

To Tweet or Not to Tweet: Factors Affecting the Intensity of Twitter Usage in Japan and the Online and Offline Sociocultural Norms

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Japan's external cultural borders are less penetrable and the Japanese Internet is more culturally homogeneous. Yet, Twitter has encountered few barriers in entering the country, and Japan has the highest Twitter penetration rate in the world. This study explored the factors that influence the intensity of Twitter use in Japan through the dual lenses of socioecology and the characteristics of computer-mediated communication. It found that relational mobility and information-sharing intention were significant predictors of Twitter use intensity. Positive relationships between Twitter self-disclosure and relational commitment and between relational commitment and intensity of Twitter use were also supported. Whether Japan's offline social and cultural norms are also communicated in the virtual world is further explained.

Keywords: Twitter, relational mobility, self-disclosure, relational commitment, Japan, anonymity

The worldwide popularity of the social platforms has experienced unprecedented growth in the past decade. Twitter, the microblogging site launched in 2006 that allows users to share 140-character "tweets" with their "followers," had more than 310 million monthly active users by the end of April 2016 (Twitter, 2016). Although Facebook continues to dominate the global social media landscape in 129 of 137 countries, with more than 1.65 billion global users active monthly (Facebook, 2016), Twitter has taken over as the most-used social tool in Japan (VincosBlog, 2015). A recent survey found that 26 million people use Twitter in Japan, representing more than half of all social networkers and 20.5% of the total population of the country. Japan has the highest Twitter penetration rate in the world and the Japanese usage is expected to continue to grow, with a predicted 30.1 million users by 2018 ("Japan, India Boast," 2015). Japanese is the most frequently tweeted language after English, and the top-five Twitter accounts are all in Japan (Akimoto, 2011).

Japan's society is relatively more isolated, and the country's external cultural borders are less penetrable than those of many other Asian countries, creating a less transnational cultural sphere in terms of information flow (Farrall, 2012). Just as the Japanese language is more bound to physical territory, so

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is its cyberspace, which has a very local flavor (Coates & Holroyd, 2003; Farrall, 2012). The Japanese Internet is more culturally homogeneous, and Japanese-language websites are not intended for global consumption (McLelland, 2008). Japanese websites that provide services similar to or copies of U.S.-based websites are often more popular than the originals in Japan as they are in Japanese and are consistent with Japanese culture (Akimoto, 2011). The phenomenon is well reflected in Japan's social networking use: Both launched in 2004, Mixi, Japan's local social networking site, easily dominated the country's market by 2007 at a time when Facebook was still struggling to attract Japanese users (Takahashi, 2010).

In contrast, Twitter has encountered few barriers in entering the country. Twitter was embraced by the Japanese as early as 2007 (Akimoto, 2011). Japanese was added to Twitter in 2008, making it the first foreign language available on the site (Sawers, 2011). In 2011, the percentage of Twitter users in Japan was already much higher than in the United States, and there were five times as many Japanese using Twitter as compared with those using Facebook (Akimoto, 2011; Sawers, 2011). Although both Twitter and Facebook are Western-based social media tools, past research has suggested that the preference for Twitter in Japan may be because it allows users to use a pseudonym, whereas Facebook is committed to real-name registration (Acar & Deguchi, 2013). The Japanese tend to be more afraid of negative appraisal and therefore risk lower levels of self-disclosure than Westerners (Keaten, Kelly, Pribyl, & Sakamoto, 2009). The anonymous nature of Twitter means that it is less invasive of the privacy that the Japanese culture values highly (Farrall, 2012). In addition, the Japanese tend to use Twitter for spreading information, especially during times of crisis (Thomson et al., 2012), and Japan's animation fans (*otaku*) enjoy sharing their favorite series, characters, or even their real-time media consumption experiences by using their parody accounts (Nakahara & Hamuro, 2013; Nishimura, 2012).

Past research on Japan's Twitter use has focused mainly on information sharing and source credibility (Thomson et al., 2012; Toriumi et al., 2013) and on the implications for crisis communication during natural disasters (Acar & Muraki, 2011; Miyabe, Miura, & Aramaki, 2012). However, the effects of anonymity and information sharing on the self-disclosure behavior of Japan's Twitter community are inconclusive. In particular, researchers have found that the socioecological environment of Mixi and Facebook reflects the offline context of Japan and the United States, with the former having lower perceived relational mobility than the latter (Thomson & Ito, 2012). Relational mobility explains the extent to which individuals in a given society have the options to voluntarily form new and terminate old relationships (Schug, Yuki, & Maddux, 2010). Furthermore, based on the collectivist cultural backdrop, Japanese society is characterized by higher levels of commitment to regular exchange social partners in more durable relationships. This promotes a reliance on social control and relational obligation in dense, stable networks (Kuwabara et al., 2007; Yamagishi & Yamagishi, 1994). Less is known, however, about the ways in which offline sociopsychological mechanisms may affect Japanese users' behavioral adaptation and online culture.

Some researchers argue that social media users' behavior reflects the offline cultural norms of the majority of the sites' users (Thomson & Ito, 2012), but others suggest that website design can contribute to the satisfaction of users by reflecting their cultural habits and values in the context of communication and technology studies. A culturally well-designed website will communicate the right information, at the right time and place, and its layout and manner will match the cultural expectations of

the user (Hermeking, 2005). Therefore, this study explored the factors that may influence Japanese users' behavior on Twitter through the dual lenses of socioecology and the characteristics of computer-mediated communication (CMC). An integrated model is proposed and the question of whether Japan's real-world social and cultural norms are also communicated in the virtual world is further explored.

