

The Reciprocal Relationship Between Passive Social Networking Site (SNS) Usage and Users' Subjective Well-Being

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Jin-Liang Wang¹, James Gaskin², Detlef H. Rost^{1,3},
and Douglas A. Gentile⁴

Abstract

Prior studies have found an inconclusive relationship between social networking site (SNS) usage and users' subjective well-being. Passive SNS usage may be detrimental to subjective well-being, because it cannot provide social support and may evoke envy and jealousy. Conversely, it is also possible that lower subjective well-being may predict higher passive SNS usage, which can be used as a means to relieve stress. To examine this reciprocal process, a two-wave study among a sample of Chinese college students was conducted ($N = 350$ at Time 1, 265 at Time 2). Data were analyzed with structural modeling. Cross-lagged analysis indicated that passive SNS usage at Time 1 predicted a decrease in subjective well-being at Time 2. Lower subjective well-being at Time 1 also predicted an increase in passive SNS usage at Time 2. These findings deepen our understanding of the complicated association between SNS usage and well-being and has implications for how to help individuals use SNS healthily.

Keywords

SNS usage, subjective well-being, reciprocal relationship, social network

Social networking sites (SNS) have become extremely popular in recent years, especially among adolescents and young adults (Kalpidou, Costin, & Morris, 2011). Considering their huge user population and possible effects on users' social development and psychological well-being, abundant studies have been conducted to investigate the outcomes of SNS usage (Appel, Crusius, & Gerlach, 2015; Chang & Heo, 2014; Krasnova, Widjaja, Buxmann, Wenninger, Benbasat, 2015;

¹ Center for Mental Health Education, School of Psychology, Southwest University, Chongqing, China

² Department of Information System, Brigham Young University, Provo, UT, USA

³ Faculty of Psychology, Philipps-Universität, Marburg, Germany

⁴ School of Psychology, Iowa State University, Ames, IA, USA

Corresponding Author:

Jin-Liang Wang, Center for Mental Health Education, School of Psychology, Southwest University, No. 2 Tiansheng Road, Belbei District, Chongqing, 400715, China.

Email: wjl200789@163.com

Lup, Trub, & Rosenthal, 2015; Pantic, 2014; Shaw, Timpano, Tran, & Joormann, 2015; Song et al., 2014). However, inconsistent findings exist, as passive SNS usage (i.e., directed or random consumption of social content) and active SNS usage (i.e., producing content such as updates and commenting on others' posts) may lead to different effects on users' psychological well-being. For example, some studies have reported a positive association between SNS usage and psychological well-being (e.g., Frison & Eggermont, 2015; Wang, Jackson, Gaskin, & Wang, 2014), whereas others have found that SNS usage can decrease well-being (e.g., Chou & Edge, 2012).

In the past 2 years, researchers have begun to investigate the impact of passive SNS usage on users' psychological well-being as well as the possible mechanisms through which the effects occur (e.g., Appel, Gerlach, & Crusius, 2016; Chen, Fan, Liu, Zhou, & Xie, 2016; de Vries & Kühne, 2015; Fardouly, Diedrichs, Vartanian, & Halliwell, 2015; Lim & Yang, 2015). A main reason for this research trend is that passive consumption of social content is the most prevalent SNS activity including viewing idealized SNS profiles, pictures, and status updates presented by others (Pempek, Yermolayeva, & Calvert, 2009).

Despite prior studies on passive SNS usage and subjective well-being, more research is needed, as the association between these two variables may not be unidirectional and may have a reciprocal relationship. Moreover, most prior studies have used either a cross-sectional design or measured the instant mood after viewing SNS content in an experimental situation; these study designs make it difficult to determine whether SNS usage has long-term effects on users' psychological well-being (Sagioglou & Greitemeyer, 2014).

Therefore, the current study will use a cross-lagged regression model to investigate whether there is a reciprocal association between SNS usage and users' psychological well-being among Chinese emerging adults. Considering the large population who mainly use the SNS for noninteractive purposes and the fact that many people are unaware of its possible negative consequences, it is both theoretically and practically necessary to study this question. Investigating the possible reciprocal association between SNS usage and users' psychological well-being can enrich our understanding of the complexity of psychological outcomes of SNS and lead to effective strategies to help individuals use SNS healthily.

