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Research Report

Two faces of narcissism on SNS: The distinct effects of vulnerable and grandiose narcissism on SNS privacy control

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ABSTRACT

This study suggests narcissism as an important psychological factor that predicts one's behavioral intention to control information privacy on SNS. Particularly, we approach narcissism as a two-dimensional construct—vulnerable and grandiose narcissism—to provide a better understanding of the role of narcissism in SNS usage. As one of the first studies to apply a two-dimensional approach to narcissism in computer-mediated communication, our results show that vulnerable narcissism has a significant positive effect on behavioral intention to control privacy on SNS, while grandiose narcissism has no effect. This effect was found when considering other personality traits, including self-esteem, computer anxiety, and concern for information privacy. The results indicate that unidimensional approaches to narcissism cannot solely predict SNS behaviors, and the construct of narcissism should be broken down into two orthogonal constructs.

1. Introduction

Over the past few years, technology advances in social networking sites (SNS) have allowed people to share interpersonal information at a very rapid rate and now, nearly everything that an individual does on SNS can be broadcasted in real-time to the entire network. The ability to immediately access personal information on SNS, however, introduces an inevitable tradeoff cost – the potential loss of privacy. Unlike other Internet platforms that have an anonymous nature, many SNS require users to disclose private information (O'Brien & Torres, 2012). Given that the large amount of information on SNS is personal, the potential risks that are associated with unsafe use of private information have become a primary concern among SNS users (Debatin, Lovejoy, Horn, & Hughes, 2009; Taneja, Vitrano, & Gengo, 2014). While increasing attention has been paid to the issue of SNS privacy, less is known about discrete personality traits that might explain how people control information about themselves on SNS.

The objective of our study is, therefore, to identify psychological factors that predict user responses to privacy-threatening activities on SNS. To this end, we focus on the concept of narcissism as a predictor, because narcissism significantly influences people to expose personal information on SNS (Bergman, Fearrington, Davenport, & Bergman, 2011; Carpenter, 2012; DeWall, Buffardi, Bonser, & Campbell, 2011; Leung, 2013; Mehdizadeh, 2010). Particularly, we approach narcissism as a two-dimensional construct, comprised of (1) grandiose narcissism and (2) vulnerable narcissism. Although the concept of narcissism has received considerable attention in SNS literature, most empirical studies in computer-mediated communication have analyzed narcissism as a one-dimensional construct (e.g., Bergman et al., 2011; Davenport, Bergman, Bergman, & Fearrington, 2014; DeWall et al., 2011; Mehdizadeh, 2010). Yet, empirical evidence in social psychology suggests that narcissism should be viewed as two orthogonal constructs (Besser & Priel, 2010; Hendin & Cheek, 1997; Miller et al., 2011; Wink, 1991). Following this stream of research in psychology, the current study considers two distinctive dimensions of narcissism, and this is one of the first studies in information literature to approach narcissism from this perspective.

Furthermore, in order to better assess the distinctive effect of the two forms of narcissism on information control, we consider other traits in our investigation, drawing from both psychology and information privacy literature. These traits include self-esteem, computer anxiety, and concern for information privacy. The findings from our study provide both theoretical and managerial implications regarding personality traits and their predictability to explain users' responses to the issue of privacy infringement on SNS.

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2. Theoretical background

2.1. SNS privacy and personality trait

SNS are typically initiated by a small group of people, and then through word-of-mouth communication, the membership grows as more and more people send invitations to their acquaintances to join the networking site (Trusov, Bucklin, & Pauwels, 2009). What is unique about this form of the Internet is that SNS are built upon universally shared experiences and require disclosing personal information about users. Due to the identify-revealed nature of SNS, the concern for privacy is a growing issue, as the SNS expand in popularity. One anecdotal example comes from 2006, when Facebook launched a site modification that threatened the privacy. Facebook users formed groups to protest the new feature that enabled the users' activity to be publicly viewed by other Facebook users through a development of the 'News Feed' (boyd, 2008). The feature increased the exposure to previously accessible information, which caused users to lose their personal sense of privacy control. In less than a day, Facebook's founder, Mark Zuckerberg, responded through a blog, reassuring users that modifications would be made (boyd, 2008). While it was not the first time that the privacy became a concern for users and SNS corporate entities, it was one of the largest landmark events that spurred the concern of all parties invested in SNS.

