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# A Two-Dimensional Framework for Analyzing Facebook Use and Subjective Well-Being

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## Abstract

The present research aimed to classify 155 undergraduate students' Facebook activity using a two-dimensional framework: mode of Facebook communication and motive of Facebook use. The research also aimed to address the less explored issue of Facebook users' appraisals in addition to their Facebook use. The results indicate that satisfaction with both private and public social communication is positively linked to positive affect, but not to negative affect. Satisfaction with private social communication explained 9% of the variance in positive affect beyond that explained by perceived peer support. The results show the efficacy of the new two-dimensional framework: the Facebook Use and Satisfaction Scale.

## Keywords

Cyberpsychology, Facebook, online communication, social network site, social networking, social networking site

Facebook is currently the most popular online social networking site worldwide, with over two billion active users as of January 2018 (a 2,100-fold growth since 2004) (Statista, 2018). The number of active Facebook users far outnumbers those of other online social networking sites such as LinkedIn and Twitter ("Top 15 most popular," 2017). As of January 2018, Facebook has over two billion active users, representing a 2,100-fold growth since 2004 (Statista, 2018). On average, residents of urban settings are found to be characterized by greater use of social networking sites than those residing in suburban areas, who in turn tend to use social networking sites more than residents of rural settings (Pew Research Center, 2012).

Due to Facebook's popularity, there has been a concomitant escalation of Facebook studies conducted during the past two decades regarding the affordances of social networks (Sigerson & Cheng, 2018). A review of the literature revealed that majority of these studies focused on Facebook use, with the exception of only two that examined users' appraisals (Sheldon, 2008; Special & Li-Barber, 2012). Given that Facebook can create both desirable and undesirable experiences for users (Christofides, Muise, & Desmarais, 2012), the study of Facebook user satisfaction should be as important, if not more important, than the study of Facebook usage. The dearth of studies on this topic may be due to the lack of appropriate instruments to study this construct. A major aim of the present research is thus to fill this knowledge gap by developing and validating a new measure for assessing both Facebook use as well as users' satisfaction.

Online communication is a highly complex concept that can be studied using a dimensional

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**Figure 1. A two-dimensional framework of Facebook use**

		Mode of Communication	
		Public	Private
Motive of Use	Social	Events Notes Wall	Chat Messaging
	Informational	Events Group/Page Notes Wall	Chat Messaging

approach (Wright & Webb, 2011). Given the diversity in the characteristics of Facebook features (Vander Veer, 2011), some features may bear stronger associations with psychological well-being than others. Hence, a further aim of the present research is to propose a novel framework that organizes an array of Facebook features in order to observe their differential psychological effects on subjective well-being. This framework comprises of two dimensions: *mode of Facebook communication* and *motive of Facebook use* (see Figure 1).

#### ***Mode of Facebook Communication: Public vs. Private Communication***

From a structural perspective, Facebook use can be studied through its specific features, which can be broadly categorized into two modes of communication: public (i.e., one to many) and private (i.e., one to few). Facebook features are classified as public if they are visible to anyone in the default view setting. Although users can still customize the privacy setting, the primary aim of using public Facebook features is to openly share information, thoughts, and/or feelings with a wider audience. For instance, all Facebook profiles have a Facebook Wall, which provides space for posting content for others to view such as messages and videos (Vander Veer, 2011). Facebook Events and Facebook Notes are similar to Facebook Wall but their content is more specific such as social activities and self-reflection (Vander Veer, 2011).

Facebook features are classified as private if the users' intention is to engage in more personal dialogs with specific interactants

(Davies, 2012). For example, Facebook Chat allows users to interact with each other in real time (Vander Veer, 2011). Facebook Messaging differs from Facebook Chat because it allows the transmission of information in real time or not (Vander Veer, 2011).