In addition, most prior studies have been conducted in a Western context (Boyd, 2006; Muise, Christofides, & Desmarais, 2009; Orchard, Fullwood, Galbraith, & Morris, 2014; Shaw et al., 2015). Cultural differences in SNS usage have been proposed (Hawk, 2014; Jackson & Wang, 2013; Kim, Sohn, & Choi, 2011). Therefore, research on the reciprocal association between passive SNS usage and users' well-being in a Chinese context can enrich our understanding of this topic.

Passive SNS Usage Predicts Decreased Subjective Well-Being

Patterns of SNS usage can be divided into passive content consumption and directed communication (Burke, Marlow, & Lento, 2010). Directed communication through SNSs can enhance users' psychological well-being, decrease loneliness, and improve social ties by providing necessary social support, thus increasing individuals' self-esteem and life satisfaction (Valkenburg, Peter, & Schouten, 2006). However, noncommunicative use of SNS may decrease psychological well-being due to the reduced social interaction or increased social comparison (Weiser, 2001). Therefore, in the current study, the communicative/active use of SNS was controlled for.

Passive SNS usage, also called content consumption, including directed or random consumption of social content, may reduce social capital (de Vries & Kühne, 2015; Oh, Ozkaya, & LaRose, 2014) and psychological well-being. This association may be mediated by evoking feelings of envy and jealousy after consuming others' self-presented information in SNS (Chou & Edge, 2012; Muise

et al., 2009), by social overload (Maier, Laumer, Eckhardt, & Weitzel, 2012) and increase in social tension (Boyd, 2006), by a fear of “missing out” on information or communication that occurs solely on SNS (Orchard et al., 2014), or by brooding about various types of interpersonal concerns (Shaw et al., 2015). For example, Verduyn et al. (2015) examined the association between passive Facebook usage and affective well-being, using both experimental and experience-sampling techniques. They found that passive Facebook usage led to declines in affective well-being over time through arousing users’ envy. The significant relationship between passive Facebook usage and changes in affective well-being still existed even after controlling for active Facebook use, non-Facebook online social network usage, and direct social interactions. In the literature, passive SNS usage has also been found to be positively related to users’ depressive symptoms (Lup et al., 2015), social anxiety (Orchard et al., 2014), increased loneliness (Burke et al., 2010), envy and shame (Krasnova et al., 2015; Lim & Yang, 2015), lower life satisfaction (Frison & Eggermont, 2016), and lower self-esteem and lower sense of self-evaluation (Vogel, Rose, Roberts, & Eckles, 2014). Therefore, in this study, we hypothesized:

Hypothesis 1: Passive SNS usage (Time 1) will be negatively related to users’ subjective well-being (Time 2).

Decreased Subjective Well-Being Predicts Passive SNS Usage

It is possible that SNS can satisfy one’s need for emotional connections in social interactions (Nadkarni & Hofmann, 2012) and that SNS can be used as a way to relieve users’ negative feelings (Oh et al., 2014). Loneliness and anxiousness may predict SNS usage due to the fact that individuals with high social anxiety can use SNS to reduce their loneliness and uncomfortable feelings that they may encounter during face-to-face interaction (Clayton, Osborne, Miller, & Oberle, 2013).

However, researchers have found that loneliness and depression can predict problematic use of the Internet (Bian & Leung, 2015; Ceyhan & Ceyhan, 2008). When confronted with excessive life stress, users may use SNS as a means of stress relief or as a stress coping strategy to escape from reality and to compensate for unsatisfactory social interactions (Hou et al., 2017; Leung, 2007). A study of first-year students revealed that SNS users seek out friends on SNS to relieve the stress that is associated with poor adjustment (Kalpidou et al., 2011). Thus, SNS could be used to satisfy users’ need for psychological escape when confronted with real-life problems or challenging situations (Hou et al., 2017) especially to reduce emotional stressors (P. Sheldon, 2008).

Using cognitive dissonance theory and selective exposure theory as a framework, Frison and Eggermont (2016) found that adolescents with lower life satisfaction tended to passively view others’ information on Facebook for negative comparisons. According to cognitive dissonance theory proposed by Festinger (1957), individuals have an inner drive to avoid situations and information that are dissonant with their cognitions and behaviors (Festinger, 1957). Selective exposure theory holds that individuals tend to favor information that reinforces their preexisting views while avoiding contradictory information. Within the area of mass communication, this means that media users are inclined to choose specific media content that aligns with their own behaviors (Zillmann & Bryant, 1985). In SNS, people upload a large amount of information demonstrating a happy life, successful moments, and travel photos, which can lead to viewers’ feelings that others are leading more exciting lives (Chou & Edge, 2012). In line with the cognitive dissonance and selective exposure theory, it is reasonable to assume that when people have low subjective well-being and are less satisfied with their lives, they are more likely to passively use SNS, as the experience

resulting from viewing information on SNS is in line with their negative cognitions about their own lives (Frison & Eggermont, 2016). Therefore, we hypothesized that:

Hypothesis 2: Subjective well-being (Time 1) will be negatively related to passive SNS usage (Time 2).

