Summer 6-27-2016

THE FORMATION OF FACEBOOK STICKINESS: THE PERSPECTIVES OF MEDIA RICHNESS THEORY, USE & GRATIFICATION THEORY AND INTIMACY

Yu-Hsun Lin
Ming Chi University of Technology, yhsunlin@gmail.com

Wen-Hsuan Lee
Ming Chi University of Technology, hsuan@mail.mcut.edu.tw

Chu My Giang
Ming Chi University of Technology, chugiangmarketer@gmail.com

THE FORMATION OF FACEBOOK STICKINESS: THE PERSPECTIVES OF MEDIA RICHNESS THEORY, USE & GRATIFICATION THEORY AND INTIMACY

Yu-Hsun Lin, Department of Business and Management, Ming Chi University of Technology, New Taipei City, Taiwan, yhsunlin@gmail.com

Wen-Hsuan Lee, Department of Business and Management, Ming Chi University of Technology, New Taipei City, Taiwan, hsuan@mail.mcut.edu.tw

Chu My Giang, Department of Business and Management, Ming Chi University of Technology, New Taipei City, Taiwan, chugiangmarketer@gmail.com

Abstract

With the advent of web 2.0, social networking sites (SNSs) have mushroomed. Gaining competitive advantage by retaining users in the SNS is an important issue for operators. By conceptualizing stickiness as the state of individuals' prolong stay on the SNS, the aim of this study is to explore the process of formatting SNS stickiness in the context of Facebook from the perspectives of media richness theory, uses & gratifications (U & G) theory, and intimacy.

Data was collected from the northern Taiwan University. A total of 187 questionnaires were selected for the data analysis. The results support the following conclusions: 1) the media richness provided by the Facebook website directly influences users' gratifications, including interpersonal utility and social utility; 2) the intimacy is an important mediating variable involving in the process of formatting Facebook stickiness; and 3) Facebook stickiness is indirectly influenced by gratifications, interpersonal utility and social utility, which exerts its effect through intimacy.

By integrating the theoretical perspectives of media richness theory, U & G theory with intimacy into the process model of formatting Facebook stickiness, this study provides both academics and practitioners with insight into how Facebook stickiness form and enable SNS manager to retain their users.

Keywords: gratifications, intimacy, media richness, stickiness, social networking sites (SNS).

1 BACKGROUND AND MOTIVATION

With the advent of web 2.0, social networking sites (SNSs) such as Facebook, Myspace and Cyworld has changed the way of interpersonal interaction in computer-mediated communication (Chang & Zhu, 2012; Rau, Gao, & Ding, 2008). Among SNSs, Facebook is the most the popular one. Recently, the growth of the numbers in SNSs users has undergone rapid the proliferation in the past few years and now is slowing down (Chang & Zhu, 2012). Thus, retaining the users staying at the website has become a conspicuous issue for SNS operators to persevere and enhance their competitiveness. It is critical for researchers and practitioners to understand what factors enable the SNS to retain the users and continue to hold the attraction for users to prolong stay the website than other SNSs.

Previous Facebook research in the field of IS primarily focused on the factors affecting Facebook use intention or continuance intention (Chang & Zhu, 2012). However, the notion of SNS continuance intention borrowed from the field of Information system (IS) primarily focuses on behavioral intention and solely reflect the possibility that individual use SNSs in the future (Lee & Kwon, 2011). The behavioral aspects of how users often continuously stay on SNSs such as Facebook still aren't well understood in previous research on the SNS continuance behavior. In this regard, the concept of stickiness, refer to the willingness of individuals to linger on the website (Karahanna, Seligman, Polites, & Williams, 2009; Lin, 2007), was employed in this study to delineate the behavioral patterns of individuals adhering to Facebook and further to explore its formation process.

What factors enable individuals manifest the behavioral stick to SNSs, especially in the context of Facebook? Compared with studies on factors affecting Facebook use intention or continuance intention (e.g. Cheung, Chiu, & Lee, 2011; Hughes, Rowe, Batey, & Lee, 2012; Lee & Kwon, 2011), relatively few studies have appeared to explore the factors affecting Facebook stickiness. One exception is that Yang and Lin (2014) explore what factors drive individuals to stick to the Facebook website. Drawing on value-based view, they found that hedonic value is the most important factors that can enable users to stick to Facebook website use (Yang and Lin, 2014). Specifically, the trust may play important moderating role in the effect of values provided by the Facebook website on Facebook stickiness (Yang & Lin, 2014). The work of Yang and Lin (2014) leads the issue of what other factors contribute to the formation of Facebook stickiness still remain to be answered and the formatting framework of Facebook stickiness proposed based on some theories is worth to be explored.

Recently, research in the context of SNSs has identified that intimacy, refer to individuals' emotional bonding with the specific SNS, as an important factor associated with the intention of continuance use (Lee & Kwon, 2011) and posting behaviors (Rau et al., 2008). Intimacy is a critical variable for social networking (Lowenthal & Haven, 1968). If Facebook users established an emotion bounding with Facebook, they may feel free, enjoy the time, spend more times using Facebook, and entail the behavioral stick to the Facebook website for social networking. Researchers have disclosed that intimacy, in the term of customer-firm affection, is related to the customer loyalty (Yim, Tse, & Chan, 2008) and the customers with the site stickiness entail their loyalty to the site (Karahanna et al., 2009). It is reasonable to believe that intimacy perceived by Facebook users can stimulate their behavioral stickiness to the Facebook website. However, one may argue that the concepts of intimacy and stickiness show the certain similarity. In this regard, intimacy is an individual' emotional state of having a close relationship with the significant other, which is not as the same as stickiness reflecting the individuals' behavioral pattern spending more time and adhering to the Facebook website. Intimacy with Facebook is likely to be related to Facebook stickiness.

While intimacy may affect the formation of Facebook stickiness, Media richness theory has been acknowledged as one predominant theory to explain how and why individuals select and use a particular medium to communicate and interact with others (Fernandez, Simo, Sallan, & Enache, 2013; Timmerman, 2002; Webster & Trevino, 1995), which may provide foundations for explaining the formation of Facebook stickiness. Media richness theory assumed that the capacity or the richness of a

medium, including offering fast feedback, multiple cues through different communication channels, different types of language, personalizing messages (Fernandez et al., 2013), affect users' selection and use of specific media (Fernandez et al., 2013; Timmerman, 2002). Media richness theory is one of the most studied in the field of the section and use of communication media in organizations (Fernandez et al., 2013), however, media richness theory fails to explain what factors may intervene in the formation of media continuous use such as Facebook stickiness. Uses and gratifications theory (U & G) may fill this gap and provide foundations to explain what factors may involve in the formation of Facebook stickiness.