Given that privacy is of critical concern among SNS users, researchers have begun to conduct studies on various aspects of information disclosure on SNS. While many factors related to information privacy have been identified, previous studies tended to focus on contextual or situational factors of SNS usage rather than dispositional factors of SNS users. For example, Joinson (2008) argued that specific online features and functions developed by SNS companies facilitated users' willingness to share personal information. Nagle and Singh (2009) demonstrated that the existence of mutual connections between users largely determines one's willingness to disclose personal information. Debatin et al. (2009) further demonstrated that users who experienced infringed privacy are more likely to control their private information because previous experience with privacy attack enables them to realize the visibility of privacy invasion. Later, Nosko, Wood, and Molema (2010) suggested that users decide to disclose personal information based on the type of information on SNS.

While aforementioned situational factors substantially influence behaviors related to information privacy, one's inherent characteristics also play a pivotal role in the extent to which he or she is willing to control personal information. According to a trait theory, a personality trait is useful for predicting individual differences in several online behaviors because a personality trait has a tendency to show consistent patterns of thinking, feeling, and behaving (Liu & Arnett, 2002). The present study thus incorporated personality traits to the theoretical model to provide a more thorough understanding of the ways in which people are concerned about privacy and thus decide to disengage in activities that threaten privacy. In particular, we consider narcissism – and specifically, distinct features of narcissism – as an important personality trait to explore.

2.2. Narcissism and SNS privacy

Narcissism is one of the key factors that explain the proliferation of SNS. People who display narcissism are often self-confident and self-absorbed. They tend to boast and brag about themselves to others. For those who display this inflated self-concept, SNS are useful and convenient platforms for their self-promoting (Bergman et al., 2011). Numerous studies have suggested that narcissism is a significant trait that drives more people to expose their personal information on SNS. Buffardi and Campbell (2008), for example, demonstrated that narcissism predicted higher levels of activities on SNS and more self-promoting content in several aspects of SNS. Mehdizadeh (2010) also observed that individuals high on narcissism were more likely to use Facebook. DeWall et al. (2011) showed that people with narcissistic tendencies communicate on SNS with self-promoting images and words about themselves to draw more attention to them. Carpenter (2012) suggested that narcissistic people tend to use SNS to seek a large audience for attention by posting information about them. Further, such positive relationships between narcissism and SNS usage have been found among in other user bases, such as Australian Internet users (Ryan & Xenos, 2011) and adolescents (Ong et al., 2011).

Since narcissism is viewed as a strong driving factor of self-disclosure on SNS, scholars attempted to explore the relationship between narcissism and privacy concerns. For example, Utz and Kramer (2009) expected that highly narcissistic users are less strict in their privacy settings on SNS because they believed that narcissism motivates users to disclose a great deal of information. Nevertheless, the results of their study showed no empirical relationship between narcissism and privacy settings on SNS. One explanation of why narcissism and intention to use privacy control were unrelated would be because of a unidimensional approach to narcissism. Although there has been an increasing recognition of the two orthogonal dimensions of narcissism in social psychology, most studies on narcissism in communication discipline have adopted a single dimensional operationalization and measurement of narcissism, which might result in perplexing results. In this study, we incorporate two forms of narcissism into our investigation, as it may be able to shed light on the link between narcissism and SNS behaviors. The next section addresses how the two faces of narcissism differ on ways people behave.

2.3. Grandiose vs. vulnerable narcissism

The two forms of narcissism were first conceptualized and examined by Wink (1991). As the narcissism literature had repeatedly documented lack of correlations among the most widely used narcissism scales, Wink (1991) questioned the existence of heterogeneity of narcissism. He conducted principal component analyses of the scales, which yielded two orthogonal dimensions. He further conceptualized the two components according to the psychodynamic theory (Kernberg, 1975) and labeled them as (1) grandiosity-exhibitionism narcissism and (2) vulnerability–sensitivity narcissism. Later, a considerable body of psychology literature has confirmed the existence of two orthogonal constructs of narcissism (e.g., Hendin & Cheek, 1997; Miller & Campbell, 2008; Rathvon & Holmstrom, 1996), and the two forms are often labeled shortly as grandiose vs. vulnerable narcissism (Besser & Priel, 2010; Dickinson & Pincus, 2003; Miller et al., 2011). The two forms share the core traits of narcissism, such as sense of entitlement, disregard of others, and grandiose self-relevant fantasies (Besser & Priel, 2010). However, they differ in many other constructs, each having unique characteristic. That is, individuals high on either dimensions behave similarly, but motivation behind their behaviors are completely different.

