

# Gender Influence of Personality on Adolescents' Social Media Engagement

Xiaoran Li and Xiaoli Ni\*

School of Humanities and Social Science, Xi'an Jiaotong University, Xi'an, China

**Abstract.** Based on a survey of college students in Shaanxi Province, this study found that there are significant gender differences in the influence of adolescent personality on social media engagement. In terms of behavioral engagement, male extraversion personality traits have a significant predictive effect on behavioral engagement. Extraversion personality has no significant influence on behavior engagement. Therefore, the influence of adolescents' use of social media on individual growth and mental health development should consider gender differences.

## 1 Introduction

### 1.1 Social media engagement

The rapid development of the Internet has gradually penetrated different areas of people's lives, and it has also become an irreplaceable part of people's lives [1] [2]. The "Survey Report on Chinese Youth Online Behavior" released by the China Internet Network Information Center shows that as of 2019, the number of Chinese youth Internet users has reached 256 million, accounting for 41.5% of the total Internet users and 71.8% of the total youth [3]. It can be seen that the youth group has become an important sector for Internet use. However, social media includes various Internet tools, applications, etc., which mainly refer to online interactive communication and the publication of creative opinions through the Internet. Global Internet data in 2017 show that nearly one-third of adolescents' time is spent on social media [4]. As a brand-new way of communication, the Internet has had a huge impact on the development of people's psychological behavior. At present, existing studies have found that online behavior is closely related to personality. An increasing number of people believe that social media use may play an important role in psychological well-being [5]. Research by Kraut et al, found that excessive use of the Internet can lead to increased loneliness and depression [6]. Kimberly Young's research found that most individuals who tend to rely on the Internet often suffer from some psychological problems, especially depression [7]. Research by Xiumin Li et al, found that there is a significant difference between the frequency of surfing the Internet and the personality of college

---

\* Corresponding author: [nixiaolipsy@163.com](mailto:nixiaolipsy@163.com)

students, and the preference of Internet content is significantly related to personality traits [8]. In this period, adolescents struggle to cope with changes in identity exploration, autonomy, and peer relationships, social media use may play a key developmental role in early adolescence [9]. At the same time, social media use may lead to more self-objectification, body image prejudice, or eating problems among adolescents [10,11]. We can see that the research on the use of social media is not only helpful for the growth of adolescents, but also has important value and significance for the development of their mental health.

However, a recent study on 17000 adolescents showed that the relationship between screen time and well-being was insignificant [12]. It can be seen that the main factor affecting young people is the degree of social media engagement, rather than the time or frequency they spend on social media. Therefore, this research will focus on the factors that influencing factor on adolescents that their engagement on social media.

## **1.2 Personality and Social media engagement**

Social media participation in this study refers to an individual's attitude towards social media use relations. In previous studies, the cognitive aspect refers to the comments and understanding of specific things or problems, which can present the individual's perception of this in the brain. Emotional aspects refer to the positive or negative emotions when facing things or problems, which can reflect the individual's emotional participation; behavioral aspects refer to the daily habitual activities involved in things or problems, which may unconsciously surround the individual's daily life [13]. Jiang Yongzhi believe that neuroticism is a direct influencing factor of social media dependence and has a positive predictive effect on mobile social media dependence, extraversion directly affect personal preference for social media use [14]. Wu Huiliang believes that an individual's dependence on mobile phone is significantly negatively correlated with dimensions such as extraversion [15]. According to previous studies, it can be seen that adolescent personality has a significant impact on the use of social media. However, it didn't study the influence of adolescent personality on social media engagement and gender differences.

## **1.3 The Present Study**

This research will focus on the formation of adolescents' personality, through the process of interaction between individuals and the environment, how personality affects the degree of social media engagement.

RQ1: Adolescent personality has a significant predictive effect on social media engagement.

RQ2: There is a significant gender differences in the influence of adolescent personality on social media engagement.

# **2 Research Objects and Methods**

## **2.1 Subjects**

In this study, stratified sampling is used to investigate three universities and one high school in Shaanxi Province, China. All collected data are typed in through EpiData and statistical analysis was performed using SPSS25.0 (See table1).

