Online and Offline Self-Disclosure: The Role of Personality

Fanchang Kong[1,*], Sujie Meng[2], Xiaoyao Li[2] and Shuangting Yu[2]

[1]School of Psychology, Central China Normal University, Wuhan, China and [2]School of Psychology and Key Laboratory of Adolescent Cyber Psychology and Behavior (Ministry of Education), Central China Normal University, Wuhan, China

Email of corresponding author: kfcpsy@ccnu.edu.cn

Abstract: Personality has proven to be one of the most crucial factors of self-disclosure during social interaction. Prior research has explored the effect of personality on self-disclosure in online or offline communication, but few studies examine the effect of both online and offline self-disclosures together. Thus, the current study was to fill the gap among college students. Jourard's Self-Disclosure Questionnaire and the Big Five Inventory are administered to a sample of 347 students who frequently use social network sites. Results showed that the dimensions of agreeableness and emotional stability of personality significantly predicted participants' self-disclosure in offline communication while the dimensions of extraversion and openness of personality significantly predicted self-disclosure in online communication. Meanwhile, the dimension of conscientiousness of personality can significantly predict participants' self-disclosure in both online and offline communication. It suggests that personality affects self-disclosure with different patterns in online and offline communication. Implications of these results and directions for future research are discussed.

Keywords: Self-Disclosure; Online Communication; Offline Communication; Personality; Social Compensation.

1. INTRODUCTION

With the rapid development and popularization of the Internet, virtual relationship, which is built using the internet as a medium, becomes an important model in the social relationship (Ward & Tracey, 2004). Unlike offline communication, online communication refers to an interpersonal activity that happens on the internet to exchange thoughts and express internal sentiments through literal symbols (Luo, 2006). The three typical characteristics including anonymity, convenience, and dyssynchrony in online communications, have inevitably satisfied the need for self-disclosure (Valkenburg, Peter, & Schouten, 2006). Self-disclosure is first put forward by Jourard and Lasakow (1958) to describe the events of sharing intimate thoughts, feelings, and experiences. It differs from several types and levels but serves to increase mutual understanding, build trust, strengthen the ties in various relationships or enhance the bonds of groups and strengthen group identity. Therefore, social interaction is still in its main purpose (Jiang, Zouk, & Hu, 2008; Limperos, Tamul, Woolley, Spinda, & Shyam Sundar, 2014). Who likes to present oneself online and whether it differs from the side of offline are key questions on the topic of personality and self-disclosure. The current study investigated the relationship between personality and self-disclosure online and offline communications to clarify the relationship between personality and self-disclosure, and also guide people's expression management.

1.1. SELF-DISCLOSURE AND PERSONALITY

Self-disclosure is considered as a stable attribute which is the symbol and the cause of the healthy personality that is associated with other positive personality traits intimately (Jiang *et al*., 2008; Li & Chen, 2004). Li and Chen (2004) have pointed out that self-disclosure was influenced by gender, targets, grade, and topics. Also, some researchers have found that participants reported more anxiety by face-to-face communication as compared to by computer-mediated interaction, and this effect was mediated by participants' neuroticism and extraversion (Rice & Markey, 2009). Then, some researchers focused on how personality traits play a role in self-disclosure. For instance, research showed that the level of extraversion was positively related to self-presentation while the levels of emotional stability and conscientiousness were negatively related to writing comments about the social website (Lee, Ahn, & Kim, 2014). However, self-presentational behaviors and motivations were predicted by a low level of conscientiousness and a high level of emotional stability (Seidman, 2013).

Research showed that Big Five Personality traits predicted disclosure behaviors (Hollenbaugh & Ferris, 2014). Specifically, the lower levels of conscientiousness and agreeableness, and the higher level of openness tend to present more information on Facebook. The level of extraversion is associated with the quality of self-disclosure while the levels of conscientiousness and agreeableness can significantly predict the quality of self-disclosure, especially those who are at the low level of conscientiousness and high level of agreeableness may process further tendency of self-disclosure. There is a significantly positive correlation between the level of openness and the breadth of self-disclosure while the relation of emotional stability and the breadth of self-disclosure is significantly negative. High levels of agreeableness and emotional stability were significant predictors of belongings-related behaviors and motivations. The level of extraversion was associated with more frequent use of Facebook to communicate with others. Another study also found the same findings (Caci *et al*., 2019). People with a high level of openness are more likely to post personal information on Facebook, while people with a high level of conscientiousness and agreeableness are less likely to post pictures. In addition, people with a high level of extraversion is also positively correlated to post personal information, and people with high extraversion and agreeableness are less likely to develop intimate relationships, while people with a high level of openness is more likely to post personal information in Facebook (Caci *et al*., 2019).