First, grandiose narcissism is primarily associated with immediate expressions of exhibitionism and self-importance (Wink, 1991). People who display the traits of grandiose narcissism reflect ideals, which are referred to as grand, often showing aggression and domination within their actions (Miller et al., 2011). It is similar to Reich's (1970) definition of 'phallic' narcissism, which emphasizes flagrant display of superiority and arrogant self-assurance. Because grandiose narcissism reflects traits related to

outgoingness, extraversion, and open expression of grandiosity, it is also referred to as 'overt' narcissism (Wink, 1991).

On the contrary, vulnerable narcissism is referred to as 'covert' narcissism (Wink, 1991). It is marked largely by hypersensitivity, vulnerability, defensiveness, and insecurity (Dickinson & Pincus, 2003; Miller et al., 2011). Vulnerable narcissists show interpersonal behaviors that are similar to those of grandiose narcissists, such as expectations for receiving special treatment from others, but their rationale for these feelings of entitlement are different from those of grandiose narcissists. Vulnerable narcissists believe they deserve special treatment because they feel fragility, whereas grandiose narcissists expect attention and special consideration from others because they believe they are better than others (Miller et al., 2011). Vulnerable narcissists are fearful or suspicious of interdependency, thus they have been described as 'hypersensitive' or 'hypervigilant' (Ronningstam, 2009). Due to such characteristics, vulnerable narcissism has been labeled as 'closet' narcissism (Masterson, 1993) or 'hypersensitive' narcissism (Hendin & Cheek, 1997).

The distinction between the two narcissism dimensions has been empirically supported. For example, Besser and Priel (2010) demonstrated that vulnerable narcissists (vs. grandiose narcissists) tend to display higher stress levels when they experience threats involving a romantic partner's rejection. It was found that highly vulnerable narcissists are more likely to display negative emotional states and express anger for rejection than those with low vulnerable narcissism. Besser and Priel (2010) further showed that people high on grandiose narcissism (vs. vulnerable narcissism) were more sensitive to an achievement failure threat (e.g., career failure or the potential to lose a job). These different patterns were observed because perceived stress levels vary by the type of narcissism. Czarna, Dufner, and Clifton (2014) also demonstrated that grandiose and vulnerable narcissism are uniquely associated with popularity in offline peer-networks. Czarna et al.'s (2014) analysis showed that grandiose narcissists were actively disliked by peers due to the low level of agreeableness among grandiose narcissists. On the other hand, vulnerable narcissists were not actively disliked by peers, but instead received lower likings from peers (vs. grandiose narcissists) because vulnerable narcissists tend to be socially inhibited.

Given the distinctive nature of the two faces of narcissism, it is expected that two forms may lead to different behaviors regarding privacy control on SNS. Although people high on either grandiose or vulnerable narcissism would use SNS as a means to obtain attention from others at very similar levels, their responses to privacy threatening events on SNS would differ. More specifically, people high on vulnerable narcissism would be more concerned with privacy issues and try to avoid situations that threaten their privacy because they are highly vigilant regarding information about themselves. On the other hand, people high on grandiose narcissism may take an active role in seeking self-promoting opportunities, regardless of the potential risk of privacy invasion, thereby being less vigilant and sensitive about spreading personal information. Because grandiose narcissists cannot stand being ignored and want to be a center of the community, they would disclose themselves more actively, even by risking a privacy infringement. In a same vein, individuals high on vulnerable narcissism (vs. grandiose narcissism) may be stricter regarding their privacy setting because vulnerable narcissism manifest hypersensitivity and hypervigilance, whereas those who are high on grandiose narcissism may be less strict regarding their privacy on SNS. Thus, we hypothesized that individuals high on either grandiose or vulnerable narcissism show different behavioral intention to control SNS privacy, with a stronger effect of vulnerable narcissism on behavioral intention. Behavioral intention in our hypothesis is defined as the subjective willingness of an individual to protect personal information privacy on SNS.

