Telematics and Informatics 34 (2017) 1125–1142

Contents lists available at ScienceDirect

Telematics and Informatics

journal homepage: www.elsevier.com/locate/tele

Integrating *guanxi* into technology acceptance: An empirical investigation of WeChat

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ARTICLE INFO

Article history:
Received 11 October 2016
Received in revised form 4 May 2017
Accepted 7 May 2017
Available online 8 May 2017

Keywords:
Guanxi
Ganqing
Mianzi
Renqing
Technology acceptance
Social media

ABSTRACT

Social influence is an important research topic in the technology acceptance literature, in particular for social media. Prior empirical studies have for the most part employed social influence theory to investigate user intentions to continue with social media, while culture driven theories have been neglected. Rather than using social influence theory, we introduced *guanxi* theory to explore how *guanxi* social mechanisms (or processes) influence Chinese users' continuance intentions in WeChat. Specifically, we developed a model that examines the role of *guanxi* as manifested by *renqing*, *mianzi* and *ganqing* in perceived usefulness, perceived enjoyment and continuance intention in WeChat. A survey research method was adopted to test the proposed hypotheses. This study found that *ganqing* has a positive impact on perceived usefulness and continuance intention. *Mianzi* exerts a negative effect on continuance intention but exhibits a positive effect on perceived usefulness. *Renqing* was found to have no significant impact on perceived usefulness and continuance intention. Our study advances the Technology Acceptance Model (TAM) by introducing *guanxi*-based constructs in a Chinese mobile social-messaging application context. Our study also offers alternative insights on *guanxi*-based social influence processes in the Chinese technology acceptance literature.

1. Introduction

With the pervasiveness of wireless networks and mobile devices, mobile social-messaging applications have proliferated in China. These are integrated social media and instant messaging software applications that are designed to run on mobile devices, including smartphones and tablet computers (Karpisek et al., 2015; Walnycky et al., 2015). The China Internet Network Information Center (CINIC) reported that 90.7% of 1.29 billion mobile phone users used mobile social-messaging applications in 2015 (CINIC, 2015). Specifically, WeChat is the most popular form of social media and accounts for 81.6% of the penetration rate in China. Many Chinese, in particular the young and well educated, own smartphones and possess the knowledge to use WeChat to connect with others (Su, 2016).

Researchers have made significant progress in identifying and predicting user acceptance in social media or mobile social-messaging applications. Social influence is one of the predominant theories to explain mechanisms that affect user acceptance in social media technologies (e.g., Gruzd et al., 2012; José Carlos Martins Rodrigues and Ana Maria, 2011; Zhao et al., 2016). Social influence theory posits that compliance, group norms and social identification processes influence user

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http://dx.doi.org/10.1016/j.tele.2017.05.003
0736-5853/

acceptance of social media technologies. Specifically, prior works have integrated social influence into the TAM model to investigate continuance intention in social media technologies (e.g., Gruzd et al., 2012; José Carlos Martins Rodrigues and Ana Maria, 2011; Lin and Lu, 2011; Rupak et al., 2014; Zhao et al., 2016). In this regard, social image and subjective norms are two social influence constructs that are frequently used to examine user behavioral intentions. While the social influence theory is derived from the Western behavioral perspective, the theory has been applied to technology acceptance studies in the global context.

To date, there has been very little research on culture theory-driven research regarding users' behavioral intentions in social media (Jin and Yoon, 2014; José Carlos Martins Rodrigues and Ana Maria, 2011). A recent qualitative study by Keith et al. (2016) explored the importance of social media in *guanxi* relationships by showing that business professionals use social media to establish *guanxi* with their peers in China. Additionally, the descriptive study by China Internet Network Information Center (CINIC) shows that WeChat was used to build *guanxi* in social networking (CINIC, 2015). WeChat is viewed as a mobile social-messaging application featured with low anonymity, high privacy and closed community and thus it is appropriate for *guanxi* based social interactions (Wang, 2016). Notably, the role for *guanxi* in the continuance intention of WeChat users has not been explored empirically. To address this knowledge gap, we draw on *guanxi* theory to integrate culture-based social constructs into the technology acceptance model. The distinctive pattern of social processes in Chinese society is reflected in the *guanxi* concept where interpersonal relationship between non-family members is built upon instrumental and affective components (Chen et al., 2013; Keith et al., 2016; Michailova and Worm, 2003). Thus, *guanxi* can be applied to explain the continuance intention of WeChat in Chinese societies. We assume that *guanxi* influences the social mechanisms for Chinese societies that have deep social-psychological roots with their own cultural values. Some roles of *guanxi* would influence technology acceptance, namely perceived usefulness, perceived ease of use and continuance intention, among WeChat users. Additionally, the affective component of *guanxi* may relate to perceived enjoyment, which in turn is believed to predict continuance intention. The aim of this study is to examine continuance intention of WeChat in Chinese societies as a reflection of *guanxi* based social influence processes. Specifically, this study intends to answer the following research questions:

(1) Do *guanxi*-based social constructs relate to the continuance intention among WeChat users?
(2) Does perceived enjoyment mediates the effect of *guanxi* on continuance intention among WeChat users?

This study answered the recent calls to use culture theory to understand how social influence processes affect the use of social media among societies with distinctive cultural values (Jin and Yoon, 2014; José Carlos Martins Rodrigues and Ana Maria, 2011; Yuan, 2013). The major contribution of this study will be the empirical test on the extension of TAM model with *guanxi*-based social constructs in the context of the Chinese mobile social-messaging applications. This study also provides alternative analysis of the Chinese social influence processes, which consist of affective and instrument elements, and thus may generate new insights for the technology acceptance literature.

2. Theoretical background

2.1. Technology acceptance theories

The Technology Acceptance Model (TAM) is one of the most frequently used theories in information systems (IS) research. Similar to the Ajzen's (1985) Theory of Planned Behavior (TPB), the TAM is an extension of the Theory of Reasoned Action (TRA). Specifically, TAM was designed by Davis (1986) to explain IS usage behavior among potential users in an organizational context through a series of causal relationships (external factors-beliefs–attitude–behavioral intention–actual behavior). The TAM introduces two belief variables into the TRA model, namely, perceived usefulness (PU) and perceived ease of use (PEOU) (Davis et al., 1989; Davis, 1986). These beliefs represent the user's subjective probability of engaging in IS adoption behavior. PU can be interpreted as the subjective probability of whether a specific IS will increase the job performance of a user. PEOU is regarded as the extent to which a user believes that adopting the IS will be free of effort. In the TAM model, PU and PEOU have a direct effect on attitudes toward using IS, which influences behavioral intentions and actual information systems adoption. PU also mediates the influence between PEOU and attitudes toward using IS. Additionally, the TAM is a useful model for researchers to identify and manipulate the impacts of external factors on PU and PEOU, thus controlling the ultimate adoption behavior of users.

TAM was extended to the TAM2 to explain user acceptance of IS in workplace settings (Venkatesh and Davis, 2000). Several external factors, moderating factors and relationships are proposed in TAM2. First, social influence and cognitive instrumental processes are conceptualized to have a direct effect on PU. Second, individual differences (or anchors) and system characteristics (or related adjustments) are proposed to influence PEOU. Two moderators, namely experience and voluntariness, are proposed to moderate the relationship between external factors and beliefs and external factors and behavioral intention.

After introducing TAM2, Venkatesh and his colleagues proposed the TAM3 model. TAM3 is a "complete nomological network of the determinants of IT adoption and use" (Venkatesh and Bala, 2008). There are two important theoretical extensions of TAM3. First, TAM3 suggests that the determinants of PU, namely, social influence and cognitive instrumental

processes, will not affect the determinants of PEOU and vice versa. The underlying reason is that neither theory nor the available empirical evidence can prove such crossover-effects (Venkatesh and Bala, 2008). Second, TAM3 posits that the user experience will moderate the effect of PEOU to PU, computer anxiety to PEOU, and PEOU to behavioral intention.

Essentially, TAM models (i.e., TAM, TAM2 and TAM3) are designed to explain user acceptance (or behavioral intention) of IS in organizational settings. Many researchers have used TAM models to explain user acceptance of social media such as LINE, WeChat and Facebook (e.g., Gruzd et al., 2012; José Carlos Martins Rodrigues and Ana Maria, 2011; Lin and Lu, 2011; Rupak et al., 2014; Zhao et al., 2016). These studies largely suggest that social interactions play a vital role in the continuance intentions of social media. The benefits of such social interactions can be recognized as the instrumental benefits of social media (Lin and Lu, 2011). Using the same line of reasoning, we propose that *guanxi* is useful to explain how the Chinese people obtain affective and instrumental benefits through *guanxi*-based dyadic interaction. Thus, *guanxi* can be integrated into the TAM model in this study on the grounds that Chinese users cognitively assess the instrumental and affective benefits of WeChat through *guanxi*-based dyadic interaction.

2.2. Guanxi

Guanxi is a cultural phenomenon that covers virtually every realm of life in the Chinese society (Chan, 2006; Dunfee and Warren, 2001). The concept of *guanxi* is rooted in Confucianism, which exerts a strong influence on Chinese society (Hwang, 1998; Park and Luo, 2001). Essentially, low trust and familial collectivism in Chinese society mean that trust is only extended to family members but not to others (Atuahene-Gima and Li, 2002; Gold and Guthrie, 2002). The Chinese people build dyadic relationships with non-family members when developing their *guanxi* network (Michailova and Worm, 2003). Furthermore, they often participate in social activities to initiate new social relationships, in particular with those who exhibit common attributes such as having the same friends, the same home town, the same school and the same neighborhood (Dong-Jin et al., 2001). In the process of socialization, the Chinese tend to emphasize engaging in the appropriate actions in relation to someone within the same *guanxi* network (Hwang, 1998). Such actions are deemed important for preserving their interdependent role in a *guanxi* network.