### 2.1.1 Scale of Adolescent Social Media Engagement

Compiled by researchers like Ni Xiaoli in 2020, the scale consists of three dimensions—emotional engagement, behavioral engagement and cognitive engagement and has 11 questions. Likert scale Level 5 is used to keep the score, ranging from 1 - "strongly disagree" to 5 - "strongly agree". The higher the score, the higher the level of social media engagement.

### 2.1.2 Eysenck Personality Questionnaire (EPQ)

Eysenck Personality Questionnaire is a self-presentation scale designed by British psychologist H. J. Eysenck to measure personality. There are four scales in it, which are extraversion scale, neuroticism scale, mental quality scale and validity scale. There are 88 items in the scale, and each item is answered by "Yes = 1" or "No = 0". The higher score suggests the test-taker is more extroverted and more emotionally unstable and has the higher psychic level or higher concealment. The Chinese version of the scale (EPQ-RSC) was revised by researchers like Qian Mingyi, which has good reliability and validity [16]. In this study, the Kronbach's  $\alpha$  coefficient of the four factors of the scale were as follows: the  $\alpha$  coefficient of N scale was 0.77, the  $\alpha$  coefficient of P scale was 0.80, the  $\alpha$  coefficient of E scale was 0.64, and the  $\alpha$  coefficient of L scale was 0.76.

## 3 Research Results

### 3.1 Test of the effect of social media engagement on gender and age

As can be seen from the gender difference test of social media engagement, boys and girls have significant differences in behavioral engagement, cognitive engagement and emotional engagement. Cognitive engagement and emotional engagement of boys are significantly higher than girls, while in behavioral engagement, girls are higher than boys. In terms of age, there were significant differences in cognitive engagement, behavioral engagement and affective engagement, and adolescents aged 11-18 were significantly higher than those aged 18-28 (See table1, table2).

**Table1.** T test of social media engagement and gender

	Boy(n =1016)	Girl (n=1158)	<i>t</i>	<i>p</i>
	<i>M±SD</i>	<i>M±SD</i>		
cognitive engagement	2.60±0.082	2.40±0.070	2.602	0.009
behavioral engagement	3.58±0.112	3.61±0.106	-5.301	0.000
emotional engagement	3.58±0.112	3.32±0.098	3.457	0.001

Note: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

**Table2.** T test of social media engagement and age

	11-18years(n =1057)	18-28years(n=1117)	<i>t</i>	<i>p</i>
	<i>M±SD</i>	<i>M±SD</i>		
cognitive engagement	2.72±0.084	2.27±0.068	-12.218	0.000
behavioral engagement	3.78±0.116	3.21±0.096	-2.399	0.017
emotional engagement	3.59±0.110	3.27±0.098	-5.375	0.000

Note: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

### 3.2 Correlated analysis of adolescent personality and social media engagement

According to the correlated analysis between personality and social media engagement, it can be seen that psychotic personality and extraversion personality is related to cognitive engagement and emotional engagement, while emotional personality has significant correlation with behavioral engagement, cognitive engagement and emotional engagement (See table3).

**Table 3.** Correlations between adolescent personality and social media engagement

Item	1	2	3	4	5	6
Behavioral engagement	1					
cognitive engagement	0.418**	1				
emotional engagement	0.380**	.445**	1			
Psychoticism( P)	0.032	0.086**	0.299**	1		
Extraversion(E)	-0.014	0.093**	-0.083**	-0.098**	1	
Neuroticism(N)	0.204**	0.125**	0.264**	0.253**	-0.147**	1

Note: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

### 3.3 A model analysis of gender factors on adolescent personality and social media engagement

#### 3.3.1 Gender Difference Model of Behavioral Engagement

According to the regression model, the male model is  $R^2=0.098$ ,  $F=27.558$ ,  $P < 0.001$  in which extraversion, neuroticism and age has significant positive effects on behavioral engagement ( $\beta = 0.068$ ,  $P < 0.01$ ,  $\beta = 0.115$ ,  $P < 0.001$ ,  $\beta = 1.838$ ,  $P < 0.001$ ). In the female model  $R^2=0.105$ ,  $F=33.828$ ,  $P < 0.001$ , neuroticism and age has significant positive effects on behavioral engagement ( $\beta = 0.146$ ,  $P < 0.001$ ,  $\beta = 1.789$ ,  $P < 0.001$ ).