H1. Two types of narcissism will have different effects on users' behavioral intention to control privacy on SNS. More specifically, vulnerable narcissism (vs. grandiose narcissism) will have a stronger effect on behavioral intention.

In addition to the two narcissism dimensions, we included factors that have been identified as significant predictors in privacy literature as covariates in the current study. These include self-esteem, computer anxiety, and concern for information privacy.

2.4. Self-esteem

Self-esteem is one's sense of personal worth and value that a person associates with his/her self-concept (Blascovich & Tomaka, 1991). Previous research has suggested that self-esteem can predict information privacy behaviors. For example, Chen, Chen, Lo, and Yang (2008) showed that people with high self-esteem are more likely to exercise privacy rights, since they tend to obey the standard of social morality to maintain their individual reputation. People with high self-esteem (vs. low self-esteem) also tend to be more vigilant when sharing personal information with others online because they are more concerned with how others evaluate them (Chen et al., 2008). In this regard, Christofides, Muise, and Desmarais (2009) found that higher self-esteem predicted higher likelihood of controlling information. Hsu and Kuo (2003) also suggested that a person who possesses high level of organizational self-esteem, referring to a context-specific self-esteem construct specially formulated for an organization, is more likely to exercise privacy practices within an organization because they value their own right to control information privacy.

Consequently, it is expected that people with high self-esteem will be more likely to avoid harmful events potentially threatening their privacy because they are motivated to protect their reputation as well as to meet the standard of social morality. It is therefore hypothesized that self-esteem and one's behavioral intention to control SNS privacy have a positive relationship.

H2. Self-esteem will have a positive effect on behavioral intention to control privacy on SNS.

2.5. Computer anxiety

While computers have become a facet of everyday life for many people in today's information-intensive environment, they have been found to increase anxiety among individuals who have a strong fear of the technology (Beckers & Schmidt, 2003). This fear, known as computer anxiety, can influence one's behaviors related to privacy infringement on SNS.

The theoretical concept of anxiety traditionally falls into two forms: (1) state anxiety and (2) trait anxiety. State anxiety forms as a response to a current situation whereas trait anxiety is caused by a dispositional anxiety that is normally experienced by people who often worry or fear failing in a given situation (Parayitam, Desai, Desai, & Eason, 2010). From this view, computer anxiety, referring to the tendency of individuals to be uneasy, apprehensive, or fearful about current or future use of computers (Parasuraman & Igbaria, 1990), can be perceived as a trait anxiety. While it can be experienced in various forms and to various degrees, computer anxiety appears to be an inherent personality trait (Stewart & Segars, 2002).

Previous studies have suggested that computer anxiety is highly related to concerns over privacy issues on the Internet. For example, Stewart and Segars (2002) showed that computer anxiety positively influences behavioral intention to engage in privacy-protecting online activities. Korzaan and Boswell (2008) further suggested that individuals who have a high level of computer

anxiety display a high level of privacy concern regarding the Internet, given inherent distrust in technology among those who have a high computer anxiety. We thus expect a positive relationship between computer anxiety and behavioral intention to control SNS privacy.

H3. Computer anxiety will have a positive effect on behavioral intention to control privacy on SNS.

2.6. Concern for information privacy (CFIP)

The concept of concern for information privacy (hereafter CFIP) has recently received a great deal of attention among information systems scholars. Smith, Milberg, and Burke (1996) coined the term CFIP to refer to individual's concern about how organizations use and protect their information privacy. According to Smith et al. (1996), CFIP has four dimensions: collection, unauthorized secondary use, improper access, and errors. Collection refers to the concern over whether data are collected and stored appropriately. Unauthorized secondary use involves concerns regarding whether someone else will use the data collected for a certain purpose inappropriately without authorization. Third, improper access reflects to concerns over whether unauthorized people can view personal information. Finally, error defines concerns about whether personal data will be adequately protected against accidental or intentional errors (Smith et al., 1996).