However, there are some different results. A study about adolescents found that the more extroverted, agreeable, and conscientious they are, the more self-disclosure they have (Dan *et al*., 2021). In addition, depression and narcissism also have an impact on self-disclosure (Lee *et al*.,2020; Lee *et al.*, 2020). In a concurrent study of adolescents' online and offline self-disclosure, adolescents who prefer offline self-disclosure show low neuroticism, high extraversion, openness, conscientiousness, and agreeableness, while adolescents who prefer online self-disclosure show high neuroticism, high agreeableness, high conscientiousness, and high extraversion or low agreeableness, low conscientiousness and high extraversion (Chen *et al*., 2017). Chen and Marcus (2012) found that individuals with a low level of extraversion and interacting in online information in the collectivist background, as compared to others. Therefore, it's necessary to further investigate how personality affects online and offline self-disclosure together.

Why do people with different personality traits have different qualities and quantities of self-disclosure? The rich-get-richer hypothesis holds that stronger social ties generally lead to better social outcomes than that weaker ties (Kraut *et al*., 2002; Valkenburg & Peter, 2007). Whereas the social compensation hypothesis proposes that extremely lonely or socially anxious adolescents, who have difficulty in developing friendships in their lives, turn to online communication to satisfy and fulfill the belonging needs that are absent in real life (Anderson-Butcher *et al*., 2010). In other words, online communication is the extension and supplement of offline communication. Both hypotheses emphasize that only a specific group can benefit from the internet while the rich-get-richer hypothesis emphasizes the extension of which the internet would affect one's real life and the social compensation hypothesis focuses on the compensation that the usage of the Internet would have had to real life. Therefore, the present study will provide an opportunity to test the rich-get-richer and social compensation hypotheses.

Previous studies examined the relationship between personality traits and self-disclosure, which showed that personality traits affected individual self-disclosure, but fewer studies investigate the relationship between personality and self-disclosure from both online and offline communication. Our research aimed to examine how personality traits influenced self-disclosure in this integrating framework. Based on the prior findings, this study put forward the following hypotheses:

H1: Personality traits (openness, conscientiousness, extraversion, agreeableness, and emotional stability) can significantly predict college students' online self-disclosure.

H2: Personality traits (openness, conscientiousness, extraversion, agreeableness, and emotional stability) can significantly predict college students' offline self-disclosure.

H3: There are significant differences in the patterns underlying personality affecting online self-disclosure and offline self-disclosure.

2. Method

2.1. PARTICIPANTS

Subjects were recruited from 3 universities in Hubei and Liaoning Province, 396 questionnaires were distributed within one week. 347 college students completed the questionnaires, with 48.9% male and 51.1% female. Their average age was 23.70 years old (SD=2.24), age ranged from 19 to 28 years old. All of them used social software and social platform (i.e. QQ/Weibo/WeChat/Blog) to communicate within a social network, and the average usage hour per day is 4.79 (SD=3.33). This study has been approved by the Ethics Committee of the School of Psychology of Central China Normal University. All participants have signed informed consent before their inclusion in this study.

2.2 MEASUREMENTS

2.2.1. Ten-Item Personality Inventory in China (TIPI-C)

TIPI-C was developed to measure the personality traits, which comprised openness, conscientiousness, extraversion, agreeableness, and emotional stability (Li, 2013). There are 10 items, and each item is evaluated using Likert's 7 levels, from 1(totally disagree) to 7(totally agree). Research has suggested that the coefficients of internal consistency of the five subscales (openness, conscientiousness, extraversion, agreeableness and emotional stability) of TIPI-C are .67, .60, .64, .62 and .64, the test-retest reliability coefficients are .68, .51, .41, .64 and .77. In this study, the coefficients of Cronbach's alpha are .61, .71, .66, .57 and .52, respectively.