#### 3.3.2 Gender Difference Model of Cognitive Engagement

According to the regression model, the male model  $R^2=0.030$ ,  $F=7.911$ ,  $P < 0.001$  shows that extraversion, neuroticism and age has significant positive effects on cognitive engagement ( $\beta = 0.063$ ,  $P < 0.001$ ,  $\beta = 0.043$ ,  $P < 0.01$ ,  $\beta = 0.587$ ,  $P < 0.001$ ). In the female model  $R^2=0.049$ ,  $F=14.804$ ,  $P < 0.001$  extraversion and neuroticism has significant positive effects on cognitive engagement ( $\beta = 0.077$ ,  $P < 0.001$ ,  $\beta = 0.079$ ,  $P < 0.001$ ).

#### 3.3.3 Gender Difference Model of Emotional Engagement

According to the regression model, the male model  $R^2=0.152$ ,  $F=45.374$ ,  $P < 0.001$ , shows that psychosocial quality, neuroticism and age has a significant positive effect on emotional engagement ( $\beta = 0.248$ ,  $P < 0.001$ ,  $\beta = 0.135$ ,  $P < 0.001$ ,  $\beta = 0.594$ ,  $P < 0.01$ ). The female model  $R^2=0.112$ ,  $F=36.292$ ,  $P < 0.001$  indicates that psychoticism, neuroticism and age has

significant positive effects on emotional engagement ( $\beta = 0.196, P < 0.001$ ),  $\beta = 0.132, P < 0.001$ ,  $\beta = 0.536, P < 0.01$ ) (See table4).

**Table4.** Regression analysis of adolescent personality and social media engagement

Variable	Behavioral engagement				Cognitive engagement				Emotional engagement			
	Boys		Girls		Boys		Girls		Boys		Girls	
	$\beta$	$t$	$\beta$	$t$	$\beta$	$t$	$\beta$	$t$	$\beta$	$t$	$\beta$	$t$
Psychoticism	0.003	0.114	-0.011	-0.337	0.026	1.166	0.043	1.925	0.248	8.758***	0.196	6.501***
Extraversion	0.068	2.758**	0.035	1.559	0.063	3.411***	0.077	4.943***	0.016	0.671	-0.10	-0.499
Neuroticism	0.115	5.358***	0.146	7.115***	0.043	2.647**	0.079	5.585***	0.135	6.488***	0.132	6.977***
Age	1.838	8.416***	1.789	8.723***	0.587	3.570***	0.091	0.646	0.594	2.805**	0.536	2.849**
$F$	27.558***		33.828***		7.911***		14.804***		45.374***		36.292***	
$R^2$	0.098		0.105		0.030		0.049		0.152		0.112	
$\Delta R^2$	0.095		0.102		0.027		0.046		0.149		0.109	

Note: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

## 4 Discussions

### 4.1 A model analysis of gender factors on adolescent personality and social media engagement

On the one hand, this study shows that adolescents' extraversion and neuroticism personality traits have a significant positive predictor of social media behavioral engagement and cognitive engagement, while psychoticism and neuroticism personality traits have a significant positive impact on emotional engagement. Existing research results confirm that college students with obvious extroversion and emotional stability are more likely to post more text comments on social media, while college students with obvious extroversion are more likely to spend more time on social media [17]. Due to the anonymity and virtuality of the Internet, individuals in adolescence need to meet the needs of self-expression and social recognition. Therefore, people with high extraversion are more likely to socialize, seek adventure and excitement, at the same time, emotionally stable people are more willing to stabilize their emotions and think calmly. Individuals with the

above two personality traits are more willing to vent their dissatisfaction and dissatisfaction with reality through the medium of speech or behavior through social media. People who are emotionally fluctuating, self-centered, and impulsive are more willing to use the media to express their emotions.