Guanxi is a Chinese phrase that is composed of two characters (Luo, 1997). Literally, the character "*guan*" refers to a door or gate, whereas "*xi*" means a tie or relationship. *Guan* can be metaphorically understood as an exclusive circle of social connection in which one within the circle is regarded as an in-group member and the one outside the circle is regarded as a stranger. Together, *guanxi* refers to "pass the gate and get connected" (Lee and Dawes, 2005). *Guanxi* also can be interpreted as connectedness or particularistic ties (Jacobs, 1979; Wang, 2007). Not all relationships can be translated into *guanxi* in Chinese culture. A relationship is only considered *guanxi* when one has possession of some type of social resource that may satisfy the needs of others (Hwang, 1987). Stated differently, the individual is bound by social obligation to help in-group members who need assistance. In this study, we refer to *guanxi* as a special type of social connection or social network that is made up of mutual interests and benefits in which in-group members can seek out others to satisfy his (or her) needs (Dong-Jin et al., 2001; Gold and Guthrie, 2002; Hwang, 1987; Michailova and Worm, 2003; Wang, 2007).

In general, there are three types of *guanxi*-based relationships in Chinese society (Dong-Jin et al., 2001; Hwang, 1987). The first relationship is referred to as an expressive tie, which typically occurs among members of primary groups (i.e., families) and close friends and other congenial social groups. This kind of tie is primarily affective-driven, relatively stable and permanent, although one can use this tie to obtain instrumental benefits. The second relationship is the instrument tie, which is instrumental driven but the tie is typically unstable and temporary. Chinese people for the most part establish an instrument tie with non-family members as a means to attain instrumental benefits. Those who are involved in an instrument tie cognitively evaluate the invested effort and potential rewards. The third relationship is considered a tie with a mixture of expressive and instrumental elements. The Chinese people develop a mixed tie to safeguard the expressive elements in the relationship with others. This kind of tie can be sustained provided that both parties meet each other frequently.

Among these relationships, many Chinese people tend to use mixed ties to engage in dyadic interaction with others and thus obtain needed resources in the future (Dong-Jin et al., 2001; Hwang, 1987). A true *guanxi* consists of affective and instrumental components. One has to develop a good *guanxi* through social interactions over time to create trust between two people (Yen et al., 2011). In general, *guanxi* represents a social exchange rule to illustrate social behavior in Chinese societies, which can be largely classified into three dimensions, i.e., *renqing*, *mianzi* and *ganqing* (Hwang, 1987; Yen et al., 2011). *Renqing* and *mianzi* are the preconditions to establish a *guanxi*, which is an exclusive social circle that involves sharing and exchanging the resources to attain mutual benefits. On the other hand, *qanging* represents an affective construct to measure the strength of *guanxi*-based relations.

Chinese people tend to use the rule of *renqing*, which is a mean of influencing others in a mixed tie relationship, in particular with non-family members (Hwang, 1987). *Renqing* can be broadly understood as relational exchange behavior that is undertaken to attain mutual benefits within *guanxi* (Wang, 2007). *Renqing* closely resembles favor-exchanges in the West (Wong, 1998). *Renqing* is a precondition to supporting systems of gifts and favors in a *guanxi* relationship on a long–term basis. As there is no time limit to return *renqing*, *renqing* is used as a social mechanism to obtain resources from exchange parties in the future when circumstances permit. For example, individuals (benefactors) who anticipate repayment in the future can offer *renqing* to the exchange parties, thus creating indebtedness in a *guanxi* (Hwang, 1987; Wang, 2007). Repayment of *renqing* is a reciprocal obligation and is mutually assured in a *guanxi* (Wang et al., 2007), and the exchange parties are bound by moral obligation to return *renqing* to benefactors (Luo, 1997; Standifird and Marshall, 2000). When both parties

engage frequently in the exchange of *renqing* on a long-term basis, their *guanxi* is strengthened accordingly (Wang et al., 2007).

The Chinese safeguard *mianzi* (Chinese face), i.e., the individual's self-image of his or her social position, respect and moral status, which is to be recognized by others (Hwang, 1987; Wong and Leung, 2001). *Mianzi* is rooted in the interdependent self-concept in Chinese society, whereby one's identity reflects his (or her) social role and public perceptions (Ho, 1976). That is, one is judged by *mianzi* in the social network, whether he (or she) behaves adequately and reasonably based on social position. More prestige means that a person tends to have more interpersonal connections, but *mianzi* can also be useful to establish more *guanxi* (Michailova and Worm, 2003).

In general, a typical Chinese person is sensitive to *mianzi* and is concerned with saving face for himself (or herself) and others (Redding and Michael, 1983). On one hand, inappropriate behavior will cause someone to lose *mianzi* and be embarrassed by the shame. On the other hand, the Chinese tend to preserve the *mianzi* of others because causing others to lose face is deemed aggressive and inappropriate (Ying Han et al., 2014). Failing to preserve each other's *mianzi* will destabilize or end the *guanxi* between two people. It is important to note that *mianzi* and *renqing* go hand in hand in strengthening a *guanxi* (Michailova and Worm, 2003). The exchange party who receives *renqing* from the benefactor must honor his (or her) obligations and offer help when circumstance permits to avoid losing *mianzi*. Otherwise, the exchange party will lose prestige (Luo, 1997; Standifird and Marshall, 2000).

Ganqing can be loosely interpreted as 'feeling' in English (Yen et al., 2011). It represents the emotional ties between two people in a *guanxi* relationship. Specifically, *ganqing* measures the emotional attachment between two people, which is an indicator of closeness in a *guanxi* relationship (Wang, 2007; Yen et al., 2011). An individual has to develop deep affection to build a good *guanxi*. Social interaction, such as dining together and visiting one another's events, is of paramount importance for cultivating *ganqing* (or the quality of a relationship) between two people. Maintaining a good *ganqing* offers enjoyment to both people (Yen et al., 2011).

Guanxi based social interaction is ubiquitous in Chinese societies. From the sociology perspective, several main attributes of *guanxi* exist in all human societies (Qi, 2013). For example, gift-giving from reciprocity exists in most social relationships in all societies. Reciprocity resembles to *renqing* within the *guanxi* concept. Likewise, *mianzi* (or Chinese face) has some overlapping elements with dignity whereas *ganqing* is largely similar to emotional ties in the Western social networking. However, *guanxi* is underpinned by mutual benefits and interests among social actors within exclusive circle of social connections and such cultural values are unique in Chinese societies (Dong-Jin et al., 2001; Gold and Guthrie, 2002; Hwang, 1987; Michailova and Worm, 2003; Wang, 2007). In other words, the purposes and styles of social interaction vary across different societies although some universal elements may prevail (Qi, 2013). Therefore, *guanxi* distinguishes Chinese social interactions from those in the Western culture owing to its unique social exchange rules that govern the psychological thinking of Chinese with regard to their interpersonal relations.

2.3. Integrating guanxi into technology acceptance

Guanxi literature suggests that three specific social constructs, i.e., *renqing*, *mianzi* and *ganqing*, can explain socialization process among Chinese people. The evolvement of social media technologies has transformed how Chinese people develop their *guanxi* network. The China Internet Network Information Center (CINIC) reports that WeChat is the primary social media platform for Chinese people build dyadic relationships with others (CINIC, 2015). We interpret that the use of WeChat for *guanxi* management represents the mixed mode of online and traditional social interaction among Chinese people. Furthermore, prior studies have shown that social influence constructs such as social image can influence users' behavioral intentions in social media or technology acceptance (Chung et al., 2016; Venkatesh and Bala, 2008). Using similar reasoning, we can expect online socialization processes may cover *mianzi* dimension in the Chinese *guanxi* management. Thus, it is reasonable to assume that Chinese people tend to be governed by *guanxi*, namely, *renqing, ganqing and mianzi,* when they involve in both online and traditional socializations.

3. Conceptual model and research hypotheses

This study seeks to develop a research model for continuance intentions with respect to WeChat by drawing on *guanxi* and the technology acceptance literature (see Fig. 1). Having reviewed the *guanxi* and technology acceptance studies, we focused on the three sets of adoption drivers of *guanxi*, namely, *renqing*, *mianzi* and *ganqing*. Fig. 1 presents the proposed hypotheses and research model in this study. In essence, this study argues that *renqing*, *mianzi* and *ganqing* positively influence perceived usefulness and perceived enjoyment, whereas perceived enjoyment influences continuance intention.

3.1. Guanxi and social influence

China is commonly known as a highly collectivist country that is strongly influenced by Confucianism (Hwang, 1998; Lu et al., 2011; Park and Luo, 2001). Prior studies have confirmed that social influence strongly affects the use of social media in China (Chang and Zhu, 2011; Lien and Cao, 2014; Qu et al., 2015; Zhou and Li, 2014). Social influence theory is useful for explaining how groups of users are keen on using online social technologies (Cheung and Lee, 2010). The intention to use