The U & G theory is goal-directed and assumed that users actively search for the communication media to come up to expectation, and actively select the mass media and media content to satisfy their personal need (Zhang, Tang, & Leung, 2011). From the perspective of U & G theory, users can gain gratifications from the media use, which will determine user whether users will continue to use or further to stick to the specific media (Chen, 2014). Guided by U & G theory, Chen (2014) disclosed that in web-based e-learning (WBEL) environment, learning gratification is positively related to proactive stickiness with WBEL. It is reasonable to postulate that users' gratifications gaining from Facebook use will facilitate their stickiness to the Facebook website.

Taken the perspectives of media richness theory, U & G theory and intimacy as the whole, the study proposes a process model of Facebook stickiness. We argue that integrating these theories can help to explain the formation of Facebook stickiness. U & G theory speaks to how individuals search for gratifications and gain the gratifications from using Facebook. However, without media richness provided by the Facebook website, Facebook users will not initial and early use the Facebook website for online interaction and communication with others. Media richness speaks to how individuals initial select and use an SNS such as Facebook. However, without gaining gratifications from using Facebook, individuals will not create an intimacy with Facebook. Therefore, this study highlights the important role of intimacy in the formation of Facebook stickiness. We suggest that media richness of Facebook website may influence the users' gratifications obtained from using Facebook, which fosters users' intimacy with Facebook and in turn further lead to users' Facebook stickiness. Thus, the aims of this study are to develop an integrated conceptual framework based on media richness theory, U & G theory, and intimacy to explore the formation of Facebook stickiness. This study may contribute to the Facebook literature in several ways. First, from the perspective of U & G theory, this study demonstrates how gratifications obtained from the use of Facebook enables individuals to stick to the Facebook website. Gratifications in the forms of interpersonal utility and social utility were employed to predict individuals' intimacy with Facebook and Facebook stickiness. Second, from the perspective of media richness theory, this study explains how media richness facilitates gratifications obtained from using Facebook. The concept of media richness was employed to explain Facebook gratifications. Third, this study shows how the intimacy with the Facebook perceived by users intervenes in the formation of Facebook stickiness. In sum, this study integrates the three different theoretical perspectives outlined above. It provides a richer model to better examine the formation of Facebook stickiness. Such a model building may provide a more complete understanding of how the process of use and gratification occur and in turn lead to individuals' Facebook stickiness.

2 THEORY BACKGROUND AND HYPOTHESIS DEVELOPMENT

This study proposes the following research model to investigate the formation of Facebook stickiness (see Figure 1). As shown in Figure 1, media richness theory and U & G theory enact two drivers for intimacy and Facebook stickiness. Details on the relationships between the proposed variables are described in the following paragraphs.

2.1 Facebook Stickiness

Stickiness is the behavioral patterns that can explain the behavioral aspect that an individual continuously uses an SNS such as Facebook. Scholars in the marketing research indicated that

stickiness is an individual's dependence on the website (Xu & Liu, 2010), which is the ability of websites to draw and retain customers (Davenport, 2000). When an individual sticks around the website, one may show her/his loyalty to the website, regards the website as the first choice to online interaction with others, and have the willingness to return visit the website (Karahanna et al., 2009). Given the lack of systematic research on the behavioral aspect of users continuously staying on SNSs and the importance of retaining SNS user, the behavioral aspect of individuals continuingly using SNSs should pay more attention and worth to explore its formation process.

The following section addresses how the individuals' perceived media richness of the Facebook website impact on their gratifications gained from Facebook use, which in turn influences intimacy and Facebook stickiness.
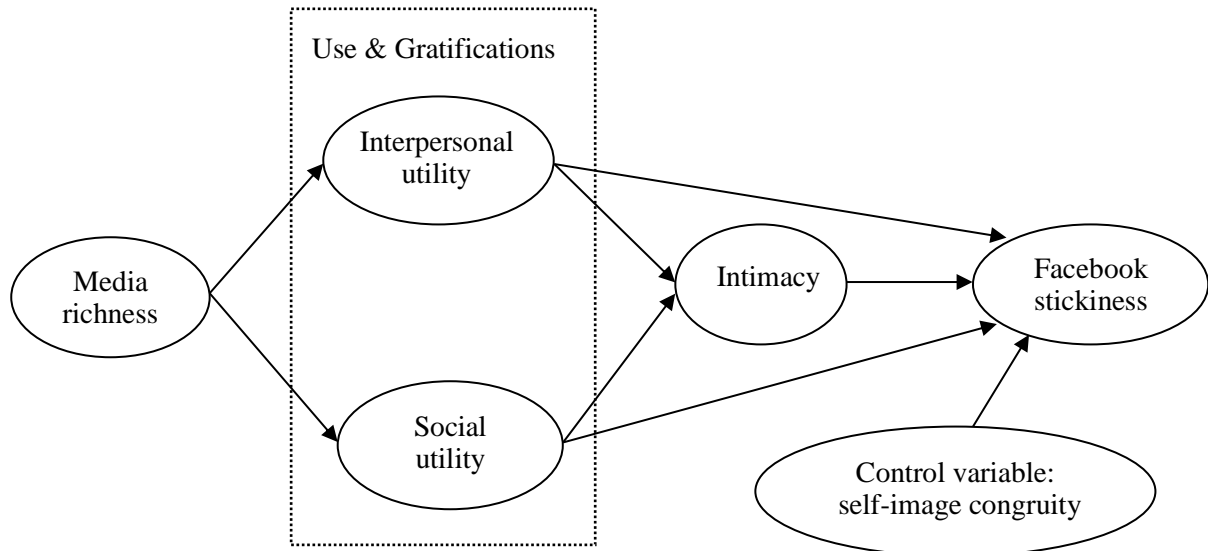

Figure 1.   Proposed research model.