Literature Review and Research Hypotheses

Relational Mobility

From the socioecological perspective, relational mobility refers to individuals' perceived opportunity to voluntarily forge new and terminate old relationships within a given context (Schug et al., 2010), and more specifically, it concerns the mobility of social networks (Oishi, 2010). Relational mobility reflects the individual's subjective perceptions of mobility rather than actual movements within social relationships. Past research has suggested that relational mobility differs between Eastern and Western cultures, with the former tending to be less mobile than the latter (J. Chen, Chiu, & Chan, 2009; Schug et al., 2010). In highly mobile societies, such as American society, individuals have relatively loose relationship boundaries, so they can easily enter or leave a relationship (Yuki, Maddux, Brewer, & Takemura, 2005), whereas in less mobile societies, such as Japanese society, social networks are generally more tightly knit with more obligations and responsibilities (Ho, Rousseau, & Levesque, 2006), and there is little movement between social groups (Adams & Plaut, 2003).

In relation to the voluntary aspects of friendship formation, researchers have framed interpersonal connections that underlie cultural variations within the construct of self. Individuals with independent constructions of an unconstrained self, such as North Americans, often have larger friendship networks, and they can freely choose friends with skills and resources that match their own interests, in contrast to those with relational-interdependent constructs of self, who have fewer friends but more obligations and more binding forms of relationship (Adams & Plaut, 2003). These cross-cultural differences in relational mobility are associated with sociopsychological differences in areas such as self-esteem (Heine & Buchtel, 2009), happiness (Yuki, Sato, Takemura, & Oishi, 2013), self-enhancement (Falk, Heine, Yuki, & Takemura, 2009; Heine & Buchtel, 2009), proneness to shame toward preexisting relationships (Sznycer et al., 2012), similarity between friends (Schug et al., 2010), and homophily (Bahns, Pickett, & Crandall, 2012). These all affect relationships between friends as well as self-disclosure (Schug et al., 2010) in the offline environment. Self-disclosure, in particular, is seen as a critical component of relational development (Derlega, Metts, Petronio, & Margulis, 1993).

Relational Mobility and Self-Disclosure

Self-disclosure is voluntarily making oneself "transparent" through communication of information about one's self to another (Jourard, 2008), often with the goal of creating bonds and developing trust (Joinson, 2001). Self-disclosure that changes in depth and breadth across time affects how relationships develop (Levinger & Snoek, 1972) and leads to liking and intimacy (Taylor & Altman, 1987).

Abundant research has found cultural differences in self-disclosure, with East Asians less likely to disclose sensitive information about themselves than their Western counterparts (Asai & Barnlund, 1998; Ting-Toomey, 1991). Cultural differences in self-disclosure have been understood as adaptive behaviors embedded in social environments that differ in the extent to which relationships are forged through personal choice, or are typically the result of environmental settings (Schug et al., 2010). In societies with high relational mobility, relationships are relatively fragile and require extra effort to maintain; thus, self-disclosure can serve as a relationship-strengthening strategy that shows one's trust and commitment to the other (Schug et al., 2010). As new relationships are usually available, the cost of losing current partners is relatively low in highly mobile societies (Yamagishi, Hashimoto, & Schug, 2008). In contrast, in societies with low relational mobility, relational interdependence is often associated with greater potential for conflict and negative reputation, resulting in greater caution about revealing personal information to others to avoid social exclusion (Adams & Plaut, 2003). As East Asians are more concerned about the potentially negative relational consequences, they are even reluctant to disclose personal problems to obtain social support in coping with stress (Kim, Sherman, & Taylor, 2008).

Factors Affecting Self-Disclosure on Twitter

In the online environment, the characteristics of CMC, such as anonymity and reduced cues, facilitate greater self-disclosure than in the offline context (Joinson, 2001). The relative asynchronicity and anonymity of online communication allow individuals control over information they reveal, allowing them to construct an idealized self-presentation to facilitate liking by the message receiver, as the hyperpersonal communication model suggests (Walther, 1996). The recent proliferation of Facebook use, which enables users to create visible profiles and share personal information, has inspired a plethora of research into the impact of identity construction and self-disclosure on interpersonal relationships (Nadkarni & Hofmann, 2012). Unlike Facebook, Twitter remains underexplored. One study found that self-disclosure on Twitter is positively associated with relationship strength, with users disclosing more to closer friends; however, users show more positive sentiment toward their weak ties than to strong relationships as it reflects the social norm toward first-time acquaintances on Twitter (Bak, Kim, & Oh, 2012). A cross-cultural analysis of 4,000 tweets from college students in Japan and the United States found that Japanese students post more self-related messages than their American counterparts (Acar & Deguchi, 2013). Considering that Japan's offline society is characterized by low relational mobility and less self-disclosure, the factors that contribute to higher levels of self-disclosure among Japan's Twitter community are of particular interest.