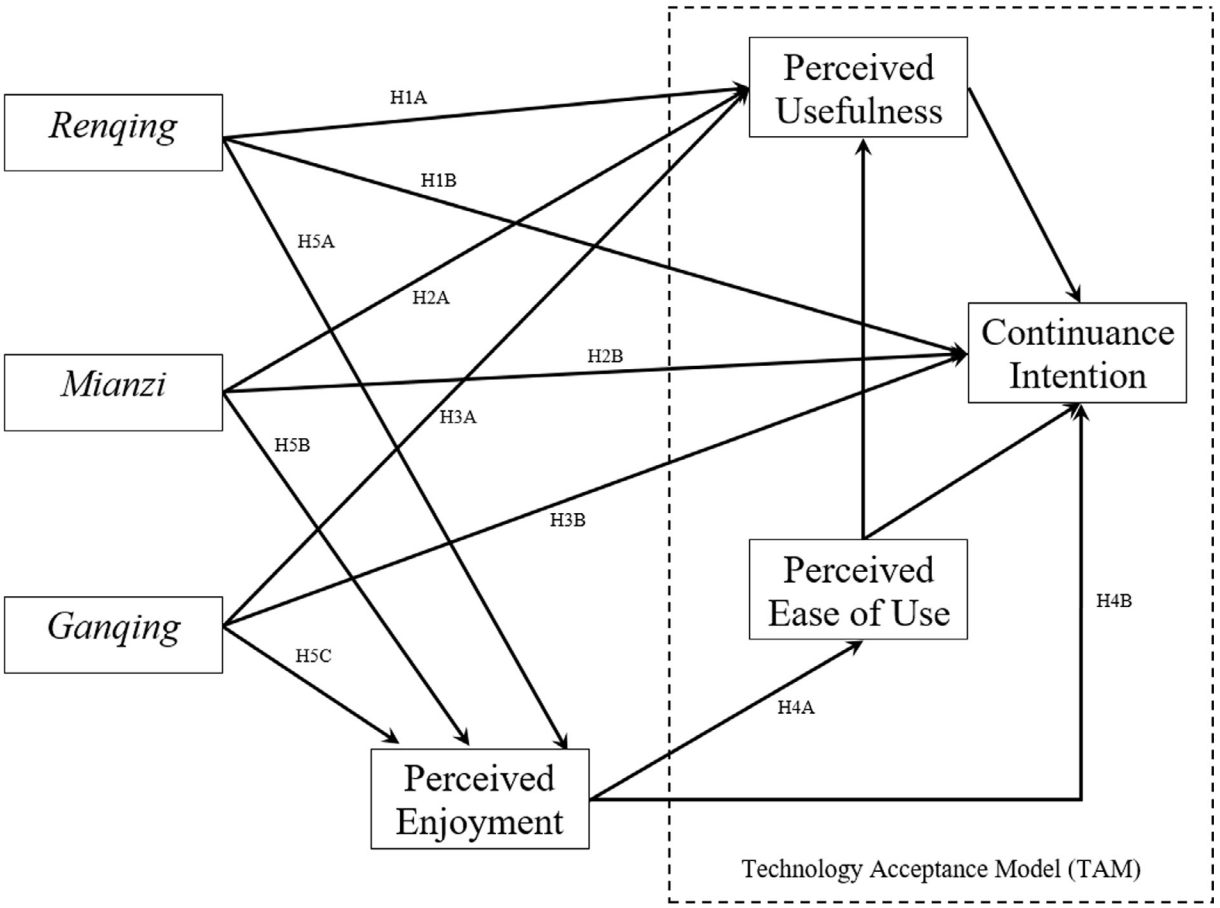

Fig. 1. Research Model.

or reject an information system is a social phenomenon. This denotes that individual acts are not isolated and interaction among users in using the technology together is a predictor of technology acceptance (Bagozzi, 2007). Thus, group and collective behavior are related to the user's decision to use online social technologies.

Social influence theory suggests that "the changes in individuals' attitudes and actions stem from the social influence that may occur on different levels" (Kelman, 1958). The degree of variation corresponds to changes in the social process when an individual conforms to the social influence. While the consequential overt behavior may be identical, the individual may adopt the induced behavior differently when engaging the underlying processes. These processes can be classified into three modes: (1) compliance (or subjective norm); (2) internalization (or group norm); and (3) identification (or social identity) (Kelman, 1958, 1974).

A comparison of social influence (SI) in TAM with *guanxi* reveals that there are some similarities between both concepts (see Table 1). Both *guanxi* and SI in TAM are viewed as social mechanisms that regulate social processes in a reference group. Nevertheless, *guanxi* differs from SI in TAM from various perspectives. First, unlike SI in TAM, *guanxi* is driven by morality

Table 1
Comparison of *Guanxi* and social influence in TAM.

Guanxi	Social influence in TAM
Guanxi is a social mechanism that regulates social interaction processes between two or more people in Chinese society (Braendle et al., 2005; Hwang, 1987; Luo et al., 2002). *Guanxi* is directed by morality and social norms (or obligations) (Michailova and Worm, 2003; Wang, 2007)	Social influence represents social processes and mechanisms that influence technology acceptance (Venkatesh and Bala, 2008; Venkatesh and Davis, 2000)
Emotional- and instrumental-driven exist in a mixed tie *guanxi* between oneself and non-family members (Hwang, 1987)	Instrumental-driven (Venkatesh and Bala, 2008)
Dimensions: *Renqing*, *mianzi* and *ganqing* (Hwang, 1987; Yen et al., 2011).	Dimensions: Subjective norms and social image (Venkatesh and Bala, 2008).

and social obligations. Second, mixed-tie *guanxi* covers both emotional and instrumental elements, whereas social influence only covers instrumental components. Finally, the dimensions of *guanxi*, namely, *renqing*, *ganqing* and *mianzi*, specify how Chinese people behave during social interactions. Social influence in TAM, however, only consists of subjective norms and image.

One should note that one's values and instrumental logics are shaped by common (or cultural) values in a social system (Witt, 2012). Collectivism in Chinese society denotes that Chinese people hold a consistent belief in *guanxi*-based interpersonal relationship and social norms (Holmes et al., 2015). In addition, social behaviors and dyadic social interactions of Chinese people are guided by *guanxi* (Hwang, 1987). Thus, we are contented that *guanxi* can better explain Chinese behavioral intention. In this regard, it is important to distinguish between *guanxi* and social influence in TAM.

Social influence is a key theoretical underpinning to TAM in organizational settings (Venkatesh and Bala, 2008; Venkatesh and Davis, 2000). Social influence captures various social processes and mechanisms, namely, subjective norms and images. The impact of subjective norms onto TAM can be further decomposed into compliance, internalization and identification (Venkatesh and Bala, 2008; Venkatesh and Davis, 2000). First, subjective norms can be manifested as a complying force that stems from social influence, i.e., users are motivated to perform a specific behavior favorable to the opinions of referents. In this regard, subjective norms are conceptualized as a determinant that influences behavioral intentions. Second, subjective norms can be manifested as the internalization effect of social influence to users. This is known as informational influences in which users believe a system is useful because they accept the opinion of referents, who view a particular system as useful. Thus, subjective norms are positively related to perceived usefulness (instrumental belief) in TAM. Finally, individuals intend to uphold a positive image (or social status) within a reference group through an information system. This is considered as the identification of social influence because individuals intend to increase their social status (or image) within a reference group (Kelman, 1958). Subjective norms are conceptualized to be related to social image in which the latter has an impact on perceived usefulness. In TAM, social influence is conceptualized as a cognitive instrumental process that delivers social benefits to individuals in organizational settings.

The aforementioned discussions indicate that compliance, internalization and identification in TAM can be reflected through cognitive instrumental processes in the organizational settings. We argue that maintaining *guanxi* through *renqing*, *mianzi* and *ganqing* is quite similar to the identification but are different from compliance and internalization effects in social influence. In social influence, identification refers to self-awareness of membership in a group (Cheung and Lee, 2009; Kelman, 1958). Similarly, *guanxi* is rooted in the intentions of an individual to establish and uphold a satisfactory self-defining relationship with other social actors. In a *guanxi*, individuals accept the identification influence and prioritizing the significance of the relationship with other social actors. However, *guanxi* differs from identification in two ways. First, *guanxi* is underpinned by the assumption that in-group members in a *guanxi* network must possess some type social resources that may satisfy the needs of others (Hwang, 1987). Furthermore, *guanxi* refers to an interpersonal relationship that is built upon mutual interests and benefits whereby in-group members can seek others to satisfy their needs (Dong-Jin et al., 2001; Gold and Guthrie, 2002; Hwang, 1987; Michailova and Worm, 2003; Wang, 2007).

We believe that *mianzi* and social image in TAM can be compared and contrasted (see Table 2). In TAM, identification of social influence can explain why individuals establish a positive image within a reference group in the organizational settings. Positive image represents the basis of power and influence that allow individual to be well positioned in various activities particularly social exchange, coalition formation and resource allocation (Venkatesh and Bala, 2008; Venkatesh and Davis, 2000). Unlike social image, *mianzi* not only encompasses social prestige enhancement through gaining face, but also saving face (Redding and Michael, 1983). The former refers to enhancement of social prestige through the self-expression which can show individual merits, for example, offering help to others, especially those self-expressions that conforms with the expectation in *guanxi* (Huang et al., 2008). The latter refers to inappropriate behavior in social interaction that will cause someone to lose *mianzi* and be embarrassed by the shame (Redding and Michael, 1983). Furthermore, *mianzi* and *renqing* go hand in hand in strengthening a *guanxi*, i.e., individuals who receive *renqing* have obligations to offer help to the benefactor in the future when circumstance permits (Huang et al., 2008; Michailova and Worm, 2003). Otherwise, those individuals will lose *mianzi* and a *guanxi* will be weakened. Furthermore, social image is based upon instrumental benefits and does not include moral obligation that is typically found in *guanxi*.

3.2. Renqing

Renqing is a Chinese cultural value that underpins the exchange of favors and gifts among friends (Gold and Guthrie, 2002). The study by Wang et al. (2007) shows that *renqing* influences the perceived importance of gift giving including

Table 2
Mianzi and social image in TAM.

Concept	Instrumental benefits	Affective benefits	Reciprocal (*renqing*)	Moral obligation	Purpose
Social image	✓	✗	✗	✗	• Enhance social status
Mianzi	✓	✓	✓	✓	• Enhance social status through gaining face • Preserve social status through saving face

Source: Authors' own construction

the amount/dollar value spent on gifts, gift-selection effort and the choice of brand. Thus, the Chinese are careful to maintain a *guanxi* based on gift-exchange activities. Closer observation of the WeChat feature may indicate that Chinese users are motivated by the *renqing* mechanism to use WeChat during social interactions. For example, the red bags feature in WeChat can be used to give money from one to another as a symbol of blessings and prosperity on special occasions. In Chinese society, it is common practice for elders to give a red bag containing money to young people during the Chinese Lunar New Year (Willson and Leaver, 2016). Furthermore, giving red bags often occurs during marriage ceremonies or at celebrations of newborn babies. Several reports suggested that Chinese use social media to help each other, which is underpinned by *renqing*, in order to maintain *guanxi* relations (Holmes et al., 2015; McAloon, 2014; Wang, 2016; Yue, 2015). Specifically, WeChat's red bags was believed to be a classic example of *renqing* phenomenon. Under this circumstance, the Chinese will also use WeChat's Red Bag to return *renqing* (favors) to benefactors on special occasions. Thus, *renqing* is expected to influence perceived usefulness and continuance intention with WeChat.

H1A: *Renqing* is positively related to the perceived usefulness of WeChat.

H1B: *Renqing* is positively related to the continuance intention with WeChat.

3.3. Mianzi

Social image is theorized as a determinant of perceived usefulness in TAM in an organizational setting with a high degree of interdependence (Venkatesh and Bala, 2008; Venkatesh and Davis, 2000). Social image can be explained as a source of identification in social influence. Image represents the extent to which the use of innovation can enhance one's social status. Social image will determine one's influence in various processes, including coalition formation, social exchange and resource allocation (Fulk et al., 1987; Pfeffer, 1992). The role of image in technology acceptance will be sustained over time provided that the target system continues to benefit from favorable usage and becomes a group norm in the workplace.