Method and Participants

Sample and Procedure

The data presented in this article were derived from the first and second wave of a pencil and paper survey administrated from December 2015 (Time 1) to December 2016 (Time 2; an interval of 1 year) in two universities in China. We obtained approval from the universities' institutional review boards. Using an initial sample of 350 participants, two waves of data were collected. To match participants' data of the two measuring points of the study, participants were instructed to enter a personal code consisting of (1) the first letter of their mother's family name, (2) the first letter of participants' family name, (3) two digits representing the month of their birthday, and (4) the last two letters of the city where they were born. Informed consent was obtained from all participants, and all respondents were informed that they could terminate participation at any time during the study. Two hundred and sixty-five participants completed the surveys at the two waves. At Time 1, participants (23.24% male) had an average age of 19.43 (standard deviation [*SD*] = 1.65) and at Time 2, had an average age of 20.11 (*SD* = .96). Participants who completed the survey only in Time 1 did not significantly differ from the longitudinal participants with respect to demographic and study variables. Surveys were distributed in classes and participants were given 20 min to complete the survey. Each participant received a monetary compensation for their participation (¥20 about US\$3.0).

Measures

The instrument used in this study included four components: demographic information, passive and active SNS usage questionnaire, Life Satisfaction Scale, and Positive and Negative Affect Scale (PNAS).

Passive SNS Usage and Active SNS Usage

Passive and active SNS usage was measured by items adapted from prior studies (Chen et al., 2016; Frison & Eggermont, 2016). Passive SNS usage was measured by asking respondents six questions, sample items were "How frequently do you view others' photos when logging on SNSs?" and "How frequently do you view others' updates when logging on SNSs?" Active SNS usage was measured by three questions, and sample items were "How frequently do you update your status?" and "How frequently do you comment on your friends' wall?" Respondents rated each item on a 5-point Likert-type scale, ranging from 1 = *never*, 2 = *rarely*, 3 = *occasionally*, 4 = *quite often*, and 5 = *almost every time I log on*. The reliabilities of the passive SNS usage scale in the current study were $\alpha = .70$ at Time 1 and .72 at Time 2, respectively. The reliabilities of the active SNS usage in this study were .71 at Time 1 and .75 at Time 2. We did two confirmatory factor analyses (CFAs) for passive SNS usage and active usage at Time 1 and Time 2, respectively. The CFA results showed that the measurement model fit the data well, with $\chi^2/df = 1.95$, $p = .004$, Tucker–Lewis index [TLI] = .93, comparative fit index (CFI) = .96, root mean square error of approximation (RMSEA) = .06 (95% confidence interval [CI] = [.03, .08]), standardized root mean square residual (SRMR) = .04

at Time 1 and $\chi^2/df = 1.65, p = .03, TLI = .97, CFI = .98, RMSEA = .05$ (95% CI = [.01, .08]), SRMR = .03 at Time 2.

Subjective Well-Being

Subjective well-being was computed by summing standardized scores of life satisfaction and positive affect and then subtracting a standardized score of negative affect, a method that has been used effectively in prior studies (Chen et al., 2016; Sheldon & Elliot, 1999). Life satisfaction was assessed by the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). The SWLS included five items such as “In most ways, my life is close to my ideal” and “I am satisfied with life.” Participants were asked to indicate their agreement on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). In the current study, the reliability of this scale was $\alpha = .74$ at Time 1 and .77 at Time 2. Positive affect and negative affect were measured by a Chinese version of the PNAS; Watson, Clark, & Tellegen, 1988). Participants were asked to indicate the extent to which they had had negative or positive feelings or emotions in the past few days. Sample items included, “To what extent did you feel depressed in the past few days” and “To what extent did you feel active in the past few days,” ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). This scale has shown good reliability and validity in prior research (Watson et al., 1988). The reliabilities for the positive subscale and negative subscale in PNAS in this study were $\alpha = .86$ and $\alpha = .87$ at Time 1 and .81 and .82 at Time 2, respectively. We did two CFAs for SWLS and PNAS at two measuring points respectively. The CFA results showed that the measurement model fit the data well, with $\chi^2/df = 1.57, p < .001, TLI = .91, CFI = .93, RMSEA = .05$ (95% CI = [.04, .06]), SRMR = .06 at Time 1 and $\chi^2/df = 1.79, p < .001, TLI = .91, CFI = .92, RMSEA = .05$ (95% CI = [.05, .06]), SRMR = .06 at Time 2.