#### ***Motive of Facebook Use: Social vs. Information Gratification***

Adopting a functional perspective, the social-cognitive theory of Internet uses and gratifications postulates that Internet users actively engage in online activities to achieve various types of gratifications such as affiliation and information acquisition (LaRose & Eastin, 2004). Studies have shown that users utilize Facebook to reinforce relationships already established in their offline world; whether it be university students updating their Facebook Wall so that friends can know their latest "status" and current experiences (Yang & Brown, 2013), or international students utilizing Facebook Chats and Messaging to stay connected with family members and friends abroad (Sin & Kim, 2013). These studies show that Facebook communication can serve to attain social gratification.

Furthermore, Facebook users can also join common-interest user groups, which constitute of self-selecting clusters of individuals with shared interests or goals (Ridings & Gefen, 2004). For instance, the Facebook page "PictureCorrect Photography Tips" has been created for people who are interested in learning or improving their photography skills. Facebook users join this virtual group to gain

expert advice and exchange information with other members. In this respect, Facebook communication can serve to attain the alternative function of information gratification.

## Methods

**Participants.** Target participants were active Facebook users who browsed Facebook or Facebook Messenger at least once a day. The data of eight participants who failed to meet this criterion were discarded. The final sample consisted of 155 Chinese students recruited from several universities or community colleges (43% male; Mean age = 21.02 years,  $SD= 1.03$ , age range = 19-25 years). All participants took part in the study voluntarily.

### Measures.

**Facebook use and satisfaction.** The Facebook Use and Satisfaction Scale was constructed by the author's research team. At the item development stage, a pool of items were extracted through content analysis (Krippendorff, 2004). Items that were deemed redundant were combined. A panel of judges, comprising experts in communication science and social psychology, reviewed the content validity by evaluating the initial item pool. The judges also independently commented on each item's relevance to Facebook activities as well as its meaning, clarity, and choice of wording.

As a result, the 22-item scale consisted of three subscales: private social communication (nine items in total, which included "Messages with close friends" and "Online chat with friends who have lost contact", scores ranging from 9 to 54); public social communication (eight items in total, which included "Participate in Facebook events unrelated to studies/work" and "Post Wall messages expressing one's opinion", scores ranging from 8 to 48); and public information acquisition (five items in total, which included "Obtain advice or suggestions" and "Seek information related to studies/work", scores ranging from 5 to 30).

The scale had two sections that assessed Facebook use and Facebook satisfaction. In the second section of the questionnaire, participants evaluated their satisfaction with each Facebook activity using a 6-point scale, ranging from 1 ("very dissatisfied") to 6 ("very satisfied"). The

frequency score of each item was multiplied by its satisfaction score so that more frequent engagement in a particular Facebook activity would carry greater weight than those that were

**Table 1. Participants' Facebook use information.**

Item	Number/%
<b>Active Facebook users</b>	100%
Average number of Facebook friends	407
Average number of strangers befriended	33
<b>Number of strangers befriended</b>	
0	35%
Less than 10	29%
10 or more	36%
<b>Location of Facebook use</b>	
At home	84%
Public area	28%
<b>Device for Facebook use</b>	
Computer/Tablet computer	100%
Mobile phone	37%
<b>Time spent in Facebook communication</b>	
Less than 1 hour	66%
1 hour or more	34%
<b>Time spent in face-to-face communication</b>	
Less than 1 hour	41%
1 hour or more	59%

used less frequently or were never used. As the subscales differed in the number of items, their scores were averaged for ease of comparison.

### Perceived social support.

The Social Support Appraisal Scale (Vaux et al., 1986) was used to assess subjective appraisals of social support in the offline world. The peer and family support subscales comprised of eight and seven items, respectively. Some sample items of this scale were "My family cares for me very much" and "I can rely on my friends." A higher subscale score can indicate the perception of greater support from peers or family members. The scores ranged from 15 to 60. In this study, the scale displayed good internal consistencies (Cronbach's  $\alpha = .84$ ).