2.2.2. Jourard Self-Disclosure Questionnaire (JSDQ)

JSDQ measures different dimensions of self-disclosure, including attitude, interest, habits, study, work, personality, and physical condition (Jourard & Lasakow, 1958). Each dimension consists of 10 items. Thus, there are 60 items in total. Every item was evaluated based on the degree of disclosure to the father, mother, male and female friend by an individual. The Chinese version of JSDQ also contains six dimensions, which are attitude or perspective, interest or habits, study or work, money, personality, and physical conditions. The Cronbach's alpha coefficients are .84, .84, .84, .87, .86 and .86, respectively (Li & Chen, 2004). Based on the research purpose and practical implications, the present study adopts only the male friend and female friend targets. The Cronbach's alpha coefficients in attitude or perspective, interest or habits, study or work, money, personality and physical conditions in online communication are .78, .83, .87, .90, .87 and .88 respectively, and those in offline communication are .79, .81, .88, .91, .85 and .87 respectively.

2.2.3. Data analysis

SPSS 23.0 software was used to conduct descriptive analysis, correlation analysis, and regression analysis. Before data analysis, we used the mean in-session method instead of the missing data.

3. RESULT

3.1. THE CORRELATION ANALYSIS OF PERSONALITY TRAITS AND SELF-DISCLOSURE

In offline communication, results indicate that regardless of the targets are same-sex or not, the dimension of agreeableness and conscientiousness have correlated negatively with self-disclosure (See Table 1). The dimension of extraversion is solely negatively related to self-disclosure, especially, the dimension of extraversion is negatively related to self-disclosure on personality and physical condition to the same-sex target, and is positively related to self-disclosure on the study to the opposite-sex target. In addition, the dimension of openness is negatively related to self-disclosure to the same-sex target.

Table 1: The Correlation of Personality and Self-Disclosure in Offline Communication

	M±SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.E	8.87±2.46																
2.A	10.00±1.74	-.053															

Variable	M±SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
3.C	9.76±1.93	.061	.309**														
4.ES	9.26±1.92	.245**	.301**	.346**													
5.O	9.77±1.94	.174**	.134*	.194**	.269**												
5.RS_attitude	9.16±3.95	-.005	-.127*	-.092	.014	-.027											
6.RS_interest	11.35±4.63	.039	.032	-.153**	.074	-.078	.576**										
7.RS_study	10.22±4.87	-.018	-.029	-.127*	.051	-.096	.590**	.631**									
8.RS_money	6.20±5.02	.093	-.169**	-.166**	-.078	-.094	.516**	.315**	.486**								
9.RS_personality	8.15±4.29	.005	-.120*	-.154**	-.106*	-.098	.544**	.451**	.640**	.643**							
10.RS_physical	7.95±4.36	-.028	-.120*	-.182**	-.111*	-.112*	.612**	.447**	.549**	.694**	.758**						
11.RD_attitude	8.06±3.77	-.097	-.138*	-.077	.026	-.041	.761**	.400**	.469**	.423**	.485**	.486**					
12.RD_interest	10.16±4.38	.067	-.048	-.126*	.088	-.001	.399**	.811**	.515**	.210**	.352**	.276**	.475**				
13.RD_study	9.13±4.54	-.047	-.087	-.107*	.114*	-.047	.432**	.489**	.805**	.351**	.503**	.385**	.559**	.642**			
14.RD_money	5.34±4.82	.056	-.187**	-.183**	-.031	-.025	.433**	.260**	.383**	.825**	.545**	.592**	.546**	.364**	.510**		
15.RD_personality	7.07±4.38	.039	-.156**	-.150**	-.025	-.080	.437**	.338**	.500**	.526**	.769**	.559**	.603**	.491**	.657**	.690**	
16.RD_physical	6.60±4.17	-.010	-.171**	-.132*	-.007	-.062	.363*	.205*	.334*	.597*	.505*	.684*	.521*	.370*	.502*	.728*	.694**

Note: *** p<0.001,** p<0.01,* p< 0.05; RS refers to the response to the same-sex target in real life, RD refers to the response to different-sex target in real life.

