Constructing the Social Media Uses and Gratifications Scale on Japanese and Chinese Samples: Comparing Content to Western Conceived Scales

Wenzhen Xu & Jiro Takai
Nagoya University, Japan
Li Liu
Beijing Normal University, China

Abstract: This study examined why people engage in SNS activities in two representative East Asian cultures, Japan and China, within the framework of the uses and gratifications approach. By employing questionnaire surveys at universities in central Japan and north China, we explored the factor structures of SNS utility of both Japanese and Chinese population as well as developed a common scale for future cross-cultural comparison study. The scale consists of three factors, which are "Deepening existing relationship," "Expanding current interpersonal network" and "Information sharing and exchange". While the factor structure by and large replicated that of Western scales (e.g., Facebook Utility Scale), it was the content that differed. Our research suggests that the SNS motives of East Asians are formulated with more social concerns and hesitations. This result supported the commonality of SNS uses and gratifications, while at the same time determined the uniqueness of East Asian compared to Western culture.

Keywords*:* SNS motives, use and gratification theory, cultural variation, comprehensive scale

1. Introduction

Social network sites (SNS), such as Facebook, Twitter (or Weibo in China), Line (or Wechat in China), LinkedIn, Instagram, provide a virtual platform for individuals to present themselves, develop their social networks, and establish or maintain connections with others (Ellison, Steinfield, & Lampe, 2007). While it has been met largely positively by the general population, the SNS's popularity has rendered it the focus of considerable debate within the academic world (Anderson, Fagan, Woodnutt, & Chamorro-Premuzic, 2012).While some proclaim its usefulness as a tool for strengthening existing interpersonal bonds and at the same time developing new ones, others criticize it for its negative consequences toward physical and mental health (cf. Callaghan & Morrissey, 2008; Kraut & Burke, 2015; Thoits, 2011). The introduction of new communication technology and its accompanying services (e.g., SNS or mobile applications) are likely to be met differently by culture as well (cf. Wu & Li, 2016). The influence of SNS on its users has caught the attention of many researchers, and the recent trend seems to be toward looking at cross-cultural differences. Cross-cultural research into SNS usage have covered: a) characteristic differences in its usage (e.g., Gong, Stump, & Li, 2014;

Jackson & Wang, 2013; Shuter & Chattopadhyay, 2014); b) differences in message qualities of SNS-mediated communication (e.g., Ma, 2013; Park, Baek, & Cha, 2014; Rui & Stefanone, 2013); and c) differences in online interaction and relationship building functions (e.g., Cho & Park, 2013; Choi, Chu, & Kim, 2014). However, relatively little attention has been paid toward the motives behind SNS usage, which may likewise differ with culture. While much of the research has focused on the motives of Western users, this study aims to focus on two East Asian user populations, that of Chinese and Japanese, representing two cultures that are similar in character, but distinct with respect to socio-economical factors, such as speed of social changes, population mobility and Internet environment.

People have different social and personal needs, which may be fittingly served by using various media services, including SNS. To this effect, Uses and Gratification Theory (UGT) delves into the issue of individuals having particular needs which propel them to use particular types of services (Rubin, 2009). This audience-centered approach perhaps is best suited to provide insight toward understanding the motives behind SNS usage, the subsequent need fulfillment, and outcomes. While people's media needs may seem to be universal, some scholars (e.g., Jackson & Wang, 2013; Kim, Sohn, & Choi, 2011; Vasalou, Joinson, & Courvoisier, 2010; Wijesundara, 2014) claim otherwise. For instance, in Kim et al 's (2011) comparison between American and Korean users, they found that North Americans (Individualistic, low context culture) have more positive attitude and stronger willingness in casually seeking new friends via SNS, while Koreans (Collectivist, and high context culture) mainly prefer to seek social support via SNS as a readily available tool. In order to probe further into such behavioral differences, especially between individualists and collectivists, it is necessary to delineate motivation behind such SNS usage behaviors from cross-cultural perspective.

Given this assumption that motives toward SNS usage differ with culture, the existing scales developed to measure such motives need to be reconsidered since most have been created with the American users in mind (e.g., Ellison et al., 2007). We aim to first look into the validity of the existing UGT Scale, which had been developed in the United States, to East Asian SNS users, regarding their motives, fulfillments, and outcomes. We will particularly focus on Japanese and Chinese users, the top two economic and political powerhouses of the region, with similar internet infrastructures. The biggest difference between the two, however, is that the SNS platform is unique in China, while Japanese typically use Western platforms, hence may be more susceptible to Western influence disseminated through these outlets.

In the following sections, first, we will review research on theoretical frameworks on SNS motives and usage, in particular, Use and Gratification theory, and synthesize findings pertaining to cultural differences in SNS usage, and motives. We will then point out methodological issues in existing studies, and suggest why revisiting measurement is necessary.

2. Literature Overview

2.1. Use, Goals, and Gratifications of SNS

According to Katz, Blumler, and Gurevitch (1974), UGT research is concerned with: (T)he social and psychological origins of needs, which generate expectations from the mass media

or other sources. These needs lead to differential patterns of media exposure (or engagement in other activities), resulting in need gratifications and other consequences, perhaps mostly unintended ones. (p. 20).

This audience-centered approach was initially developed to answer the questions, why do people use mass media, and what do they use them for? Over the past several decades, extensive research has been conducted to examine "new" media usage, and behavioral patterns, as well as their underlying motives, from the classic UGT theoretical perspective (Rubin, 2009).

Carried on mainly from television viewing, the advent of the internet and its accompanying SNS provides a new and deep field for exploring UGT. The tools offered by modern social media (e.g., SNS) not only allow users to experience media in unique ways but also have expanded the range and scope of our interactions with media content (Sundar & Limperos, 2013). Wang and Tchernev (2012) studied daily mediated and non-mediated activities of college students, and identified four categories of SNS gratifications. These are: 1) emotional needs (e.g., strengthening aesthetic, pleasurable, and emotional experience); 2) cognitive needs (e.g., strengthening information, knowledge, and understanding); 3) social needs (e.g., strengthening contact with family, friends, and the world); and 4) habitual needs (e.g., ritualized and help bring structure to one's day).

By the definition of SNS, social needs are perceived to be the largest force compelling individuals to SNS (Wang et al. 2012). Research on the domain of social gratification has shown that SNS provides remarkable convenience and efficiency for developing, maintaining, strengthening social relationships, as well as encouraging information exchange via the individuals' social networks (e.g., Ellison et al. 2007; Lai & Turban, 2008).

