The Facebook Paths to Happiness: Effects of the Number of Facebook Friends and Self-Presentation on Subjective Well-Being

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Abstract

The current study investigates whether and how Facebook increases college-age users’ subjective well-being by focusing on the number of Facebook friends and self-presentation strategies (positive vs. honest). A structural equation modeling analysis of cross-sectional survey data of college student Facebook users (N = 391) revealed that the number of Facebook friends had a positive association with subjective well-being, but this association was not mediated by perceived social support. Additionally, we found that there was a negative curvilinear (inverted U-shape curve) relationship between Facebook friends and perceived social support. As for self-presentation strategies, whereas positive self-presentation had a direct effect on subjective well-being, honest self-presentation had a significant indirect effect on subjective well-being through perceived social support. Our study suggests that the number of Facebook friends and positive self-presentation may enhance users’ subjective well-being, but this portion of happiness may not be grounded in perceived social support. On the other hand, honest self-presentation may enhance happiness rooted in social support provided by Facebook friends. Implications of our findings are discussed in light of affirmation of self-worth, time and effort required for building and maintaining friendships, and the important role played by self-disclosure in signaling one’s need for social support.

Introduction

Since its debut in 2004, Facebook has achieved remarkable growth as one of the world’s leading social networking sites (SNSs). Among the 500 million active users of Facebook,³ college-age users (between 18 and 25 years old) constitute the biggest age group, accounting for approximately 30% of the total user population.⁴ It has been reported that college-age users dedicate approximately 28 minutes per day to Facebook, integrating it closely into their everyday lives.⁵ Although motivations behind Facebook use may vary, Facebook could not have achieved the popularity it currently enjoys had it not been able to provide users with some pleasure or psychological benefits. Documenting the beneficial effects of Facebook on young users’ lives, several studies have found a positive association between Facebook use and life satisfaction (e.g., Ellison et al.⁶ and Valenzuela et al.⁷). However, how Facebook use contributes to psychological well-being has yet to be understood. To address this question, we investigate the effects of Facebook friends and self-presentation on subjective well-being (SWB) and the role of perceived social support using data collected from college-age Facebook users.

Our research extends past studies on the relationship between Facebook use and SWB in the following ways. First, unlike past studies that included the number of Facebook friends as part of the index of Facebook use (e.g., Ellison et al.⁶ and Valenzuela et al.⁷), we investigated its independent contribution. Second, we examined the possible mediating role of perceived social support. A survey study on Dutch adolescents’ SNS use found that positive feedback from SNS friends enhanced self-reported SWB, suggesting that social support provided by SNS friends may mediate SNS use and psychological well-being.⁸ We test this possibility in the context of college students’ use of Facebook. Finally, we investigated the effects of different self-presentation strategies on SWB, which has been relatively understudied in the context of Facebook. SNSs are defined as websites that not only display visually articulated lists of one’s social connections, but also provide technological features (e.g., public profiles) through which users can present themselves to others.⁹ Facebook in particular offers ample opportunities for its users
to engage in self-presentation through profile construction, status updates, photo album management, message-posting, and so on. In doing these self-presentation activities, some users may be more inclined to present themselves in a selective manner, highlighting the “favorable and appropriate images” of themselves, by contrast, others may prefer to present themselves in a true-to-self manner, engaging in deeper levels of self-disclosure. We examined how these self-presentation strategies affect perceived social support and SWB.

**Number of Facebook friends, subjective well-being, and social support**

As an open question is whether the hypothesized positive association between the number of Facebook friends and SWB is mediated by perceived social support. Considering that social support is an important source of happiness, it is possible that social support provided by one’s Facebook friends may also have a positive contribution to the user’s SWB. However, it is unclear whether increases in the number of Facebook friends will lead to increases in Facebook-based social support. One possibility is that the more Facebook friends one has, the more social support one is likely to receive from these friends on aggregate, which will in turn make the user happier. However, it is also possible that Facebook friends, not as much being based on close attachment and mutual connections as actual friends are, may not serve as a substantial source of support; in this case, perceived social support will not be a significant mediator between the number of Facebook friends and SWB. To test these two possibilities, we ask:

**RQ1: Does perceived social support mediate the relationship between the number of Facebook friends and SWB?**

Another possibility is that a non-linear relationship may exist between the number of Facebook friends and social support. With too few Facebook friends, users will receive social support to a very limited extent. Having too many Facebook friends, on the other hand, will not necessarily increase social support one can receive, for most of the “friendships” may be superficial at best. It takes much time and effort to build and maintain mutual companionship with friends. Given that the average number of close offline friends is only nine, it is not surprising that Facebook users maintain close connections with less than 3% of their Facebook friends. It is likely that the larger one’s Facebook network becomes, the less time and effort can be invested in each individual.