Stewart and Segars (2002) further empirically tested the concept of CFIP and formulated a validated CFIP measurement in the online environment. They also found that CFIP mediated the relationship between computer anxiety and consumers' behavioral intention to retaliate against company's practices of collecting personal data. Recently, Korzaan and Boswell (2008) suggested that CFIP improves the predictability of the effect of personality traits on behavioral intention to protect privacy. Aforementioned research on CFIP applies to the SNS environment, given the shared characteristics of Internet across diverse venues. For example, continuous changes in format and user policy made by SNS companies would increase the concerns with security, as users are not always able to keep up with the updates. SNS users also concerned about the inappropriate use of their information by third party (boyd, 2008). We therefore hypothesized a positive relation between CFIP and behavioral intention to control privacy.

H4. Concern for information privacy (CFIP) will have a positive effect on behavioral intention to control privacy on SNS.

3. Method

3.1. Participants and procedure

A total of 176 U.S. undergraduate students who were current users of SNS participated in a self-administered, web-based survey in exchange for course credit. Females comprised 55.7% of the sample. The average age of the sample was 20.5 years with SD = 1.9. Overall, 85.8% of the sample was Caucasian, followed by African Americans (6.3%), Asians (5.1%), and others (2.8%).

3.2. Measures

Vulnerable narcissism was measured using a ten-item scale developed by Hendin and Cheek (1997). Measurement items include the statement such as, "My feelings are easily hurt by ridicule or by the slighting remarks of others." They were measured on a seven-point Likert-type scale ranging from "1 = strongly disagree" to "7 = strongly agree." Grandiose narcissism was measured with a scale suggested by Ames, Rose, and Anderson (2006). It includes sixteen pairs of narcissism-consistent vs. narcissism-inconsistent response items, such as "I know that I am good because everybody keeps telling me so (narcissism-consistent) vs. When people compliment me I sometimes get embarrassed (narcissism-inconsistent)." Following Ames et al.'s (2006) guideline, we calculated the mean score across the sixteen items, with narcissism-consistent responses coded as "1" and narcissism-inconsistent responses coded as "0." The scales are reliable measures of vulnerable (α = .79) and grandiose narcissism (α = .84).

Self-esteem was measured using the Rosenberg Self-Esteem Scale (Rosenberg, 1965). The scale comprises ten items. Sample items include, "I feel that I'm a person of worth, at least on an equal plane with others." The measure of computer anxiety was adopted from Parasuraman and Igbaria (1990). It includes five items, such as "Computers are a real threat to privacy in this country." Concern for information privacy (CFIP) was evaluated with fifteen items adopted from Smith et al. (1996). Sample items include: "It bothers me to give personal information to so many companies." All items were measured on a seven-point Likert scale ranging from "1 = strongly disagree" to "7 = strongly agree." The scales are reliable measures of self-esteem (α = .89), computer anxiety (α = .76), and CFIP (α = .96).

Finally, behavioral intentions to control SNS privacy were measured with five questions adapted from Stewart and Segars (2002). The words and phrases were slightly modified to reflect the SNS environment. The statements were evaluated on a seven-point Likert-type scale: "1 = very unlikely" and "7 = very likely." The five items include: "How likely are you to ... (1) decide not to participate in an online survey, social networking discussion, or join a certain affiliation or group on a social networking site because you do not want to provide certain kinds of information about yourself? (2) decide not to open a social networking site account because you do not want to provide certain kinds of information about yourself? (3) refuse to give information to social networking sites because you think it is too personal? (4) take action to have your name or photos of you removed or placed under stricter privacy settings on social networking sites? (5) refuse to use a certain social networking site because you disagree with the way the site uses personal information." The scale is a reliable measure of behavioral intentions (α = .83).

4. Results

4.1. Multicollinearity analysis

Before conducting the main analysis, a multicollinearity analysis was conducted to confirm whether vulnerable and grandiose narcissism were orthogonal constructs. Since multicollinearity exists when a tolerance is less than .10 and variance inflation factor (VIF) is greater than 5 (Steven, 2001), the two dimensions of narcissism were found to be orthogonal and multicollinearity was not an issue for any of the constructs explored in this study. Table 1 reports multicollinearity test results.

Table 1
Multicollinearity analysis of independent variables.