2.2. Cultural Differences in SNS Motives and Usages

Recent research on cross-cultural computer-mediated communication (CMC) has shown that the online culture reflects the offline culture in which it is embedded (Abeele & Roe, 2011; Morling & Lamoreaux, 2008), and motives (goals) and usage should potentially differ across ethnic and national groups (cf. Wu & Li, 2016). To this effect, Jackson and Wang (2013) surveyed Chinese and American students about the time spent on SNS, and its importance and motives for use. Their results revealed that American students spend more time on SNS, consider it to be more important and report more online friends than their Chinese counterparts. The researchers interpret the differences from the perspective of individualism and collectivism (IC), and independent and interdependent self-construals (IC at the individual level). They claimed that collectivistic emphasis on family, friends, and one's other face-to-face oriented groups could be partly responsible for less use of SNS by Chinese participants compared to American. On the other hand, individualistic values emphasize one's personal characteristics and self-fulfillment goals, require a greater network of friends, while not requiring them to be as close and enduring, and this could explain the American participants' greater use of SNS, according to Jackson and Wang (2013).

Likewise, Wijesundara (2014) compared participants' motivations and usage patterns of SNS in the United States and Sri Lanka. His findings revealed that while patterns of SNS usage do not differ across these two particular cultures, some of the motivations behind them did

differ. These included: motives of relaxing and entertainment as well as motives of expressive information sharing. Wijesubdara also attributed these differences to the IC perspective. He states that with a collectivism orientation, Sri Lankans have strong preference for relaxing with and entertaining others (e.g., face-to-face gossiping) rather than engaging in online entertainment.

Furthermore, there may also be cultural variations behind motives for SNS usage. For instance, cultural psychologists have actively debated on why North Americans are geared to self-enhance, whereas East Asians self-deprecate (e.g., Falk, Heine, Yuki, & Takemura, 2009; Heine, Lehman, Peng, & Greenholtz, 2002). Although the underlying motivation is to gain social approval, the former promotes oneself as a worthy person, emphasizing his/her virtues and achievements, while the latter shows self-humility, maintaining humbleness. When engaging in SNS activities, the ultimate motivation is expanding and maintaining satisfying social relationships, hence for the individualist, expanding their current social network as an index of how popular they are may take precedence over maintaining a small, but intimate social network, as a collectivist may do (Falk et al. 2009, Sato, Yuki, Norasakkunkit, 2014). Yuki and his colleagues (e.g., Schug, Yuki, 2010, Yuki, & Schug, 2012) have developed their concept of relational mobility, claiming that individualists tend to be relationally mobile, i.e., engage in and end relationships more readily than collectivists, who are more prone to treat relationships as permanent entities (Wheeler, Reis, & Bond, 1989). This difference may illustrate the difference in SNS usage motivation between Western users, versus East-Asian. In sum, the basis for UGT may differ in content with culture. Existing scales dealing with UGT tend to be conceived and developed under Western assumptions, and may not be adequate for East Asian users. To probe into such differences, it is necessary to delineate motivation toward SNS usage from an East-Asian perspective.

2.3. Reflection on Methodology: How Have SNS Use, Goals, and Gratification Been Measured?

Anderson et al. (2012) reviewed recent empirical research into some of the key psychological themes concerning SNS (i.e., Facebook), and discovered that this area of research lacks robust measurement instruments. They noted that one crucial issue is the lack of a comprehensive scale for measuring online social activity. Studies typically use simple, makeshift scales consisting of only a few items to measure variables for their particular needs, and little-concerted effort has been afforded toward developing a comprehensive scale to measure SNS functions. The few scales that have been devised have been widely implemented across Western studies, such as the Facebook Intensity Scale (Ellison et al., 2007), and their follow up Facebook Utility Scale (Ellison, Gray, & Lampe, 2011). While these scales have generated much research in Western cultures, their relevance to Eastern, collectivistic cultures are up to question. Meanwhile, in Japan, the measures and scales that are available tend to focus on specific issues, such as Web-blog (Kotera, 2005) and Bulletin Board Systems (BBS) (Yamashita, Kawaura, Kawakami, & Miura, 2005), rather than expanding out to give a more holistic view of social network activities. Due to the lack of comprehensive and robust measures, researchers have not been able to gain adequate insight into the complicated relationship between SNS use and psychological well-

being (Kraut & Burke, 2016). Such inadequacy in measurement makes both interpretation and meta-analysis challenging and sheds doubt on the validity of research (Anderson et al., 2012). Given the above, our prime goal of the present study is to develop a comprehensive scale which covers essential goals and benefits of participation in online social networks, and at the same time, addresses the particular cultural traits and contexts of Eastern users, namely, Japanese and Chinese, who may have other motives behind SNS participation.

It should be noted that scales developed in Western cultures assume that freedom of speech and lenient censorship allow relatively unrestricted Internet self-expression. While this may apply to the Japanese as well, our study includes the Chinese users, who are met with relatively strict regulation, censorship, and surveillance, and special attention needs to be paid to this fact. While such political environment behind internet usage may differ between China and the West, our position is that Chinese users engage in SNS in a fashion similar to their Western counterparts. We believe that from the interpersonal communication perspective, they should receive similar benefits from SNS participation. For this reason, we feel that Japanese and Chinese SNS usage is similar.

The purpose of this study is to devise a scale from scratch, taking into account pilot studies conducted in each of the two cultures. A series of pancultural exploratory and confirmatory factor analysis will be executed to derive a common content and structure. We will examine the scale's reliability and validity, while also demonstrating its cross-group validity among Japanese and Chinese samples.

3. Method

3.1. Pilot Study

First, we constructed an original questionnaire, named the Social Media Use and Gratification Scale (SMUGS), for measuring online social motives, by conducting a pilot study. Forty-nine third-year undergraduate students majoring in psychology from a medium-sized public university in central Japan were asked to write down 20 sentences as follows, "who (e.g., close friends, parents, acquaintances, relatives, stranger) do you want to contact and what (e.g., getting social support, exchanging information) do you expect while interacting via SNS." Content analysis was conducted in a social psychology seminar consisting of a professor and six graduate students. We conducted a content analysis in a social psychology lab (a professor and six graduate students) to create the original version of Social Media Usage and Gratifications Scale (SMUGS). We also asked twenty-two Chinese undergraduate students majoring in Japanese to check the original question list, there was no violation of the targets and expectations between Japanese and Chinese participants.

3.2. Main Study

3.2.1. Participants

A total of 311 undergraduates from one public and two private universities in Central Japan and

two public universities in Northern China volunteered to participate in this study.

The Japanese data was collected from 172 participants (62 males; 110 females) with an average age of 19.6 years (*SD*=3.53), and the Chinese data was collected from 139 participants (47males; 92 females) with an average age of 20.1 (*SD*=3.71) years. The locales for data collection were similar, being large metropolitan regions, and highly economically affluent, in both countries.

3.2.2. Materials

We compiled a questionnaire composed of the following four scales:

Online Connectivity. In order to gain a general perspective of online connectivity, participants were asked to respond to a series of questions about their actual usage of social media (e.g., the size of their social network and the frequency and purpose of using social media). We created an original scale, which we named SMUGS, and sought for concurrent validity with two similar existing scales.

