Narcissism, Extraversion and Adolescents' Self-Presentation on Facebook

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Abstract

Social Networking Sites (e.g. Facebook), which afford self-presentation, are gaining popularity amongst adolescents. This study examined the relationship of narcissism and extraversion on adolescents' self-presentation in four Facebook profile features (profile picture, status updates, social network size, photo count), as reported by Grade 7 to Grade 9 adolescents. After accounting for extraversion, narcissism predicted features presenting self-generated content (profile picture rating, status update frequency), but not features presenting system-generated content (social network size, photo count).

Keywords: narcissism, extraversion, Facebook, self-presentation

1. Narcissism, Extraversion and Adolescents' Self-Presentation on Facebook

1.1. Introduction

Modern computer-mediated communication (CMC) tools, such as Social Networking Sites (SNS), have seamlessly combined email, instant messaging, website creation, blogging, and multimedia content sharing (Livingstone, 2008). The proliferation of SNS, such as Facebook (www.facebook.com), has also been matched with an expanding body of research. One area of research has shown that self-reported personality traits are good predictors of SNS usage and are reflected in personal profiles or webpages on SNS (e.g. Correa, Hinsley, & de Zuniga, 2010, 2010; Kramer & Winter, 2008). Amongst the Big Five personality traits, extraversion has been consistently found to be the most important personality trait in predicting SNS usage (e.g. Correa et al., 2010). Media attention has also linked self-presentation on social media with the dispositional trait of narcissism. A recent cross-temporal meta-analysis found narcissism levels in American college students to have risen over the past two decades (Twenge, Konrath, Foster, Campbell, & Bushman, 2008). Indeed, the opportunities for self-promotion afforded by current technological trends vastly exceed that allowed by traditional media, but it is likely that the rise in narcissism has influenced the ways individuals use technology, for this rise in narcissism had mostly occurred before such technology was extensively adopted (Twenge et al., 2008).

Interestingly, narcissists have also been well-documented as highly extraverted individuals (e.g. Vazire, Naumann, Rentfrow, & Gosling, 2008). Yet, limited existing literature has examined both extraversion and narcissism in the context of SNS. Also, despite the rising popularity of SNS amongst adolescents, there has been limited research sampling this population. The goal of the present study is to examine both personality traits of extraversion and narcissism as manifested in certain features of adolescents' Facebook profiles. Existing literature

on SNS and the personality traits of extraversion and narcissism will first be reviewed in relation to self-presentational behavior.

1.2. Social Networking Sites and Self-Presentation

Among the various psychological phenomena that SNS presents, exhibitionistic or self-presentational behavior is especially interesting. Given that users of SNS have almost full control over informational disclosure, they can be more strategic in managing self-presentation, as compared to traditional face-to-face interactions (Bibby, 2008; Buffardi & Campbell, 2008; Kramer & Winter, 2008). Moreover, given the social exposure that SNS affords, enhancement of self-image should be expected with online self-presentation (Walther, 2007). Nevertheless, users need to address broad audiences through self-presentation on their SNS profiles, making stable personality traits key predictors of self-presentation on SNS (Kramer & Winter, 2008).

There are various features available on SNS profiles that contribute to an individual's overall online portrait (Tong, Van Der Heide, Langwell, & Walther, 2008). Some of these present content generated by the profile owner (e.g. profile picture, status updates), while others present content generated by friends (e.g. wall-posts), or by the system (e.g. number of friends, number of photos). On Facebook, users typically select a profile picture to display on his or her profile page. Below the profile picture, the 'View Photos' link indicates the photo count that one has been tagged or identified by oneself or by others as being present in the photo, while the 'Friends' box displays one's total number of friends added on Facebook. There is also a 'wall' on the profile page, where friends can post short messages. Users can post messages or 'status updates' on their own walls as frequently as they would like to. Amongst the various features, the profile picture has been posited as the most important means for self-presentation because it represents the individual in the online platform, appearing in search results and alongside every

turn of online interaction such as every written wall-post (Buffardi & Campbell, 2008; Siibak,

2009; Strano, 2008). Moreover, photos can be constructed and refined to conceal flaws (Walther,

2007). Expectedly, both college and adolescent SNS users were found to choose profile pictures

in which they perceive to appear more physically attractive (Siibak, 2009; Strano, 2008). The

present study will examine four Facebook profile features – profile picture, status updates, social

network size, and photo count – of which the former two features present self-generated content

while the latter two present system-generated content.

