example question would be “In most ways, my life is close to my ideal”. The scores of the scale were added up to a composite score. So, the highest possible score would be (7 x 5 =) 35, while the lowest possible score would be (1 x 5 =) 5. A high score indicated high life satisfaction and a low score low life satisfaction. Diener et al. (1985) stated that the scale has high internal consistency and high temporal reliability. The high internal consistency score could also be confirmed within this study as the reliability score received by administering Cronbach’s Alpha, provided a value of .86, which is good. Furthermore, factor analysis was conducted to check the validity and dimensionality of the five items. Administering a factor analysis for the satisfaction with life scale provides a value of .84 of the Kaiser-Meyer-Olkin measurement. The Bartlett’s Test of Sphericity value was 308.07 ($p < .001$) for the five items. These values indicated a good fit for factor analysis. Besides, there was one Eigenvalue that was above one and explained 65% of the variance. The factor loadings varied between .76 and .89 and the scale was one-dimensional.

Procedure

Ahead of the data collection, the ethics committee of the Faculty of Behavioural Sciences approved the research by file number 200335 and participants signed beforehand the informed consent form (see Appendix A). The sample was a convenience sample, mainly composed of fellow students whose answers were recorded by the aid of Qualtrics. All participants participated voluntarily and could stop the questionnaire at any time. The research team distributed the compiled questionnaire with participants that suited to the target group of 18 to 30 years old persons. The link was on the one hand shared by What’s App and on the other hand uploaded to SONA System. SONA System is a rewarding platform provided by the University of Twente, where fellow students could apply for the questionnaire to fill it out. Thereby, they were rewarded with points for their participation. Overall, 51 responses were acquired by SONA system, others were reached by an active mobilisation from the researchers of non-UT students.

Data Analysis

The data within this study were analysed with the aid of SPSS Statistics version 22. It was measuring possible associations of personality traits as a more stable variable and life satisfaction as a current measurement on quantitative user behaviour within social media. Thereafter, a univariate and multivariate outlier analysis was conducted to delete possible outliers. For this purpose, z-scores were implemented in SPSS 22 out of the sum scores of the user behaviour items, the six personality traits, and life satisfaction. Then, based on the minimum and maximum values of the z-scores it was checked whether a value exceeds the threshold of 3.29 which is an indicator for an outlier within the univariate outlier analysis. Hereby, one outlier got determined that was deleted. After this, the variable of Mahalanobis was created out of the sum scores of the variables of user behaviour items, personality traits, and life satisfaction. The Mahalanobis is a criterion for determining outlier in multivariate data (Penny, 1996). High Mahalanobis values are an indicator of possible outliers. Thereafter, with the help of the Mahalanobis, a probability score was calculated with the “Chi-Square Distribution Function”: $1 - \text{CDF.Chisq}(\text{Mahalanobis}, \text{degrees of freedom})$. Since no probability variable in any of the user behaviour items, personality traits, or life satisfaction was below the score of .001 it could be concluded that there were no multivariate outliers.

Thereafter, it could be continued with frequencies. Frequency distributions were administered to check for normality distribution. Running histograms for all variables could not provide clear enough results for indicating whether the sum scores of the user behaviour items, personality traits and life satisfaction would be normally distributed. Therefore, the Kolmogorov-Smirnov test was administered that ascertained a significant value for all variables which meant that the null hypothesis which was that all variables are normally distributed had to be rejected. Therefore, all variables were not normally distributed.

Thereafter, descriptive statistics were carried out, showing the mean scores and standard deviations of the sum scores of the various variables of the user behaviour items, personality traits, and life satisfaction (Table 2).

Next came the bivariate analysis. To analyse possible associations, a Spearman rho correlation test between personality traits, life satisfaction and the quantitative user behaviour items was conducted. Hereby, significant correlation coefficients between .10 and .29 were interpreted as weak, whilst values between .30 and .49 were estimated as medium and coefficients above .50 as large (Cohen, 1988).