It is also possible that a user with a large number of Facebook friends might have mindlessly expanded his/her friends’ network without making any serious effort toward making the relationships grow. Particularly in the case of Facebook users with an extremely large number of Facebook friends, many of these “friends” may be no more than a large group of passive spectators for the content displayed on one’s Facebook profile page. Research on the effects of Facebook friends on social judgment also provides a ground for our hypothesis. Tong et al. found that Facebook users with too few friends or too many friends are perceived more negatively than are those with “optimally large number of friends.” Such negative perception may drive potential supporters away from the extreme “friends-rich” and “friends-poor.” Therefore, the number of Facebook friends may have a positive association with social support only up to a certain point and possibly a negative association beyond that.

**H2: Number of Facebook friends will have a negative curvilinear relationship (i.e., inverted U-shape curve) with perceived social support.**

**Positive versus honest self-presentation, perceived social support, and subjective well-being**

As an SNS, Facebook enables users to communicate with other users through their profiles, private messaging, and commenting. These modes of communication, which are asynchronous and editable, allow people to engage in self-presentation in a selective manner. At the same time, because Facebook is inherently bound to users’ offline relationships, self-presentation on Facebook tends to be more constrained than that in anonymous online environments where there are almost no restrictions on how one presents him/herself to others.

Given the technological affordances and social constraints co-present in Facebook, self-presentation may take different forms depending on what aspects of the self are selected and highlighted. The literature on impression management in CMC (e.g., Tidwell and Walther and Kimmerle and Cress) and on self-presentation in online dating and points to two types of self-presentation strategies relevant to Facebook: positive versus honest self-presentation. On one hand, the high visibility of one’s behavior that can easily be identified by others may lead a Facebook user to engage in positive self-presentation, selectively revealing, “highly socially desirable” images of his/herself. On the other hand, as research on self-presentation in online dating settings has demonstrated, users anticipating long-term relationships with their Facebook friends may choose to present themselves honestly without selectively putting their best face forward. How, then, will these two self-presentation strategies affect Facebook users’ SWB? We hypothesize that while both positive and honest self-presentation may have beneficial effects on Facebook users’ SWB, the mechanisms behind these effects will differ.

Some scholars note that positive self-presentation in face-to-face interactions can bring affective benefits and put
people in a positive mood, as perceiving oneself in a positive state or focusing on one’s positive aspect may serve as a psychological buffer against negative life events. More specific to the context of SNS use, Toma suggests that Facebook users can emotionally benefit from self-affirmation, that is, a psychological process through which one acquires a buffer against information or events that are threatening to the self, through self-enhancing construction of user profiles. Along this line of reasoning, we hypothesize:

H3: Positive self-presentation will have a positive association with one’s SWB.

We also predict that honest self-presentation will have beneficial effects on SWB, but the mechanism might be different from that of positive self-presentation: the effect of honest self-presentation on SWB will be mediated by perceived social support. Research has demonstrated that bloggers who engage in deeper levels of self-disclosure (i.e., writing about their thoughts and feelings and sharing them with others openly and honestly) are more likely to receive social support and thereby experience higher levels of SWB. The positive association between self-disclosure via SNSs and SWB has also been found in a study conducted in South Korea. We speculate that honest self-presentation, which involves unfiltered self-disclosure, will play a key role in signaling Facebook users’ need for support to Facebook friends. Hence, honest self-presentation will increase the likelihood of receiving support, which will ultimately enhance Facebook users’ SWB. Thus:

H4: Honest self-presentation will have a positive indirect effect on SWB mediated by perceived social support.

Figure 1 shows our hypothesized path model.

Method

Participants and procedure

Recruitment messages, along with a hyperlink to the survey questionnaire, were e-mailed to undergraduate students registered with a participant pool at a large Midwestern university. Out of the 400 registrants who received the e-mail invitation, 391 students with a Facebook account participated in the survey for extra course credit (28.1% males, 71.9% females; \( M_{\text{age}} = 19.57, SD_{\text{age}} = 2.88 \)).