In online communication, results indicate that the dimension of openness is negatively correlated with self-disclosure on perspective, study, and personality to the same-sex target (See Table 2). The dimension of agreeableness is significantly related to self-disclosure on attitude and money to the same-and opposite-sex target. The dimension of conscientiousness is significantly related to self-disclosure on attitude and money to the same-sex target and is significantly related to self-disclosure on money, personality, and physical condition to the opposite-sex target. The dimension of extraversion is significantly related to self-disclosure on the attitude and money to the same-sex target and is significantly related to self-disclosure on money and personality condition to the opposite-sex target. The dimension of openness is significantly related to self-disclosure on the study to the same-sex target and is significantly related to self-disclosure on the study, money, personality, and physical condition to the opposite-sex target.

Table 2: The Correlation of Personality and Self-Disclosure in Online Communication

	M±SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.E	8.87±2.46																
2.A	10.00±1.74	-.053															
3.C	9.76±1.93	.061	.309**														
4.ES	9.26±1.92	.245**	.301**	.346**													
5.O	9.77±1.94	.174*	.134	.194**	.269**												
5.VS_attitude	16.66±3.68	-.162**	.478**	.168*	.158*	.030											
6.VS_interest	9.97±3.90	-.021	.017	-.012	.080	.088	.428**										
7.VS_study	8.80±4.04	-.143**	.071	-.005	.049	-.138**	.532**	.622**									
8.VS_money	5.16±4.44	-.083	-.108**	-.163*	-.112*	-.080	.388**	.299**	.443**								
9.VS_personality	7.17±4.12	-.147**	-.071	-.102	-.043	-.071	.444**	.452**	.629**	.706**							
10.VRS_physical	6.68±4.36	-.082	-.100	-.101	.034	-.078	.341**	.375**	.512**	.655**	.748**						
11.VD_attitude	8.57±3.77	-.165**	.026	.002	-.022	-.026	.696**	.378**	.475**	.413**	.422**	.394**					
12.VD_interest	10.08±4.21	-.050*	.143*	.030	.080	.008	.406**	.781**	.496**	.184**	.318**	.235**	.516**				
13.VD_study	9.85±4.07	-.143**	.138*	-.090	-.002	-.199**	.417**	.421**	.723**	.279**	.460**	.375**	.585**	.627**			
14.RD_money	5.99±4.56	-.090	-.110*	-.145*	-.131*	-.155**	.348**	.252**	.341**	.816**	.583**	.591**	.543**	.330**	.418**		
15.VD_personality	8.44±4.45	-.103	-.027	-.158*	-.107*	-.143**	.363**	.337**	.435**	.522**	.707**	.559**	.556**	.518**	.655**	.671**	
16.VD_physical	8.01±4.68	-.049	-.038	-.141*	-.057	-.134**	.312**	.271**	.368**	.547**	.580**	.747**	.504**	.444**	.562**	.684**	.764**

Note: VS refers to the response to the same-sex target in virtual life, VD refers to the response to a different-sex target in virtual life.

3.2. THE REGRESSION ANALYSIS FOR SELF-DISCLOSURE AND PERSONALITY IN ONLINE AND OFFLINE COMMUNICATION

In offline communication, regression analysis shows that the dimension of conscientiousness can predict the self-disclosure on interest, study, money, personality, and physical condition towards the same-sex target and can also predict the self-disclosure on interest, study, money, and personality towards the opposite-sex target (See Table 3). The dimension of agreeableness can predict the self-disclosure on money towards the same-sex target and can also predict the self-disclosure on money, personality, and physical condition towards the opposite-sex target. The dimension of emotional stability can predict self-disclosure on interest and physical condition towards the same-sex target and can also significantly predict self-disclosure on attitude, interest, and study towards the opposite-sex target.