Thereafter, based on the outcomes of the Spearman rho correlations, regression analyses were conducted regarding user behaviour items who displayed at least two significant correlations with certain personality traits and life satisfaction to check for independent relations. The purpose of this analysis was to check the amount of influence the independent variables (personality traits and life satisfaction) had on the aspects of the dependent variable (user behaviour).

Results

For the user behaviour questions did not exist any comparable scale of mean scores. However, it was noticeable that nearly all scores of the user behaviour items were relatively low considering 21 as the highest possible score and 1 as the lowest possible score for all items. Looking for the first item “time spend in social media” ($M = 7.56$, $SD = 4.14$) indicated that participants did not spend so much time on social media, however, the standard deviation revealed that there is a big variance of the usage of social media. The next item “check-ins social media” ($M = 4.50$, $SD = 2.41$) showed a quite low number which means that participants did not often check their social media accounts per day. The item “like other’s post” ($M = 6.26$, $SD = 3.30$) showed again low numbers of distributed likes among others post as the next one does with distributed comments (“comment other’s post”; $M = 6.36$, $SD = 3.75$). The next three items were about posting behaviour of oneself. Even though mean scores were under all aspects low (“text post”; $M = 5.66$, $SD = 3.71$; “picture post”; $M = 7.25$, $SD = 4.17$; “story post”; $M = 6.17$, $SD = 3.86$), the increased standard deviations indicate that there were broadly diversified answers given. The last item “number of friends” revealed again relatively low values ($M = 8.04$, $SD = 3.62$) which indicate that the overall number of friends within social media of the participants was rather low.

Furthermore, frequency distribution showed that 65,4% of participants rated Instagram as their most-used platform. Facebook (25,4% for second most used and 30% for the third most used platform) and Snapchat (25,4% for second most used and 23,2% for the third most used platform) followed on the second and third place for the favourite’s social media platforms.

The means of the six personality traits got compared with a student sample ($N = 309$; 78.3% women; $Mage = 20.0$, $SD = 2.4$) of an earlier research of De Vries (2013) who also used the BHI to assess the six personality traits. There, the sample showed quite similar

values for honesty ($M = 3.77$, $SD = .63$), neuroticism ($M = 3.12$, $SD = .70$), extraversion ($M = 4.08$, $SD = .52$) and agreeableness ($M = 3.09$, $SD = .57$). However, the values of conscientiousness ($M = 3.10$, $SD = .68$) and openness ($M = 3.45$, $SD = .61$) were in this study slightly higher.

The mean score of life satisfaction ($M = 24.31$, $SD = 5.88$) in this study can be classified as slightly satisfied, based on the estimations of Pavot and Diener (2013).

Table 2

Descriptive Statistics

| Sum-Scores of Items | N | Mean | Std. Deviation |
|-----------------------------|-----|-------|----------------|
| time spend on social media | 130 | 7.56 | 4.14 |
| check-ins into social media | 130 | 4.50 | 2.41 |
| liking other's post | 130 | 6.26 | 3.30 |
| commenting other's post | 130 | 6.36 | 3.75 |
| text postings | 130 | 5.66 | 3.71 |
| picture postings | 130 | 7.25 | 4.17 |
| story postings | 130 | 6.17 | 3.86 |
| number of friends | 130 | 8.04 | 3.62 |
| honesty | 130 | 3.56 | .66 |
| neuroticism | 130 | 3.01 | .67 |
| extraversion | 130 | 3.79 | .55 |
| agreeableness | 130 | 3.02 | .71 |
| conscientiousness | 130 | 3.42 | .66 |
| openness | 130 | 3.92 | .54 |
| life satisfaction | 130 | 24.31 | 5.88 |

The following table is an illustration of the hypotheses table from the introduction (Table 1). This time, however, with the results of the Spearman rho correlation test. There, it should be noted that none of the significant correlations passed the value of .30 which is why all of them were assessed as weak (Cohen, 1988).