Analysis

Pearson correlation coefficients were used to assess the strengths of linear relationships between pairs of study variables. Hypotheses 1 and 2 addressed the reciprocal longitudinal relationships between passive SNS usage and subjective well-being. To test these longitudinal relationships, we computed a cross-lagged structural model using Mplus 7.0. Because subjective well-being was calculated by summing standardized scores of life satisfaction and positive affect and then subtracting a standardized score of negative affect, we used it as an observed variable in the model.

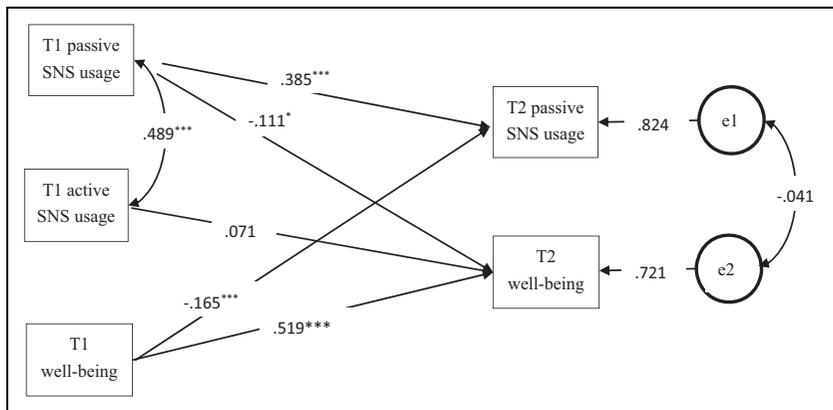
The data in the current model have met the assumptions for structural equation modeling (SEM) regarding its sample size ($n = 265$ in this study) and data level (Likert-type scale was employed). The skewness and kurtosis of the study variables were within the range of ± 1.0 . The default estimation method of maximum likelihood was used. To study the adequacy of the estimated model, we used χ^2/df , the RMSEA, the CFI, the TLI, and the SRMR. χ^2/df is greater than 1 and smaller than 5, as recommended by prior research (Salisbury, Chin, Gopal, & Newsted, 2002). The CFI and TLI should be greater than .90 (Salisbury et al., 2002). For the RMSEA and SRMR, values less than .08 represent an acceptable fit (Byrne, 2006).

In the hypothesized model, all variables at Time 2 were predicted by their preceding values at Time 1 and by the value of the respective independent variable at Time 1. We also controlled for active SNS use at Time 1 as previous studies have suggested a positive relationship between active SNS use and subjective well-being (Valkenburg et al., 2006; Wang et al., 2014). Additionally, covariance between control variables and exogenous study variables were allowed at the same time point. To further confirm the significance of all path coefficients, we used the bootstrapping method (bootstrap = 10,000). The results of the bootstrap analysis in combination with the excellent fit indicators of our model support the validity of our results.

Table 1. Means, Standard Deviations and Zero-Order Correlations Among Study Variables.

Variable	Mean	Standard Deviation	2	3	4	5
Active SNS use at T1	2.66	0.62	.49**	.31**	.07	.05
Passive SNS use at T1	2.34	0.50		.38**	.004	-.07
Passive SNS use at T2	2.33	0.51	.38**		-.16**	-.14*
Subjective well-being at T1	0	1.0	.004	-.16**		.52**
Subjective well-being at T2	0	1.0	-.07	-.14*	.52**	

Note. Subjective well-being was standardized score. SNS = social networking site; T1 = Time 1; T2 = Time 2.
*Correlation is significant at the .05 level (two tailed); **Correlation is significant at the .01 level (two tailed).

**Figure 1.** Reciprocal relationship between passive social networking site usage and subjective well-being.

Results

Descriptive Statistics

Means, standard deviations, and zero-order correlations of all variables are presented in Table 1.