1.3. Social Networking Sites and Adolescents

SNS have gained prominence amongst adolescents since the minimum membership age

has been lowered to 13 years old, with more than 70% of America's teens below the age of 17

reportedly visiting SNS (Lenhart, Purcell, Smith, & Zickuhr, 2010). In Singapore, the local

media has reported that 24% of 7 to 14 year olds visit SNS (Channel News Asia, 2009). Given

that adolescents are typically concerned with peer acceptance, physical appearance and the

impressions they convey, they are receptive to SNS because these sites present platforms to

connect to their peers without adult surveillance and to facilitate identity construction and

experimentation within a social context (Livingstone, 2008).

1.4. Extraversion and Social Networking Sites

Extraversion relates to the preference to seek social interaction (e.g. Costa & McCrae,

1992b). There are two competing hypotheses on the relationship between extraversion and CMC

usage (e.g. Correa et al., 2010; Valkenburg & Peter, 2007). The 'social compensation'

hypothesis proposes that introverts gain more from CMC usage as CMC platforms compensate

for their relatively weaker social skills. Conversely, the 'rich-get-richer' hypothesis posits that

extraverts gain more from CMC usage as their offline sociability is transferred to CMC

platforms. Recently, Correa and colleagues (2010) found extraversion to be positively related to social media usage and to be the most important predictor of SNS usage for emerging adults. Extraverts also made more contact to friends and broadcasted their events on SNS (Bibby, 2008), suggesting that extraverts self-disclose through much self-generated content. In addition, extraversion has been related to larger social networks on SNS (Tong et al., 2008), possibly because an individual's SNS friends are often first made offline (Valkenburg & Peter, 2007).

In addition to support for the 'rich-get-richer' hypothesis, some extent of the 'social compensation' hypothesis is also supported (e.g. Orr, Sisic, Ross, Simmering, Arseneault, & Orr, 2009). Although introverts had fewer online friends and were less likely to self-disclose online as compared to extraverts, introverts found SNS more appealing than traditional communication methods and spent more time using SNS than extraverts did (e.g. Orr et al., 2009; Valkenburg & Peter, 2007). Taken together, although extraverts self-disclose more on SNS than introverts do, it is likely that extraverts find SNS as appealing as offline social interactions and do not use SNS as substitutes to their offline social interaction. Such is consistent with general findings that extraverts do not use Internet communication tools as substitutes to offline social interaction (Amiel & Sargent, 2004).

1.5. Narcissism and Social Networking Sites

Narcissism is characterized by a highly inflated, positive but unrealistic self-concept, a lack of interest in forming strong interpersonal relationships, and an engagement in self-regulatory strategies to affirm the positive self views (Campbell & Foster, 2007). Narcissists are exhibitionistic, attention-seeking, and are acutely concerned about their physical appearances (Vazire et al., 2008). Expectedly, narcissists overestimate their attractiveness (Bleske-Rechek, Remiker, & Baker, 2008; Gabriel, Critelli, & Ee, 1994), though they do put in effort to look

well-groomed and fashionable (Vazire et al., 2008). These strategies help affirm their positive illusions of their own physical attractiveness (Bleske-Rechek et al., 2008; Gabriel et al., 1994). Narcissists are also often skilled with dealing with new social settings and with starting new relationships, though they mostly seek relationships which can enhance their status and positive self-views (Campbell & Foster, 2007).

Recent literature has documented the manifestation of narcissism in SNS usage. Buffardi and Campbell (2008), in their pioneering study, proposed that SNS provide excellent platforms for narcissistic self-regulation, because SNS allow almost full control over self-presentation and afford the ability to maintain large social network bases of superficial relationships, which narcissists would be especially drawn to. As expected, narcissists had more Facebook friends and wall-posts, and had profile pictures that are rated by others to be more physically attractive and more self-promoting than the profile pictures of nonnarcissists. In this regard, the researchers speculate that narcissists may have selected more attractive photos of themselves to affirm their inflated beliefs. Finally, in examining both narcissism and extraversion in relation to rationales for Facebook usage, Bibby (2008) found narcissism to predict usage of Facebook to occupy time, to pursue leisure interests, and to interact with romantic interests, over and above extraversion, suggesting that narcissists enjoy the exhibitionistic nature of SNS.