Table 3

Spearman Rho Correlations of the Hypotheses Table

| | Social media user behaviour | | | | | | | |
|-------------------------------------|----------------------------------|--|-----------------------------|--------------------------------|----------------------|-------------------------|--------------------------|-------------------|
| | Time spend on social media daily | Check ins into social media accounts daily | Like other posts more often | Comment other posts more often | Number of text posts | Number of picture posts | Number of story postings | Number of friends |
| Personality trait honesty | -.08 | -.08 | -.00 | .14 | .08 | .07 | .07 | -.02 |
| Personality trait neuroticism | .13 | .05 | -.05 | -.09 | -.16 | .02 | .08 | -.14 |
| Personality trait extraversion | -.07 | -.09 | -.00 | .07 | .07 | .03 | -.06 | .21* |
| Personality trait agreeableness | -.13 | -.06 | .06 | .06 | .04 | .08 | .09 | -.01 |
| Personality trait conscientiousness | .11 | .16 | .00 | .17* | .15 | .19* | .21* | .07 |
| Personality trait openness | -.05 | -.08 | .06 | .05 | .00 | -.18* | -.12 | -.23** |
| Life satisfaction | .00 | .00 | .12 | .17* | .20* | .11 | .06 | .18* |

*p < .05. **p < .01

The Spearman rho correlation table came up with the following significant correlations that were displayed in bold:

Concerning the personality trait honesty was hypothesized that it would be negatively correlated with all of the user behaviour questions. However, for none of the tested correlations could be found any significant associations which is why all hypotheses regarding honesty and user behaviour have to be rejected.

Contrary to before mentioned hypotheses, none of the user behaviour questions showed any significant correlations with neuroticism. Therefore, all of the earlier stated positive correlations have to be rejected. For the two items of user behaviour where no assumptions could be met (number of picture and story postings) could no new indications been found. That is why it can be concluded that there is no relation.

For the trait extraversion could be found one weak positive significant correlation between the trait extraversion and number of friends [$r_s(130) = .21, p < .05$]. This means that more extraversion is related to more friends on social media. The hypothesis that extraversion and number of friends are positively correlated to each other can be confirmed. For the remaining hypotheses regarding extraversion and user behaviour items could not be found any significant correlation which is why all of them have to be rejected.

Based on the correlation table, the trait agreeableness showed neither a positive nor a negative correlation with any of the user behaviour items. Therefore, all hypotheses regarding agreeableness have to be rejected. For the five items (“time spend on social media”, “like other postings”, “number of texts, picture and story posts”) for which no assumptions were established, could not be found any significant associations too. This is why the new indications are that there is no relation between these specific user performances and the trait agreeableness.

Conscientiousness showed three weak positive significant correlations with the user behaviour items. It correlated with “number of comments on other postings” [$r_s(130) = .17, p < .05$], “number of picture posts” [$r_s(130) = .19, p < .05$], and “number of story posts” [$r_s(130) = .21, p < .05$]. That indicates that a more conscientious personality is positively related to a higher number of comments on other postings, and more picture and story posts. However, none of these discoveries agreed with the hypotheses. Since it was expected that more conscientiousness would correlate negatively with user behaviour items, all hypotheses regarding this trait have to be rejected.

For the personality trait openness to experience could be found two weak negative significant correlations. The user behaviour questions “number of picture postings” [$r(130) = -.18, p < .05$] and “number of friends” [$r(130) = -.23, p < .01$] were weak negatively correlated to openness, which meant that more openness is negatively related to the number of picture postings and number of friends in social media. Since for all the user behaviour questions was a positive correlation with regard to a more open personality expected and none of these assumptions could be confirmed, all hypotheses concerning openness and the user behaviour questions have to be rejected.

Life satisfaction and the user behaviour questions “number of comments” [$r(130) = .17, p < .05$], “number of text postings” [$r(130) = .20, p < .05$], and “number of friends” [$r(130) = .18, p < .05$] are weak positively related to each other. That means that more life satisfaction is related to more comments on other postings, more text postings and to possess more friends on social media. Since until now, no research measured these associations, this study also had no assumptions about whether these two variables would be correlated to each other. Consequently, this research came up with new indications, namely that more life satisfaction is weak positively related to the before-mentioned user behaviour variables. For the two hypotheses that life satisfaction and the user behaviour questions “time spend on social media” and “check into social media” would be positively correlated to each other could not be found any evidence which is why these hypotheses have to be rejected.