Original Version of Social Media Usage and Gratifications Scale (SMUGS). This scale consisted of 14 items, which we collected from the pilot study. An example item was, "I feel connected with my face-to-face friends through use of social media." Responses were rated on a five-point Likert-type scale, ranging from 1 = "disagree", 2 = "somewhat disagree", 3 = "no comment", 4 = "somewhat agree", 5 = "agree".

MIXI Use-Satisfaction Scale (MUSS). MUSS (Kotera, 2009) is a 34-item questionnaire rated on five-point Likert scales, ranging from 1 (disagree) to 5 (agree). In this study, 31 items of the original MUSS were used, since the other three items were considered exclusive to MIXI, a SNS platform specific to Japan, with no equivalent available in China. The reliability reported in Kotera's study revealed Cronbach's Alpha coefficients of .89 for relationship maintaining, .83 for information seeking, and .85 for relationship building.

Web-blog Utility Scale (WUS). WUS (Yamashita et al., 2005) is a nine-item questionnaire on a four-point Likert scale, ranging from 1 (disagree) to 4 (agree). In this study, the subscale (four items) "Relationship Utility" was used, since the other subscale "Self Utility" was not relevant for this study.

3.2.3. Procedure

Participants were recruited in psychology classes. After a thorough briefing on participation, informed consent was gained from those who agreed to participate, we collected informed consent forms from those who agreed to participate. We then distributed the questionnaire to each participant. Participation was strictly on a volunteer basis, and they were offered course credit for their participation.

4. Results

4.1. Online Connectivity

We asked students to report their online social network size and the frequency they access SNS.

Specifically, we asked students two questions: 1) How many "friends" do you have on major SNSs (e.g., Facebook, Twitter, Mixi in Japan, Renren, Weibo, Douban in China)? 2) How many

Table 1

The common factor structure of SMUGS

Item	F1	F 2	F 3	*M*	*SD*
Factor 1: Deepening existing relationships					
1. I feel connected with my face-to-face friends through use of social media.	**.889**	.047	-.062	3.68	1.041
2. I feel the relationships with my face-to-face friends are deepening through use of social media.	**.669**	.044	.070	3.34	1.109
5. I think my face-to-face relationships will be enriched by using social media as a contact tool.	**.467**	.027	.176	3.12	1.088
3. I can freely exchange opinions with my friends through social media.	**.441**	-.123	.268	3.85	.983
Factor 2: Expanding current interpersonal network					
6. I feel like I can become friends with people who share the same interest as me by following each other (adding each other as friends).	.185	**.794**	-.223	3.06	1.178
7. I can become close to people who can relate to my comments on social media.	-.162	**.766**	-.010	3.27	1.124
9. Somehow I feel more apt to be able to can make friends by using social media.	.200	**.635**	-.050	2.91	1.223
10. Although I may have never met them in real life, I feel like we mutually encourage each other through social media.	-.137	**.612**	.315	2.77	1.146
8. I feel like I am not alone when I meet someone with the same hobby or interests on social media.	-.045	**.453**	.353	3.13	1.148
Factor 3: Information sharing and exchange					
11. I feel I can freely interact with others through social media, regardless of how trivial the conversation topic may be.	.105	-.017	**.745**	3.93	.921
13. I can attain advice and learn from others through social media.	.163	-.108	**.676**	3.57	.974
12. Social media is a useful tool for attaining and sharing my interests through social media.	-.061	.088	**.605**	3.87	1.026
4. I can keep updated with my family and friends through social media.	.012	.005	**.571**	3.77	.969
14. I can view interesting comments about news and recent events through social media.	.109	-.017	**.337**	3.94	.886
Factor 1					
Factor 2	.396				
Factor 3	.289	.497			

times do you check your SNS sites and applications on a typical day? (See Table 1)

4.2. Exploratory Factor Analysis

Exploratory factor analysis was conducted on first, the Japanese data, with all 14 items collected from the pilot study, using the principle components analysis method. The initial Eigen values showed that the first factor explained 44% of the variance, the second factor 10% of the

variance, and a third factor 9% of the variance. The fourth and fifth factors had Eigen values under 1, each factor explaining less than 5%. Hence we deemed a three-factor solution to be appropriate, explaining 63% of the variance, this decision based in accordance with the factor structure prescribed by the authors, and also, by taking into account the 'leveling off' of Eigen values on the scree plot beyond three factors, and the insufficient number of primary loadings and difficulty of interpreting the fourth and subsequent factors. Promax rotation was conducted on the least squares factor analysis, which revealed that all items had primary loadings over .5 and only one item had a cross-loading above .3 (Item14). However, this item had an acceptable primary loading of .54. The first factor was named "Deepening existing relationships (DER)", the second factor was named "Expanding current interpersonal network (ECIN)", and the third factor was named "Information sharing and exchange (ISE)". Internal consistency for each of the scales was examined. The Cronbach's alpha of SMUGS was .90, while those of the factors were .85 (5 items), .85 (5 items) and .74 (4 items).

4.3. Exploratory Factor Analysis of the Chinese Data Set

A parallel set of factor analyses was conducted by using Chinese data. The initial Eigen values showed that the first factor explained 35% of the variance, the second factor 16%, and a third factor 11%. The fourth and fifth factors had Eigen values under 1, each explaining only about 6%. During several steps in item weeding, two items were eliminated. Item 14 was excluded due to a ceiling effect. Item 8 was excluded because factor loadings on two factors were within .20 of each other.

A least-squares factor analysis of the remaining 12 items, using Promax rotation was conducted, with three factors explaining 62% of the variance. All items had primary loadings over .45, and only one item had a cross-loading above .3 (Item 10, .30). However this item had a strong primary loading of .56. This structure was compared to the Japanese cohorts. The only two inconsistencies that were found were that Item 4 loaded onto Factor 3 (expected to load on Factor 1), and Item 8 was excluded due to a ceiling effect. We also named the factors as "Deepening existing relationships (DER)," "Expanding current interpersonal network (ECIN)," and "Information sharing and exchange (ISE)."Internal consistencies for each of the factors were examined. The Cronbach's alpha of the overall scale was .88, while those of the factors were .76 (4 items), .79 (4 items) and .74 (4 items).

4.4. Common Factor Structure of Both Japanese and Chinese Data Sets

To allow for comparability across the two cultures, we needed to derive a common factor structure, hence we conducted a pancultural factor analysis following Leung and Bond's (1989) procedure. We converted the item responses of the "SMUGS" into standard scores (Z scores) within each culture separately, then, conducted a single factor analysis on the combined data set, as we did previously for each culture. The initial Eigen values showed that the first factor explained 39% of the variance, the second factor 11%, and the third factor 9%. The fourth and fifth factors had Eigen values under 1, each explaining about 6%.