1.6. The Present Study

The key research question was to examine the relationship of narcissism and extraversion on adolescents' self presentation in four Facebook profile features. Given that SNS such as Facebook afford remarkable self-presentational opportunities that fulfill the self-regulatory needs of narcissists, it is likely that such sites tremendously appeal to narcissists, whereas extraverts are likely to rely as much on other forms of social communication as they do on SNS. Thus, it is

expected that narcissism should be able to predict the Facebook variables over and above extraversion. The following four hypotheses have been formulated:

H1: Narcissism will predict higher self-ratings of Facebook profile pictures over and above extraversion.

H2: Narcissism will predict a higher frequency of updating Facebook status over and above extraversion.

H3: Narcissism will predict having more Facebook friends over and above extraversion.

H4: Narcissism will predict having more Facebook photos over and above extraversion.

2. Method

2.1. Participants

A total of 360 adolescents were randomly selected from two government secondary schools in Singapore to participate in this study, As the focus of this study is on adolescents' self-presentation on Facebook, only adolescents who had Facebook accounts were retained in the final sample of 275 (165 females, 109 males, one did not report gender). Participants ranged in age from 12 to 18 years ($M = 14.18$, $SD = 1.02$). There were more Grade 9 adolescents ($N = 114$, 41.50%) than Grade 7 ($N = 82$, 29.80%) or Grade 8 adolescents ($N = 79$, 28.70%). The ethnic distribution is comparable to that of the larger school population – 72.73% were Chinese ($N = 200$), 10.18% were Indian ($N = 28$), 10.18% were Malay ($N = 28$), 5.82% were Eurasian or of other ethnicity not listed ($N = 16$), and three participants did not report their ethnicity.

2.2. Measures

2.2.1. Narcissism. The personality trait of narcissism was assessed using the 12-item Narcissistic Personality Questionnaire for Children-Revised (NPQC-R, Ang & Raine, 2009). The NPQC-R was developed using Confirmatory Factor Analysis, and evidence of invariance across

gender and age has been found. Convergent and discriminant validity of the NPQC-R has also

been established with other instruments (e.g. Reactive-Proactive Aggression Questionnaire,

Raine, Dodge, Loeber, Reynolds, & Loeber, 2006).

Participants rated how much they endorse the items as descriptive of themselves on a

five-point Likert scale (1 = 'Not at all like me' to 5 = 'Completely like me'). Higher scores

indicate higher levels of narcissism as a trait. The NPQC-R yields a total score and two subscale

scores (Superiority and Exploitativeness). In the present study, only the total NPQC-R score was

used. The obtained Cronbach's alpha reliability estimate was high at .85.

2.2.2. Extraversion. The personality trait of extraversion was assessed using the 12-item

Extraversion subscale of the NEO Five-Factor Inventory (NEO-FFI, Costa & McCrae, 1992a).

Adolescents rated their agreement to each of the 12 items on a five-point Likert scale (1 =

'Strongly Disagree' to 5 = 'Strongly Agree'). Higher scores indicate higher levels of extraversion

as a trait. The obtained Cronbach's alpha reliability estimate was adequate at .77.

2.2.3. Facebook variables. With reference to their Facebook profiles, participants were

requested to estimate their frequency of Facebook status updates and provide the number of

Facebook friends they had and the number of photos they were present in. These three items

required open-ended responses. Frequency of Facebook status updates was subsequently recoded

as frequency of Facebook updates per week. In addition, if participants were present in their

current profile picture, they were asked to rate their physical appearance in their current profile

picture against four adjectives (physically attractive, fashionable, glamorous, cool) on a five-

point Likert scale (e.g. 1 = 'Not attractive, 5 = 'Very attractive'). In this study, the majority of

Facebook users (70.55%, $N = 194$) reported to be in their current profile picture. A profile

picture rating score was obtained by summing these four self-ratings; the obtained Cronbach's alpha reliability estimate was high at .90.