After consideration of the correlations, the focus went to regression analysis to check for independent relations. Based on the outcomes within the correlation table (Table 3), it was evident that conscientiousness and life satisfaction showed both positive correlations with the user behaviour item “number of comments on other posts”. However, the standardised regression coefficients for conscientiousness (Beta = .11, $p = .21$) and life satisfaction (Beta = .12, $p = .16$) indicated non-significant correlations. Furthermore, the adjusted r^2 who explains the variance within the dependent variable “comment on others post” was also quite low (.02).

The same applies to the trait extraversion and life satisfaction, who were also both related to the user behaviour item “number of friends”. However, the adjusted r^2 was quite low (.02). Furthermore, the standardised regression coefficients for extraversion (Beta = .15, $p = .12$) and life satisfaction (Beta = .07, $p = .43$) were quite low and non-significant.

In conclusion, it can be said that for most of the hypotheses there could not be found any significant associations as it was beforehand expected. Therefore, nearly all hypotheses

had to be rejected. Most of the results came up without any significant relationships and the few ones who came up with significant ones only indicated weak relationships. The regression analyses could not explain much of the variance within the dependent variable and the regression coefficients were not significant too. Nevertheless, the hypothesis that extraversion is positively related to “number of friends” could be confirmed.

Discussion

The recent study was constructed to examine whether the six big personality traits and life satisfaction are associated with certain aspects of quantitative user behaviour within social media. Thereby, several significant correlations between the user behaviour items and personality traits, respectively life satisfaction could be found. The main findings were that the trait extraversion was weakly positively significantly associated with the user behaviour item “number of friends”. Further, the trait conscientiousness was weakly positively significantly associated with “comments on other posts”, “number of picture posts”, and “number of story posts”. The last significant association between a trait and a user behaviour item was related to openness to experience. There were weak negative significant associations found with “number of picture posts” and “number of friends”. Moreover, in this research, life satisfaction showed weak positive significant associations with three user behaviour items which were “comments on other posts”, “number of text posts”, and “number of friends” of which nothing was known before. Nevertheless, in the end, all established hypotheses had to be rejected except the one that more extraversion is positively related to a higher number of friends within social media.

The number of rejected hypotheses was unexpected. However, there are some reasons that could have contributed to that outcome. First, this study concentrated more on gaining a holistic view of the performed user behaviour within social media instead of investigating single performances which was never investigated before. Established hypotheses of earlier studies served as models for the hypotheses used in this study. Hence, it could be expected that some of the hypotheses that were created based on single performances had to be rejected regarding the more holistic user behaviour.

Interpretations

Earlier research indicated that there could be expected various significant correlations between certain traits and internet, respectively, social media use (Blackwell et al., 2017;

Correa et al., 2010; Hall & Pennington, 2013; J. H. Kim & Kim, 2019; Ma & Leung, 2013; Seidmann, 2013; Wang, 2013; Wilson et al., 2010). However, this could most of the time not be confirmed within this study based on the outcomes of the Spearman rho correlation test (Table 3).

As for the trait honesty. There, it was conspicuous that the trait did not show any comparable results as conscientiousness did which was expected before since both traits correlate strongly with each other (Hall & Pennington, 2013). However, honesty and conscientiousness showed highly diverse correlation patterns inside the user behaviour items, whereby honesty did not correlate with any user behaviour item significantly. Conclusively it can be said, that referring to the results inside this study implies that honesty is just not related to any user behaviour implemented in social media.