Thomson and Ito (2012) compared Japanese user's self-disclosure on Facebook and Mixi and found that Mixi users have lower levels of self-disclosure than Facebook users. They argue that Mixi reflects the low relational mobility of Japanese society, whereas Facebook resembles the social environment in North American that is high in relational mobility. On the assumption that relational mobility in the online environment reflects the socioecological characteristics of the platforms' major users, they assume that Twitter's Japanese users show lower relational mobility because the site has a large Japanese user base (Thomson & Ito, 2012). However, it may be that relational mobility differs across the socioecological environments of the online community given the design of the different platforms (Hermeking, 2005). Although Twitter and Facebook are both Western-based platforms, the

characteristics of Twitter are very different from those of Facebook. Twitter does not require a full user profile, and the design function of Twitter facilitates one-way communication, allowing users to tweet brief messages to their followers rather than to friends. Unlike the reciprocal friendships of Facebook, a following on Twitter does not require an invitation or an acceptance. As such, to unfollow is common, and Twitter relationships are more fragile than those on Facebook (Kwak, Chun, & Moon, 2011).

Bearing in mind that relational mobility is positively associated with self-disclosure in the offline environment across different cultures (Schug et al., 2010), it becomes apparent that Twitter's loose network structure (Acar & Deguchi, 2013) provides users with relatively more freedom to form or break relationships. It is therefore plausible to predict that users who perceive higher relational mobility on Twitter are more likely to self-disclose more:

H1: There is a positive relationship between perceived relational mobility and self-disclosure on Twitter.

Anonymity is the inability of others to identify an individual (Marx, 1999). CMC researchers have long been interested in the effects of anonymity: negative effects, such as antisocial behaviors and group norm violations, as well as positive effects, such as those described by the hyperpersonal model of socially desirable interactions (Christopherson, 2007). There are generally two types of anonymity: the visual and the discursive. In the CMC context, the former refers to the situation in which visual cues, such as pictures or videos, are absent, and the latter refers to the condition in which one's personal information, such as name, e-mail, gender, or location, is withheld (Qian & Scott, 2007). Early studies found that CMC can elicit higher levels of self-disclosure than a face-to-face (FtF) situation (Parks & Floyd, 1996). Visual anonymity has been found to facilitate five times more self-disclosure than FtF (Joinson, 2001). Discursive anonymity on blogs is likely to trigger more self-disclosure than visual anonymity (Qian & Scott, 2007). The social identity explanation of deindividuation effects model (Reicher, Spears, & Postmes, 1995) also places anonymity at the core of online relationships and suggests that the visual anonymity of others leads to greater group attraction when a social identity is salient. The anonymity of CMC encourages communication partners to engage in deeper levels of self-disclosure than FtF interactions, leading to a higher sense of intimacy (Tidwell & Walther, 2002).

In Japan, it is generally quite normal to alter one's presentation of self in different situations (Kashima et al., 2004). Researchers have found higher levels of anonymity among Japanese users than among American users in MySpace, and Japan's Mixi users tend to be highly anonymous across different age and gender groups (Bovee & Cvitkovic, 2009). Twitter allows users greater anonymity than Facebook, with the site giving priority to the message rather than to the identity of the message sender (Huberman, Romero, & Wu, 2008). The reduction of social pressure caused by anonymity may be one of the reasons for using Twitter in preference to Facebook (Hughes, Rowe, Batey, & Lee, 2012). Japanese users feel more comfortable to self-express on Twitter as the site is not considered a direct interpersonal communication tool but rather is a platform on which self-related messages are shared without worrying about social norms (Acar & Deguchi, 2013). Thus,

H2: There is a positive relationship between anonymity and self-disclosure on Twitter.

With the potential for broadcasting information to a wide audience base through brief messages, Twitter is used more for information purposes than for social interactions (Hughes et al., 2012). The characteristics of Twitter are more oriented toward news media than social networks, and the informativeness of a tweet is a major determining factor in followers' decisions to follow or unfollow (Kwak, Lee, Park, & Moon, 2010). People are motivated by the opportunity to propagate knowledge and self-disclosure is intrinsically rewarding (Tamir & Mitchell, 2012). Individuals who voluntarily share information tend to have special expertise or professional knowledge related to the topics they disclose and are more likely to reveal true insights or to express their own opinions (Lee, Im, & Taylor, 2008). Research on Facebook also found that users who are motivated by expressive information sharing are more likely to post status updates to present their thoughts and emotional states (Smock, Ellison, Lampe, & Wohn, 2011). Self-disclosure reflects the extent to which individuals reveal their feelings, thoughts, and experiences to others, including any information exchanged for relationship development (Derlega et al., 1993). Therefore, users are likely to self-disclose when driven by the intention to share information, leading to the following hypothesis:

H3: There is a positive relationship between the intention to share information and self-disclosure on Twitter.

Relational Commitment and Twitter Use

Relational commitment describes the degree to which a communication partner believes an ongoing relationship with another is important enough to warrant maximum effort in maintaining it (Morgan & Hunt, 1994). Commitment is a psychological factor that can directly impact one's decision to persist in a relationship (Rusbult, Martz, & Agnew, 1998). It involves not only the desire to continue the relationship but also the belief that the relationship should continue (Parks & Floyd, 1996). Given that commitment is considered both an implicit and explicit pledge of relational continuity between exchange partners (Dwyer, Schurr, & Oh, 1987), highly committed individuals are perceived as being strongly dependent on their partners and the relationships with them (Li, Browne, & Wetherbe, 2006). The commitment of individuals to a community may be based on their feelings of closeness to other group members, strong identification with the group, shared interests, obligation to the community, or even the risks of leaving the community (Ren, Kraut, Kiesler, & Resnick, 2012).