Measure	Tolerance	VIF[a]
Vulnerable narcissism	.65	1.52
Grandiose narcissism	.84	1.18
Self-esteem	.77	1.29
Computer anxiety	.68	1.47
Concern for information privacy	.76	1.31

[a] VIF, variance inflation factor.

4.2. Hypothesis testing

A two-step, step-wise regression was conducted to clarify whether there was additional variance among the constructs. Behavioral intention was used as the dependent variable in the analysis while self-esteem, computer anxiety, and CFIP remained constant. In step-one, $r^2 = .217$. After adding vulnerable and grandiose narcissism in step-two, $r^2 = .259$, accounting for a $\Delta r^2 = .042$. Thus, adding two narcissism constructs increased the predictability of behavioral intention to control privacy.

More importantly, as displayed in Table 2, vulnerable narcissism had a significant influence on behavioral intention ($\beta = .234$, $p < .01$), while grandiose narcissism was not a significant predictor of behavioral intention ($\beta = .118$, $p = .092$). Consistent with our expectation, vulnerable narcissism had a stronger effect on behavioral intention than grandiose narcissism. Therefore, hypothesis 1 was supported.

Regarding self-esteem, it appeared to be a significant predictor of behavioral intention in step two ($\beta = .194$, $p < .01$). Consistent with our expectation, it had a positive effect on behavioral intention, supporting hypothesis 2. Likewise, computer anxiety ($\beta = .234$, $p < .01$) and CFIP ($\beta = .185$, $p < .05$) appeared to be significant predictors of behavioral intention. Therefore, hypothesis 3 and hypothesis 4 were supported. In summary, all of our hypotheses were supported.

5. Discussion

5.1. Implications

The purpose of the current study was to explore the distinctive relationships between two types of narcissistic traits – grandiose and vulnerable narcissism – and their influence on behavioral intention to control privacy on SNS while considering other possible predictors (i.e., self-esteem, computer anxiety, and CFIP). As one of the first studies to apply a two-dimensional approach to narcissism in communication context, our study contributes to the existing SNS literature in several ways.

First, it shows that narcissism as a one-dimensional construct cannot solely predict the source of behavior; instead, it must be broken down (here, into grandiose and vulnerable dimensions) to better understand narcissism that influences behaviors. In particular, the results indicated that people who are high on vulnerable narcissism are more likely to disengage from privacy threatening activities on SNS, whereas no relationship exists when considering grandiose narcissism. This study shows that applying a dual-faceted approach creates a more thorough understanding of the manifestation of narcissism in SNS activities. Despite a growing interest in narcissism, empirical evidence suggesting the existence of two dimensionality of narcissism has received little attention among SNS scholars. Our findings provide a new direction in the field by reshaping our conceptualization of narcissism.

One of the guiding premises of the current finding is that the two faces of narcissism would emerge through other behaviors on SNS. As mentioned before, research by Besser and Priel (2010) demonstrated that people high on vulnerable narcissism (vs. grandiose narcissism) display higher stress levels when they experience a partner's rejection. It suggests that grandiose narcissists and vulnerable narcissists respond differently to interpersonal rejections; therefore, different responses are anticipated on SNS. That is, people with high levels of vulnerable narcissism (vs. grandiose narcissism) may experience a higher level of distress when other SNS users reject them (e.g., unfriended on Facebook or disconnected on LinkedIn). Accordingly, different levels of psychological distress between vulnerable and grandiose narcissistic people would lead to different consequent behaviors (e.g., vulnerable narcissists would post negative or hostile comments about users who rejected them, while grandiose narcissists would not).

The two forms of narcissism also differ in the expectation of reciprocity in interpersonal relationships. People with vulnerable narcissism tendencies care less about providing support to others while they expect others to support them; conversely, those with grandiose narcissism are more likely to provide reciprocal supports to others (Carpenter, 2012). It would be interesting to learn about the manifestation of these differences through SNS activities (e.g., posting comments on others' SNS accounts after receiving compliments from them). As such, our findings highlight that the vast differences between the two forms of narcissism possibly exist in terms of online networking activities, providing a promising avenue of study for future research projects.