With regard to the trait neuroticism was a high level of consumer behaviour within social media associated above all (Ma & Leung, 2019; Seidmann, 2013). However, it was found out (J. H. Kim & Kim, 2019; Wilson et al., 2010) that neuroticism is negatively related with picture postings within social media which is probably related to their low self-esteem and their anxiety regarding being judged by others. Furthermore, Wilson et al. (2010), who also investigated a student sample, stated that neuroticism is not necessarily related to heavy social media use but instead that more neurotic persons would search for information there. Their used personality test was the NEO Five-Factor Inventory (FFI) (Wilson et al., 2010). This could be a hint why none of its relations with the user behaviour items in this study showed any significant correlations which had the consequence that all hypotheses had to be rejected. Since neither the BHI nor the FFI found any significant relations between neuroticism and severe social media use within student samples, it can be assumed that the trait neuroticism is not necessarily related to heavy social media use within this kind of sample.

The trait extraversion was the only one whereby one single hypothesis could be confirmed that was related to the item "number of friends". Indications of authors like Blackwell et al. (2017) or Correa et al. (2010) or Ma and Leung (2019), who stated that more extraverted people would show high use of social media and would use it for staying in contact with their friends were not in line with the findings within this study. Therefore, all other hypotheses regarding extraversion and the remaining user behaviour items had to be rejected. The results inside this study were unexpected since all other authors reported nearly the same findings for more extraverted persons contrary to the findings within this study.

For agreeableness, the literature mentioned higher frequencies of social media check-ins and that more agreeable people would like to share content about themselves regarding texts, pictures or stories (Ma & Leung, 2019; Wang, 2013). This was also partly claimed by Seidmann (2013), as it was said that female more agreeable people would use social media especially for posting their pictures. Although this study did not separate the participants based on their gender which could have contributed to the fact that no relationship between the trait and at least the user behaviour item “number of picture postings” were found. It should be recalled that 70% of the sample within this study were females and nonetheless there was not any relationship found. This leads to the conclusion that no support for this or the other hypotheses could be found which is why they were rejected. However, like this study, previous research could not find any relation between the trait agreeableness and social media use (Wang, 2013; Wilson et al., 2010), which is a common ground and indicates that there exists no relation between them. The remaining hypotheses that agreeableness and the user behaviour item “number of friends” and “number of comments on other postings” were positively related to each other could not be confirmed and had to be rejected too.

The trait conscientiousness was expected to display negative significant correlations with all user behaviour items since literature indicated that an increase in conscientiousness would result in decreasing values regarding user behaviour items (Ma & Leung, 2019; Ross et al., 2009; Seidmann, 2013; Wilson et al., 2010). However, this could not be confirmed, and the opposite even occurred. It became evident that conscientiousness was the trait with the most positive significant associations regarding user behaviour items (“comments on other posts”, “picture posts”, and “story posts”), compared to the remaining traits. Unexpected was also that all significant correlations were positive which means that the more conscientious a person is the higher is the number of “comment on other posts”, “picture posts” and “story posts”. This was quite remarkable since it was contrary to all suppositions. However, in the end, all hypotheses had to be rejected.

The last trait which was examined was openness. There, it was expected that openness would be highly positively associated with all user behaviour items since literature related the trait with every possible attribute of social media use (J. H. Kim & Kim, 2019; Ma & Leung, 2019; Seidmann, 2013). Nonetheless, openness to experience was the only trait that showed negative significant correlations with user behaviour items “number of picture posts” and “number of friends” which were contrary to previous expectations. However, this supports the findings of Wilson et al. (2010), who also investigated a student sample and who stated that

openness to experience is not related to heavy social media use. They supposed that this outcome can probably be related to the fact that internet and social media use are no longer perceived as “new”. In the end, also the slightly increased mean-value for openness within this sample compared to the student sample of De Vries (2013) could be a reason for the negative correlations that were related with openness and the deviant results. Finally, it could not be found any evidence for already established hypotheses regarding the trait openness which is why all of them had to be rejected.

Moreover, the overall low values of reliability and validity regarding the six personality traits that were examined with the BHI could have contributed to the unexpected results within this study.