2.3. Consent and Procedure

The study has been approved by the Research Ethics Board of the Division of Psychology at Nanyang Technological University, Singapore. Prior to data collection, ethical clearance and approval for data collection was further sought from the Ministry of Education in Singapore and from both schools. Parental consent was obtained and child/adolescent assent was also obtained prior to students' participation in the study. Researchers administered hardcopy questionnaires in a computer laboratory within the school premises, and were present throughout the study to answer any queries. A computer laboratory was used because a section of the questionnaire required participants to log on to their Facebook accounts for reference. Participants were explicitly notified that the researchers will have no access to their online browsing histories and that their questionnaire responses will remain anonymous. Participation was also strictly voluntary. Participants were informed that they could withdraw from the study at any time without penalty. The questionnaires were administered in English, which is the language of instruction for all Singapore schools.

3. Results

The means, standard deviations and the inter-correlations of the two predictor variables and four criterion variables are presented in Table 1. Both predictor variables are moderately correlated, $r = .46$, $p < .01$, Cohen's $d = 1.04$. A high tolerance value of .79 and a correspondingly low VIF of 1.27 indicate a small and acceptable degree of multicollinearity between both predictors.

The four hypotheses were tested using four separate hierarchical regression analyses. To investigate whether narcissism predicted each of the four Facebook variables over and above extraversion while controlling for gender, age and grade, all four hierarchical regression analyses were conducted by entering gender, age and grade in the first step, extraversion in the second step, followed by narcissism in the third step. The results are presented in Table 2. After controlling for age, grade and gender, the first two hierarchical regression analyses found narcissism to significantly predict the Facebook profile picture ratings ($\Delta R^2 = .09$, $\Delta F(1, 187) = 21.56$, $p < .01$, $\beta = .37$) and the frequency of Facebook status updates ($\Delta R^2 = .03$, $\Delta F(1, 247) = 9.08$, $p < .01$, $\beta = .21$) over and above extraversion. After controlling for gender, age and grade, the last two hierarchical regression analyses found that narcissism neither significantly predicted the number of Facebook friends ($\Delta R^2 = .01$, $\Delta F(1, 249) = 3.89$, $p = .05$, $\beta = .14$) nor the number of Facebook photos ($\Delta R^2 = .00$, $\Delta F(1, 257) = .40$, $p = .53$, $\beta = -.04$) over and above extraversion. For profile picture ratings, another four hierarchical regression analyses were ran for each of the four adjectives. All four analyses showed the same pattern of significance as that for the total profile picture rating scores. Thus, details of individual analyses are not presented in this paper. In sum, the first two hypotheses were supported while the third and fourth hypotheses were not supported.

4. Discussion

The goal of this study was to examine the manifestation of narcissism and extraversion in four features of adolescents' Facebook profiles. As compared to less extraverted adolescents, more extraverted adolescents engaged in greater self-presentation through all four features. Such supports current understanding that more extraverted and sociable individuals engage in greater online self-presentation than less extraverted individuals do (e.g. Correa et al., 2010).

After accounting for extraversion, there is partial support for the manifestation of narcissism in adolescents' Facebook profile features. Interestingly, after accounting for extraversion, narcissism could only account for self-presentation through self-generated content, and not through system-generated content. The Facebook profile picture is one type of self-generated content. Even after accounting for extraversion, more narcissistic adolescents rated their Facebook profile pictures as more physically attractive, more fashionable, more glamorous and more cool than their less narcissistic peers did. Such suggests that more narcissistic adolescents select profile photos which are indeed physically appealing to self-present on Facebook. However, it is possible that the positive ratings reflect some extent of narcissistic self-perception bias about their physical appearance, since the present study did not obtain objective measures of profile picture ratings. Regardless, this supports current understanding that more narcissistic individuals are more acutely concerned about their physical appearances than less narcissistic individuals are (e.g. Vazire et al., 2008). Selecting profile photos which are self-perceived as more physically appealing is consistent with other self-regulatory strategies which more narcissistic individuals adopt to affirm their positive illusions of their physical appearances, as described in previous research (e.g. Gabriel et al., 1994).