Table 3: The Regression of Personality on Self-Disclosure in Online and Offline Communication

	O	C	E	A	N
Offline Self-Disclosure		β=-.207, t=-3.574, p=0.001			β=.140, t=-2
		β=-.151, t=-2.577, p=0.010			β=.140, t=-2
		β=-.120, t=-2.077, p=0.039		β=-.114, t=-1.991, p=0.047	
		β=-.117, t=-2.003, p=0.046			
		β=-.141, t=-2.419, p=0.016			
				β=-.164, t=-2.837, p=0.005	β=.134, t=2
		β=-.166, t=-2.842, p=0.005			β=.150, t=2
		β=-.137, t=-2.369, p=0.018			β=.232, t=3
		β=-.159, t=-2.753, p=0.006		β=-.154, t=-2.686, p=0.008	
		β=-.123, t=-2.103, p=0.036		β=-.127, t=-2.200, p=0.028	
				β=-.164, t=-2.843, p=0.005	
Offline Self-Disclosure	β=-.198, t=-3.630, p=.001	β=-.123, t=-2.162, p=.031	β=-.109, t=-2.005, p=0.046		
	β=-.110, t=-1.969, p=.050				
		β=-.136, t=-2.333, p=.020			
	β=-.112, t=-1.991, p=.047	β=-.127, t=-2.166, p=.031			
			β=-.149, t=-3.038, p=0.003	β=.448, t=8.784, p=0.001	
	β=-.146, t=-2.634, p=0.009		β=-.141, t=-2.553, p=0.011		
		β=-.126, t=-2.155, p=0.032			
			β=-.152, t=-2.732, p=0.007		

Note: O refers to openness, C refers to conscientiousness, E refers to extra-version, A refers to agreeableness, and ES refers to emotional stability.

In online communication, the dimension of openness can predict self-disclosure on study, money, and physical condition towards the same-sex target and also can predict self-disclosure on study towards the opposite-sex target (See Table 3). The dimension of conscientiousness can

predict self-disclosure on the study, personality, and physical condition towards the same-sex target and also can predict self-disclosure on money towards the opposite-sex target. The dimension of extraversion can predict self-disclosure on study towards the same-sex target and also can predict self-disclosure on attitude, study, and personality towards the opposite-sex target. The dimension of agreeableness can significantly predict self-disclosure on study towards the same-sex target.

4. DISCUSSION

The current study investigated the relationship between personality traits and self-disclosure in online and offline communication among college students. Results showed that agreeableness and emotional stability could predict offline self-disclosure, and extra-version and openness could predict online self-disclosure. Meanwhile, conscientiousness could predict both offline and online self-disclosure. These findings advance our understandings regarding personality and self-disclosure, and also provide a new perspective to deal with the question that is self on the internet.

4.1. PERSONALITY AFFECTS THE SELF-DISCLOSURE IN ONLINE COMMUNICATION

In online communication, the dimensions of openness, extraversion, and conscientiousness can significantly predict self-disclosure partly, which supports the research hypothesis. It is also consistent with the available findings. Specifically, the dimensions of extraversion and conscientiousness are significantly related to the self-presentation at the social website (Lee *et al.*, 2014; Caci *et al.*, 2019). Individuals who are low on conscientiousness and high on openness expose more information about themselves on Facebook (Hollenbaugh & Ferris, 2014; Caci *et al.*, 2019). According to the social compensation theory, internet use can be more helpful to those who are lonely and have some kind of social phobia (Anderson-Butcher *et al.*, 2010). In other words, introverted individuals get compensations through internet social networks, thus more willing to have disclosed behaviors. As to those people with a high level of openness, they worried more about the uncertainty and risks due to the anonymity and convenience of the internet. Therefore, they present much more openness in real life and are more cautious online with less

self-disclosure. To explain it amply, online communication shielded much of the clues that people use regularly in offline communication, which makes the dimensions of agreeableness and emotional stability less important for self-disclosure.