In the Chinese context, *mianzi* represents one's social image, which is achieved by performing social roles that are recognized by others (Wang, 2007). *Mianzi* is a perceived social position that is judged by others in the Chinese social network. The humanistic culture in Chinese society makes them sensitive to *mianzi*, and thus they act to safeguard *mianzi* (Redding and Michael, 1983). In Chinese society, people typically accumulate prestige (or *mianzi*) by establishing many interpersonal connections; in turn, *mianzi* helps to improve *guanxi* with others (Michailova and Worm, 2003). Thus, *guanxi* is necessary to achieve goals, and it is based on the social support stemming from the high level of interdependence in Chinese society.

In short, TAM suggests that social image influences perceived usefulness, whereas the Chinese philosophy safeguards *mianzi* to develop and improve *guanxi*. Previous findings also suggested that people tend to portray a desirable self-image to impress their peers (Kim and Lee, 2011; Nadkarni and Hofmann, 2012; Peluchette and Karl, 2009). It is possible to understand how people meet self-presentation needs by managing a continuous presence on social media (Nadkarni and Hofmann, 2012). Specifically, Chinese may use social media to portray positive self-image and to gain a favorable social status (Holmes et al., 2015; Wang, 2016). Such self-presentation is important to maintain a strong-tie with their closed online communities. Taken together, we can expect that the Chinese may use WeChat as a mean to build *mianzi* and thus obtain instrumental benefits in *guanxi* relations. We hypothesize the following:

H2A: *Mianzi* is positively related to perceived usefulness of WeChat.

H2B: *Mianzi* is positively related to continuance intention of WeChat.

3.4. Ganqing

TAM model is one of the most frequently used theories in explaining user acceptance of social media (e.g., Gruzd et al., 2012; José Carlos Martins Rodrigues and Ana Maria, 2011; Lin and Lu, 2011; Rupak et al., 2014; Zhao et al., 2016). Prior studies have conceptualized that social influence processes provide instrumental benefits and thus affect user behavioral intention in the social media context (Lin and Lu, 2011). However, the affective component, i.e., social and emotional needs, is frequently overlooked. We believe that such absence may be caused by the origin of TAM model that usually describes organizational settings. On the contrary, the affective component is widely discussed in the uses and gratifications (U&G) paradigm literature.

The U&G paradigm is one of the best motivational theories to explain technology use (Stafford et al., 2004). The U&G perspective is rooted in the psychological communication literature, which identifies individual motivations as they relate to mass media (Quan-Haase and Young, 2010; Stafford et al., 2004). The U&G perspective assumes users are active, discerning and motivated in selecting media (Quan-Haase and Young, 2010; Smock et al., 2011). Individual users with diverse goals utilize media to fulfill their needs. That is, goal-directed users are able to differentiate various forms of media as well as understand how media can satisfy individual needs (Katz et al., 1973).

Recent studies have shown that the U&G paradigm can be used to highlight the values that inform social media adoption within the virtual community (Cheung et al., 2011; Krause et al., 2014; Leung, 2013). Specifically, people use social media to meet their social and emotional needs, regardless of generational differences (Leung, 2013; Nadkarni and Hofmann, 2012). People socialize with friends, share interests, opinions, and knowledge and give encouragement to feel a sense of belonging. Social and emotional needs are driven by an intrinsic motivation to gain social acceptance and affiliate with others. We view such needs as being consistent with a person's identification in social influence theory, according to which he (or she) is aware of his (or her) membership in a group and intends to uphold satisfactory relationships with others.

The discussions above show that social and emotional needs are the primary drivers of social media use. Interestingly, studies by Zhou and Li (2014) confirmed that Chinese WeChat users have a strong sense of identification and wish to build satisfying relationships with their peers (Lien and Cao, 2014; Zhou and Li, 2014). We argue that social and emotional needs are quite similar to the *ganqing* concept, which refers to the feelings, sentiment and emotional attachments among the in-group members of a *guanxi* (Wang, 2007; Yen et al., 2011). *Ganqing* represents the quality of the relationships in a *guanxi* (Gold and Guthrie, 2002). Thus, we expect the Chinese to use WeChat based on a desire to build good *ganqing* and maintain *guanxi* with people who they deem are important.

Additionally, WeChat may be an ideal tool for maintaining *ganqing*. The empirical evidence suggests that people use instant messaging to maintain and develop relationships with their peers (Hu et al., 2004; Leung, 2001; Quan-Haase and Young, 2010). Studies indicate that instant messaging is a synchronous communication tool, allowing people to engage in intimate conversations. Instant messaging is primarily used to fulfill emotional needs, allowing users to show concern and offer help to those who share their problems. Compared to social networking sites – where communication is asynchronous and tends to be information oriented – instant messaging is able to meet users' social and emotional needs (Quan-Haase and Young, 2010). Thus, users prefer instant messaging to meet these needs. WeChat, a mobile social-messaging application, can be used not only to obtain social information but also to emulate in-person conversations that deliver a sense of intimacy and connection. Thus, we propose the following hypotheses:

H3A: *Ganqing* is positively related to the perceived usefulness of WeChat.

H3B: *Ganqing* is positively related to the continuance intention with WeChat.

3.5. Perceived enjoyment

Enjoyment represents the intrinsic motivation or the affective component that influences perceived ease of use and user acceptance in TAM (van der Heijden et al., 2003; Venkatesh and Bala, 2008). Perceived enjoyment refers to the degree to which a system is perceived to be enjoyable but excludes any performance concerns that stem from system use (Venkatesh, 2000). A system that incorporates entertaining social functions, such as elements of fun and animated characters, will create enjoyment for users (Venkatesh, 2000). If the enjoyment element is lacking in the system, the perceived ease of use will suffer when system use becomes more routine.

Prior studies have offered conflicting views on the relationship of perceived enjoyment to perceived ease of use in the TAM literature. Most studies proposed and found positive influence of enjoyment on perceived ease of use (Koenig-Lewis et al., 2015; Thong et al., 2006; Venkatesh, 2000; Yi and Hwang, 2003), while others conceptualized and discovered the reverse relationships (Lee et al., 2012; Mäntymäki and Salo, 2011). Lee et al. (2012) and Mäntymäki and Salo (2011) explain that if users require little efforts to achieve the satisfactory goal when using an IS, they tend to gain pleasure. On the contrary, majority of scholars propose that the lack of enjoyment tends to lead users to perceive that it is effortful when users get used to an IS and vice versa (Koenig-Lewis et al., 2015; Thong et al., 2006; Venkatesh, 2000; Yi and Hwang, 2003). Furthermore, perceived enjoyment will positively affect perceived ease of use when the interaction involves little or no monetary value and when users seek for pleasure gratification in the first place (Koenig-Lewis et al., 2015). In the context of this research, we expect that Chinese people use WeChat for long-term *guanxi* management. From user's perspective, we expect that the interaction with WeChat involves pleasure gratification, which will lead to effortless perception. Thus, we conclude that enjoyment will positively influence perceived ease of use. As such, the following hypothesis is proposed:

H4A: Perceived enjoyment is positively related to perceived ease of use of WeChat.

Currently, instant messaging and social media are associated with entertaining social functions that deliver pleasure and enjoyment. The role of enjoyment is well-supported in empirical studies (Lien and Cao, 2014; Lu et al., 2009; Oliveira et al., 2016; Sharma et al., 2016). Specifically, the study by Lien and Cao (2014) suggests that Chinese users perceive WeChat as fun and entertaining. There are many unique entertaining features in WeChat, such as Sticker, QR codes, friend radar and Walkie Talkie, which deliver enjoyable, fun and pleasurable experiences (WeChat, 2016). Thus, we expect perceived enjoyment to positively affect the continuance intention of WeChat as per the following hypotheses:

H4B: Perceived enjoyment is positively related to the continuance intention of WeChat.

3.6. Renqing, mianzi, ganqing and enjoyment

In TAM, social influence is viewed as a direct determinant of perceived usefulness and will not affect perceived enjoyment in organizational settings (Venkatesh and Bala, 2008). Referents tend to believe instrument benefits can be obtained through social influence processes because information systems in organizations are typically built for instrumental purposes (Venkatesh and Bala, 2008; Venkatesh and Davis, 2000). Social influence processes are restricted to extrinsic motivation, which suggests users cognitively recognize instrumental benefits but not emotional components when using a system. In short, TAM posits that there are no theoretical justifications to suggest social influence processes influence perceived enjoyment of a system in organizational settings; a user's perceived enjoyment exhibits no strong linkage with one's job performance.

As noted earlier, there is no crossover effect between social influence dimensions and perceived enjoyment in organizational settings. Our review shows that the link between social influence processes and perceived enjoyment is not thoroughly studied in past TAM studies. On the contrary, social media and U&G paradigm literature recognizes that social

influence can provide users with pleasure through social interaction (Choi and Kim, 2004; Chung et al., 2016; Huang and Hsieh, 2014; Lin and Lu, 2011; Wang et al., 2012). Social influence process, which is driven by emotions, will influence emotion of social actors who engage in interpersonal communications (Hareli and Rafaeli, 2008). Positive social interaction can facilitate social exchange and enhance identify- and bond-based attachments to their group within a social media context (Chung et al., 2016). Prior studies have also ascertained that social influence positively affects perceived enjoyment in online social network acceptance (Huang and Hsieh, 2014; Li, 2011; Lin and Lu, 2011).

A recent study has shown that Chinese people choose to use WeChat to fulfill social gratification, i.e., social interaction and private social networking (Gan and Wang, 2015). The study also confirms that Chinese users prefer WeChat because of its private social networking characteristic, which resembles the exclusive circle of social connection concept in *guanxi*. We interpret that WeChat provides social gratification to Chinese users if they engage in *guanxi*-based social interaction. This is in line with several prior studies, which suggested that Chinese people view WeChat as a social tool to maintain or develop *guanxi* (CINIC, 2015; Holmes et al., 2015; Niedermeier et al., 2016). We believe that WeChat is built upon the needs of Chinese people, who represent a significant majority of WeChat users. For example, WeChat is the pioneer in introducing voice intercom to exchange voice messages with other members in their online social network (Chinese QQ) and offline friends (cellphone numbers) (Jinfang, 2015). This unique feature enables Chinese people to develop or maintain *guanxi* through WeChat.