No items were eliminated. A least-squares factor analysis of the remaining 14 items, using

Promax rotation was conducted, with three factors explaining 60% of the variance. All items had primary loadings over .40, and no item had a cross-loading above .30. The factor loading

Table 2

Correlations among SMUGS, MUSS and WUS

Varible	1	2	3	4	5	6	7	8	9
1. Factor 1 of SMUGs (DER)	1.000								
2. Factor 2 of SMUGS (ECIN)	.481**	1.000							
3. Factor 3 of SMUGS (IEC)	.573**	.479**	1.000						
4. Factor 1 of MUSS	.591**	.568**	.626**	1.000					
5. Factor 2 of MUSS	.513**	.607**	.507**	.803**	1.000				
6. Factor 3 of MUSS	.533**	.416**	.634**	.740**	.680**	1.000			
7. SMEAS	.813**	.816**	.832**	.725**	.664**	.639**	1.000		
8. MUSS	.609**	.601**	.642**	.957**	.898**	.857**	.752**	1.000	
9. WUS	.353**	.532**	.418**	.634**	.585**	.493**	.536**	.645**	1.000

SMUGS = Social media uses and gratifications scale. MUSS = MIXI uses and satisfaction scale.

WUS = Web-blog utility scale. DER = Deepening existing relationships.

ECIN = Expanding current interpersonal network. ISE = Information sharing and exchange.

Note. : N = 311, †p < .01, * p < .05, **p <.01, ***p <.001.

matrix for this final solution is presented in Table 2.

This result was consistent with the structures we had earlier derived with Japanese and Chinese data. We named these as we did above: "Deepening existing relationships," "Expanding current interpersonal network," and "Information sharing and exchange." Internal consistency for each of the scales was examined. The Cronbach's alpha of the overall scale was .87, while those of the factors were .80 (4 items), .83 (5 items) and .76 (5 items) respectively.

To determine the concurrent validity of the "SMUGS," the correlations among "SMUGS" and the "MIXI Use-Satisfaction Scale" (MUSS), "Web-blog Utility Scale" (WUS), and the correspondent subscale were examined. The results are presented in Table 2.

4.5. Confirmatory Factor Analyses of the Common Factor Structure of the "SMUGS"

We followed up on the validity of our factor structure choice from the exploratory factor analysis by conducting a series of confirmatory factor analyses. We used structural equation modeling on the assumed factor structure to determine its goodness of fit. Estimation of the hypothesized model resulted in an overall $\chi 2$ value of 193.504 (df= 74; p<.000). The goodness of fits is GFI = .919; AGFI =. 926; RMSEA = .072; AIC = 255.504.

Then, according to the modification index, we modified the initial model by adding

covariance between Items: 08 and 10; 04 and 11; 11 and 13. This model resulted in an overall $\chi 2$ value of 159.424 (*df* =71; p<.000). Consequently, the fit of this model is GFI = .933; AGFI =. 901; RMSEA = .062; AIC = 227.424, reached an acceptable level.

4.5. Examining the Cross-group Validity of the "SMUGS" through Simultaneous Analyses

To examine the cross-validation of the "SMUGS," we conducted simultaneous structural equation analyses with the Japanese and Chinese data sets. Ultimately, in this research, the goal was to judge the quality of the measuring instrument across the Japanese and Chinese populations where the measured concepts may or may not have the same measurement value, so the configural invariance (model A, i.e., Are the structures the same across groups?) and the metric invariance (model B, i.e., Are the regression weights equal across groups?) were examined.

As a result, model A testing for configural invariance indicated the $\chi 2$ value to be 256.908 (*df* =142). The *CFI* and the *RMSEA* values were acceptable at .932 and .051, respectively. This provided evidence that the hypothesized multi-group model of "SMUGS" structure fit adequately well across both Japanese and Chinese populations. (See Figure 1)

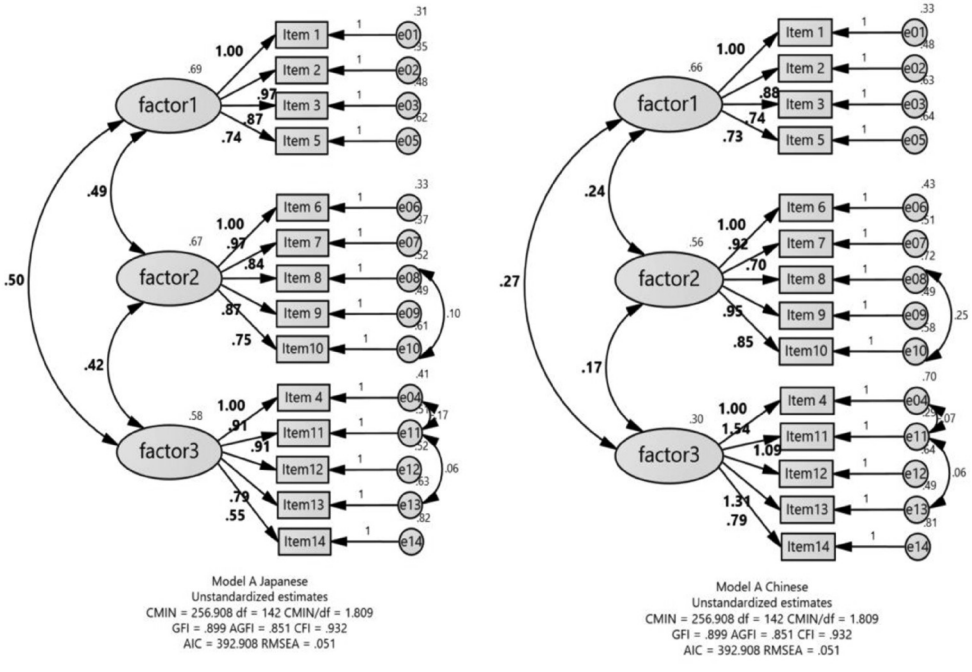

Figure 1. Examine the Configural Invariance of SMUGS

The fit of model B was consistent with model A (CFI= .932; RMSEA= .049). However, of prime importance in testing for the invariance of the factor loadings were the $\chi 2$ difference

($\Delta\chi$ 2) and the CFI difference tests. According to the general notion of Joreskog (1971), a statistically significant value of $\Delta\chi$ 2 indicates rejection of null hypothesis of non-invariance. In the present model, the $\Delta\chi$ 2(11) =9.882 indicated evidence of non-invariance. However, numerous studies have argued that from a practical perspective, the requisite conditions are unrealistic. Cudeck & Brown (1983), as well as MacCallum, Roznowski, & Necowitez (1992) claimed that the using χ2 difference to test invariance is excessively stringent, particularly due to the fact that SEM models are only approximations of reality. Consistent with this, Chueng and Rensvold (2002) suggested that it may be a more reasonable way to make invariance decisions on a difference in CFI (ΔCFI) rather than on $\Delta\chi$ two values. They reasoned that ΔCFI is a more robust statistics for testing the between-group invariance of CFA models because they are not affected by sample size. The Δ*CFI* value of the present model of .000 contended that the measurement model was completely invariant, in that this value was less than the .01 cutoff point proposed by Cheung and Rensvold (2002). From this information, we can conclude that the hypothesized multi-group model is metric invariant (See Figure 2). These results offer promise that the new scale could be used in further cross-cultural comparisons.