**Table 2. Descriptive statistics and correlation matrix of all variables**

Variable	2	3	4	5	6	7	M	SD	$\alpha$
Private social communication	.57**	.55**	.36**	-.17	.20	.09	8.88	4.20	.88
Public social communication	--	.55**	.32**	-.05	.26**	.14	7.78	4.39	.90
Public information acquisition		--	.23	-.16	.20	.02	6.46	3.85	.74
Positive affect			--	-.13	.30**	.16	30.48	6.29	.86
Negative affect				--	-.10	-.01	27.49	7.12	.86
Perceived peer support					--	.44**	21.51	2.53	.84
Perceived family support						--	25.83	3.31	.81

\*\*Statistically significant correlation coefficients after Bonferroni correction at a global alpha of .05 (corrected  $p$  value of  $.05/21 = .0024$ ).

#### *Positive affect and negative affect.*

Positive affect and negative affect were measured by the Positive and Negative Affect Schedule scales (Watson, Clark, & Tellegen, 1988). Each of these subscales contained 10 items. Examples of the positive affect subscale were "interested" and "determined," whereas examples of the negative affect subscale were "distressed" and "hostile." A higher subscale score indicates a higher level of positive or negative affect. Each of the subscale scores ranged from 10 to 50. The internal consistencies of both subscales were also good in the present sample (Cronbach's  $\alpha = .86$  and  $.86$ ).

#### *Background information of Facebook use.*

Questions were devised to gather information regarding Facebook use, and the results of this section of the questionnaire are summarized in Table 1.

*Procedures.* The data collection session took place in a classroom setting where a research assistant administered the survey to participants. After a short orientation about the study, participants were asked to give informed consent before completing a set of questionnaires. Upon completion of this task, participants were thanked and debriefed.

## **Results**

The psychometric properties of the newly developed scale were the first to be examined. A principal component analysis was performed with oblimin rotation to explore the underlying factor structure. The Kaiser-Meyer-Olkin measure of sampling adequacy (.90) and the significant Bartlett's test of sphericity ( $p < .0001$ ) showed that it was appropriate to perform this analysis.

The three-factor solution was deemed optimal because it met three psychometric criteria: scree test, eigenvalues  $> 1$ , and the variance accounted for. All the values were of an acceptably high magnitude. Both items failed to load on any factor and were thus removed. All three subscales were internally consistent in this study (Cronbach's  $\alpha = .88$ ,  $.90$ , and  $.74$ , respectively). As a whole, these results demonstrated good reliability and structural validity for the new scale.

A generalized linear model was used to scrutinize within-participant effects of the type of Facebook activities, between-participants effects of gender, and their interactions. Results only revealed a significant main effect of type,  $F(2, 152) = 28.60, p < .0001$  (partial  $h^2 = .27$ ). Such

results showed that participants generally reported the highest level of satisfaction with private social communication, followed by public social communication and public information acquisition, respectively. As the gender effects were not significant, this demographic variable was excluded in subsequent analyses.

Table 2 shows the descriptive statistics and correlation matrix for the pooled sample. Positive affect was positively related to satisfaction with both private and public social communication, but its association with satisfaction with public information acquisition was marginally significant. However, all three Facebook factors were unrelated to negative affect. These findings indicate that satisfaction with social communication, regardless of the mode of communication, is linked to more positive affective components of subjective well-being.

Among the three Facebook factors, only satisfaction with public social communication was significantly related to perceived peer support, but this positive link was modest in strength. Such results indicate that young Facebook users who are more satisfied with public social communication tend to perceive greater peer support. However, none of the Facebook factors were associated with perceived family support. This finding is understandable given that young people are more likely to use Facebook to communicate with friends rather than family members. As a whole, these results suggest that there is no conceptual overlap between Facebook satisfaction and perceived social support in general.

Hierarchical regression analysis was performed to further discern possible independent effects of the Facebook factors and perceived peer support on positive affect. All the skewness and kurtosis values were within the acceptable range (i.e.,  $\pm 2SE$ ), indicating that the assumption of normality was not violated. All the variables were centered, and interaction terms were created by a simple multiplication of the centered variables (Cohen & Cohen, 1983). The collinearity statistics of the tolerance and the variance inflation factor were within acceptable levels ( $> .40$  and  $< 2.5$ ), indicating an absence of multicollinearity effects.