2.2   Media richness and Facebook Gratifications

Media richness theory argued that the individuals' perceived media richness is determined by the ability of the media to provide users with immediate feedback, sent multiple cures via multiple communication channels, use different types of languages to communicate, and deliver personalizing message (Fernandez et al., 2013), which will affect them in the selection and use of the media (Timmerman, 2002). Accordingly, as the media richness provided by Facebook is more close to the naturalness of face-to-face medium, Facebook users are more likely to be able to freely and rapidly interconnect with others, thereby gaining the benefits of ubiquitous online interpersonal communication and social interaction via Facebook. Thus, the richness of Facebook website is likely to provide users' gratifications, including interpersonal utility and social utility.

Researchers reported that users could gain gratifications from Facebook use, including social surveillance, recognition, emotional support, network extension, entertainment, and network maintenance (Zhang et al., 2011). Accordingly, gratifications gained from Facebook use in this study are divided in three distinct categories: (1) interpersonal utility: the use of Facebook is to search for emotional support and recognition; (2) social utility: the use of Facebook is to keep social surveillance, network extension, and network maintenance; and (3) hedonic utility: the use of Facebook is to find enjoyment. Among these three gratifications gained from Facebook use, hedonic utility, compared with interpersonal utility and social utility, is less likely to be fostered by the media richness of Facebook. The rationale is that the media richness theory primarily focuses on explaining the media use for social interaction and interpersonal communication, and it should be unable to bring hedonic values for Facebook users. As previously mentioned that the media richness of Facebook may

influence interpersonal utility and social utility, we propose the following two hypotheses to examine whether the media richness of Facebook is related to interpersonal utility and social utility respectively.

H1. The Media richness of the Facebook website perceived by individuals is positively related to interpersonal utility.

H2. The Media richness of the Facebook website perceived by individuals is positively related to social utility.

2.3   Facebook Gratifications and Facebook Stickiness

Although the media richness theory can explain why individuals first adopt the media to communicate with others, the issues of whether and how media richness perceived by individuals influence the continuous use, such as Facebook stickiness, in still remain vague and worthy to be further explored. Perhaps individuals without gratifications obtained from the Facebook use are not likely to continuously use Facebook. In this regard, U & G theory suggests that individuals may proactively seek for specific media to satisfy their needs, such as interpersonal utility and social utility. While Facebook users can gain satisfactions such as interpersonal utility and social utility from using Facebook, they are likely to be inclined to prolong stay on the Facebook website. Prior research in e-learning has found that learning gratifications from web-based English learning (WBEL) environment is related to individuals' stick to WBEL (Chen, 2014). Thus, gratifications perceived by individuals may influence their stickiness to the Facebook website. Accordingly, the following two hypotheses are proposed to examine the effects of interpersonal utility and social utility on Facebook stickiness.

H3. Interpersonal utility gained from Facebook use is positively related to Facebook stickiness.

H4. Social utility gained from Facebook use is positively related to Facebook stickiness.

2.4   Facebook Gratifications and Intimacy

The notion of intimacy is employed to describe a specific type of feeling (Cordova & Scott, 2001), which is a critical variable for interaction (Lowenthal & Haven, 1968). Tolstedt and Stokes (1983) indicated that intimacy refers to the feelings of closeness and emotional bonding with the significant other. While intimacy has been established, one will take an intense liking and offer moral support to the significant other and even tolerate flaws in the significant other (Tolstedt & Stokes, 1983). This study took a specific interest in the role that intimacy plays in the formation of Facebook stickiness. Intimacy in this study therefore is considered to be an essential aspect that one establishes emotional bonding and maintains intense relationships with Facebook. While individuals gained interpersonal utility and social utility provided by Facebook, they are able to freely interconnect with others and may rely on Facebook to online social interaction. As Facebook becomes as an important part of daily life for users, Facebook users may treat Facebook as their virtual friend and willing to establish closely related with Facebook. Thus, media richness perceived by individuals may influence their intimacy with SNSs. Hence, the following hypothesis is proposed.

H5. Interpersonal utility perceived by Facebook users is positively related to their intimacy with Facebook.

H6. Social utility perceived by Facebook users is positively related to their intimacy with Facebook.

2.5   Intimacy and Facebook Stickiness

Intimacy is an essential feature of interpersonal relationship, which stimulates people to seek warm, close, and validating experiences (Rau et al., 2008). Intimacy in this study is described as individuals' feelings of closeness and emotional bonding with the Facebook. Previous research revealed that the intimacy relates to the individual' continuance intention in the context of web-based services (Tolstedt & Stokes, 1983). Rau et al. (2008) further found that intimacy facilitates posting frequency in the context of SNSs. Thus, individuals perceive intimacy with Facebook is likely to

motivate the individual's continuance intention for Facebook use and therefore foster individual to linger on the SNS. Thus, the following hypothesis is proposed to examine the impact of intimacy on Facebook stickiness.

H7. Individuals perceive intimacy with Facebook is positively related to Facebook stickiness.

2.6 Intimacy as a Mediator between Gratifications and Facebook Stickiness

As mentioned above, users' gratifications gained from Facebook use, including interpersonal utility and social utility, are not only likely to be directly related to their intimacy with Facebook website but also have the impact on Facebook stickiness. Additionally, intimacy in this study is also theorized to casually link to Facebook stickiness. Although, interpersonal utility and social utility have directly affects on Facebook stickiness, one may postulate that intimacy may mediate the interpersonal utility-Facebook stickiness relationship and the social utility-Facebook stickiness relationship. The rationale is that granting Facebook having interpersonal utility and social utility, Facebook users without establishing an emotional bonding with Facebook website will not entail their loyalty to the Facebook website and not express their willingness in surfing the Facebook website continuously. Intimacy therefore is a necessary conditional factor that may mediate the effect of interpersonal utility and social utility on Facebook stickiness. Accordingly, the following two hypotheses are proposed to examine whether intimacy mediates the effect of interpersonal utility and social utility on Facebook stickiness.

H8. Facebook users' intimacy with the Facebook website mediates the effect of interpersonal utility perceived by Facebook users on Facebook stickiness.

H9. Facebook users' intimacy with the Facebook website mediates the effect of social utility perceived by Facebook users on Facebook stickiness.