On the other hand, emotional engagement in youth does not differ in gender, while it has a positive impact on the psychoticism, age and neuroticism. Neuroticism refers to the positive or negative emotions in the face of things or problems, which can reflect the individual's emotional engagement. If the emotion fluctuates sharply, then teenagers in an older age will easily get the emotional engagement and they will be more willing to use social media to express their emotions. However, in terms of behavioral engagement and cognitive engagement, there exists significant gender differences. It can be seen that as adolescent boys get older, they will learn more about the society and the world around them through social media, who with extraversion personality are more willing to interact with people around them through social media and participate more in online dating. Through gender differences, it can be clearly seen that there are significant gender differences between male and female adolescents in the process of social media participation.

The results further suggest that in terms of levels of behavioral and cognitive engagement, older boys are more impulsive.; emotional extroversion and irritable boys are more likely to engage in behavioral and cognitive engagement. They are more likely to be influenced by extroversion and mood swings and to choose ways of engaging in social media. It can be seen that adolescent boys are more likely to choose ways of social media engagement under the influence of extroversion and emotions. Different internet users have different personality types. However, users with different personality types will choose different services provided by the Internet in different ways according to their own preferences [1]. Studies show that teenagers are not fully mature psychologically, and they tend to turn to internet for help to avoid reality when they encounter setbacks and difficulties [18]. Thus, it can be proved that teenagers' use of social media is significantly affected by their personality and age.

## **5 Conclusions**

### **5.1 Implications for theory and practical implications.**

This study further improves the conclusions of related research on the influence of personality on social media involvement, which confirms that personality has a significant impact on the way of the social media use. At the same time, it further analyzes the role of gender differences in the influence of personality and social media engagement. It can be seen from the research results that parents should take targeted measures according to gender differences in the process of intervening adolescents' social media engagement, which is more conducive to the formation and development of adolescents' personality and mental health.

### **5.2 Limitation and future research**

This study has the following two limitations: 1. The research data is cross-sectional data, which still has limitations. It is hoped that longitudinal data can be collected for analysis in future research; 2. The research only considers the influence of personality on social media engagement, which lacks the influence of other psychological factors. In future research, I hope to consider factors such as self-esteem and family environment and so on.

## References

1. Amichai-Hamburger Y. *Computers in Human Behavior*, 18 (2000).
2. Hamburger Y A, Ben-Artzi E. *Computers in Human Behaviour*, 16 (2000).
3. Global Web Index (2019). *Trends 19: The trends to know for 2019* [Online].
4. China Internet Network Information Center (CNNIC), 2019.
5. Vannucci,A. Ohannessian,C.M. J. *Youth. Adolesc.* 48(2019).
6. Kraut R. *American Psychologist*, 53 (1998).
7. Patricia Wallance, Xie Ying, Gou Jianxin. China Light Industry Press. 2000.
8. Xiumin Li, Guoen Yin. *Psycho develo and educat.* 1 (2004).
9. Gerwin, R.L., kALIEBE, k., Daigle, M. *Child. Adolesc. Psychiatr. Clin. N. Am.* 27(2018)
10. Niu, G., Sun,L., Liu, Q., et al. *Sex Role.* 82(2019).
11. Zheng,D., Ni,X., Lou,Y. *Sex Role.* 80(2109).
12. Orben, A., Praybylski, A.K. *Psychol. Sci.* 30(2019).
13. Xiaoli Ni, Xiaoyi Shao, et al. *Frontiers in Psychology.* 11 (2020).
14. Jiang Yongzhi, Bai Xiaoli. *Chinese Journal of Drug Dependence.* 24(2015).
15. Wu Huiliang. JiangXi Normal University. 2015.
16. Yaoxian Gong. Hunan Medical College: Changsha, China. 1986.
17. Xie Tian. *Dongnan ChuanBo.* 7(2016).
18. Li Lei, Yang Yang, et al. *Acta Psychologica Sincia.* 38 (2006).