Measures

Number of Facebook friends (\( M = 428.62, SD = 240.53 \)) was measured by asking how many people were listed as “friends” in participants’ Facebook profiles. To increase the accuracy of responses, this question specifically asked participants to open another web browser to log into their Facebook accounts and report the exact number of Facebook friends as shown in their profile pages.

Positive self-presentation (\( M = 3.99, SD = 0.98 \)) was measured by a newly created index of six items designed to assess the extent to which participants selectively show positive aspects of themselves through Facebook (e.g., “I post photos that only show the happy side of me”; “I avoid writing about negative things that happen to me when I update my status”). Participants rated their agreement to these statements on a 7-point Likert scale, with 1 = “strongly disagree” and 7 = “strongly agree”. This index was reliable (Cronbach’s \( \alpha = 0.72 \)).

Honest self-presentation (\( M = 4.20, SD = 1.29 \)) was measured by a newly created index of four items designed to assess the extent to which participants honestly share their thoughts, feelings, and life events through Facebook (e.g., “I freely reveal negative emotions I feel—for example, sadness, anxiety, or anger”; “I don’t mind writing about bad things that happen to me when I update my status”). Participants rated their agreement on a 7-point Likert scale, where 1 = “strongly disagree” and 7 = “strongly agree”. This index was very reliable (Cronbach’s \( \alpha = 0.86 \)).

Perceived social support (\( M = 3.81, SD = 0.68 \)) was measured by a seven-item index. These items, adapted from the Interpersonal Support Evaluation List (ISEL) scale, were worded to specifically reflect the contexts of Facebook use (e.g., “Remembering my birthday and leaving Happy Birthday messages for me”; “Providing help with solving my problems”; “Congratulating me on my accomplishments”). Participants rated the availability of social support on a 5-point Likert scale, where 1 = “not available at all” and 5 = “extensively available”. This index was very reliable (Cronbach’s \( \alpha = 0.86 \)).

Subjective well-being (SWB: \( M = 5.28, SD = 1.17 \)) was measured by the four-item Subjective Happiness Scale (SHS) based on a 7-point Likert scale (e.g., “In general, I consider myself: 1 "Not a very happy person" vs. 7 "A very happy person"). This index was reliable (Cronbach’s \( \alpha = 0.86 \)).

Results

We used AMOS 6.03 to conduct a structural equation modeling analysis of the hypothesized path model (Figure 1). In evaluating the goodness of fit of the path model, CFI and NFI > 0.95 indicate a good fit, while a RMSEA value < 0.06 indicates a good fit. The curvilinear relationship between the number of Facebook friends and perceived social support (H2) was reflected in the model by inserting a squared term of the number of Facebook friends. When a linear term and a squared term are included in the same path model, multicollinearity between these two variables is very high and should be addressed. To resolve the multicollinearity issue, Lance’s procedure was used. First, a quadratic term—the
observed product variable—was created by squaring the number of Facebook friends. This variable was regressed on its component variable (i.e., the number of Facebook friends). Then, the unstandardized regression weights produced from the regression analysis was used for deriving the predicted number of the quadratic term. These predicted product scores were then subtracted from the observed product scores. The final results were residualized product scores that should be perfectly uncorrelated with the number of Facebook friends. Using these residual scores addressed the multicollinearity problem. For significance testing of direct and indirect effects, which cannot be done in AMOS, we used the SPSS macro program developed and updated by Preacher and Hayes.

The hypothesized model showed a good fit with the data: \( \chi^2 (5) = 5.05, p = 0.41, \text{NFI} = 1.00, \text{CFI} = 0.97, \text{RMSEA} = 0.005 \). Supporting H1, the number of Facebook friends and SWB showed a significant positive association (\( \beta = 0.13, p < 0.05 \)). When we further tested whether perceived social support was a mediator (RQ1) between the number of Facebook friends and SWB, the path from the number of Facebook friends and perceived social support was not significant (\( \beta = 0.06, p = 0.24 \)); the significance testing analysis further showed that the indirect effect was not significant (\( b = 0.0001, z = 1.28, p = 0.20 \)), indicating that perceived social support was not a significant mediator. Rather, we found that the quadratic term of number of Facebook friends had a significant negative association with perceived social support (\( \beta = -0.13, p < 0.01 \)), supporting H2, which predicted an inverted U-shaped relationship between the two variables.