The concept of self-image congruity borrowed from self concept theory may play a potential factor affecting the formation of Facebook stickiness. Self-image congruity refers to the congruity between an individual' self-image and product image (Kang, Hong, & Lee, 2009). It has been found to affect the consumer behaviors (Sirgy, 1982). Consumers assess the product value by the product image and match the product image to their self-image (Kang et al., 2009). Sirgy (1985) has found that the congruity between the product image and a consumer' self-image offer his/her purchase motivation and enhance the loyalty intention. Extending the idea, Kang et al. (2009) have evidenced the weaker effect of self-image congruity on users' continuance intention for online services in the context of Cyworld. Considering the effects of self-image congruity on users' continuance intention and loyalty intention, one may postulate that self-image congruity may lead to the formation of Facebook stickiness. Thus, self-image congruity was included in the proposed model as a control variable to examine its effect on Facebook stickiness.

3 RESEARCH METHOD

The aim of this study is to investigate the formation of Facebook stickiness. Based on the perspectives of media richness theory and U & G theory and intimacy, Facebook's level of richness perceived by an individual is theorized to stimulate user gratifications obtain from the use of Facebook including interpersonal utility and social utility, which in turn affect intimacy and Facebook stickiness. A survey will be conducted in the context of Facebook to measure the following six constructs proposed in the research model: (1) media richness, (2) interpersonal utility, (3) social utility, (4) intimacy, (5) self-image congruity, and (6) Facebook stickiness.

3.1 Procedure

The pilot test was conducted to refine the formal questionnaires. A total of 300 formal questionnaires were distributed to university students in the northern Taiwan. A total of 221

questionnaires was returned, yielding a response rate of 93.33%. Of these, 221 questionnaires were valid. The samples consisted of 99 males (44.8%) respondents and 121 females (55.2%) respondents. Because our target subjects were those users sticking to Facebook, we reserved the questionnaires in which the respondents answer the frequency of Facebook usage is equal to or above one time per day. A total of 187 questionnaires meets the threshold and were selected for the following data analysis. Of these, 35 respondents answered they use Facebook with one time per day and 152 respondents replied they use Facebook with several times per day." A total of 34 respondents answered the usage frequency of Facebook is below one time per day and were discarded.

3.2　Measures

All scale items were measured using a five-point Likert scale ranging from one ("strongly disagree") to five ("strongly agree"). Measurement items of six constructs proposed in the research model were listed in Table 1. Four dimensions constitute a medium level of richness, which includes the abilities of Facebook to (1) immediate feedback, (2) transmit multiple cues, (3) deliver natural language, and (4) personalized focus (Trevino, Lengel, & Daft, 1987). The scale items of Media richness, including eight items, were adapted from the work by Fernandez et al. (2013) to reflect the Facebook's level of richness. The sample item for was "Facebook feature allows us to give and receive timely feedback".

Gratifications are a users' reaction to the experience of media use and therefore lead to their tendency to engage in the specific media use (Weibull, 1985). Four items were adapted from the work of Hwang and Lombard (2006) to measure interpersonal utility. The sample items for interpersonal utility were "I use Facebook because I need someone to talk to or be with" and "I use Facebook to feel less lonely". Six items for measuring social utility were adapted from the study of Hwang and Lombard (2006). The sample items for social utility were "I use Facebook to exchange information with people I know" and "I use Facebook to keep in touch with friends or family members".

Intimacy is not only the essentially emotional feature of social networking (Rau et al., 2008), but also enacts as the important role in maintaining the interpersonal relationship (Lee & Kwon, 2011). Tolstedt and Stokes (1983) pointed that intimacy is individuals' the emotion involving intense liking to the significant other (Tolstedt & Stokes, 1983). Compared with the "consumer-consumer" intimacy, individuals' intimacy with Facebook were also expected to occur when they communicate with others via using Facebook. In other words, this study mainly focuses on the "consumer-service" intimacy, in term of intimacy with Facebook, in relation to Facebook stickiness. We suggest that this specific type of intimacy is likely to occur when individuals use Facebook for online social interaction. Therefore, intimacy in this study is defined as individuals' feelings of emotional closeness and bonding with the Facebook website. The five scale items developed by Lee and Kwon (2011) were considered in measuring the concept of intimacy with Facebook. To avoid the candidate items that reflect the dimension of "consumer-consumer" intimacy confounding the measurement of intimacy with Facebook, the two items developed by Lee and Kwon (2011) were dropped and the remaining three items were refined to measure the concept of intimacy with Facebook. The three items for measuring intimacy with Faebook were "I enjoy my time on Facebook and feel well at ease", " I think of Facebook as a friend of mine", and " I feel a sense of intimacy with Facebook".

Stickiness is the behavioral aspects that an individual linger on SNSs. Thus, the three items developed by Lin (2007) were refined to measure the individual state of having a tendency to spend longer time lingering on Facebook. The items included "I would stay a longer time on Facebook than other websites", "I intend to prolong my stay on Facebook", and "I intend to link to Facebook every time I am online". Additionally, in the context of online hotel reservations, Karahanna et al. (2009) further indicated that the customers with the site stickiness may entail the loyalty to the site and regard the site as their starting channel for interaction with the hotel when they plan a trip or an event. It is reasonable to believe that individuals with Facebook stickiness not just spend more time adhering to the Facebook, but also show their loyalty to Facebook by using the Facebook website as their

preferred way of online interaction and communication with others. Thus, three items developed by Karahanna et al. (2009) were refined to reflect the individual phenomena of having Facebook stickiness. The items included "Facebook is my preferred way of interacting with others", "Facebook has earned my loyalty", and "I use Facebook whenever I am online". In sum, a total of six items were refined to measure the concept of Facebook stickiness.

Self-image congruity in this study refers to the congruity between the image provided by Facebook and Facebook users' self-image. Three scale items of self-image congruity were adapted from Kang et al. (2009) and revised in the context of Facebook. The sample items for self-image congruity were "Visiting Facebook helps maintain my image and character", Visiting Facebook helps reflect who I am", and "Visiting Facebook fits well with my image ".

4   RESULTS

Data analysis and model testing were conducted using the partial least squares (PLS) approach. The PLS approach is suitable for the study with small sample size (Chin, Marcolin, & Newsted, 2003) and the causal predictive analysis of the proposed research model with the features of high complexity but low theoretical information (Jöreskog and Wold, 1982). Due to the scarcity of related robust literatures underpinning the proposed research model, the PLS approach exemplified by SmartPLS 2.0.M3 (Ringle, Wende, & Will, 2005) was used in evaluating both the measurement model and structure model.