Self-disclosure shows one's willingness to be vulnerable to one's partner, and it is an important relational variable associated with relationship qualities such as love, satisfaction, and commitment (Park, Jin, & Jin, 2011; Sprecher & Hendrick, 2004). Self-disclosure serves a psychological need for belonging by facilitating relationship development, leading to positive affect both online and offline (Choi, Yoon, & Lacey, 2013). CMC users who anticipate a long-term commitment are more likely to engage in greater self-disclosure (Gibbs, Ellison, & Heino, 2006). Although the Japanese are generally not expected to express their true feelings to outgroup members, they tend to give a higher rating to togetherness, trust, warmth, and understanding among their in-group friends, as compared with their American counterparts (Gudykunst, 2003). Given that mutual disclosure of feelings and thoughts between friends is valued in the formation of committed relationships and that self-disclosure is an important mechanism in relationship

development, I predicted that users who disclose more on Twitter may show more interpersonal commitment to other users in the community:

H4: Self-disclosure on Twitter will be positively associated with relational commitment.

Despite the design function of Twitter as a broadcasting platform for information diffusion, it can also serve as a venue for collaboration and conversation, and for forming new social connections or maintaining existing ties (Gruzd, Wellman, & Takhteyev, 2011). Twitter users are less likely to unfollow their strong ties, and they still prefer to read tweets from their close friends (Kwak et al., 2011). Individuals who have a long-term orientation toward relationships show psychological attachment to their communication partners, and highly committed website users are more likely to continue to use the site (Li et al., 2006). In the online environment, a member's sense of belonging is a determinant of member loyalty (Lin, 2008), and committed members are more likely to provide content and support to other members or to solve group problems (Ren et al., 2012). Thus,

H5: Relational commitment will be positively associated with intensity of Twitter use.

In addition, bearing in mind that relational mobility is the degree to which one has the opportunity to make new friends (Oishi, 2010), Twitter users who perceive a higher sense of relational mobility are likely to use the site more intensively to connect with new ties. Furthermore, researchers have characterized Twitter as news media used to disseminate information (Kwak et al., 2010), and that individuals have both a psychological and cognitive need to share information with others (Wang, 2013). Twitter users who have a greater intention to share information with others may use the site to spread their thoughts and feelings. Therefore, the following hypotheses were proposed:

H6: Relational mobility will be positively associated with intensity of Twitter use.

H7: Information-sharing intention will be positively associated with intensity of Twitter use.

A model including the hypothesized paths is proposed and is illustrated in Figure 1.

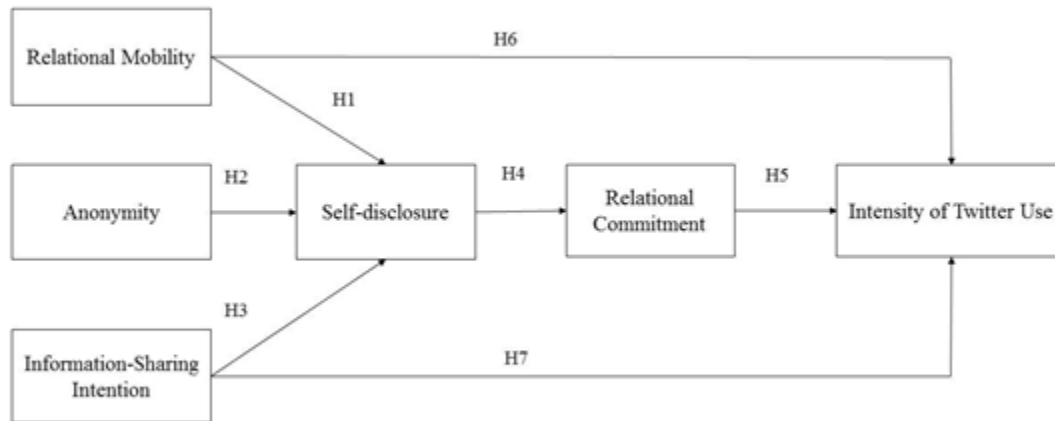


Figure 1. Conceptual model of proposed relationships.

Method

Pilot Study

A pilot study was conducted for six days by sending a questionnaire to a convenience sample of Japanese Twitter users. A total of 50 respondents (54% male and 46% female), aged from 18 to 25 years old, completed the questionnaire. The survey questionnaire was developed in Japanese, with some items adapted from previous studies (e.g., Ellison, Steinfield, & Lampe, 2007; Miller, Berg, & Archer, 1983; Qian & Scott, 2007) translated into Japanese by a research team member. The Japanese professional translator, who is proficient in Japanese, English, and Chinese, conducted the back-translation procedure. Items that did not work together reliably with the rest of the scale because of possible translation problems were dropped from the questionnaire. After removing items with low factor loadings, all construct reliabilities exceeded .70, except anonymity. Once feedback had been collected from some of the pilot study respondents, wording changes were made to some questions relating to anonymity to better reflect Japan's language and cultural context. A revised version of the anonymity measurement was used in the formal survey.