The second independent variable which was life satisfaction revealed also unexpected results although not many hypotheses had been established until now that were related to internet, respectively social media use. Nevertheless, the ones that were established could not be confirmed. For the assumption that life satisfaction would positively correlate with the user behaviour items “time spend on social media” and “number of check-ins” were found reasonably literature (J. H. Kim & Kim, 2019; Wang, 2013). However, the analysis within this study could not find any evidence that could confirm these hypotheses. Nevertheless, new outcomes were ascertained about which there has been no literature so far, namely that life satisfaction correlates positively with the user behaviour items “comment on other posts”, “number of text posts” and “number of friends” within social media. For the remaining hypotheses which were “number of likes for other’s posts”, and “number of story and picture posts” could not be found any significant correlations. One could deduce from this that higher life satisfaction is at least partially positive related to people’s willingness to share contributions online and that the findings regarding positive correlations can be considered as new indications.

The executed regression analysis that was applied to the user behaviour item “comments on other’s posts” and the correlated variables of conscientiousness and life satisfaction revealed the same kind of problem as the regression analysis of the user behaviour item “number of friends” with the trait extraversion and life satisfaction. Both analyses came up with non-significant regression coefficients and quite low values for adjusted r^2 which is why it can be assumed that a third variable was probably at work in both cases.

Lastly, it has to be mentioned that the special circumstances, while this study was collecting its data, were exceptional because of the corona pandemic. It was a completely new situation for researcher and participants and the consequences it had for the data collection are difficult to indicate. Since the pandemic largely resulted in cancellations of university lectures, distance and isolation regulations and limited contact with family and friends for a long time, many people tried to keep in touch online. Online meetings and home offices became more popular. These changes possibly resulted in a change of internet usage and probably also had an influence on the user behaviour regarding social media use as people were much more often at home, looking for human contact online. This does not necessarily mean that people spent more time on social media, but perhaps spent it differently than before like using more often communication platforms instead of earlier preferred platforms. These altered behaviours could be related to the unexpected correlations between user behaviour aspects, personality traits, and life satisfaction as most hypotheses had to be rejected. Furthermore, as life satisfaction is a state that describes the recent life situation (Diener et al., 1985; Veenhoven, 1996) it is possible that it has been diminished during the pandemic because of the quarantine regulations. Therefore, it is possible that for honesty, neuroticism, extraversion, agreeableness, conscientiousness, openness, and life satisfaction different correlations with user behaviour aspects were found compared to earlier researches that conducted their studies before the pandemic started.

Strengths and Limitations

The age group inside this study can be considered as quite powerful since within the age of 18 to 30 years each of the participants possessed a smartphone and used at least one social media platform. Additionally, this group of people grew up with smartphones and social media which is why it can be assumed that popular social media platforms were at least familiar for the majority of participants. Next, other studies like the one of De Vries (2013) or Wilson et al. (2010), who also investigated topics like social media use and personality traits, worked with comparable samples of students which made comparisons among them more suitable.

Furthermore, the strong psychometric properties of the Satisfaction with Life Scale by Diener et al. (1985) and the results that were found based on it were quite remarkable as they indicated new outcomes regarding life satisfaction that were unknown before.

However, a contribution to the unexpected results could be the handling of the user behaviour data. Since participants could reveal their user performances within their three most used social media platforms, composite scores out of their responses regarding each item and the three platforms were calculated. That had the consequence that participants who used three social media platforms had most of the time higher scores for each item than people who only used one or two platforms. This kind of procedure was chosen to maintain as many participants as possible within this study. Furthermore, average scores were avoided to prohibit data from being too much skewed. Nevertheless, this treatment of the data had the consequence that values for composite scores of user behaviour were overall quite low which can be related to the different number of platforms participants used. In the end, the number of platforms used interacts with the amount of use, so it is difficult to distinguish among them.