4.1   Testing the Common Method Effect

Following the recommendations of Podsakoff and Organ (1986), a post-hoc remedy, Harman's one-factor test, was employed to examine the common method effect before the measurement model testing and the structural model testing,. All six variables in the proposed model as depicted in Figure 1 were entered into an exploratory factor analysis. The result of an unrotated principal components factor analysis indicated that seven factors with eigenvalues greater than 1 and account for 67.32% of the total variance. The first factor accounting for 30.49% of the total variance is less than half of 67.32% of the total variance. Accordingly, the common method effect was unlikely to bias the estimate of the true causal relationships between constructs and should not be regarded as a great issue.

4.2   Testing the Measurement Model

The measurement model was examined by calculating construct reliability, convergent validity, and discriminant validity for each of the variables in the research model. Construct reliability is measured using Cronbach's alpha and composite reliability (CR).

Variable	1	2	3	4	5	6
1. Media richness	*0.73*					
2. Interpersonal utility	0.30	*0.76*				
3. Intimacy	0.53	0.50	*0.82*			
4. Self-image congruity	0.36	0.44	0.45	*0.83*		
5. Social utility	0.42	0.47	0.43	0.37	*0.67*	
6. Facebook stickiness	0.48	0.49	0.67	0.35	0.40	*0.73*
Composite Reliability	0.90	0.80	0.86	0.87	0.80	0.87
Cronbach's Alpha	0.88	0.63	0.76	0.78	0.69	0.83
Mean	3.58	3.11	2.97	2.97	3.52	3.25
SD	0.59	0.64	0.71	0.67	0.54	0.66

Table 1.   Latent variable correlations and descriptive statistic.

Note: The values listed in the diagonal line (in bold and italics) are the square root of the average variance extracted (AVE).

Item \ Variable	Media richness	Interpersonal utility	Intimacy	Self-image congruity	Social utility	Facebook stickiness
MR 1	**0.760**	0.166	0.362	0.282	0.382	0.337
MR 2	**0.802**	0.216	0.388	0.358	0.440	0.386
MR 3	**0.807**	0.277	0.400	0.253	0.311	0.475
MR 4	**0.709**	0.183	0.439	0.221	0.272	0.282
MR 5	**0.676**	0.166	0.374	0.204	0.190	0.295
MR 6	**0.705**	0.092	0.325	0.149	0.188	0.230
MR 7	**0.676**	0.213	0.428	0.278	0.191	0.360
MR 8	**0.688**	0.361	0.400	0.266	0.321	0.378
INU 1	0.234	**0.713**	0.276	0.171	0.478	0.355
INU 2	0.225	**0.837**	0.466	0.330	0.337	0.423
INU 4	0.239	**0.713**	0.374	0.498	0.269	0.335
INM 1	0.471	0.343	**0.805**	0.401	0.304	0.558
INM 2	0.356	0.441	**0.809**	0.295	0.352	0.536
INM 3	0.488	0.447	**0.855**	0.427	0.394	0.563
SEC 1	0.296	0.520	0.395	**0.804**	0.380	0.302
SEC 2	0.352	0.347	0.422	**0.878**	0.338	0.252
SEC 3	0.256	0.242	0.325	**0.820**	0.211	0.316
SOU 1	0.324	0.361	0.395	0.237	**0.662**	0.297
SOU 2	0.178	0.164	0.211	0.179	**0.617**	0.164
SOU 3	0.352	0.272	0.210	0.243	**0.737**	0.321
SOU 4	0.260	0.355	0.260	0.252	**0.708**	0.248
SOU 5	0.245	0.365	0.309	0.309	**0.618**	0.259
FST 1	0.429	0.430	0.532	0.392	0.309	**0.770**
FST 2	0.473	0.468	0.580	0.447	0.369	**0.757**
FST 3	0.373	0.356	0.431	0.195	0.380	**0.693**
FST 4	0.290	0.400	0.511	0.167	0.237	**0.794**
FST 5	0.429	0.430	0.532	0.392	0.309	**0.770**
FST 6	0.473	0.468	0.580	0.447	0.369	**0.757**

Table 2.   Item cross loadings

Note: INU: interpersonal utility; INM: intimacy; MR: media richness; SEC: self-image congruity; SOU: social utility; FST: Facebook stickiness.

Convergent validity is confirmed if all item loadings on their corresponding constructs exceed the threshold of 0.5 (Hair, Black, & Babin, 2006); (2) the average variance extracted (AVE) for the constructs exceeds the criterion of 0.5 (Fornell & Larcker, 1981). As shown in Table 2, all the values of factor loadings on their corresponding constructs are larger than the threshold of 0.5 proposed by Hair et al. (2006). Additionally, as shown in Table 1, the values of AVE were all greater than the criterion value of 0.5 (Fornell & Larcker, 1981). These results indicate convergent validity was achieved.

Discriminant validity is satisfactory when the square root of the AVE is larger than its inter-construct correlation coefficients (Fornell & Larcker, 1981). The corresponding square root values of AVE in each construct, as shown in Table 1 were larger than the values of its inter-construct correlations, meeting the conditions for assessing discriminant validity (Fornell & Larcker, 1981). In conclusion, both reliability and validity were confirmed in our measurement model.