Prior studies have shown that social influence is positively related to perceived enjoyment in the social media context (Huang and Hsieh, 2014; Li, 2011; Lin and Lu, 2011). Individuals can utilize social media to build trusted relationship in their traditional and online social circles. Using similar reasoning, we believe that social processes may affect perceived enjoyment if Chinese people use WeChat to maintain (or develop) *guanxi*. It is important to note that Chinese people are not only bound to social obligations to safeguard a *guanxi*, but they also gain intrinsic enjoyment through maintaining ongoing interpersonal relationships (Gold and Guthrie, 2002). That is, Chinese *guanxi* encompasses instrumental and sentimental elements.

One may ask how WeChat can provide enjoyment to Chinese people through *renqing*, *mianzi* and *ganqing*. First, Holmes et al. (2015) argue that social interaction, i.e., exchange money during Chinese cultural events, is an extraordinary phenomenon in China. The exchange of virtual red packets (or money) in WeChat is motivated by the *renqing* rule, which is part of the traditional Chinese values (Holmes et al., 2015). These exchanges may surprise and please people who receive red packets virtually through WeChat (Holmes et al., 2015; Lien and Cao, 2014). Second, Chinese people may use WeChat as a platform to build a favorable *mianzi* (Holmes et al., 2015). Gaining a favorable *mianzi* is intrinsically motivated and associated with enjoyment. On the contrary, losing *mianzi* is a source of shame (Yen et al., 2011). For Chinese people, *mianzi* can be expressed online (Holmes et al., 2015). M*ianzi* can be reflected through whether individuals are supported or not supported by others online during an incident happened. Furthermore, Chinese people safeguard *mianzi* by treating in-group members in a *guanxi* with courtesy and respect during online communication. Finally, it is understandable that WeChat is a pleasure-oriented social-messaging application that was developed for enriching emotional communication among users (Jinfang, 2015; Mao, 2015; WeChat, 2016). Such social interaction maintains *ganqing* between two people, while offering an entertainment element at the same time. For example, WeChat provides many unique features such as Sticker, QR codes, friend radar and Walkie Talkie, which enables users to interact with each other in an enjoyable and fun way (WeChat, 2016).

Taken together, we hypothesize the following:

H5A: *Renqing* is positively related to perceived enjoyment.

H5B: *Mianzi* is positively related to perceived enjoyment.

H5C: *Ganqing* is positively related to perceived enjoyment.

The aforementioned discussions show that *guanxi* may relate to the perceived enjoyment through the emotional component in the *guanxi* networking. Research also suggests that the increase of perceived enjoyment relates to a higher degree of continuance intention (see H4B) (Lien and Cao, 2014; Lu et al., 2009; Oliveira et al., 2016; Sharma et al., 2016). Therefore, there is a reason to believe that perceived enjoyment is an important mediating variable that intervenes the relationship between *guanxi*-based constructs and continuance intention. The direct and indirect effects should be examined in order to empirically assess the role of *guanxi* on continuance intention more reliably.

4. Research methods

4.1. Instrument development

Our research model consists of seven multi-item constructs. All instruments are adapted from the literature. *Renqing*, *mianzi* and *ganqing* were used to measure *guanxi* social processes. We adapted the variable to construct a 3-item *renqing* variable based on the previous literature (Wang et al., 2007; Yen et al., 2011). The *mianzi* scale was adapted from Wang et al. (2007). The *ganqing* scale was adapted from Yen et al. (2011). The measurement scales for perceived usefulness, perceived ease of use and continuance intention were adapted from a related study that applies the TAM model in a Chinese social media context (Zhao et al., 2016). Finally, to measure perceived enjoyment, we adapted the instrument that originally investigated instant messaging tools in a Chinese context (Lu et al., 2009). All items were measured using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). All measures used in this study are listed in Appendix A.

All survey instruments were reviewed by two experts to determine their validity and clarity within the Chinese context. The first expert was a Chinese professor of information management and information systems. The second was a Chinese sociologist and academician. The survey instruments were modified slightly based on their feedback. Then, the questionnaire was translated from English to Chinese by two Chinese researchers whose native language was Mandarin. Another overseas-based Chinese researcher had independently back-translated the questionnaire to validate the translation. Before conducting the survey, we invited 50 university students who were WeChat users to answer the questionnaires as a pretest to validate the instrument. Based on the feedback, we made minor changes to improve the wording of the items in the questionnaire.

4.2. Data collection procedure and sample

Data collection was performed using an online survey and was administered in Chinese. The survey was available on a website for a period of 8 weeks. This study used convenience sampling, which is consistent with the sampling approach adopted in many acceptance of social media technologies (e.g. Baker and White, 2010; Hong et al., 2014; Peng et al., 2016). The hyperlink was placed on WeChat's *moments* by one of the Chinese researcher in this study. The Chinese researcher also invited all known students, family and friends to participate in this survey. At the same time, they were asked to show the survey to their friends and families. In total, we received 673 responses and found that the average completion time was around 5 min, which is close to the estimated completion time based on the pilot test. We deleted 33 responses that require less than 1.5 min. Additionally, we checked all responses and found no responses had the same score to all items. Another 29 responses were deleted due to many missing data. Finally, a total of 611 valid responses were deemed as usable for subsequent analyses.

Table 3 presents the demographic statistics for the WeChat users who participated in this study. Approximately 59.7% were males, and 40.3% were females. The majority of respondents (70.38%) were between 18 and 35 years of age. In terms of educational level, the majority of respondents (33.7%) were students. Over half of respondents attained college or university educational levels. Over 30% of respondents had a monthly income between RMB 3001 and RMB 6000.

Table 3
Sample demographics.

Measure	Item	Frequency	Percentage
Gender	Male	246	40.26%
	Female	365	59.74%
Age	17 or below	8	1.31%
	18–25	242	39.61%
	26–35	188	30.77%
	36–45	125	20.46%
	46–55	37	6.06%
	56 or over	11	1.80%
Educational level	Secondary School or Below	18	2.95%
	Senior High School	33	5.40%
	College/ University	395	64.65%
	Master	131	21.44%
	Ph.D.	34	5.56%
Occupation	Student	206	33.72%
	Company employee	147	24.06%
	State civil servant[+]	66	10.80%
	Self-employed	126	20.62%
	Employee in Public Institutions[*]	15	2.45%
	Retired	10	1.64%
	Others	41	6.71%
Monthly income	No income	192	31.42%
	RMB 1–RMB 3000	116	18.99%
	RMB 3001–RMB 6000	201	32.90%
	RMB 6001–RMB 9000	58	9.49%
	RMB 9001–RMB 12,000	18	2.95%
	RMB 12,001–RMB 15,000	9	1.47%
	RMB 15,001–RMB 18,000	7	1.15%
	RMB 18,001–RMB 21,000	4	0.65%
	More than RMB 21,001	6	0.98%

[*] According to the Interim Regulation on the Registration of Public Institutions in P. R. China, government document (No. 252/411), issued in 1998.10.25 and emended in 2004.6.27, public institutions are social service organizations that are fully or partly funded by the Chinese government and engaged in education, technology, culture, health and other activities for the public good. These institutions include almost all public schools, universities, clinics, hospitals, libraries, performing groups, research institutes and media organizations.

[+] According to Civil Service Law, state civil servants are those "personnel employed in administrative organizations that hold administrative power and conduct public service according to law" (Chan and Suizhou, 2007).

4.3. Common method variance

We conducted a Harman's single-factor and full collinearity tests to examine the potential common method bias in information systems research (Hair et al., 2017; Kock, 2015). When self-report surveys were used to collect data, common method bias may occur if respondents answer perceptual measures of explanatory and dependent variables at the same time and have a propensity to offer consistent answers to survey questions that are otherwise unrelated (Chang et al., 2010). The Harman's single-factor test shows that the largest variance explained by individual factors was 39.12%. In other words, a single factor neither emerges nor accounts for the majority of the variances between measures (Chang et al., 2010; Malhotra et al., 2006). Thus, we can conclude that none of the factors explain the majority of variance. Additionally, variance inflation factors were lower than 3.3 in the full collinearity test. The result indicates that we can rule out the common method bias in this study (Kock, 2015). In short, there is a low likelihood of common methods bias in this study.

5. Data analysis and results

We used partial least squares-structural equation modelling (PLS-SEM) to assess the psychometric properties of the measurement instruments and to test the hypotheses in the research model (Hair et al., 2013). PLS-SEM is appropriate for the research setting of technology acceptance that emphasizes predictive modelling (Venkatesh and Bala, 2008; Venkatesh and Davis, 2000). Compared to covariance based SEM, PLS-SEM is suitable for incremental studies, i.e., building new measures and structural paths, particularly in information systems research (Hair et al., 2013; Hakan, 2016). PLS-SEM is thus appropriate for this study that involves conceiving new measures of *guanxi* constructs and structural paths. We used SmartPLS software to run the analysis in this study.

5.1. Analysis of measurement models

Table 4 presents the results of the measurement models in PLS-SEM analysis. The measurement models are validated if four general requirements are met, i.e., the indicator loadings, construct reliability (CR), average variance extracted (AVE) and discriminant validity (Hair et al., 2013). First, the analysis of the indicator loadings shows that all indicator loadings surpass the threshold level of 0.7 except the GQ1 item. Hair et al. (2011) suggest that indicator loadings between 0.4 and 0.7 should be kept if all the measurement scales satisfy sufficient composite reliability. Because the composite reliability of the *ganqing* construct is greater than 0.7, we retained the GQ1 item for this study. Second, all values of Cronbach's alpha and composite reliability surpass the minimum threshold of 0.7, suggesting reliability is achieved. Third, the results show that the lowest AVE is 0.63, which exceeds the minimum threshold of 0.5 and achieves a sufficient degree of convergent validity. Finally, the Fornell Lacker analysis shows that the square root of the AVEs for each construct is greater than the

Table 4
Measurement Model.