Cross-Lagged Model

The autoregressive cross-lagged model fit the data well (please see Figure 1 for details), with $\chi^2/df = 2.94$, $p = .03$, TLI = .90, CFI = .96, RMSEA = .08 (95% CI = [.02, .15]), SRMR = .03. Passive SNS usage at Time 1 was significantly related to subjective well-being at Time 2 ($\beta = -.11$, $p < .05$, 95% CI = [-.18, -.03]) and passive SNS use at Time 2 ($\beta = .39$, $p < .001$, 95% CI = [.33, .51]). Subjective well-being at Time 1 was significantly related to passive SNS use at Time 2 ($\beta = -.17$, $p < .001$, 95% CI = [-.23, -.13]) and subjective well-being at Time 2 ($\beta = .52$, $p < .001$, 95% CI = [.43, .58]). Active SNS use at Time 1 was not related to subjective well-being at Time 2 ($\beta = .07$, $p > .05$, 95% CI = [-.08, .12]; please see Figure 1 and Table 2).

Discussion

The current study found that passive SNS usage and users' subjective well-being were reciprocally related over time. Passive SNS usage negatively predicted users' subjective well-being, and subjective well-being negatively predicted passive SNS usage.

Table 2. Path Coefficients.

Parameter	Unstandardized Coefficient Estimate	Standard Error	Critical Value	p Value
T2 well-being ← T1 active usage	.25	.21	1.17	.243
T2 passive usage ← T1 well-being	-.04	.01	-5.07	.000
T2 well-being ← T1 well-being	.55	.05	10.44	.000
T2 well-being ← T1 passive usage	-.47	.20	-2.37	.018
T2 passive usage ← T1 passive usage	.39	.05	8.15	.000

Note. Please refer to Figure 1 for the standardized coefficients. T1 = Time 1; T2 = Time 2.

Our first hypothesis stated that passive SNS usage would be negatively related to users' subjective well-being, and this was confirmed by our results. We found that the relationship between passive SNS usage at Time 1 was significantly associated with subjective well-being at Time 2 at the .05 significance level, even after controlling for active SNS usage and participants' subjective well-being at Time 1. This finding is consistent with prior cross-sectional and experimental studies (Burke et al., 2010; de Vries & Kühne, 2015; Orchard et al., 2014; Verduyn et al., 2015), indicating that spending more time passively on SNS may lead to lower subjective well-being.

Several possible explanations have been proposed regarding the association between passive SNS usage and decreased subjective well-being. For instance, upward social comparisons in SNS may account for the negative association between passive SNS use and subjective well-being. Generally, SNS are filled with managed or exaggerated information of the apparently flawless lives of users who present it for the sake of impression management. This has made upward social comparisons almost unavoidable (Appel et al., 2015; de Vries & Kühne, 2015) as the presented information is positively skewed (Jordan et al., 2011; Lee-Won, Shim, Joo, & Park, 2014). Consequently, passive SNS users may experience social comparisons that are detrimental to perceptions about self-worth and self-esteem (de Vries & Kühne, 2015; Lee, 2014) and may provoke negative feelings (Chen et al., 2016). Smith and Kim (2007) have suggested that envy feelings may be triggered by over-exposure to social information in SNS and cause significant damage to users' well-being and life satisfaction. Additionally de Vries and Kühne (2015) reported that Facebook use was related to a greater degree of negative social comparisons, which was in turn related negatively to self-perceived social competence and physical attractiveness. Similar findings also implied that users who passively use SNS are more likely to feel personally inadequate (Jordan et al., 2011), make poor self-evaluations (Chen et al., 2016), and believe that others are doing better (Fardouly et al., 2015; Haferkamp & Krämer, 2011).

In addition to the upward social comparisons in SNS, other mechanisms may exist whereby passive SNS usage decreases users' subjective well-being (Koroleva, Veltri, Krasnova, & Günther, 2011; Maier et al., 2012; Sagioglou & Greitemeyer, 2014; Valenzuela, Park, & Kee, 2009). For example, continuous engagement in passive SNS may lead to feelings of exhaustion, annoyance, irritability, and overload (Koroleva et al., 2011; Maier et al., 2012). Intense passive SNS usage can provoke a feeling of not doing anything meaningful, which may lead to more negative moods (Sagioglou & Greitemeyer, 2014). Spending more time on SNS passively may get users isolated as passive SNS usage does not involve the beneficial functions of SNS (i.e., social interaction) and does not provide social support, which is one of the key benefits that SNS users perceive from SNS (Park, Kee, & Valenzuela, 2009). Ironically, the more contacts one has on SNS may serve to increase the feeling of isolation if one perceives others to be more socially engaged. Moreover, passive SNS usage includes viewing others' social information and links, which can increase social information

overload (Maier et al., 2012). The solitary consumption of SNS content may reduce social capital and enhance loneliness (Oh et al., 2014).