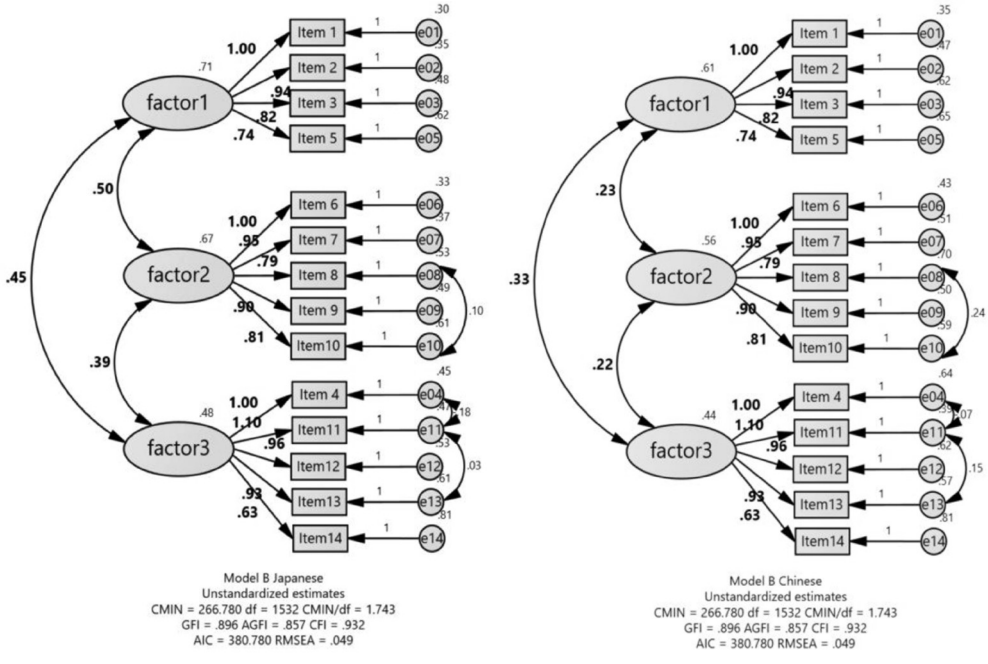

Figure 2. Examine the Metric Invariance of SMUGS

5. Discussion

The primary goal of the present study was to explore why people engage in SNS activities in two representative East Asian cultures, Japan and China, within the framework of the use and

gratification approach. Given that these cultures are essentially similar, despite a huge gap in political systems, we focused on "social utility," which we deemed would be of particular relevance to these East Asian, collectivistic cultures.

5.1. The Structure of SMUGS in Japan and China

The results of a series of factor analyses suggest that there are three distinct factors which motivate users toward engaging in SNS interactions. These are: "Deepening existing relationships" (DER); "Expanding current interpersonal network" (ECIN); and "Information sharing and exchange" (ISE). This factor structure is basically consistent with the classification of Internet use motivation suggested by Western researchers. For example, Ellison et al. (2007) classified the purpose of social media usage as being, " (to) present themselves, articulate their social networks, and establish or maintain connections"; Park, Kee and Valenzuela (2009) categorized social media use with "socializing, entertainment and information"; Bonds-Raacke and Raacke (2010) described the reasons for the use of social media were "communication, friendship and information". However, some scholars (e.g., Sundar & Limperos, 2013; Sundar & Bellur, 2011) criticized that the traditional typologies are conceptualized and operationalized too broadly (e.g., socializing). The rough and over-simplified measures may not be reflective of some specific and nuanced gratification potentially obtained from new media. We resolved the problem by expanding the content of the items including information of communication targets and expectancies. An example of an item we adopted is: "I feel the relationships with my face-to-face friends are deepening through use of social media."

Cronbach alpha of the overall scale, those of the factors, correlations among the SMUGS, MUSS, WUS and the correspondent subscales were calculated, and the results indicated that the tested scale has sufficient internal reliability and concurrent validity.

The correlations among factors are also considered quite high in the present study (e.g., Factors 1 vs 3 r= .289, Factor 2 vs 3 r = .497; Factor1 vs 2 r = .396). We attempted to explain these results by applying Putnam's (2000) Social Capital theory. He identified two types of social capital: "bridging" (weak ties), and "bonding" (strong ties), which in the present study, the weak ties correspond to "new relationships built online," and the strong ties correspond to "existing relationships maintained online." The boundary between strong ties and weak ties is not clear, and the online and offline relationships are interchangeable, which explain that there is a relatively high correlation between Factors 1 and 2. Relational information is always spreading through weak ties and strong ties, while weak ties bridging social capital (Putnam, 2000; Ellison et al., 2007) can provide more information, and in the case of the workplace, more employment-related benefits than strong ties (Granovetter, 1973). Perhaps this is why there are relatively strong co-relationships between Factors 1 and 3, and Factors 2 and 3, and why the latter is higher than the former as well.

Factor 1: Deepening Existing Relationships

1. I feel connected with my face-to-face friends through use of social media.
   ソーシャルメディアでは、実生活での友人とのつながりを感じる。
   通过社交网络工具的使用，能感觉到与现实生活中的友人的联络。
2. I feel the relationships with my face-to-face friends are deepening through use of social media.
   ソーシャルメディアを通じて、実生活での友人との関係が深くなる気がする。
   通过使用社交网络工具，感觉自己与现实生活中的朋友的联系也得到了进一步加深。
5. I think my face-to-face relationships will be enriched by using social media as a contact tool.
   連絡手段としてソーシャルメディアを利用すると、対面的な人間関係が豊かになる。
   以社交网络工具作为联络手段，会更好地丰富我们在现实生活中的人际关系。
3. I can freely exchange opinions with my friends through social media.
   ソーシャルメディアを通じて、友人と気軽に意見を交換できる。
   社交网络工具，能够轻松地与朋友互通有无。

Factor 2: Expanding Current Interpersonal Network

6. I feel like I can become friends with people who share the same interest as me by following each other (adding each other as friends).
   ソーシャルメディアで同じ趣味や関心を持っている人とお互いにフォロー（友人リストに追加）すると、友達になれるような気がする。
   在社交网络上，与有同样兴趣爱好的人们相互关注（即，将对方加入自己的朋友列表）后，会感觉到与对方成为了朋友。
7. I can become close to people who can relate to my comments on social media.
   ソーシャルメディアで自分に共感してくれる他者に出会うと、親しくなれる。
   在社交网络平台上遇到和自己有共鸣的人，便容易与对方熟悉起来。
9. Somehow I feel more apt to be able to make friends by using social media.
   ソーシャルメディアを使うと、何となく友達ができそうな気がする。
   通过社交网络工具的使用，感觉自己能够结识新朋友。
10. Although I may have never met them in real life, I feel like we mutually encourage each other through social media.
    実際に会ったことがない人でも、ソーシャルメディアを通じて、自分と一緒にがんばっている気がする。
    即使是未曾谋面的朋友，通过社交网络工具，也能够感受到对方在和自己一起努力。
8. I feel like I am not alone when I meet someone with the same hobby or interests on social media.
   ソーシャルメディアで同じ趣味や関心を持っている人に出会うと、自分がひとりではない気がする
   在社交网络平台上遇到有相同兴趣爱好的人让我再不觉得孤单。