Participants

A recent survey in Japan (Kendall, 2014) found that the social platforms most used by Japanese people on a daily basis are Line (40.4%), Twitter (32.6%), and Facebook (23.5%). Thus, announcements

regarding the survey were made through these three platforms to approach potential participants. An online survey was hosted for three weeks. For a reward, all participants were eligible to participate in a raffle for 10 Quo cards and each was valued at the equivalent of US\$20. Quo is a popular prepaid cash card in Japan.

A total of 372 participants volunteered to take the survey. After removing 37 respondents who were either not Japanese nationals or were not Twitter users, 335 users (66.6% male and 33.4% female) were included in the research sample. Of these, 250 (74.6%) were 35 years and older, 40 (12.0%) were between 25 and 34 years old, and 45 (13.4%) were between 18 and 24 years old. Twenty-eight (8.4%) of them had postgraduate education, 171 (51.0%) had college education, 109 (32.5%) had high school education, and 27 (8.1%) reported having another education level. A market report found that Japan's online population tends to be older than the global average, with only 34% under the age of 35 because the country was an early adopter of mobile Internet, and most Japanese social networks have been developed for mobile use (Singh, 2013). Thus, the age of the respondents in this study may reflect the demographics of general Internet users in the country.

Eighty-nine (26.6%) of the respondents had used Twitter for more than four years and 101 (30.1%) had used Twitter for two to four years while the rest had less than two years of experience. Regarding their daily use of Twitter, 160 (47.8%) spent between 30 minutes and two hours, 87 (26%) spent between two and four hours, 66 (19.7%) spent less than 30 minutes, and the remaining 22 (6.5%) spent more than four hours. One hundred thirty (38.8%), 74 (22%), 54 (16.2%), 77 (23%) of the respondents reported having more than 31 tweets, 15 to 30 tweets, 6 to 14 tweets, and less than six tweets on average, per day, respectively. More than half of the respondents reported following (55.5%) and being followed by (54.0%) more than 301 users and 76 (22.8%) and 81 (24.3%) reported following and being followed by 100 to 300 users while the rest reported following and being followed by less than 100 users on Twitter.

In comparison, 216 (64.5%) and 113 (33.7%) respondents reported having Facebook and Mixi accounts, respectively, with 75 (34.7%) and 93 (82.3%) of these users having more than four years of Facebook and Mixi use, respectively. Seventy-five (34.7%) of Facebook users spent less than 30 minutes on Facebook per day, and 78 (69%) of Mixi users reported that they did not use Mixi on a daily basis.

Measures

All items in this study were measured on a 7-point Likert-type scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Participants were asked to rate the extent to which they agreed or disagreed with each statement.

The relational mobility scale was simultaneously developed in Japanese and English, and was shown to have similar structural and content validity in both the Japanese and U.S. versions (Yuki et al., 2005). It measures the ease or difficulty experienced in forming new relationships or in terminating existing ones in the participants' immediate environment such as school, workplace, and neighborhood (Falk et al., 2009; Schug et al., 2010; Yuki et al., 2005). This study asked the participants to measure the

extent to which they perceive easiness in forming new relationships or in ending relationships on Twitter, thus reflecting the context of the study. Sample items include "I have many chances to get to know other people on Twitter" and "I can choose who I interact with on Twitter."

An adapted version of the self-disclosure scale (Miller et al., 1983) measured the extent to which users self-disclose on Twitter by tweeting and retweeting text, images, and videos. This scale has been adapted and extended in recent studies on social media use and self-disclosure (Hooi, & Cho, 2014; D. Liu & Brown, 2014; Trepte & Reinecke, 2013). Items were modified with wording changes to refer to the Twitter use context. Sample items include "I tweet my hobby on Twitter" and "I tweet important things in my life on Twitter."

Qian and Scott's (2007) anonymity on blogs scale assessed the extent to which participants feel they are visually and discursively anonymous on Twitter. The scale was adapted to reflect the Twitter features and environment. Sample items include "I use a full real name as my Twitter name" and "I use an actual photo of myself on my Twitter profile."

Information-sharing intention measured the extent to which users were willing to share information on Twitter. Items were developed based on motivations found in Twitter use studies (Hughes et al., 2012; I. L. Liu, Cheung, & Lee, 2010). Sample items include "I use Twitter to share useful information to others" and "I use Twitter to present information on my interests."

Relational commitment measured the degree to which participants believe that relationships with others are worth continuing (Kelleher & Miller, 2006). Items were developed based on the relationship commitment scale of Rusbult et al. (1998), and on Thomson and Ito's (2012) measurement of users' experience of relationships on social networking sites. Sample items include "I feel attached to my friends on Twitter" and "I feel committed to maintaining my relationships with others on Twitter."

Twitter use intensity measurements were developed based on Ellison and colleagues' (2007) Facebook intensity scale, with wording changes to gauge the extent to which the users are emotionally engaged in Twitter and the extent to which Twitter is integrated into their everyday activities in addition to the frequency and time spent on the site. Sample items include "Twitter has become part of my daily routine" and "I feel out of touch when I haven't logged onto Twitter for a while."

Results

Measurement Model

Structural equation modeling with maximum likelihood estimations using AMOS 22 was used. To conform to the assumptions of univariate and multivariate normality distribution, I assessed the skewness and kurtosis of the endogenous variables (Kline, 2005) and the Mardia (1970) coefficient. All of the endogenous variables in the model were found to have acceptable skewness (absolute values = 0.603–2.403) and kurtosis (absolute values = 1.172–4.494) values. A multivariate kurtosis with a critical ratio value of 18.783 indicated that the data were distributed normally.