Another big contribution to the exceptional findings was certainly that the used personality test, the BHI, was in retrospect a bad choice for measuring the six personality traits. Since after careful examination of the psychometric properties, it was found that the test suffered from quite low-reliability scores for all six traits which were shown by three traits that showed poor (honesty, conscientiousness and extraversion) and three that displayed unacceptable (neuroticism, agreeableness and openness) scores regarding the reliability of the test which was measured with Cronbach's Alpha. A previous study on this subject had already stated that although the BHI would capture the dimensions of the original personality test HEXACO quite good, it has a problem regarding its reliability (Dinić, 2018). Hereby, the problem might be related to the low number of items for each single trait. That the test has additional flaws was also noticeable as the validity of the BHI was examined. Administering the factor analysis to check for it and whether one-dimensionality exists revealed that the traits neuroticism and agreeableness showed against all expectations two-dimensionality inside their considered items. That is why for both traits got one item excluded to regain one-dimensionality. At this point, it should be noted that especially the trait neuroticism had in comparison to the other traits the lowest value of reliability and also a non-significant test of sphericity which is not a good basis for a factor analysis and which is probably related to the low correlations between the trait and the user behaviour aspects. Regarding the removed items, it was decided not to delete more of them than the one for neuroticism and the one for agreeableness because the personality test already consisted of only four items per trait and the reliability and validity should not be endangered even more by fewer items. Moreover, De

Vries (2013) discovered that the BHI shows lower correlations as if the HEXACO would be involved as a personality test which explains the overall weak correlations within this study.

In the end, recommendations for future studies are that the user behaviour that will be taken into account should be measured for all participants based on the same foundation. That means that for example only participants who used three equal platforms should be analysed to determine possible differences among personality traits and life satisfaction more precisely. This could be done by only including participants who are using the same three platforms and who have to reveal their user behaviour within these three platforms. Traits and life satisfaction could be measured, and it would be visible which traits are especially pronounced with a certain platform or a certain aspect of user behaviour. Furthermore, it would become visible if very life satisfied people are more likely to use certain platforms or just generally spend more or less time on social media. Regarding the traits, it should be aware of the low reliability of the personality test BHI and should perhaps exchange this test with another personality test that measures personality with greater reliability and validity by using more items. For measuring life satisfaction could be used the SWLS by Diener et al. (1985). Additionally, the predictability of quantitative user behaviour based on personality traits and life satisfaction should not be overestimated, as this is only possible to a limited extent, as the overall weak correlation values have demonstrated. Furthermore, the findings of the regression analyses were not very purposeful since correlation coefficients were not significant nor did they show high explanations for the variance of the dependent variable. Future research should be aware of this and should attempt to identify additional variables that could play a role here. Moreover, beyond any doubts, the time for data collection was unfortunate because of the corona pandemic which should be taken into account.

In the end, the study has shown that user behaviour does not only depend on personality or life satisfaction although it could determine some weak significant correlations and at least one hypothesis that could be confirmed.

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Appendixes

Appendix A: Informed Consent

I understand and consent that:

1. I am 18 years old or older
2. The procedure will approximately take 30 minutes
3. I understood the content and agree to contribute my data for the use of this research
4. I can withdraw from this research at any time by closing the questionnaire and without having to give a reason. In this case, my responses will be deleted within 24 hours.
5. My personal information will be anonymised to protect my privacy.
6. With my permission, I agree that all my data can be evaluated and used for the research.
7. I have been given the guarantee that this research project has been reviewed and approved by the BMS Ethics Committee. For research problems or any other questions regarding the research project, the Secretary of the Ethics Commission of the faculty Behavioural, Management and Social Sciences at the University of Twente can be contacted through the following mail address: ethicscommittee-bms@utwente.nl

In case of questions or ambiguities, the researchers Pauline Kersebaum (p.kersebaum@student.utwente.nl), Samuel Dittrich (s.m.dittrich@student.utwente.nl), Dorvanique Cocks (d.s.cocks@student.utwente.nl) and Robin Untiet (r.untiet@student.utwente.nl) can be contacted in order to help.

I confirm that I read the informed consent form and agree with all listed conditions.