4.2. PERSONALITY AFFECTS THE SELF-DISCLOSURE IN OFFLINE COMMUNICATION

In offline communication, the dimensions of conscientiousness, agreeableness, and emotional stability can significantly predict self-disclosure, which is partly consistent with previous findings. Specifically, those with a high level of conscientiousness are usually more cautious, dispassionate, objective, with a sense of responsibility, so they are not easy to expose their events. But for those with a low level of conscientiousness, in most cases, tend to disclose them more often in interpersonal relations. As for those with a high level of agreeableness processed characters such as easygoing, friendly, sympathetic, kind, which makes them get along well with people around them and have less needs to disclose themselves. While those with a low level of agreeableness show less intimacy, more competitiveness, hostility, and ruthlessness, which make them hard to be trusted and need to show higher quality of self-disclosure to gain other people's trust (Yang & Lei, 2007). In addition, emotional stability also contributes to self-disclosure in face-to-face communication and has a further influence on the quality of the social network. Consequently, people who are often in stable emotional states are inclined to perform higher quality of self-disclosure. It is also suggested that the dimensions of openness and extraversion have no significant impact on real-life self-disclosure, which is inconsistent with former researches (Li & Chen, 2004; Chen *et al.*, 2017). The probable explanation was related to the participant's selection and the measurements.

4.3. THE COMPARISON ANALYSIS BETWEEN PERSONALITY AFFECTING SELF-DISCLOSURE IN ONLINE AND OFFLINE COMMUNICATION

The effects of personality on self-disclosure in online and offline communication are discussed from the similarities and differences. In terms of

similarities, the dimension of conscientiousness affects self-disclosure in both online and offline communication. Those with a high level of conscientiousness do not easily disclose themselves in online or offline communication. They are aware of their responsibilities and obligations clearly and definitely in social activities (Lee *et al*.,2014). In terms of the differences, the dimensions of agreeableness and emotional stability affect self-disclosure in offline communication, whereas the dimensions of openness and extraversion influence self-disclosure in online communication. The discrepancy may reflect different mechanisms underlying the personality affecting the self-disclosure in online/offline communication.

4.4. THE LIMITATIONS AND PROSPECTS

First of all, using the questionnaire to explore the relationship of personality traits and self-disclosure is considered to be a static angle, which is not enough to draw a causal relationship. Thus, future research should utilize the experimental method and longitudinal study to investigate the causal relationship between personality and self-disclosure. Secondly, there is a gender difference in the relation of personality and self-disclosure in this study, but due to the research aim and sample size, no

deepen discussion was conducted. Furthermore, self-disclosure involves not only the quantity but also the content and structure. Therefore, how to reveal the relationship between personality traits and self-disclosure in the combination of the quantity, content, and structure will be one of the most important topics in future.

5. CONCLUSION

This study suggests personality affects self-disclosure in online and offline communication with different patterns. Specifically, agreeableness and emotional stability significantly predicted individual self-disclosure in offline communication, and openness and extraversion significantly predicted self-disclosure in online communication. In the meantime, conscientiousness significantly predicted self-disclosure in both online and offline communications.

ACKNOWLEDGMENTS

CONFLICT OF INTEREST

There is not any interest conflict in this study.

REFERENCES

[1]   Anderson-Butcher, D., Lasseigne, A., Ball, A., Brzozowski, M., Lehnert, M., & McCormick, B. L. (2010). Adolescent Weblog Use: Risky or Protective? *Child and Adolescent Social Work Journal, 27*(1), 63-77. https://doi.org/10.1007/s10560-010-0193-x

[2]   Caci, B., Cardaci, M., & Miceli, S. (2019). Development and maintenance of self-disclosure on facebook: the role of personality traits. *SAGE Open, 9*(2), 215824401985694. https://doi.org/10.1177/2158244019856948

[3]   Chen, B., & Marcus, J. (2012). Students' self-presentation on Facebook: An examination of personality and self-construal factors. *Computers in Human Behavior, 28*(6), 2091-2099. https://doi.org/10.1016/j.chb.2012.06.013

[4]   Chen, W., Xie, X. C., F, Ping., & Wang, M. Z. (2017). Personality differences in online and offline self-disclosure preference among adolescents: a person-oriented approach. *Personality and Individual Differences, 105*, 175-178. https://doi.org/10.1016/j.paid.2016.09.048

[5]   Dan, B., Reich, N., & Aharony, N. (2021). Willingness to information security as a function of personality characteristics and threat assessment among adolescents. *Online Information Review, 45*(5), 912-929. https://doi.org/10.1108/oir-06-2020-0218

[6]   Hollenbaugh, E. E., & Ferris, A. L. (2014). Facebook self-disclosure: Examining the role of traits, social cohesion, and motives. *Computers in Human Behavior, 30*, 50-58. https://doi.org/10.1016/j.chb.2013.07.055

[7]   Jiang, S., Zouk, H., & Hu, X. (2008). A Brief Introduction of Self-disclosure Research in the Western. *Advances in Psychological Science, 16*(1), 114-123.