To assess the model fitness, I inspected offending estimates first to ensure that no offending estimate affected the loading of the items (Bagozzi & Yi, 1988). A confirmatory factor analysis was conducted, and all of the fit statistics demonstrated that the measurement model ($\chi^2/df = 1.842$, $p < .001$) was a good fit as suggested by R. E. Anderson, Hair, Tatham, and Black (2006): goodness of fit index (GFI) = .906, comparative fit index (CFI) = .967, incremental fit index (IFI) = .949, root mean square error of approximation (RMSEA) = .050. Thus, the evaluation of construct reliability and convergent and discriminant validity was able to proceed.

Reliability and Validity Tests

Reliability and convergent validity were examined based on Cronbach's alpha coefficients, factor loadings, composite reliabilities, and average variance extracted. The value of Cronbach's alpha for each construct surpassed .70, except for anonymity with $\alpha = .681$, which was close to .70. Composite reliability values for each construct surpassed .70, indicating internal consistency of all measures (R. E. Anderson et al., 2006). Factor loadings of most items were close to or above .60, and all of the average variances extracted were above .50 (see Table 1), accepting the convergent validity (Fornell & Larcker, 1981). Discriminant validity was tested by assessing the 95% confidence interval of a standardized correlation between two constructs. As shown in Table 2, none of the value ranges overlaps the absolute value of 1.00, confirming discriminant validity (J. C. Anderson & Gerbing, 1988).

Table 1. Construct Reliability and Convergent Validity Test.

Variable	Cronbach's α	Composite reliability	Average variance extracted	Factor loadings
Relational mobility	.792	.795	.565	.676–.822
Self-disclosure	.844	.845	.525	.608–.855
Commitment	.817	.830	.626	.615–.911
Anonymity	.681	.748	.531	.417–.920
Intention of sharing information	.799	.872	.635	.518–.963
Intensity of usage	.743	.762	.523	.628–.871

Table 2. Discriminant Validity Test.

Parameter	Bias corrected		Percentile method	
	Lower	Upper	Lower	Upper
Relational mobility ↔ Self-disclosure	.429	.643	.423	.640
Relational mobility ↔ Commitment	.618	.795	.621	.798
Relational mobility ↔ Anonymity	-.220	.061	-.226	.059
Relational mobility ↔ Intention of sharing information	.448	.684	.456	.691
Relational mobility ↔ Intensity of usage	.488	.703	.487	.699
Self-disclosure ↔ Commitment	.138	.387	.142	.391
Self-disclosure ↔ Anonymity	-.112	.199	-.114	.190
Self-disclosure ↔ Intention of sharing information	.328	.532	.328	.532
Self-disclosure ↔ Intensity of usage	.372	.617	.367	.615
Commitment ↔ Anonymity	-.220	.015	-.215	.021
Commitment ↔ Intention of sharing information	.260	.499	.260	.499
Commitment ↔ Intensity of usage	.427	.672	.431	.676
Anonymity ↔ Intention of sharing information	-.122	.113	-.123	.110
Anonymity ↔ Intensity of usage	-.106	.126	-.106	.126
Intention of sharing information ↔ Intensity of usage	.356	.575	.356	.575

Path Analysis

An empirical structural equation model was developed ($\chi^2/df = 2.893$, $p < .001$), giving the satisfactory measurement of the model fitness to the data. The fit indices exhibited an acceptable fit to the data: GFI = .883, CFI = .899, IFI = .900, RMSEA = .075.

The research hypotheses and the hypothesized model were assessed using path analysis, and the analysis also provided results for all of the hypotheses (see Figure 2). Paths between constructs indicate individual hypotheses, and this study estimated each path for statistical significance of the path coefficient. As shown in Figure 2, all of the proposed paths were supported, except the path from anonymity to self-disclosure. Thus, Hypotheses 1, 3, 4, 5, 6, and 7 were supported, and Hypothesis 2 was rejected.

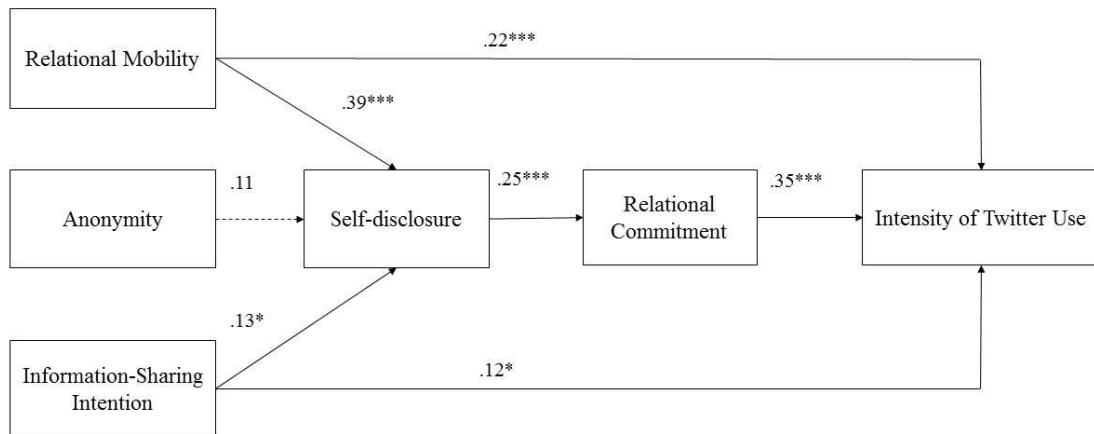


Figure 2. Path coefficients for the proposed model. * $p < .05$. ** $p < .01$. * $p < .001$.**

Discussion

This study explored the factors that may influence the intensity of Twitter use in Japan. The results showed that relational mobility and information-sharing intention were significant predictors of Twitter use intensity. Findings suggest that the socioecological attributes of Western culture, which signify higher levels of relational mobility (Schug et al., 2010), and the characteristics of Twitter, which emphasize information sharing and seeking (Kwak et al., 2010; I. L. Liu et al., 2010), may both encourage greater use of Twitter in Japan.