Construct	Items	Loadings	CA	rho_A	CR	AVE
CUI	CU1	0.82	0.90	0.91	0.94	0.84
	CU2	0.87				
	CU3	0.88				
PU	PU1	0.90	0.90	0.90	0.93	0.82
	PU2	0.92				
	PU3	0.90				
PEOU	EOU1	0.90	0.89	0.89	0.93	0.82
	EOU2	0.92				
	EOU3	0.90				
Enjoy	EY1	0.93	0.90	0.91	0.94	0.84
	EY2	0.94				
	EY3	0.88				
Renqing	RQ1	0.85	0.78	0.81	0.87	0.69
	RQ2	0.88				
	RQ3	0.76				
Mianzi	FC1	0.91	0.90	0.93	0.93	0.76
	FC2	0.91				
	FC3	0.86				
	FC4	0.80				
Ganqing	GQ1	0.62	0.85	0.86	0.90	0.63
	GQ2	0.79				
	GQ3	0.81				
	GQ4	0.87				
	GQ5	0.84				

correlations with other constructs (see Table 5). Thus, the discriminant validity of all constructs is established. Likewise, all heterotrait-monotrait (HTMT) values are lower than the threshold of 0.85 (or 0.90), confirming discriminant validity (see table 6) (Henseler et al., 2015). In short, the results validated all measurement models in this study.

5.2. Analysis of the structural model

Bootstrapping with 5000 resamples was performed for the structural model of PLS-SEM estimation (see Table 7). The overall explanatory power (R^2) indicates that the model accounts for 34%, 46%, 28% and 38% of perceived enjoyment, continuance intention, perceived ease of use and perceived usefulness, respectively. The Q^2 for all constructs is greater than zero, which verifies the predictive relevance of all endogenous constructs in the structural model. Such explanatory power and predictive relevance substantiate the model's predictive validity (Hair et al., 2013).

Table 5
Fornell-Lacker Criterion.

	1	2	3	4	5	6	7
1. Enjoyment	**0.91**						
2. *Mianzi*	0.39	**0.87**					
3. *Ganqing*	0.53	0.31	**0.79**				
4. CUI	0.55	0.17	0.49	**0.86**			
5. PEOU	0.53	0.14	0.49	0.58	**0.90**		
6. PU	0.63	0.40	0.46	0.54	0.49	**0.91**	
7. *Renqing*	0.42	0.48	0.61	0.37	0.40	0.41	**0.83**

Notes: Diagonal and bold elements are the square root of AVE between the constructs and their indicators. Non-diagonal elements are correlations between constructs.

Table 6
Analysis of Heterotrait–Monotrait ratio (HTMT).

	1	2	3	4	5	6	7
1. Enjoyment							
2. *Mianzi*	0.42						
3. *Ganqing*	0.60	0.35					
4. CUI	0.62	0.19	0.58				
5. PEOU	0.59	0.13	0.56	0.67			
6. PU	0.70	0.45	0.52	0.62	0.54		
7. *Renqing*	0.49	0.59	0.76	0.44	0.47	0.47	

Table 7
Structural model analysis.

Endogenous constructs	R-Square	Q-Square	
Enjoy	0.34	0.28	
CUI	0.46	0.33	
PEOU	0.28	0.23	
PU	0.38	0.31	
Relation	Path coefficient (t-value)	Biased corrected 95% CI	Conclusion
PEOU → CUI	0.28*** (5.54)	(0.18, 0.39)	
PU → CUI	0.24*** (5.53)	(0.16, 0.33)	
PEOU → PU	0.36*** (8.84)	(0.28, 0.44)	
Renqing → PU	0.01 (0.18)	(−0.09, 0.11)	H1A not supported
Renqing → CUI	0.04 (0.88)	(−0.04, 0.12)	H1B not supported
Mianzi → PU	0.29*** (7.38)	(0.22, 0.37)	H2A supported
Mianzi → CUI	−0.10*** (2.52)	(−0.18, −0.02)	H2B not supported
Ganqing → PU	0.18*** (3.89)	(0.09, 0.28)	H3A supported
Ganqing → CUI	0.15*** (3.25)	(0.06, 0.24)	H3B supported
Enjoy → PEOU	0.53*** (14.62)	(0.46, 0.60)	H4A supported
Enjoy → CUI	0.19*** (3.70)	(0.09, 0.29)	H4B supported
Renqing → Enjoy	0.04 (0.82)	(−0.05, 0.14)	H5A not supported
Mianzi → Enjoy	0.24*** (6.09)	(0.16, 0.31)	H5B supported
Ganqing → Enjoy	0.43*** (9.42)	(0.33, 0.51)	H5C supported

Notes: CUI = continuance intention; PU = perceived usefulness; PEOU = perceived ease of use; Enjoy = perceived enjoyment; CI = confidence intervals.
***$p < 0.01$; **$p < 0.05$.

Table 8
Mediating analysis.

Relations	Direct effect	Indirect effect	Total effect	VAF	Interpretation
Renqing → CUI	$0.04^{n.s.}$	$0.02^{n.s.}$	$0.05^{n.s.}$	–	No mediation
Mianzi → CUI	$-0.10^{n.s.}$	0.16^{***}	$0.06^{n.s.}$	–	No mediation
Ganqing → CUI	0.15^{***}	0.21^{***}	0.36^{***}	58.21%	Partial mediation

Notes: CUI = continuance intention; $^{***}p < 0.01$; $^{**}p < 0.05$.

5.3. Analysis of mediation effects

Table 8 presents the results of mediating analysis. The significance test in mediating analysis was performed using bootstrapping method (Hair et al., 2013). The results show that the direct effects of *ganqing* on continuance intention is significant whereas the direct effects of *renqing* and *mianzi* are non-significant. *Mianzi* and *ganqing* had significant indirect effects on continuance intention through perceived enjoyment. The variance accounted for (VAF) for the relationship between *ganqing* and continuance intention is 58.21% and signifies that perceived enjoyment exerts a partial mediation effect. In other words, the variance of the continuance intention is explained by the indirect relationship via the perceived enjoyment.

6. Discussion

As shown in Fig. 2, hypotheses H2A, H3A, H3B, H4A, H4B, H5B and H5C are supported, whereas H1A, H1B, H2B and H5A are not supported. The significant paths are from the *ganqing* and *mianzi* to perceived usefulness, perceived enjoyment and continuance intention. Perceived enjoyment has a positive and significant effect on perceived ease of use and continuance intention. In contrast to our predictions, *renqing* does not influence perceived enjoyment, perceived usefulness and continuance intention.

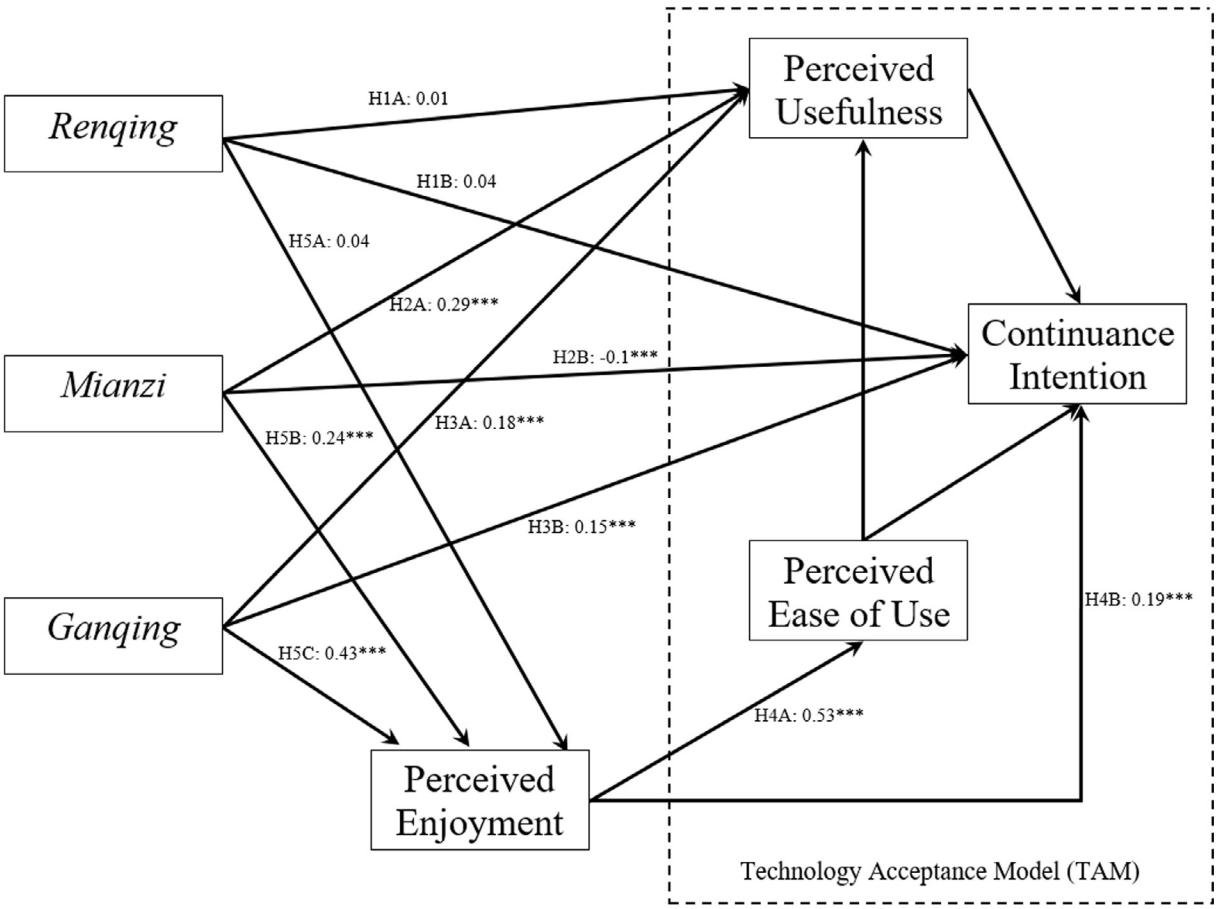

Fig. 2. The results of research model.