I agree

I disagree

Appendix B: Questionnaires

| Type | Items | Scale/Answer options |
|----------------|---|---|
| User behaviour | | 7-point-Likert-Scale |
| | <i>How much time on average do you spend daily on your most/second/third used social media platform?</i> | 1 = 5-15 min; 2 = 15-25min, 3 = 25-35 min; 4 = 35-60 min; 5 = 1-1:30 hours, 6 = 1:30-2 hours, 7 = more than 2 hours |
| | <i>How many times a day do you check you most/second/third used social media platform on average?</i> | 1 = 5-15 times; 2 = 15-25 times; 3 = 25-35 times; 4 = 35-45 times; 5 = 45-55 times; 6 = 55-65 times; 7 = more than 65 times |
| | <i>How often do you like other's posting within your most/second/third used social media platform?</i> | 1 = never; 2 = once per month; 3 = multiple times per month; 4 = about once per week; 5 = multiple times per week, 6 = about once a day, 7 = multiple times a day |
| | <i>How often do you comment on other's postings within your most/second/third used social media platform?</i> | 1 = never; 2 = once per month; 3 = multiple times per month; 4 = about once per week; 5 = multiple times per week, 6 = about once a day, 7 = multiple times a day |
| | <i>How often do you post your own text within your most/second/third used social media platform?</i> | 1 = never; 2 = once per month; 3 = multiple times per month; 4 = about once per week; 5 = multiple times per week, 6 = about once |

| | | |
|-----|--|---|
| | | a day, 7 = multiple times a day |
| | <i>How often do you post a picture within your most/second/third used social media platform?</i> | 1 = never; 2 = once per month; 3 = multiple times per month; 4 = about once per week; 5 = multiple times per week, 6 = about once a day, 7 = multiple times a day |
| | <i>How often do you post a story within your most/second/third used social media platform?</i> | 1 = never; 2 = once per month; 3 = multiple times per month; 4 = about once per week; 5 = multiple times per week, 6 = about once a day, 7 = multiple times a day |
| | <i>How many friends/followers do you have on your most/second/third used social media platform?</i> | 1 = 0-50; 2 = 51-100; 3 = 101-200; 4 = 201-350; 5 = 351-500; 6 = 500-1000; 7 = more than 1000 |
| BHI | <i>I can look at a painting for a long time.</i> <i>I make sure that things are in the right spot.</i> <i>I remain unfriendly to someone who was mean to me. R</i> <i>Nobody likes talking to me. R</i> <i>I am afraid of feeling pain.</i> <i>I find it difficult to lie.</i> <i>I think science is boring. R</i> <i>I postpone complicated tasks as long as possible. R</i> <i>I often express criticism. R</i> <i>I easily approach strangers.</i> <i>I worry less than others. R</i> <i>I would like to know how to make lots of money in a dishonest manner. R</i> <i>I have a lot of imagination.</i> <i>I work very precisely.</i> <i>I tend to quickly agree with others.</i> <i>I like to talk with others.</i> <i>I can easily overcome difficulties on my own. R</i> <i>I want to be famous. R</i> <i>I like people with strange ideas.</i> | 5-point Likert-scale (1= strongly disagree; 5 = strongly agree) Items with "R" were reversed scored |

I often do things without really thinking. R
Even when I am treated badly, I remain calm.
I am seldom cheerful. R
I have to cry during sad or romantic movies.
I am entitled to special treatment. R

| | | |
|------|---|---|
| SWLS | <i>In most ways my life is close to my ideal.</i> <i>The conditions of my life are excellent.</i> <i>I am satisfied with my life.</i> <i>So far, I have gotten the important things I want in life.</i> <i>If I could live my life over, I would change almost nothing.</i> | 7-point Likert-scale (1 = strongly disagree; 7 = strongly agree) |
|------|---|---|

| | | |
|--------------|--|-----------------------------|
| Demographics | <i>What is your age in years?</i> | (text box) |
| | <i>What is your nationality?</i> | (text box) |
| | <i>What is your gender?</i> | Male, Female, Neutral |
| | <i>What is your occupation status?</i> | Student, Employed, Other |
| | <i>Do you own a smartphone?</i> | Yes, No |