Our second finding was that subjective well-being was negatively related to later passive SNS usage, which supported Hypothesis 2 and is also consistent with literature (e.g., Kardefelt-Winther, 2014; Wang, Gaskin, Wang, & Liu, 2016). Users with a negative mood may use the Internet passively as a way to relieve their negative feelings or escape their problems. The uses and gratification theory has suggested that individuals are active and goal directed in their SNS use and intentionally choose media and content to gratify psychological needs or motivations (Katz, Blumer, & Gurevitch, 1974). SNS can gratify users' various needs such as relaxation and escape (Smock, Ellison, Lampe, & Wohn, 2011). This finding also has supported the selective exposure and cognitive dissonance theory, both suggesting that users are inclined to choose specific media content that approves of their own behaviors or cognitions. Additionally, the compensatory internet use theory suggests that low psychosocial well-being may be an underlying cause of some of the motives for Internet usage; in certain situations, low psychosocial well-being can therefore lead an individual to spend much more time online for coping purpose (Kardefelt-Winther, 2014).

The reciprocal relationship between passive SNS use and subjective well-being raises the question of why people still spend a lot of time on SNS after they experience negative feelings after they use it. Affective forecasting error may provide an explanation. Affective forecasting error describes how users may have a wrong expectation how SNS makes them feel. SNS users may expect SNS to bring about positive feelings, which causes them to spend more time on SNS and thereby leads to decreased psychological well-being (Sagioglou & Greitemeyer, 2014). If this hypothesis is correct, the decreased psychological well-being may cause users to consume more SNS as they continue to expect it to make them feel better. In addition, frequently viewing others' positive life events presented on SNS and being confronted with others' photos of happy moments, can elicit SNS users' envy, making them feel that others are happier and have better lives, which in turn decreases their psychological well-being (Chou & Edge, 2012).

Conclusions and Future Directions

Our findings extend prior research as we confirmed a reciprocal relationship between passive SNS use and subjective well-being, after controlling for active SNS usage and users' previous subjective well-being. This research design allowed us to yield a more robust conclusion on the association between the study variables. Our findings suggest that passive SNS use may undermine users' subjective well-being, and that users with lower subjective well-being are more likely to spend more time on SNS.

Despite these findings, cautions should be made when the current findings are generalized to other populations, as the current study was conducted on a sample of college students. Second, more diversified age-groups should be considered in future studies, given prior research has shown that age may play an important role in SNS usage and its outcomes (Pfeil, Arjan, & Zaphiris, 2009). Third, future studies should examine the gender difference on the relationship between SNS usage and well-being via a multigroup analysis. This study did not investigate this issue given only 23.24% participants were male. Finally, although several potential mediating mechanisms are discussed above, these were not tested directly in this study and should be examined in the future research.

Nonetheless, SNS users should be cautious about the negative influence that passive SNS can have on their subjective well-being, especially those users who use SNS passively as a way to relieve their negative feelings. Using SNS passively may begin a vicious cycle; instead, they should find some proactive means to improve their subjective well-being. Our data suggest that even becoming more active and engaged on SNSs may help to mitigate this negative cycle.

Declaration of Conflicting Interests

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Author Biographies

Jin-Liang Wang is a professor of educational psychology in the School of Psychology at the Southwest University in China. His research investigates the antecedents of online communication as well as its influence on users' social development and psychological well-being. Email: wangjinliang09@gmail.com

Detlef H. Rost is a professor of educational and developmental psychology at Philipps-University Marburg (Germany) and visiting professor at Southwest University Chongqing (P.R. China). He directs the assessment and counseling center for the gifted and the longitudinal Marburg Giftedness Study. His main interests focus on intelligence, giftedness, self-variables, test anxiety, psychological and educational assessment, and research methodology. Email: rost@uni-marburg.de

James Gaskin is an assistant professor of management information systems at Brigham Young University, Utah. His research interests include organizational genetics, human computer interaction, digital innovation, mixed reality, and research and teaching methodologies. He is an associate editor at *Frontiers in Psychology* in the organizational psychology section. Email: james.eric.gaskin@gmail.com

Douglas A. Gentile is a professor of psychology at Iowa State University. His research focuses primarily on the positive and negative effects of media on children and adolescents. Email: dagentile@gmail.com