Past research has found that the anonymity in Japan's online culture is among the highest in the world (Ishii, 2008; Morio & Buchholz, 2009), and that Japanese users prefer social networking services that provide higher levels of anonymity so that they can freely express themselves away from social and cultural pressure (Bovee & Cvitkovic, 2009). The design of Twitter, which focuses more on the message than the sender's identity, thereby allowing higher levels of anonymity (Huberman et al., 2008; Hughes et al., 2012), may particularly encourage self-disclosure among Japanese users. Surprisingly, the relationship between anonymity and self-disclosure was not significant, and that may be due to the strong sense of information privacy in Japanese society, with anonymity often being considered one of the major aspects of what it means to be online (Farrall, 2012). In other words, higher levels of anonymity may not

necessarily trigger greater self-disclosure for Japan's Twitter users as anonymity has long been accepted as the norm in Japan's Internet culture.

On the other hand, this study found that information sharing is positively related to self-disclosure on Twitter, as the design of Twitter focuses more on the sharing of information than on social connectedness (Hughes et al., 2012). It also suggests that individuals who self-disclose on Twitter may be driven by a psychological need to share information or knowledge with others (Wang, 2013) and, for this reason, to maintain equity of exchange and equalize both inputs and outputs (Lee et al., 2008). As predicted, a positive relationship between relational mobility and self-disclosure on Twitter was also supported. Findings here resonate with the findings of an earlier study that following and being followed are not necessarily reciprocal on Twitter, making it an environment with a dense network of followers and followees and a sparser network of actual friends (Huberman et al., 2008). Furthermore, the majority of relationships in Japan's Internet culture are maintained online only because they do not need to disclose an objective self (e.g., name, gender, etc.) but only a subjective self (e.g., emotional state) online (Ishii, 2008). Therefore, the low anticipation of meeting offline may particularly encourage users with higher relational mobility to self-disclose more on Twitter.

Positive relationships between Twitter self-disclosure and relational commitment, and between relational commitment and intensity of Twitter use, were also supported. Findings here are in line with previous studies suggesting that self-disclosure is one way of showing individuals' trust and commitment to the relationship with their communication partners (Park et al., 2011; Schug et al., 2010), and thus give rise to member loyalty (Lin, 2008) and continuous participation (I. Y. Chen, 2007) in the virtual community. In addition, unlike on Facebook, users' Twitter networks are mainly made up of followers and followees rather than actual friends. Researchers have found that even though the Japanese participate in online communities, they are not likely to have large offline social networks (Miyata & Kobayashi, 2008). Given Japan's unique Internet culture (Ishii, 2008) and given that self-disclosure online is not generally associated with offline network convergence among the Japanese (Yum & Hara, 2005), the path from relational mobility to Twitter use intensity, through self-disclosure and relational commitment, does not necessarily suggest that the relational commitment built up in Japan's Twitter community is continued offline. Therefore, it is argued that users with higher relational mobility self-disclose more because of lower anticipation of offline relationships; however, self-disclosure may serve the function of strengthening relational commitment between followers and followees in the online community, leading to a higher intensity of Twitter use.

Theoretical Implications

Several theoretical implications can be drawn from the current study. First, the socioecological aspects of human behavior and culture in the offline environment recently have been recognized in studying the online community. Past research has suggested that levels of perceived relational mobility differ between social networking site platforms in Japan, namely between Mixi and Facebook, the products of Japanese and U.S. origin, respectively, with each reflecting the socioecological characteristics of its own society (Thomson & Ito, 2012). Thomson and Ito (2012) also predicted that Twitter's Japanese users perceive low relational mobility given that the site has a large user base in Japan. However, Thomson and

Ito did not empirically compare levels of relational mobility between Twitter and Facebook's Japanese users. Building on the socioecological framework of the offline environment (Schug et al., 2010), this study provides empirical evidence to support the fact that relational mobility is a significant predictor of Twitter use in Japan. It not only extends the study of relational mobility in the social media environment but also suggests that relational mobility online may not entirely reflect the socioecological traits of the individuals' offline society as a whole. Rather, the perception of relational mobility varies between individuals across different environments, or even within the same online environment, depending on the nature and characteristics of the platforms used. Twitter allows less reciprocal friendship than Mixi or Facebook, and users who are able to perceive higher levels of relational mobility are thus encouraged to disclose more and to use the site more intensively.