Among the three dimensions of *guanxi*, *ganqing* has a positive impact on perceived usefulness and continuance intention. These results indicate that Chinese users use WeChat to maintain or enhance the quality of a relationship and build satisfying relationship with their peers based on *guanxi* practices. Our findings are largely consistent with the previous findings suggesting people use social media to meet social and emotional needs (Leung, 2013; Nadkarni and Hofmann, 2012). However, one should note that the Chinese are motivated by *guanxi* to safeguard or create positive feelings, sentiments and emotional attachments among in-group members on WeChat.

*Mianz*i exerts a negative effect on continuance intention but exhibits a positive effect on perceived usefulness. The positive effect of perceived usefulness reflects that the Chinese users' tendency to use WeChat as an instrumental tool to safeguard or accumulate *mianzi*. Such a *mianzi* reflects the social image as perceived by others in the Chinese social network, and it is important to develop a new *guanxi* (Wang, 2007, 2016). The importance of *mianzi* in social interaction can be seen in the idiom "*Da ren bu da lian*," which means "when arguing with somebody, be a gentleman and don't make the other person lose face" (WiC, 2015). Nevertheless, the negative effect of *mianzi* on continuance intention suggests that the Chinese think their *mianzi* may deteriorate faster on WeChat. Chinese people are concerned about negative self-image on social media which may destroy their *guanxi* with peers due to the ease and speed of social media broadcasts information to community (Wang, 2016). Reputations could be easily distorted by expressing personal opinions on controversial issues related to religion and politics. For example, a Chinese celebrity divorce hashtag can be accessed more than five billion times within three days (BBC, 2016). Such impact is closely resembled to the negative communication dynamic in which unhappy customers tend to tell their friends about their dissatisfaction on certain products (or services) compared to satisfied customers (Timothy Coombs and Holladay, 2007). In other words, negative word-of-mouth can be easily disseminated through social media. Thus, safeguarding *mianzi* is of paramount importance on WeChat and for maintaining a *guanxi*. Nevertheless, *mianzi* still exerts a positive indirect causal effect on continuance intention through perceived enjoyment. This denotes that *mianzi* is an intrinsic property of reality that will influence WeChat users' continuance intention.

It is somewhat surprising that *renqing* is not related to perceived usefulness, perceived enjoyment and continuance intention. The non-significant effects of *renqing* in this study suggest that the majority of Chinese may not fully embrace traditional *renqing* value during social interaction through the use of WeChat. It is possible that some Chinese people are uneasy to embed *renqing* into online social interaction or digital technology. For example, Lee (2017) reported that the older Chinese tend to disagree with the use of mobile payment by a young Chinese couple to receive red bags during a wedding ceremony. The elderly Chinese view that the usage of digital *renqing* is impolite and thus inappropriate during major events. Another possible reason is that *renqing* alike social interactions in social media, for example, red bags, lack strong moral obligation elements that are depicted in the traditional *guanxi* (Yue, 2015).

Consistent with TAM theory, our findings show that perceived enjoyment has a positive influence on perceived ease of use and continuance intention (Venkatesh and Bala, 2008; Venkatesh and Davis, 2000). Users view WeChat as a mobile social-messaging application with entertaining functions. In the social media context, perceived enjoyment is important for continuance intentions, even with increasing experience using WeChat.

The results also show that *ganqing* and *mianzi* positively affect perceived enjoyment. Such findings are contradicted by typical TAM theory. Our study reveals that Chinese users who use WeChat to maintain *guanxi* gain intrinsic enjoyment. This can be explained by the uniqueness of *guanxi*, which consists of instrumental and sentimental components (Gold and Guthrie, 2002). Social interaction through WeChat can be fun since there are many entertaining features, including Sticker, QR codes, friend radar and Walkie Talkie. It is also possible to derive enjoyment and satisfaction from a favorable *mianzi* on WeChat.

7. Implications of study

This study presents several theoretical and practical contributions. First, social influence theory has emerged as a major determinant in the technology acceptance literature. Social influence posits that compliance, group norms and social identification processes influence user acceptance of social media technologies. In the TAM model, two social influences, namely, social image and subjective norms, are frequently used to investigate user behavioral intentions regarding new technology, in particular in social media research. Although social influence theory can explain social media (or technology) acceptance to a large degree, more studies are required to examine social constructs that are driven by culture theory, which has been omitted in the research. This study complements the current literature on social media by proposing three *guanxi*-based constructs: *renqing*, *mianzi* and *ganqing*. The present study confirms that Chinese people are motivated by *guanxi* to use WeChat as a means of building dyadic relationships with non-family members. Our study also provides empirical evidence found in descriptive research conducted by CINIC (2015); this research states that WeChat is used to build *guanxi* in social networking. We argue that the *guanxi* concept can be extended to different forms of technology acceptance in the Chinese context.

Second, this study describes several unresolved issues concerning how *guanxi*-based social processes affect perceived usefulness and continuance intention with respect to mobile social-messaging applications in Chinese society. Social resources are obtained from the resource allocator and are based on the strength of the *guanxi*. This study verifies that *mianzi* and *ganqing* but not *renqing* are important determinants of perceived usefulness and continuance intention. Our study suggests that the Chinese people use WeChat as a tool to maintain *ganqing* with others in a *guanxi* relationship. WeChat (or mobile social-messaging applications) fulfils emotional needs because users can instantly show concern and offer help to

those who share their problems. Thus, emotional closeness between two people can be intensified during message exchanges. On the other hand, this study found that *mianzi* positively influences perceived usefulness but exerts a negative effect on continuance intention. Overall, *mianzi* exerts a positive indirect causal effect on continuance intention through perceived enjoyment. In short, Chinese are worried that social media can destroy *mianzi* within a short period of time, but they still view WeChat as a practical tool to develop social prestige.

Third, the present study offers evidence for verifying the causal effects exhibited by *mianzi* and *ganqing* (but not *renqing*) on perceived enjoyment. These findings contradict the typical TAM model proposing that the social influence process is driven by cognitive instrumental benefits in organizational settings (Venkatesh and Bala, 2008; Venkatesh and Davis, 2000). This contradiction can be explained in two ways: First, social influence in the TAM model only captures the instrumental element, but *guanxi* processes consist of instrumental and affective components. Second, our research context in this study is social media and not the workplace setting, as is the case in a typical TAM model. Our finding of perceived enjoyment is consistent with prior studies indicating that emotional needs are a major determinant of why people use social media (Cheung et al., 2011; Lin and Lu, 2011; Oliveira et al., 2016; Quan-Haase and Young, 2010). The unique entertainment features provided by WeChat allow Chinese users to interact with others in enjoyable and fun ways, thus strengthening *ganqing* in a *guanxi* relationship. This is reflected by the mediating role of perceived enjoyment on the relationship between *ganqing* and continuance intention. Furthermore, this study shows the indirect effect of *mianzi* on continuance intention, and the direct effect of *mianzi* on perceived enjoyment are significant. We interpret that those who use WeChat as a platform to build a favorable image are intrinsically motivated, and thus it is a source of enjoyment.

8. Limitations and future research

There are several limitations in this study. The first limitation is that our findings are applicable to Chinese society and may not generalize to other contexts due to the complex nature of social networking. Unlike social influence constructs that have been verified as the important external factors in the TAM, *guanxi*-based social constructs have seldom been explored. Thus, future studies may consider integrating the *guanxi*-based social constructs in investigating Chinese technology acceptance in social media as well as teaching and learning, among other contexts. Furthermore, prior studies have argued *guanxi* largely corresponds to *kankei* in Japan and *kwankey* in Korea (Michailova and Worm, 2003; Yen et al., 2011). Interestingly, the most popular mobile social-messaging applications differ across Asian countries, for example, *KaKao* Talk in Korea and LINE in Japan and WeChat in China (Jin and Yoon, 2014). The qualitative findings of Jin and Yoon (2014) have shown that the behavioral intention of mobile social-messaging applications is greatly influenced by specific sociocultural circumstances. Thus, we suggest that the use of culture driven theory to explain social process is a promising line of inquiry in the technology acceptance literature in the Asian contexts. Furthermore, there is a possibility of conceiving universal elements of *guanxi* in Western culture (Qi, 2013). Reciprocity in gift-giving, facial and emotional ties to a certain extent resemble to *renqing*, *mianzi* and *ganqing* in the *guanxi* concept respectively although the purposes and styles of such social interaction may vary. Thus, it is possible to build relevant social constructs, which are similar to *guanxi*, from the technology acceptance perspective within the Western context. Finally, the study used cross-sectional data, and thus it is difficult to determine temporal relationships. Longitudinal design can be used to verify the validity of the relationship in future studies.

Conflict of interest

The authors declare that they have no conflict of interest.

Acknowledgements

We acknowledge with heartfelt thanks the reviewers and editor for their insightful comments and suggestions. The authors acknowledge the generous support from Ministry of Education Malaysia and Universiti Teknologi Malaysia for the FRGS project Vot. 4F709. The authors also want to thank Hebei University's special fund for promoting universities in Midwest China and Hebei University's government administration and public policy research center for supporting this research.

Appendix A. Measurement scales

Continuance intention (adapted from Zhao et al. (2016))

- CU1 In the near future, I intend to continue using WeChat.
- CU2 My intention is to continue using WeChat rather than an alternative application.
- CU3 I intend to continue using WeChat.

Perceived Usefulness (adapted from Zhao et al. (2016))

- PU1 WeChat enables me to accomplish more tasks.
- PU2 WeChat increases my productivity.
- PU3 Overall, WeChat is useful for my job or daily life.

Perceived Ease of Use (adapted from Zhao et al. (2016))

- EOU1 Learning to use WeChat is easy.
- EOU2 My interaction with WeChat is clear and understandable.
- EOU3 I find WeChat easy to use.

Perceived enjoyment (adapted from (Lu et al., 2009))

- EY1: Using WeChat gives me pleasure.
- EY2: Using WeChat is fun.
- EY3: Using WeChat makes me happy.

Mianzi (adapted from Wang et al. (2007))

- FC1: The people in my environment who use WeChat are more prestigious than those who do not use it.
- FC2: The people in my environment who use WeChat have a stronger social profile.
- FC3: Using WeChat is important for preserving *mianzi* because it is a status symbol in my environment.
- FC4: I worry about losing *mianzi* in daily life if I am not using WeChat.