Second, this study contributes to the literature on SNS privacy by identifying the relative effects of self-esteem, computer anxiety, and CFIP on the likelihood to disengage from privacy-threatening activities on SNS. It is clear from our study that self-esteem is another important factor guiding information privacy behaviors. It is particularly meaningful because narcissism and self-esteem show similarities and differences in viewing oneself, and our study shows how they are related. In the same vein, the current study demonstrates that computer anxiety is an important predictor of the intention to protect ones privacy on SNS. Our results indicated that computer anxiety can be approached as a personality trait that exerts certain behaviors on SNS. Finally, CFIP, which is an emerging construct of importance, is found to be a significant variable. Since its seminal work on CFIP (Smith et al., 1996), CFIP has served as the useful construct measuring individual's concerns about organizational information privacy practices, and our study supports its empirical validity in the SNS context. Consequently, adding these additional factors into our investigation could not only increase the accuracy of predictability of narcissism in terms of behavioral intention, but also help us identify considerable factors in the research on information privacy.

Managerially, SNS companies could use the results to better track and keep up with SNS user maintenance, given that concerns over privacy are often considered the forefront obstacle to SNS growth (O'Brien & Torres, 2012). To keep users from disengaging from SNS, company managers must understand that SNS user personalities significantly affect their usage. The theoretical framework in this study can assist research in finding not only how to engage users, but also how to help maintain an atmosphere that fosters a more pleasant experience for users through adapting the SNS or its policies based on individual's personality traits. For example, it is important that companies clearly communicate their privacy policies and practices to those who are hyper vigilant about personal information. Additionally, new features should be adequately accompanied by several self-protective functions that allow consumers to protect themselves from identify thefts.

Table 2
Multiple regression step-wise analysis result for behavioral intention.

Variables	Step 1 β	Step 2 β
Self-esteem	.097	.194**
Computer anxiety	.329**	.234**
Concern for information privacy	.211**	.185*
Grandiose narcissism		.118
Vulnerable narcissism		.234**
	$R^2 = .217$	$\Delta R^2 = .042$
	$F(3, 172) = 15.915$, $p < .001$	$F(2, 170) = 4.795$, $p < .009$

Note: Beta-weights marked with "*" are significant at the $p < .05$.
Beta-weights marked with "**" are significant at the $p < .01$.

5.2. Limitations and future research directions

Although this study contributes to SNS literature by offering theoretical and managerial contributions, some limitations should be considered when interpreting the results. This study analyzed the behavioral intentions of SNS users but did not account for the actual behaviors of SNS users. Therefore, it serves as a starting point to explore the potential causal effect of certain behaviors on SNS. Further analysis should be made to understand SNS users' actual behaviors. Second, the generalization of the study is limited because the study subjects were collegiate subjects. As personality traits could possibly change with age, future studies should include larger samples containing a balanced mix of all age groups to make the results generalizable.

Third, the findings suffer from a limited representativeness, as our sample contained mostly Caucasians. Personality traits, such as narcissism, may vary across racial groups because culture significantly influences the shaping of one's belief, attitudes, and behavior (Tanchotsrinon, Maneesri, & Campbell, 2007). In this sense, future studies with cross-ethnic or cultural samples would promote a deeper understanding of the role of narcissism in information privacy behaviors. Furthermore, developing a comparison model with western and eastern cultures would provide a unique perspective on how cultures influence our views of the information privacy on SNS.

Finally, another consideration regards the issue of whether people accept SNS privacy attacks because the use of the SNS is more valuable to them than its potential dangers. According to the theory of the privacy paradox, Internet users are concerned about privacy yet do little to protect their privacy because the benefits of using SNS seemingly outweigh the losses (Bowman, Westerman, & Claus, 2012). Future research thus should investigate how SNS users overcome privacy anxiety (perhaps associated with vulnerable narcissism) to meet their desire for social interaction.

6. Conclusions

In conclusion, a two-dimensional approach to narcissism is a promising construct that warrants considerable attention from SNS researchers. As our research demonstrates, a better understanding of the heterogeneity of narcissism can provide important insights into the SNS behaviors and advance the literature on narcissism. This research offers valuable findings for theory and practice of information privacy; however, a great deal remains to be discovered to understand the full effect of narcissism on individual behaviors on SNS.

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