The status update is another type of self-generated content. Even after accounting for extraversion, more narcissistic adolescents updated their Facebook status more frequently than their less narcissistic peers did. Given that these status updates are also published in their Facebook friends' news feeds, adolescents with higher narcissism levels are essentially presenting 'What's on their minds' to their online social audiences more frequently. This result supports the general view that adolescents with higher narcissism levels enjoy the self-presentational nature of SNS (e.g. Bibby, 2008; Buffardi & Campbell, 2008).

Notably, after accounting for extraversion, narcissism does not manifest in social network size and photo count, both of which are system-generated. Such results seem to contradict the results of Buffardi and Campbell's (2008) study, which suggested that more narcissistic individuals have larger online social networks than less narcissistic individuals do. However, in that study, narcissistic manifestation was not examined after accounting for extraversion. In the present study, social network size and photo count can be significantly predicted by extraversion, and narcissism did not contribute unique variance beyond that. Such implies that increasing online social network size or tagging photos have not been adopted as narcissistic self-presentational strategies yet. Although some researchers (e.g. Tong et al., 2008) lament that friendships in the digital age have somewhat degenerated into a collection of online contacts for others to admire, results of the present study suggest that this shift in friendship meaning is not that bleak yet with adolescents.

Nevertheless, results from the present study may be unique to the younger population sampled. Previous studies (e.g. Buffardi & Campbell, 2008; Tong et al., 2008) had sampled college students. As compared to college students, adolescents are likely to be less socially-exposed, and consequently, have fewer online and offline friends and are involved in fewer social activities. Adolescents in the present study have an average of 178.06 Facebook friends ($SD = 137.30$), while previous studies (e.g. Tong et al., 2008) with American college students found the mean number of Facebook friends to be as high as 395.02 ($SD = 316.03$, $N = 153$). Moreover, the system-generated photo count examined in this study relates to the number of tagged photos, which include the photos uploaded and tagged by one's Facebook friends. Consequently, this photo count may be a function of online social network size. Hence, the

possibly smaller social network size of adolescents may have limited adolescents' photo counts in the present study.

In sum, the lack of support for narcissistic manifestation in system-generated content, after accounting for extraversion, shows that adolescents with higher narcissism levels do not utilize system-generated content in their online self-presentation. Nevertheless, support for narcissistic manifestation in profile features that present self-generated content show that self-presentational concerns remain pertinent to adolescents with higher narcissism levels. Perhaps their relatively limited social experiences lead them to seek more direct and proactive ways of self-presentation through features that allow them to self-generate content.

It is important to note that privacy settings of SNS profiles were not taken into consideration in the present study. One may appear highly narcissistic in displaying attractive profile pictures and frequent status updates, but privacy settings can limit the audience size of such self-presentation. Nevertheless, more narcissistic individuals have been found to be less restrained with their SNS privacy settings (Utz & Kramer, 2009). Younger adolescents also seem to be inept with managing online privacy (Livingstone, 2008).

Several limitations to the present study and suggestions for future research are outlined. Firstly, only four profile features were included in the present study. Additional investigations of more Facebook features are required to examine if the results obtained in this study can be generalized to other profile features. Next, the present study relied solely on self-report measures, though participants viewed their Facebook profiles for reference. Given that the two measures which could be accounted for by narcissism over and above extraversion required adolescents' self-estimation, it could well be that adolescents with higher narcissism levels inflated their responses. Next, the cross-sectional and correlational nature of this study implies

that causality cannot be established. Finally, only adolescents were sampled in this study. Future studies may wish to further investigate age effects and whether adolescents form a unique population of SNS users.

Despite these limitations, this study evidences an extent of adolescents' narcissistic online self-presentation, behavior which was previously studied in older populations. Online self-presentational behavior can further fuel the already increasing trend in narcissism (Buffardi & Campbell, 2008; Twenge et al., 2008). Given that narcissism is associated negatively with empathy, impulse control and aggression, the implications of narcissistic online self-presentation by the younger population should deserve greater attention. This study also extends the limited literature on Facebook usage sampling Asians, demonstrating narcissistic self-presentation in Singapore culture, which is generally more collectivistic than individualistic. Although Singapore is highly westernized, results of the present study may not be generalizable to cultures beyond developed Asian nations. Nevertheless, to make generalizations across cultures, empirical evidence from diverse samples is needed and this study presents a step forward.