Second, abundant research has examined the link between self-disclosure and intimacy in the CMC context (Park et al., 2011). Based on the disclosure-intimacy link that self-disclosure is a critical ingredient in the development of human relationships (Levinger & Snoek, 1972; Taylor & Altman, 1987), this study explored how self-disclosure may facilitate relational commitment, which ultimately influences the intensity of Twitter use. Relational commitment explains one's desire to continue a relationship with another and to ensure its continuance (Parks & Floyd, 1996). Past research on relational commitment and social media use has tended to focus on how the characteristics of social media may facilitate trust, satisfaction, and commitment in a buyer-seller relationship that forges customer or brand engagement in relational marketing frameworks (Michaelidou, Siamagka, & Christodoulides, 2011; Sashi, 2012). Given that users' sense of belonging to a community is a significant predictor of member loyalty in the virtual community (Lin, 2008), this study went one step further to test the extent of users' commitment to other users in the Twitter community. Twitter users' commitment to other users found in this study was in line with the background of Japan's collectivist society that values interpersonal commitment to ensure the mutual benefit of in-group members (Yamagishi & Yamagishi, 1994). Although Twitter provides an environment where relationships are less reciprocal, forming committed relationships with other users can still play an important role in determining its intensity of use. Findings here extended the notion of relational commitment in the offline environment to argue that users' commitment to each other can enhance their engagement in the online community. However, recalling that Japanese Internet users tend to distinguish between their online and offline friends, relational commitment to other Twitter users may not necessarily mean that the relationship is carried over to offline life. Thus, the relational continuity between exchange partners (Dwyer et al., 1987) may be culturally specific and findings here explain only the interpersonal relationships formed within the Twitter community given Japan's particular cyber-cultural background.

Finally, self-disclosure is generally less encouraged in Japan's collectivist society that values group solidarity. In Japan's culture, which emphasizes indirect and nonverbal communication offline, individuals tend to be sensitive to others' true feelings and need to know whether others understand them, when such an understanding has not been verbally expressed, to reduce uncertainty (Gudykunst, 2003). The Japanese are less likely to express their true feelings to strangers in the offline context because a premature expression of honest expectations may elicit a strongly negative response from the other person in a relationship (Miyanaga, 1991). However, past research has found that Japanese Twitter users post more self-related messages than their American counterparts do (Acar & Deguchi, 2013). This

study tried to understand this phenomenon, which runs contrary to the collectivist cultural norm, by investigating factors, such as anonymity, relational mobility, and information sharing, all of which may encourage the Japanese to self-disclose on Twitter. Given the fact that the Japanese tend to seek virtual relationships rather than real-world ones in which to present their true selves without the fear of FtF rejection, the characteristics of Twitter provide an environment that facilitates information distribution. Findings of this study not only provide empirical evidence to explain why the Japanese self-disclose on Twitter but also suggest that individuals' self-disclosure behavior may be nuanced depending on the online and offline cultures they are exposed to.

Limitations and Future Research Suggestions

Limitations of this study include that it examined only Japanese users' perceptions of relational mobility in the Twitter environment and it did not suggest that Twitter users perceive higher relational mobility in Twitter than their Facebook counterparts do, or vice versa, nor did it compare Twitter's Japanese and Western users. Furthermore, past research has found that Facebook users tend to use the site to keep in touch with their acquaintances rather than to develop new relationships as they generally bring their offline connections online (Ellison et al., 2007), making it a less relationally mobile environment. This study examined the connections between relational mobility and self-disclosure and between relational mobility and intensity of Twitter use. Whether users' perceptions of relational mobility may affect their other online behaviors, such as maintaining existing ties or developing new relationships, and the extent to which relational mobility may play a role in social media users' perception of social capital, may need more attention in the future. Finally, gender differences were not assessed because our male sample considerably outnumbered the female sample. Past research has found gender differences in social media use in the United States (Correa, Hinsley, & De Zuniga, 2010), and future research may want to focus on the role gender plays in the Japanese context given that Japan is more oriented to masculine cultures (Costa, Terracciano, & McCrae, 2001).

Conclusion

Despite its limitations, the current study fills a gap in the literature regarding factors that may contribute to the intensity of Twitter use in Japan. Research published in English on Twitter use in Western countries is already voluminous; however, relatively little has been focused on Japan, despite its being one of the three countries with the highest number of Twitter users. The worldwide adoption of social media is phenomenal, but, despite their global reach capabilities, the major social media platforms may not assume that users from different countries will use their services in a similar manner. Although social media enable users to forge and facilitate relationships, the fact that one specific social media platform, designed on a global scale, gains more popularity in certain countries than in others may be associated with cultural factors.

Individuals from distinct cultural backgrounds communicate and manage their social interactions with different goals, norms, and values. This study is the first step to unveil the dynamics of the socioecological factors affecting self-disclosure. This needs to be looked at together with the characteristics of CMC against Japan's cultural context as these may shape interpersonal relationships and

user behaviors in the Twitter community. Future work will compare Twitter use across Eastern and Western countries to explore how Twitter users from various nations may differ in their characteristics, and to better understand the interplay between offline norms and online behaviors. Of particular interest would be Twitter users' sense of relational mobility in relation to their international awareness and perspectives as well as the breadth and depth of the self-disclosure occurring among members. The focus may be broadened to compare user characteristics and behaviors under similar cultural dimensions (e.g., Japanese and Chinese) on two distinct microblogging platforms, Twitter and Sina Weibo (a Chinese equivalent of Twitter), and thereby to extend our understanding of online communication and interactions that occur across different communities.

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