[8]   Jourard, S. M., & Lasakow, P. (1958). Some factors in self-disclosure. *The Journal of Abnormal and Social Psychology, 56*(1), 91-98. https://doi.org/10.1037/h0043357

[9]   Kraut, R., Kiesler, S., Boneva, B., Cummings, J., Helgeson, V., & Crawford, A. (2002). Internet paradox revisited. *Journal of Social Issues, 58*(1), 49-74. https://doi.org/10.1111/1540-4560.00248

[10]   Lee, E., Ahn, J., & Kim, Y. J. (2014). Personality traits and self-presentation at Facebook. *Personality and Individual Differences, 69*, 162-167. https://doi.org/10.1016/j.paid.2014.05.020

[11]   Lee, J., Lee, J., Song, Y. A., Ahn, H., Lee, E., & Sung, Y. (2020). Self-Disclosures on Facebook: The Two Faces of Narcissism. *International Journal of Advanced Culture Technology, 8*(2), 139-145.

[12]   Li, & Chen. (2004). Investigation on college students' self-disclosure. *Psychological Development and Education, 20*(3), 62-67.

[13]   Li, J. D. (2013). Psychometric Properties of Ten-Item Personality Inventory in China. *China Journal of Health Psychology, 21*(11), 1688-1692.

[14]   Limperos, A. M., Tamul, D. J., Woolley, J. K., Spinda, J. S., & Shyam Sundar, S. (2014). "It's Not Who You Know, but Who You Add:" An investigation into the differential impact of friend adding and self-disclosure on interpersonal perceptions on Facebook. *Computers in Human Behavior, 35*, 496-505. https://doi.org/10.1016/j.chb.2014.02.037

[15]   Ljepava, N., Orr, R. R., Locke, S., & Ross, C. (2013). Personality and social characteristics of Facebook non-users and frequent users. *Computers in Human Behavior, 29*(4), 1602-1607. https://doi.org/10.1016/j.chb.2013.01.026

[16]   Luo, Q. Y. (2006). Investigating the interrelation of online and offline social network. *Lanzhou Academic Journal, (2)*, 169-171.

[17]   Rice, L., & Markey, P. M. (2009). The role of extraversion and neuroticism in influencing anxiety following computer-mediated interactions. *Personality and Individual Differences, 46*(1), 35-39. https://doi.org/10.1016/j.paid.2008.08.022

[18]   Seidman, G. (2013). Self-presentation and belonging on Facebook: How personality influences social media use and motivations. *Personality and Individual Differences, 54*(3), 402-407. https://doi.org/10.1016/j.paid.2012.10.009

[19]   Valkenburg, P. M., & Peter, J. (2007). Preadolescents' and adolescents' online communication and their closeness to friends. *Developmental psychology, 43*(2), 267-277. https://doi.org/10.1037/0012-1649.43.2.267

[20]   Valkenburg, P. M., Peter, J., & Schouten, A. P. (2006). Friend networking sites and their relationship to adolescents' well-being and social self-esteem. *Cyber Psychology & Behavior, 9*(5), 584-590. https://doi.org/10.1089/cpb.2006.9.584

[21]   Ward, C. C., & Tracey, T. J. (2004). Relation of shyness with aspects of online relationship involvement. *Journal of Social and Personal Relationships, 21*(5), 611-623. https://doi.org/10.1177/0265407504045890

[22]   Yang & Lei. (2007). The relationship between adolescents' extraversion/ agreeableness, internet service preference, and internet addiction. *Psychological Developmental and Education, 2*, 42-48.

[23]   Zou, M. L. , Li, M. X., & Cho, V. (2020). Depression and disclosure behavior via social media: a study of university students in China. *Heliyon, 6*(2), e03368. https://doi.org/10.1016/j.heliyon.2020.e03368