Factor 3: Information Sharing and Exchange

11. I feel I can freely interact with others through social media, regardless of how trivial the conversation topic may be.
大したことではない話題でも、ソーシャルメディアを介して気軽にやり取りができる。
即使是不太重要的话题，通过社交网络工具也可以轻松谈及。
13. I can attain advice and learn from others through social media.
ソーシャルメディアを通じて、他人から経験やアドバイスを獲得することができる。
通过社交网络工具，可以获得他人的经验以及建议。
12. Social media is a useful tool for attaining and sharing my interests through social media.
ソーシャルメディアを通じて、自分の趣味や関心のある情報を獲得・交換することが便利である。
通过社交网络工具，能够很方便地获取、交流与自己兴趣相关的信息。
4. I can keep updated with my family and friends through social media.
ソーシャルメディアを通じて、友人や家族とお互いの近況を報告したり、気持ちを共有したりすることができる。
通过社交网络工具，能够与家人和朋友相互汇报近况，分享心情。
14. I can view interesting comments about news and recent events through social media.
ソーシャルメディアを通じて、ニュースや最近の出来事などに関する面白い意見を見ることができる。
通过社交媒体平台，我可以看到他人对于近期新闻的有趣的见解。

5.2. Theoretical Implications

While the factor structure by and large replicated that of Western scales, it was the content that differed. In comparison with the Facebook Utility Scale (Ellison et al., 2011), our scale contained some intricately culturally-nuanced traits. For instance, in creating the draft of items, we asked participants to finish subjective report tasks on why they use SNS, and whom they communicate with. The typical responses were formulated like: “I feel I can freely interact with others through social media, regardless of how trivial the conversation topic may be”, “I feel like I am not alone when I meet someone with the same hobby or interests on social media”, “I can freely exchange opinions with my friends through social media”. In sum, East Asian participants tend to formulate their motives with more hesitation and social concerns compared to their Western counterparts, who have assertive needs on SNS. In terms of relational mobility, mobile persons (e.g., European American) seek out new relationships, while weeding out existing ones based on their personal choices, and for the sake of their utility, while non-mobile persons (e.g., East Asian) who have relatively stable relationships have less freedom to do so. When considering interpersonal relationships within a stable network, East Asians are more concerned with important others’ feelings and evaluations, so they adopt a cautious approach to ensure that their goal and requests won’t be rejected by others (Hamamura & Heine, 2008). With this in mind, we infer that although both high mobile people and low mobile people value interpersonal relationships, their orientations of motivations might be different.

To this effect, Higgins' regulatory focus theory (Higgins,1998, Higgins, Shah, & Friedman, 1997) offers a promising theoretical framework to interpret our results. According to his theory, promotion focus oriented individuals seek to advance oneself, and aspiring gains, while those characterized by prevention focus tend to avoid personal loss, including loss of face. Kurman and Hui's (2011) review noted that Eastern cultures (mostly East-Asian cultures) are considered prevention oriented, whereas Western cultures are considered promotion oriented.

Taking the perspective of this theoretical framework, it would stand to reason that Western individuals engage in SNS to actively promote themselves, seeking new and rewarding relationships, accentuated by their relational mobility. Their goal in SNS interaction, then, would be to actively express and assert themselves to fulfill their self-esteem needs. Meanwhile, East Asians tend to be more preventively oriented, primarily concerned with avoiding negative outcomes (i.e., losing existing relationships), and their goals lean toward avoiding breaking social norms, and betraying expectations from others. In our study, we saw that Chinese and Japanese reported SNS usage motives consistent with such concerns and worries. Hence, these results hint toward the possibility that the basis of UGT may contextually differ across cultures.

5.3. Practical Implications

Findings from this study have practical implications for understanding and assessing East-Asians' SNS usage motives and gratifications. Research in this area tends to be dominated by investigators from American, and other English speaking countries. We set out to conduct this research in our quest to determine the uniqueness of East Asian SNS uses and gratification as compared to the Western. We chose China and Japan, with geographically and characteristically similarity, two representatives of East-Asian culture to compare the general motives behind why people use SNS, and how SNS fulfill their needs. Our results indicate both the commonality and distinctiveness of SNS uses and gratifications between Western and Asian cultures, which provides cross-cultural understanding of this theoretical framework.

Our findings advance our understanding of adult social activities and relationship engagement through SNS. While other studies had employed the "Social Life Questionnaire" (Archibald, Bartholomew & Marx, 1995) to measure young adults' social activities and relational satisfaction, Russell, Cutrona, McRae, and Gome (2012) claimed that this scale, "does not involve contact with others using different forms of technology, such as the Internet or cell phones, that are commonly employed by high school students" (pp. 20). We constructed an original scale in this study with the above in mind, and feel that it would be useful for subsequent research in this matter.

Another distinguishing feature of this study is, that we have compared China with Japan, something few studies had attempted, perhaps due to the platform differences between the two countries, pertaining to free access to global internet services. While the SNS services may not be the same, the present study indicated from an interpersonal communication perspective, that Chinese users have similar SNS usage motives, and receive similar benefits from SNS participation as do the Japanese. Our study may have been the first step toward developing a comprehensive and comparable measure for exploring Chinese SNS uses and gratification, which many have likely thought would differ greatly due to internet access restrictions.

5.4. Limitations and Future Directions

There are several limitations of this research. First, although we expanded on social gratification, and developed a more robust measure for future cross-cultural comparisons, there are other relevant psychological motivations which may vary from culture to culture. Depending on the culture, motivations such as attention seeking, emotional support, and self-confirmation may also play a big role in determining gratification. Future studies should explore the structural and contextual differences of SNS use motives across cultures.

Second, our study is based on a mainstream UGT (audience-centered) approach which emphasizes general, overarching social psychological factors, which may miss out on medium-specific gratifications. This focus on a finite set of human needs is somewhat limiting, particularly when newer gratifications are derived through emergent media (Sundar & Limperos, 2013). Therefore, some scholars (e.g., Lichtenstein & Rosenfeld, 1983; Rubin, 2009; Ruggiero, 2000; Sundar & Limperos, 2013) suggest to broaden the focus beyond social and psychological origins of need, and also to consider potential influence of the perceived capabilities of media technology upon our gratification. With this in mind, further studies should consider nuanced, specific medium factors such as media modality, agency, interactivity and navigability as well to increase the scope, relevance, and the robustness of UGT for explaining new media use and effect.