4.3 Testing the Structure Model

The results of the PLS analysis are depicted in Figure 2. As shown in Figure 2, the insignificant path coefficient ($\beta = -0.009$, $p > 0.1$) from self-image congruity to Facebook stickiness revealed that the control variable, self-image congruity, didn't lead to the formation of Facebook stickiness.
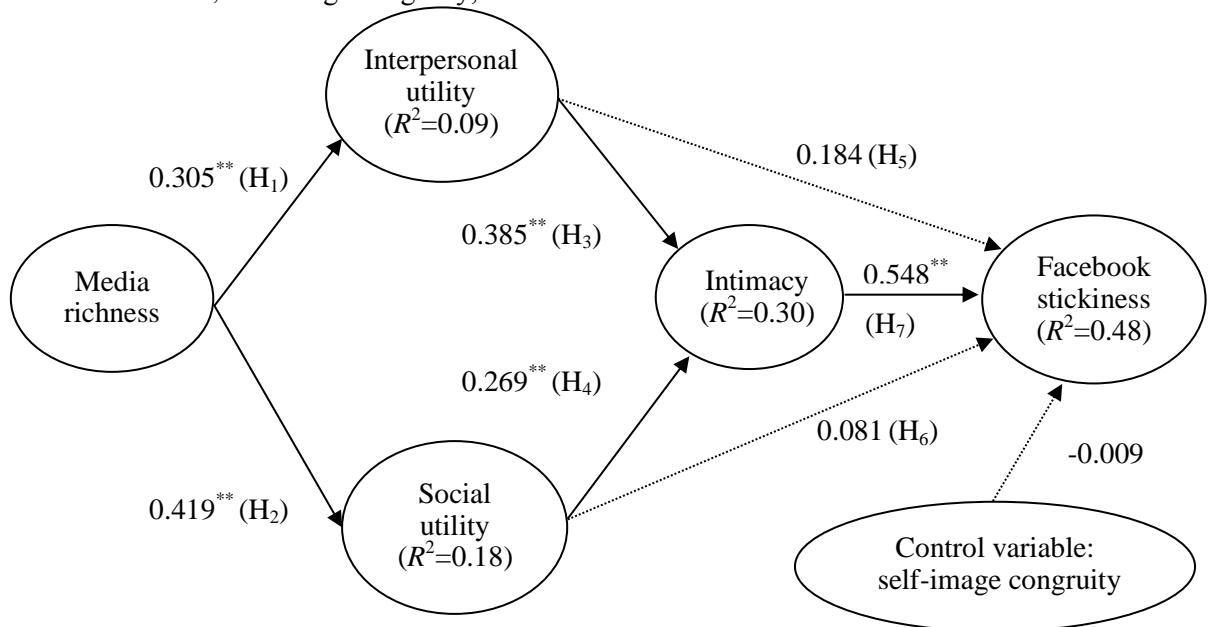

Figure 2.   Analysis results of the structural equation model.

Note: $^{**}\, p < 0.01$.

Hypothesis 1 examined the influence of media richness of Facebook perceived by Facebook users on interpersonal utility. The significant path coefficient ($\beta = 0.305$, $p < 0.01$) from media richness to interpersonal utility confirmed that media richness positively influenced interpersonal utility. Therefore, Hypothesis 1 was supported. Hypothesis 2 examined the influence of media richness of Facebook perceived by Facebook users on social utility. The significant path coefficient ($\beta = 0.419$, $p < 0.01$) from media richness to social utility confirmed that media richness positively influenced social utility. Therefore, Hypothesis 2 was supported. Hypothesis 3 assessed the influence of interpersonal utility perceived by Facebook users on the intimacy with the Facebook website. The significant path coefficient ($\beta = 0.385$, $p < 0.01$) from interpersonal utility to intimacy revealed that interpersonal utility positively influenced intimacy. Therefore, Hypothesis 3 was supported. Hypothesis 4 verified the influence of social utility perceived by Facebook users on the intimacy with the Facebook website. The significant path coefficient ($\beta = 0.246$, $p < 0.01$) from social utility to intimacy revealed that social utility positively influenced intimacy. Therefore, Hypothesis 4 was supported.

Hypothesis 5 assessed the influence of interpersonal utility perceived by Facebook users on Facebook stickiness. On the path from interpersonal utility to Facebook stickiness, the coefficient is not significant ($\beta = 0.184$, $p > 0.1$), thus not supporting Hypothesis 5. Hypothesis 6 verified the influence of social utility perceived by Facebook users on Facebook stickiness. The path coefficient from social utility to Facebook stickiness is not significant ($\beta = 0.081$, $p > 0.1$), which doesn't support Hypothesis 6. Hypothesis 7 examined the influence of users' intimacy with the Facebook website on the Facebook stickiness. On the path from intimacy to Facebook stickiness, the coefficient is

significant ($\beta = 0.548$, $p > 0.1$), thus supporting Hypothesis 7. Taken Hypothesis 5, Hypothesis 6, and Hypothesis 7 as the whole, interpersonal utility and social utility have not a direct effect on the Facebook stickiness, but have the indirect impacts on Facebook stickiness by virtue of intimacy. The Sobel test (1982) was therefore employed to scrutinize whether intimacy mediate the effect of interpersonal utility and social utility on Facebook stickiness.

The t values for the Sobel test were generated from the SmartPLS 2.0 bootstrap procedure with 200 re-samples. The t values on the path from interpersonal utility to intimacy and the path from intimacy to Facebook stickiness are 6.408 and 5.881 respectively, yielding the significant corresponding z value ($z = 4.333$, $p < 0.01$) and validating intimacy mediates effect of interpersonal utility on Facebook stickiness. Thus, Hypothesis 8 was supported. On the path from social utility to intimacy and the path from intimacy to Facebook stickiness are 5.742 and 7.776 respectively, yielding the significant corresponding z value ($z = 4.619$, $p < 0.01$) and validating intimacy mediates effect of social utility on Facebook stickiness. Thus, Hypothesis 9 was supported. In sum, seven Hypotheses were supported except Hypothesis 5 and Hypothesis 6.

5   DISCUSSION

This study confirms that intimacy plays an important role in facilitating Facebook stickiness. As mentioned earlier, intimacy in this study has been conceptualized as the state of Facebook users having a close relationship with the Facebook website. If Facebook users have a close sense of intimacy with the Facebook website, they are likely to treat the Facebook as their virtual friend and show the loyalty to the Facebook website by expressing their intention to link to the Facebook website every day and prolong the stay on the Facebook website for online interacting with others. By doing so, intimacy enables Facebook stickiness.

Our study found that gratification gained from the Facebook use, including interpersonal utility and social utility, significantly affected intimacy. The reason might be that gratifications gained from the Facebook use motivate users with the intention to establish a relationship with the Facebook website for receiving more interpersonal utility and social utility. However, gratification gained from the Facebook use in the terms of interpersonal utility and social utility have not been found to influence Facebook stickiness in our study, which is not consistent with the finding of Chen (2014). Specifically, our study discloses that intimacy bridges the causal connection between gratifications and Facebook stickiness by mediating the effects of interpersonal utility and social utility on Facebook stickiness. Accordingly, even receiving interpersonal utility and social utility from the Facebook website, without establishing a sense of intimacy with the Facebook website, the Facebook users have not the possibility to be in the state of sticking to the Facebook website.