To conclude, the present study contributes to the limited but growing body of research on adolescents' online self-presentation and presents a first step in examining adolescents' narcissistic self-presentation on their SNS profiles. Adolescents with higher narcissism levels appear to self-generate content on SNS to self-regulate their inflated self views. Globally, SNS are increasingly becoming more accessible than before. More users are likely to frequent SNS and the proportion of young and narcissistic users is likely to increase. Accordingly, issues relating to adolescents' narcissistic self-presentation on SNS will become more pertinent.

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Table 1

Means, Standard Deviations and Inter-Correlations of Predictor and Criterion Variables

Variable	M	SD	1	2	3	4	5	6
1. NPQC-R	32.55	7.96	−	.46**	.46**	.19**	.21**	.08
2. NEO-FFI (Extraversion)	43.12	6.11		−	.33**	.14*	.23**	.29**
3. Facebook profile picture ratings	11.55	3.62			−	.18*	.21**	.08
4. Frequency of Facebook status updates	1.64	2.47				−	.17*	.02
5. Number of Facebook friends	178.06	137.30					−	.50**
6. Number of Facebook photos	58.68	113.23						−

Note. NPQC-R = Total score of the Narcissistic Personality Questionnaire for Children-Revised.

NEO-FFI (Extraversion) = Extraversion subscale score of the NEO Five-Factor Inventory.

Cohen's *d* ranged from 0.04 to 1.04.

* $p < .05$, ** $p < .01$ (two-tailed).

Table 2

Summary of Hierarchical Multiple Regression Analyses for Extraversion and Narcissism

Predicting Facebook Profile Picture Ratings, Frequency of Facebook Status Updates, Number of

Facebook Friends and Number of Facebook Photos

Predictor and Step	β	R^2	ΔR^2	ΔF
Facebook profile picture ratings				
Step 1				
Gender	.17*	.03	.03	2.05
Age	.04			
Grade	.02			
Step 2				
Gender	.19**			
Age	.02			
Grade	-.06			
NEO-FFI (Extraversion)	.36**	.16	.12	27.65**
Step 3				
Gender	.08			
Age	.10			
Grade	-.06			
NEO-FFI (Extraversion)	.17*	.24	.09	21.56**
NPQC-R	.37**			

(table continues)

Table 2 *(continued)*

Predictor and Step	β	R^2	ΔR^2	ΔF
Frequency of Facebook status updates				
Step 1				
Gender	-.15*	.04	.04	3.43*
Age	-.01			
Grade	-.15			
Step 2				
Gender	-.14*	.06	.02	4.13*
Age	-.00			
Grade	-.16			
NEO-FFI (Extraversion)	.13*			
Step 3				
Gender	-.19**	.09	.03	9.08**
Age	-.00			
Grade	-.18			
NEO-FFI (Extraversion)	.03			
NPQC-R	.21**			

(table continues)

Table 2 *(continued)*

Predictor and Step	β	R^2	ΔR^2	ΔF
Number of Facebook friends				
Step 1				
Gender	-.06	.08	.08	7.31**
Age	-.00			
Grade	.27*			
Step 2				
Gender	-.03	.12	.04	11.41**
Age	.03			
Grade	.24			
NEO-FFI (Extraversion)	.20**			
Step 3				
Gender	-.07	.13	.01	3.88
Age	.02			
Grade	.23			
NEO-FFI (Extraversion)	.14			
NPQC-R	.14			

(table continues)

Table 2 *(continued)*

Predictor and Step	β	R^2	ΔR^2	ΔF
Number of Facebook photos				
Step 1				
Gender	-.14*	.10	.10	9.56**
Age	-.01			
Grade	.27*			
Step 2				
Gender	-.12*	.17	.07	21.07**
Age	.03			
Grade	.23			
NEO-FFI (Extraversion)	.27**			
Step 3				
Gender	-.11	.17	.00	.40
Age	.03			
Grade	.23			
NEO-FFI (Extraversion)	.28**	.09	.00	.97
NPQC-R	-.04			

Note. NPQC-R = Total score of the Narcissistic Personality Questionnaire for Children-Revised.

NEO-FFI (Extraversion) = Extraversion subscale score of the NEO Five-Factor Inventory.

* $p < .05$, ** $p < .01$.