Third, we assume that structure and content of SNS use motives and gratifications may differ across cultures, but we have yet to directly examine the effects of relational mobility, and regulatory focus on SNS use motives. Although the dichotomous operationalization of culture as defined by individualism-collectivism has been solidly established in the intercultural communication field, a more finely tuned operationalization of culture should be adopted, i.e., relational mobility and regulatory focus.

References

Abeele, Mariek Vanden & Keith Roe. (2011). New life, old friends: A cross-cultural comparison of the use of communication technologies in the social life of college freshmen. *Young*, *19*(2), 219-240. doi:10.1177/110330881001900205

Anderson, Beth; Fagan, Patrick; Woodnutt, Tom & Chamorro-Premuzic, Tomas. (2012). Facebook psychology: Popular questions answered by research. *Psychology of Popular Media Culture*, *1*(1), 23. doi: 10.1037/a0026452

Archibald, Fraser S.; Bartholomew, Kim & Marx, Ronald. (1995). Loneliness in early adolescence: A test of the cognitive discrepancy model of loneliness. *Personality and Social Psychology Bulletin, 21*(3), 296-301.

Bonds-Raacke, Jennifer & John Raacke. (2010). MySpace and Facebook: Identifying dimensions of uses and gratifications for friend networking sites. *Individual Differences Research*, *8*(1).

Burke, Moira & Kraut, Robert E. (2016). The relationship between Facebook use and well being depends on communication type and tie strength. *Journal of Computer Mediated Communication*, *21*(4), 265-281. doi: 10.1111/jcc4.12162

Callaghan, Patrick & Morrissey, Jean. (1993). Social support and health: A review. *Journal of Advanced Nursing*, *18*(2), 203-210. doi: 10.1046/j.1365-2648.1993.18020203.x

Cheung, Gordon W. & Rensvold, Roger B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural equation modeling*, *9*(2), 233-255. doi: 10.1207/S15328007SEM0902_5

Cho, Seong Eun & Park, Han Woo. (2013). A qualitative analysis of cross-cultural new media research: SNS use in Asia and the West. *Quality & Quantity*, 1-12.

Choi, Sejung Marina; Chu, Shu-Chuan & Kim, Yoojung. (2014). Culture-laden social engagement: A comparative study of social relationships in social networking sites among American, Chinese and Korean users. In Kirk St. Amant, & Sigrid Kelsey (Eds.), *Computer-mediated communication across cultures: International interactions in online environments* (pp. 1-16). Hershey, PA: Information Science Reference

Cudeck, Robert & Browne, Michael W. (1983). Cross-validation of covariance structures. *Multivariate Behavioral Research*, *18*, 147–167. doi:10.1207/s15327906mbr1802_2

Ellison, Nicole B.; Steinfield, Charles & Lampe, Cliff. (2007). The benefits of Facebook "friends:" Social capital and college students' use of online social network sites. *Journal of Computer Mediated Communication*, *12*(4), 1143-1168. doi: 10.1111/j.1083-6101.2007.00367.x

Ellison, Nicole B.; Steinfield, Charles & Lampe, Cliff. (2011). Connection strategies: Social capital implications of Facebook-enabled communication practices. *New Media & Society*, *13*(6), 873-892.

Falk, Carl F.; Heine, Steven J.; Yuki, Masaki & Takemura, Kosuke. (2009). Why do Westerners self enhance more than East Asians?. *European Journal of Personality*, *23*(3), 183-203. doi: 10.1002/per.715

Gong, Wen; Stump, Rodney L. & Li, Zhan G. (2014). Global use and access of social networking web sites: A national culture perspective. *Journal of Research in Interactive Marketing*, *8*(1), 37-55.

Granovetter, Mark S. (1973). The strength of weak ties. *American Journal of Sociology*, *78*(6), 1360-1380.

Hamamura, Takeshi & Heine, Steven J. (2008). The role of self-criticism in self-improvement and face maintenance among Japanese. In E. C. Chang (Ed.), *Self-criticism and self-enhancement: Theory, research, and clinical implications* (pp. 105-122). Washington, DC, US: American Psychological Association. doi: 10.1037/11624-007

Heine, Steven J.; Lehman, Darrin R.; Peng, Kaiping & Greenholtz, Joe. (2002). What's wrong with cross-cultural comparisons of subjective Likert scales?: The reference-group effect. *Journal of Personality and Social Psychology*, *82*(6), 903.

Higgins, Tory E. (1998). Promotion and prevention: Regulatory focus as a motivational principle. *Advances in Experimental Social Psychology*, *30*, 1-46. doi:10.1016/S0065-2601(08)60381-0

Higgins, E. Tory; Shah, James & Friedman, Ronald. (1997). Emotional responses to goal attainment: Strength of regulatory focus as moderator. *Journal of Personality and Social Psychology*, *72*(3), 515.

Jackson, Linda A. & Wang, Jin-Liang. (2013). Cultural differences in social networking site use:

A comparative study of China and the United States. *Computers in Human Behavior*, *29*(3), 910-921. doi:10.1016/j.chb.2012.11.024

Jaram Park; Young Min Baek & Cha, Meeyoung. (2014). Cross cultural comparison of nonverbal cues in emoticons on Twitter: Evidence from big data analysis. *Journal of Communication*, *64*(2), 333-354. doi: 10.1111/jcom.12086

Joreskog, Karl G. (1971). Simultaneous factor analysis in several populations. *Psychometrika, 36*(4), 409-426.

Katz, Elihu; Blumler, Jay G. & Gurevitch, Michael. (1974). The uses and gratifications approach to mass communication. *Beverly Hills, Calif.: Sage Pubns*.

Kim, Yoojung; Sohn, Dongyoung & Choi, Sejung Marina. (2011). Cultural difference in motivations for using social network sites: A comparative study of American and Korean college students. *Computers in Human Behavior*, *27*(1), 365-372. doi:10.1016/j.chb.2010.08.015

Kotera, Atsushi. (2009). Communication on social networking sites: Uses and gratifications from 'mixi' and the relationship to mobile e-mail use among Japanese youth. *Journal of Japan Society of Information and Communication Research*, 27 (2), 55-66. (in Japanese)

Kraut, Robert & Burke, Moria. (2015). Internet use and psychological well-being: Effects of activity and audience. *Communications of the ACM*, *58*(12), 94-100. doi:10.1145/2739043

Kurman, Jenny & Hui, Chin Ming. (2011). Promotion, prevention or both: Regulatory focus and culture revisited. *Online Readings in Psychology and Culture*, *5*(3), 3. doi:10.9707/2307-0919.1109

Lai, Linda SL & Turban, Efraim. (2008). Groups formation and operations in the Web 2.0 environment and social networks. *Group Decision and Negotiation*, *17*(5), 387-402. doi: 10.1007/s10726-008-9113-2

Leung, Kwok & Bond, Michael Harris. (1989). On the empirical identification of dimensions for cross-cultural comparisons. *Journal of Cross-Cultural Psychology*, *20*(2), 133-151.