The media richness theory proposes that users will use and select the specific media when the media can provide users with the ability to immediately deliver and receive personalized messages via multiple communication channels. Our findings suggested a positive relationship between the media richness of the Facebook website and gratifications gained from using Facebook in terms of interpersonal utility and social utility. This positive relationship may be attributable to the idea that media theory is primarily used to explain the use and select the specific media for interpersonal communication and social interaction. In addition, according to U & theory, individuals seek the media in goal-directed way and use the specific media for gratifications. Facebook is essentially designed for online interpersonal communication and social interaction. Individuals by virtue of media richness provided by the Facebook website can gain interpersonal utility service and social utility service. This is why media richness confirmedly influences the gratifications gained from using Facebook in terms of interpersonal utility and social utility.

6 CONCLUSION

The SNS stickiness is a state of users adhering to the specific SNS. Generally, SNS users with the highly stickiness behave as loyal customers and contribute more effort on the website. The stickiness is a key factor for SNS practitioners to retain users so as to sustain the market share and the competitive. Given that Facebook is the most popular SNS, this study explores the formation of Facebook stickiness underpinning media richness theory and U & G theory. Moreover, this study highlights the role of intimacy in the formation of Facebook stickiness and further confirmed its impact on Facebook stickiness. We propose a research model to investigate the effect of media richness provided by the Facebook website on the two types of gratifications, interpersonal utility and social utility, as well as the impacts on proximal outcome, intimacy, and distal outcome, Facebook stickiness. The findings conclude that media richness directly facilitates interpersonal utility and social utility. Furthermore, Facebook stickiness is indirectly affected by interpersonal utility and social utility via intimacy that explain 49 percent of the variance.

This study proposes that Facebook user will show an inclination to stick to the Facebook website when they by so doing they will show their loyalty to the Facebook website and be willing to continuously use Facebook. Our finding confirmed that gratifications, interpersonal utility and social utility, have positive impacts on intimacy. Facebook users gain higher interpersonal utility services and social utility services will express a willingness to establish and show a sense of intimacy with the Facebook website. In addition, this study reveals that intimacy will be an enabler for users to stick to the Facebook website. Users without establishing a sense of intimacy with the Facebook website is not likely to be in the state of sticking to the Facebook website; thus, their lack of intimacy with the Facebook hinders their willingness to engage in using the Facebook website.

This study thus concludes, on the one hand, that gratifications, interpersonal utility and social utility, are necessary conditions for Facebook stickiness to happen. Users' intimacy with the Facebook website, on the other hand, is the sufficient condition for Facebook stickiness to happen. That is, without establishing the intimacy with the Facebook website, users will not be able to stick to the Facebook website even though they perceive the media richness provided by Facebook and then enjoy the interpersonal utility services and social utility services.

6.1 Research Implications

This study proposes the following research implications. First, our findings indicate that intimacy has a significant effect on Facebook stickiness. Lee and Kown (2011) indicated that intimacy can be classified as customer-to-customer intimacy or customer-to-service intimacy in exploring the continuance intention toward web-based services. The study primarily focuses on customer-to-service intimacy and highlights the important role of the user' emotional connection to the website enabling Facebook stickiness. Future research may investigate customer-to-customer intimacy to explore their impact on Facebook stickiness. Second, two types of gratifications have been found as facilitators of intimacy. The gratifications in this study focused only on interpersonal utility and social utility. Other potential dimensions of gratifications such as hedonic utility mentioned earlier have not been included in the proposed model. Future research may examine hedonic utility or identify the others kind of gratifications to explore their impact on intimacy. Third, this study highlights the importance of gratifications for intimacy. Researchers may identify what other factors would enhance intimacy to increase our understandings of how intimacy can be established. For example, Lee and Kown (2011) suggested that confirmation and familiarity will enhance a user's sense of intimacy with the web-based services. Future research could explore confirmation and familiarity with regards to facilitating the intimacy with SNSs in the formation of SNS stickiness.

6.2   Managerial implications

Based on our findings, we offer the following practical suggestions with aims to facilitate users sticking to SNSs. First, the system functions of the SNS should be revised and updated timely to meet the SNS user requirements so as to attract users' attention to revisit and continuously use the SNS. Especially, from the perspective of media richness theory, the updated system functions designed for online communication and interaction should simulate the face-to-face situations, such as provide more emotion icons for SNS users to deliver personalizing message. By doing so, the SNS user will gain more gratifications, interpersonal utility and social utility, from the Facebook website which will enable users to develop a sense of intimacy with the SNS. For example, Facebook announces the revised the reaction feature by providing five additionally emotion icons to allow users to reply to the posts with more than a "Liked" button in February 2016. This action is not just a simple event regarding a system update but is a right managerial action in response for users need to retain the user.

Second, this study found that providing interpersonal utility and social utility did not directly facilitates user to stick to Facebook but indirectly influenced Facebook stickiness via intimacy. SNS Managers should be aware that the functionality of the Facebook website surrounding interpersonal utility and social utility is necessary but enough to leverage SNS stickiness. They should carefully inspect whether the functional features provided by the SNS can enhance or aid the intimacy development so as to enable users adhering to the SNS. Taking an example from Facebook, in June 2014, the Facebook website announced an "anniversary story" feature through which Facebook users can tag their anniversary dates with their special Facebook friends and sharing their photos to the public news feeds or selected special ones. This feature is an innovative service for online human interaction. Facebook users can use this feature to maintain the sense of intimacy with their Facebook friends. Also, the user' intimacy with the Facebook website is likely to be enhanced.

Finally, since intimacy is important for the formation of Facebook stickiness, SNS managers may incorporate specific activities to raise users' intimacy. As Lee and Kown (2011) pointed that intimacy is an important element of emotional marking. Emotional marking is a way of emotion stimulation with an aim to strengthen the brand ties to customers by appealing to customers' feeling. Successful emotion marketing can lead customers to feel the value earned from interacting with the brand. Generally, it has been considered as a strategic mean of attracting new customer and retain existing customer (Lee & Kown, 2011). For example, the SNS manager can create an easy cyberspace for social networking through which users can create an "anniversary story" to share the happiness or feel happiness by reading a meaningful "anniversary story" posted from other friends. This emotional appealing to SNS users could provide managers with a method for raising users' intimacy with the SNS and in turn leads to the SNS stickiness.