Perceived peer support was first entered into

the regression model, and this variable was significantly related to positive affect,  $\beta = .30$ ,  $SE = .08$ ,  $p < .0001$ . Perceived peer support accounted for 9% of the variance in positive affect. All three Facebook factors were entered in the next step. Only private social communication was significantly related to positive affect after the effects of perceived peer support had been partialled out,  $\beta = .26$ ,  $SE = .10$ ,  $p = .007$ . Private social communication explained an additional 9% of the variance in positive affect,  $DF(1, 153) = 17.07$ ,  $p < .0001$ .

## Discussion

This paper proposes a two-dimensional framework that categorizes Facebook features in terms of both mode of communication and motive of use. Factor analysis indicates that the majority of Facebook activities can be classified into three broad types: private social communication, public social communication, and public information acquisition. Young Facebook users tend to report higher levels of satisfaction with private social communication than the other two public types of Facebook communication. One major implication of these findings is that the public and private mode of Facebook communication should be clearly distinguished and their differential effects on subjective well-being should be examined.

In Christofides et al.'s (2012) study regarding problems with using Facebook, young participants reported concerns about privacy issues and cyberbullying (in other words, public rather than private Facebook communication). Some Facebook users recalled receiving hostile responses after making Wall posts. Others found it embarrassing for their Facebook friends to publicly post something (e.g., photo, message) that they would rather not share. Pew Research Center's (2012) large-scale survey further suggested an emerging trend of "Facebook fatigue" in which youngsters tend to view the ubiquity of Facebook as troublesome and so prefer using more private communication such as *WhatsApp* and *LINE*. Consistent with these findings, the present research indicated that young Facebook users report greater satisfaction from private rather than public Facebook communication.

Apart from social communication, the

present findings also found that young users report using Facebook to acquire information, and both motives of Facebook use are positively linked with positive affect. These findings provide partial support for Weiser's (2001) bifunctional model of media use. Although the present findings are in line with the hypothesized positive effects of information acquisition that fosters social integration and psychological well-being, they still seem inconsistent with the adverse effects of socio-affective regulation that reduces social integration and psychological well-being. Such a discrepancy may be due to the complex nature of social communication with both known and unknown people. In Weiser's (2001) study, online social communication includes the maintenance of contacts with existing friends and befriending strangers. However, the present study found that Facebook was mostly used to sustain existing relationships rather than establish new ones. Yang & Brown's (2013) study highlights the importance of distinguishing between relationship formation and relationship maintenance, with the former linked to unfavorable social outcomes while the latter was linked to favorable ones. Considering that the present study's findings showed that participants were more likely to use Facebook for relationship maintenance rather than relationship formation, this would explain why using Facebook for social communication was found to be associated with subjective well-being.

The limitations of the present study are important to consider. The first is that the sample of the study was confined to young adults and the findings may not be generalizable to Facebook users of other age groups. Grossman's study (2010) found that adolescents and young adults mainly used Facebook to stay connected with friends, whereas middle-aged adults mainly used Facebook to keep in touch with family members. Future studies can evaluate the generalizability of the present findings across various age groups.

Another limitation was that this research only studied Facebook. This was due to Facebook currently being the most popular social networking site according to number of users ("Top 15 most popular," 2017). A vast array of online social networking sites is currently

available and more will no doubt emerge in the near future. Some of these sites serve similar functions, such as hi5 and Myspace; whereas others serve unique functions such as Flickr (a social network for photography) and SocialVibe (a social network for charity). Future research can study a number of online social networks to compare the psychological outcomes related to online social media use.

## Conclusion

The present research shows that Facebook activities can be classified into private social communication, public social communication, and information acquisition. Young Facebook users tended to perceive greater satisfaction with private communication compared to public communication. Participants who were more satisfied with social communication on Facebook, regardless of the mode of communication, tended to report higher levels of positive affect; these positive links were found to be weaker for public information acquisition. Such results provide empirical support for the proposed two-dimensional framework, indicating the importance of distinguishing Facebook activities in terms of the mode of communication (private vs. public) and the motive of use (social vs. information gratification).

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## Declaration of Conflicting Interests

The author(s) declared that there were no conflicts of interest with respect to the authorship of the publication of this article.

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