Lichtenstein, Allen & Rosenfeld, Lawrence B. (1983). Uses and misuses of gratifications research: An explication of media functions. *Communication Research*, *10*(1), 97-109.

Ma, Lin. (2013). Electronic word-of-mouth on microblogs: A cross-cultural content analysis of Twitter and Weibo. *Intercultural Communication Studies*, *22*(3), 18-42.

MacCallum, Robert C.; Roznowski, Marry & Necowitz, Lawrence B. (1992). Model modifications in covariance structure analysis: The problem of capitalization on chance. *Psychological Bulletin*, *111*(3), 490.

Morling, Beth & Lamoreaux, Marika. (2008). Measuring culture outside the head: A meta-analysis of individualism—collectivism in cultural products. *Personality and Social Psychology Review*, *12*(3), 199-221.

Park, Namsu; Kee, Kerk F. & Valenzuela, Sebastián. (2009). Being immersed in social networking environment: Facebook groups, uses and gratifications, and social outcomes. *Cyber Psychology & Behavior*, *12*(6), 729-733. doi:10.1089/cpb.2009.0003

Putnam, Robert D. (2000). Bowling alone: America's declining social capital. In *Culture and politics* (pp. 223-234). Palgrave Macmillan US.

Rubin, Alan M. (2009). The uses-and-gratifications perspective on media effects. In J. Bryant & M. B. Oliver (Eds.), *Media effects: Advances in theory and research, 3rd ed*. (pp. 165–

184). New York, NY: Routledge
Ruggiero, Thomas E. (2000). Uses and gratifications theory in the 21st century. *Mass Communication & Society*, *3*(1), 3-37. doi:10.1207/S15327825MCS0301_02
Rui, Jian & Stefanone, Michael A. (2013). Strategic self-presentation online: A cross-cultural study. *Computers in Human Behavior*, *29*(1), 110-118. doi:10.1016/j.chb.2012.07.022
Russell, Daniel W.; Cutrona, Carolyn E.; McRae, Cynthia & Gomez, Mary. (2012). Is loneliness the same as being alone? *The Journal of Psychology*, *146*(1-2), 7-22. doi:10.1080/00223980.2011.589414
Schug, Joanna, Yuki, Masaki & Maddux, William. (2010). Relational mobility explains between-and within-culture differences in self-disclosure to close friends. *Psychological Science, 21*(10), 1471-1478.doi: 10.1177/0956797610382786
Shuter, Robert & Chattopadhyay, Sumana. (2014). A cross-national study of cultural values and contextual norms of mobile phone activity. *Journal of Multicultural Discourses*, *9*(1), 61-70. doi:10.1080/17447143.2013.859262
Sato, Kosuke; Yuki, Masaki & Norasakkunkit, Vinai. (2014). A socio-ecological approach to cross-cultural differences in the sensitivity to social rejection: The partially mediating role of relational mobility. *Journal of Cross-Cultural Psychology*, *45*(10), 1549-1560.
Sundar, Shyam S. & Bellur, Saraswathi. (2011). Concept explication in the Internet age: The case of interactivity. In Erik P. Bucy & R. Lance Holbert (Eds.), *Sourcebook for political communication research: Methods, measures, and analytical techniques*, (pp.485-500). New York & London: Routledge.
Sundar, Shyam S. & Limperos, Anthony M. (2013). Uses and grats 2.0: New gratifications for new media. *Journal of Broadcasting & Electronic Media*, *57*(4), 504-525. doi:10.1080/08838151.2013.845827
Thoits, Peggy A. (2011). Mechanisms linking social ties and support to physical and mental health. *Journal of Health and Social Behavior 52*(2), 145–161.
Vasalou, Asimana; Joinson, Adam N. & Courvoisier, Delphine. (2010). Cultural differences, experience with social networks and the nature of "true commitment" in Facebook. *International Journal of Human-Computer Studies*, *68*(10), 719-728. doi:10.1016/j.ijhcs.2010.06.002
Wang, Zheng; Tchernev, John M. & Solloway, Tyler. (2012). A dynamic longitudinal examination of social media use, needs, and gratifications among college students. *Computers in Human Behavior*, *28*(5), 1829-1839. doi:10.1016/j.chb.2012.05.001
Wheeler, Ladd; Reis, Harry T. & Bond, Micheal H. (1989). Collectivism-individualism in everyday social life: The middle kingdom and the melting pot. *Journal of Personality and Social Psychology, 57*(1), 79.
Wijesundara, Tharaka Ruwan. (2014). Motives and usage patterns of social networking sites: Exploring cultural differences between United States & Sri Lanka. *Canadian Social Science, 10*(6), 176-185.
Wu, Doreen D. & Li, Chaoyuan. (2016). Sociolinguistic approaches for intercultural new media studies. *Intercultural Communication Studies*, *25*(2), 14-31.
Yamashita, Kiyomi; Kawaura, Yasuyuki; Kawakami, Yoshiro & Miura, Asako. (2005). *The psychology of web-blog*. NTT Syupan. (in Japanese)
Yuki, Masaki & Schug, Joanna. (2012). Relational mobility: A socioecological approach to

personal relationships. In Omri Gillath, Glenn Adams & Adrianne Kunkel (Eds.), *Decade of behavior 2000–2010. Relationship science: Integrating evolutionary, neuroscience, and sociocultural approaches* (pp. 137-151). Washington, D.C.: American Psychological Association.

Author Note

Wenzhen XU is a Ph.D. student in the social psychology lab at Nagoya University, Japan. He holds an MA in psychology from the same university. He is interested in planning and executing theory-driven research, and he is actively contributing to on-going research projects in the social psychology/communication lab. He is currently conducting several cross-cultural and interdisciplinary research projects in the areas of Computer-mediated communication, Self-presentation motivation and skill, Social media effect on psychological well-being.

Li Liu is a professor of social psychology at Beijing Normal University, China. He holds a Ph.D. in social psychology from the London School of Economics and Political Science. He has researched the areas of quality of life, HIV/AIDS-related stigma, discrimination against rural-to-urban migrants in China, underlying psychosocial factors of ethnic conflict in China, and social/cultural psychological underpinnings of corruption.

Jiro Takai is a professor of social psychology at Nagoya University, Japan. He has a Ph.D. in Communication from the University of California, Santa Barbara. He has published widely in the area of interpersonal and intercultural communication, in journals including *International Journal of Intercultural Relations*, *Journal of Social Psychology*, and *Japanese Journal of Experimental Social Psychology*. His special areas of research center on interpersonal competence, and interpersonal conflict management.