6.3   Limitations

There are several limitations that should be addressed as follows. First, the use of single self-report survey data in data analysis may bias the result. Given that data collected from single self-report survey, post-hoc remedy, Harman's one-factor test, was employed to verify whether the common method bias the true causal relationship between the variables. Although the result of Harman's one-factor test revealed that the common method bias are unlikely to be regarded as the great concern in this study, the future research should avoid the occurrence of common method bias by collecting data from different sources. Second, this study focused on two kinds of gratifications, interpersonal utility and social utility, gained from the Facebook use, the future study may include other types of gratifications, such as hedonic utility, to get the entire range of gratifications associated with intimacy development. Finally, this study has confirmed that intimacy is an enabler of Facebook stickiness. The issue of intimacy development should deserve more attention. Future research may incorporate other potential factors, i.e., expectation and familiarly confirmed by Lee and Kown (2011), to broaden the understanding of what kinds of gratifications are beneficial to the intimacy development as well as their impacts on SNS stickiness.

Acknowledgements

References

Chang, Y. P., & Zhu, D. H. (2012). The role of perceived social capital and flow experience in building users' continuance intention to social networking sites in China. Computers in Human Behavior, 28(3), 995-1001.

Chen, Y. C. (2014). An empirical examination of factors affecting college students' proactive stickiness with a web-based English learning environment. Computers in Human Behavior, 31, 159-171.

Cheung, C. M., Chiu, P. Y., & Lee, M. K. (2011). Online social networks: Why do students use facebook?. Computers in Human Behavior,27(4), 1337-1343.

Chin, W. W., Marcolin, B. L., & Newsted, P. R. (2003). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. Information Systems Research, 14(2), 189-217.

Cordova, J. V., & Scott, R. L. (2001). Intimacy: A behavioral interpretation. The Behavior Analyst, 24(1), 75.

Davenport, T. H. (2000). Sticky business. CIO Magazine, 13(8), 58-60.

Fernandez, V., Simo, P., Sallan, J. M., & Enache, M. (2013). Evolution of online discussion forum richness according to channel expansion theory: A longitudinal panel data analysis. Computers & Education, 62(0), 32-40.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18, 39-50.

Hair, J. F., Black, W. C., & Babin, B. J. (2006). Multivariate Data Analysis. New Jersey: Pearson Education Inc.

Hughes, D. J., Rowe, M., Batey, M., & Lee, A. (2012). A tale of two sites: Twitter vs. Facebook and the personality predictors of social media usage.Computers in Human Behavior,28(2), 561-569.

Hwang, H. S., & Lombard, M. (2006). Understanding instant messaging: Gratifications and social presence. In Proceedings of PRESENCE 2006, 50-56.

Jöreskog, H. Wold. (1982). Systems under Indirect Observation - Causality Structure Prediction. North-Holland Publishing Company, Amsterdam, the Netherlands.

Kang, Y. S., Hong, S., & Lee, H. (2009). Exploring continued online service usage behavior: The roles of self-image congruity and regret. Computers in human behavior, 25(1), 111-122.

Karahanna, E., Seligman, L., Polites, G. L., & Williams, C. K. (2009, 5-8 Jan. 2009). Consumer e-Satisfaction and Site Stickiness: An Empirical Investigation in the Context of Online Hotel Reservations. Paper presented at the System Sciences, 2009. HICSS '09. 42nd Hawaii International Conference on.

Lee, Y., & Kwon, O. (2011). Intimacy, familiarity and continuance intention: An extended expectation–confirmation model in web-based services. Electronic Commerce Research and Applications, 10(3), 342-357.

Lin, J. C.-C. (2007). Online stickiness: its antecedents and effect on purchasing intention. Behaviour & Information Technology, 26(6), 507-516.

Lowenthal, M. F., & Haven, C. (1968). Interaction and adaptation: Intimacy as a critical variable. American Sociological Review, 20-30.

Nunnally, J. C. (1978). Psychometric Theory. New York: McGraw-Hill.

Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. Journal of Management, 12, 531-544.

Rau, P. L. P., Gao, Q., & Ding, Y. (2008). Relationship between the level of intimacy and lurking in online social network services. Computers in Human Behavior, 24(6), 2757-2770.

Ringle, C. M., Wende, S., & Will, A. (2005). SmartPLS 2.0.M3. Hamburg: SmartPLS. Retrieved from http://www.smartpls.com

Sirgy, M. J.. (1982). Self-concept in consumer Behavior: A critical review. Journal of Consumer Research, 9(3), 287–300.

Sirgy, M. J. (1985). Using self-congruity and ideal congruity to predict purchase motivation. Journal of Business Research, 13(3), 195–206.

Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equations models. In S. Leinhart (Ed.), Sociological methodology (pp. 290-312). San Francisco, CA: Jossey-Bass.

Tolstedt, B. E., & Stokes, J. P. (1983). Relation of verbal, affective, and physical intimacy to marital satisfaction. Journal of Counseling Psychology, 30(4), 573-580.

Timmerman, C. E. (2002). The moderating effect of mindlessness/mindfulness upon media richness and social influence explanations of organizational media use. Communication Monographs, 69(2), 111-131.

Trevino, L. K., Lengel, R. H., & Daft, R. L. (1987). Media symbolism, media richness, and media choice in organizations a symbolic interactionist perspective. Communication Research, 14(5), 553-574.

Webster, J., & Trevino, L. K. (1995). Rational and social theories as complementary explanations of communication media choices: Two policy-capturing studies. Academy of Management Journal, 38(6), 1544-1572.

Weibull, L. (1985). Structural factors in gratifications research. In K. E. Rosengren, L. A. Wenner, & P. Palmgreen, (Eds.), Media Gratifications Research: Current Perspectives (pp. 123-147). Beverly Hills, CA, USA: Sage.

Xu, J., & Liu, Z. (2010). Study of online stickiness: Its antecedents and effect on repurchase intention. In Proceedings of the 2010 International Conference on e-Education, e-Business, e-Management and e-Learning (pp. 116-120). IEEE Computer Society.

Yang, H. L., & Lin, C. L. (2014). Why do people stick to Facebook web site? A value theory-based view. Information Technology & People, 27(1), 21-37.

Yim, C.K., Tse, D.K. and Chan, K.W. (2008). Strengthening customer loyalty through intimacy and passion: roles of customer-firm affection and customer-staff relationships in services. Journal of Marketing Research, 45(6), 741-56.

Zhang, Y., Tang, L. S.T., & Leung, L. (2011). Gratifications, collective self-esteem, online emotional openness, and traitlike communication apprehension as predictors of Facebook uses. Cyberpsychology, Behavior, and Social Networking, 14(12), 733-739.