As for self-presentation strategies, positive self-presentation showed a positive association with SWB (\( \beta = 0.12, p < 0.05 \)), supporting H3. Honest self-presentation, on the other hand, showed a significant positive indirect effect on SWB (\( \beta = 0.06, p < 0.01 \)) through perceived social support. The significance testing results showed that while the indirect effect was significant (\( b = 0.05, z = 3.28, p < 0.01 \)), the direct effect between honest self-presentation and SWB was not significant (\( b = -0.07, t = -1.61, p = 0.11 \)), which indicated a complete mediation by perceived social support; therefore, the data supported H4. Figure 2 shows the results of the path model analysis.

**FIG. 2.** SEM results of the hypothesized path model.

### Discussion

#### Summary of findings and implications

Our study revealed that the number of Facebook friends and self-presentation had positive associations with SWB but the underlying mechanisms varied with respect to the role of perceived social support provided by Facebook friends. First, perceived social support did not mediate the positive association between the number of Facebook friends and SWB. From this, we could infer that happiness derived from the number of Facebook friends may be due to visualization of Facebook friends, which reminds the users of their social connections, and to subsequent affirmation or enhancement of self-worth.

Interestingly, we found a negative curvilinear association (i.e., an inverted U-shape curve relationship) between the number of Facebook friends and perceived social support. Friendship “takes the form of various commitments centered around a personalized interest in the other person, along with time, energy, and other personal resources expended in their interaction.” Facebook friendships, just as traditional friendships, may serve as a meaningful source of social support, but only up to the point in which Facebook users can devote a sufficient amount of time and effort to developing and maintaining close connections with friends.

In relation to self-presentation issues, from the *direct* positive effect of positive self-presentation on SWB, we could infer that Facebook users’ happiness would be enhanced when their positive self-images are better preserved and affirmed through self-presentation. This finding could also be explained by positive illusion theory. The theory posits that biased or aggrandized perceptions of the self can help people cope with self-threatening or stressful situations and promote the ability to feel happy. It is possible that the act of positive self-presentation may closely reflect people’s tendency to hold positive beliefs about themselves, from which the psychological benefits of self-enhancement are derived.

By contrast, honest self-presentation had an *indirect* positive effect on SWB mediated by perceived social support. This result highlights the importance of self-disclosure, which plays a key role in development of social relationships in online environments. Facebook friends are more likely to provide support when they know that the user is in need for support; only when such need is properly communicated through self-disclosure facilitated by honest self-presentation are users likely to receive support from Facebook friends, which could be beneficial to their SWB. While hiding behind a smiling Facebook mask, one may still “feel” happy; such happiness, however, may not be rooted in meaningful social support provided by Facebook friends.

#### Limitations and suggestions for future research

Our study has several limitations. First, our use of cross-sectional data could limit validating the causal relationships proposed by the path model. Future studies should use longitudinal data for more rigorous examination of causal relationships. Second, although self-report SWB measures are widely used and considered adequate, these measures, as with other self-report measures, may be subject to errors or biases caused by response artifacts such as social desirability. Social desirability, a tendency to present one’s most
favorable image possible to others. They may pose a particular challenge to understanding the relationship between self-presentation and SWB. Because respondents with a strong social-desirability bias can also have a high need for positive self-presentation, it is possible that the positive association between positive self-presentation and SWB is partly due to social desirability as a response style. Findings of the existing research on the relationship between social desirability and SWB are not consistent: while some scholars have found that social desirability accounts for a significant amount of variance in SWB (e.g., Carstensen and Cone), others have not supported such a pattern (e.g., Diener and McCrae). That said, future research should investigate the extent to which positive self-presentation involves the social desirability bias, and should attempt to rule out such a bias when assessing the relationship between positive self-presentation and SWB. Lastly, the investigation should be extended to non-college-age samples. Facebook in its earlier phase primarily served college student populations, limiting its membership to those with valid college e-mail accounts. Since September 2006 when Facebook opened its membership to the general public, the number of younger and older age users has increased dramatically. Given this trend, it will be important to investigate how non-college-age users’ Facebook use behaviors are similar to, or different from, those of college-age users in relation to their SWB levels.

Disclosure Statement

No competing financial interests exist.

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