Renqing (adapted from Wang et al. (2007) and Yen et al. (2011))

- RQ1: Using WeChat maintains the practice of "give and take" among my colleagues/peers.
- RQ2: I am happy to do a favor for colleagues/peers to whom I owe *renqing* when it is requested on WeChat.
- RQ3: Using WeChat allows me to return favors to my colleagues/peers (e.g., gift card, red packet).

Ganqing (adapted from Yen et al. (2011))

- GQ1: I often interact with my colleagues/peers on a social basis on WeChat.
- GQ2: My colleagues/peers and I are able to talk openly as friends on WeChat.
- GQ3: I consider whether my colleagues'/peers' feelings would be hurt when interacting with them on WeChat.
- GQ4: I have a feeling of brotherhood for my close colleagues/peers when interacting with them on WeChat.
- GQ5: I try my best to help out close colleagues/peers when interacting with them on WeChat.

References

Ajzen, I., 1985. From intentions to actions: a theory of planned behavior. In: Kuhl, J., Beckmann, J. (Eds.), Action Control: From Cognition to Behavior. Springer, Berlin, Heidelberg, pp. 11–39.

Atuahene-Gima, K., Li, H., 2002. When does trust matter? Antecedents and contingent effects of supervisee trust on performance in selling new products in China and the United States. J. Market. 66, 61–81.

Bagozzi, RP., 2007. The legacy of the technology acceptance model and a proposal for a paradigm shift. J. Assoc. Inform. Syst. 8, 3.

Baker, R.K., White, K.M., 2010. Predicting adolescents' use of social networking sites from an extended theory of planned behaviour perspective. Comput. Hum. Behav. 26, 1591–1597.

BBC, 2016. Why a Celebrity Divorce has Chinese Social Media Buzzing. BBC <http://www.bbc.com/news/world-asia-china-37091685>.

Braendle, U.C., Gasser, T., Noll, J., 2005. Corporate governance in China—is economic growth potential hindered by Guanxi? Bus. Soc. Rev. 110, 389–405.

Chan, A., 2006. The Chinese concepts of Guanxi, Mianzi, Renqing and Bao: their interrelationships and implications for international business. In: Australian and New Zealand Marketing Academy Conference. Brisbane, Queensland.

Chan, H.S., Suizhou, E.L., 2007. Civil service law in the People's Republic of China: a return to cadre personnel management. Public Admin. Rev. 67, 383–398.

Chang, Y.P., Zhu, D.H., 2011. Understanding social networking sites adoption in China: a comparison of pre-adoption and post-adoption. Comput. Hum. Behav. 27, 1840–1848.

Chang, S.-J., Van Witteloostuijn, A., Eden, L., 2010. From the editors: common method variance in international business research. J. Int. Bus. Stud. 41, 178–184.

Chen, C.C., Chen, X.-P., Huang, S., 2013. Chinese Guanxi: an integrative review and new directions for future research (中国人的关系: 综合文献回顾及未来研究方向). Manage. Organ. Rev. 9, 167–207.

Cheung, C.M.K., Lee, M.K.O., 2009. Understanding the sustainability of a virtual community: model development and empirical test. J. Inform. Sci.

Cheung, C.M.K., Lee, M.K.O., 2010. A theoretical model of intentional social action in online social networks. Decis. Support Syst. 49, 24–30.

Cheung, C.M.K., Chiu, P.-Y., Lee, M.K.O., 2011. Online social networks: why do students use facebook? Comput. Hum. Behav. 27, 1337–1343.

Choi, D., Kim, J., 2004. Why people continue to play online games: in search of critical design factors to increase customer loyalty to online contents. Cyber Psychol. Behav. 7, 11–24.

Chung, N., Nam, K., Koo, C., 2016. Examining information sharing in social networking communities: applying theories of social capital and attachment. Telematics Inform. 33, 77–91.

CINIC, 2015. Chinese User Behavior in Social Media 2015 Research Report (2015年中国社交应用用户行为研究报告) <http://www.cnnic.net.cn/hlwfzyj/hlwxzbg/sqbg/201604/P020160722551429454480.pdf>, 2016.

Davis Jr., F.D., 1986. A Technology Acceptance Model for Empirically Testing New End-user Information Systems: Theory and Results. Massachusetts Institute of Technology.
Davis, F.D., Bagozzi, R.P., Warshaw, P.R., 1989. User acceptance of computer technology: a comparison of two theoretical models. Manage. Sci. 35, 982–1003.
Dong-Jin, L., Jae, H.P., Wong, Y.H., 2001. A model of close business relationships in China (guanxi). Eur. J. Market. 35, 51–69.
Dunfee, T.W., Warren, D.E., 2001. Is Guanxi ethical? A normative analysis of doing business in China. J. Bus. Ethics 32, 191–204.
Fulk, J., Steinfield, C.W., Schmitz, J., Power, J.G., 1987. A social information processing model of media use in organizations. Commun. Res. 14, 529–552.
Gan, C., Wang, W., 2015. Uses and gratifications of social media: a comparison of microblog and WeChat. J. Syst. Inform. Technol. 17, 351–363.
Gold, T., Guthrie, D., 2002. Social Connections in China: Institutions, Culture, and the Changing Nature of Guanxi. Cambridge University Press.
Gruzd, A., Staves, K., Wilk, A., 2012. Connected scholars: examining the role of social media in research practices of faculty using the UTAUT model. Comput. Hum. Behav. 28, 2340–2350.
Hair, J.F., Ringle, C.M., Sarstedt, M., 2011. PLS-SEM: indeed a silver bullet. J. Market. Theory Pract. 19, 139–152.
Hair, J.F., Hult, G.T.M., Ringle, C.M., Sarstedt, M., 2013. A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Sage, Thousand Oaks.
Hair, J., Hollingsworth, C., Randolph, A., Chong, A., 2017. An updated and expanded assessment of PLS-SEM in information systems research. Ind. Manage. Data Syst. 117, 442–458.
Hakan, C., 2016. Customer online shopping anxiety within the unified theory of acceptance and use technology (UTAUT) framework. Asia Pac. J. Market. Logistics 28, 278–307.
Hareli, S., Rafaeli, A., 2008. Emotion cycles: on the social influence of emotion in organizations. Res. Organ. Behav. 28, 35–59.
Henseler, J., Ringle, C.M., Sarstedt, M., 2015. A new criterion for assessing discriminant validity in variance-based structural equation modeling. J. Acad. Mark. Sci. 43, 115–135.
Ho, D.Y.-F., 1976. On the concept of face. Am. J. Sociol. 81, 867–884.
Holmes, K., Balnaves, M., Wang, Y., 2015. Red bags and WeChat (Wēixìn): online collectivism during massive Chinese cultural events. Global Media J. 9, 1–12.
Hong, F.-Y., Huang, D.-H., Lin, H.-Y., Chiu, S.-L., 2014. Analysis of the psychological traits. Facebook usage, and facebook addiction model of Taiwanese university students. Telematics Inform. 31, 597–606.
Hu, Y., Wood, J.F., Smith, V., Westbrook, N., 2004. Friendships through IM: examining the relationship between instant messaging and intimacy. J. Comput. Mediated Commun. 10.
Huang, L.-Y., Hsieh, Y.-J., Wu, Y.-C.J., 2014. Gratifications and social network service usage: the mediating role of online experience. Inform. Manage. 51, 774–782.
Huang, Q., Davison, R.M., Gu, J., 2008. Impact of personal and cultural factors on knowledge sharing in China. Asia Pac. J. Manage. 25, 451–471.
Hwang, K.-K., 1987. Face and favor: the Chinese power game. Am. J. Sociol., 944–974
Hwang, K.-K., 1998. Guanxi and mientze: conflict resolution in Chinese society. Intercult. Commun. Stud. 7, 17–42.
Jacobs, J.B., 1979. A preliminary model of particularistic ties in Chinese political alliances: Kan-ch'ing and Kuan-hsi in a Rural Taiwanese township. China Q. 78, 237–273.
Jin, D.Y., Yoon, K., 2014. Reimagining smartphones in a local mediascape: a cultural analysis of young KakaoTalk users in Korea convergence. Int. J. Res. New Media Technol. (advance online publication).
Jinfang, Y., 2015. A review of the researches on WeChat. In: 2015 International Conference on Social Science and Technology Education. Atlantis Press.
José Carlos Martins Rodrigues, P., Ana Maria, S., 2011. Examining the technology acceptance model in the adoption of social networks. J. Res. Interact. Market. 5, 116–129.
Karpisek, F., Baggili, I., Breitinger, F., 2015. WhatsApp network forensics: decrypting and understanding the WhatsApp call signaling messages. Digital Invest. 15, 110–118.
Katz, E., Haas, H., Gurevitch, M., 1973. On the use of the mass media for important things. Am. Sociol. Rev., 164–181
Keith, E.N., Emily, W., Xiaohan, Z., 2016. The use of social media among business-to-business sales professionals in China: how social media helps create and solidify guanxi relationships between sales professionals and customers. J. Res. Interact. Market. 10, 33–49.
Kelman, H.C., 1958. Compliance, identification, and internalization: three processes of attitude change. J. Conflict Resolut., 51–60
Kelman, H.C., 1974. Further thoughts on the processes of compliance, identification, and internalization. In: Tedeschi, J.T. (Ed.), Perspectives on Social Power. Aldine Press, Chicago, IL, pp. 125–171.
Kim, J., Lee, J.-E.R., 2011. The Facebook paths to happiness: effects of the number of Facebook friends and self-presentation on subjective well-being. Cyber Psychol. Behav. Soc. Netw. 14, 359–364.
Kock, N., 2015. Common method bias in PLS-SEM: a full collinearity assessment approach. Int. J. e-Collaboration (IJeC) 11, 1–10.
Koenig-Lewis, N., Marquet, M., Palmer, A., Zhao, A.L., 2015. Enjoyment and social influence: predicting mobile payment adoption. Serv. Ind. J. 35, 537–554.
Krause, A.E., North, A.C., Heritage, B., 2014. The uses and gratifications of using Facebook music listening applications. Comput. Hum. Behav. 39, 71–77.
Lee, W.S., 2017. Bride's mother unhappy seeing bridesmaids use QR Code to receive red bags. Sina.
Lee, D.Y., Dawes, P.L., 2005. Guanxi, trust, and long-term orientation in Chinese business markets. J. Int. Market. 13, 28–56.
Lee, W., Xiong, L., Hu, C., 2012. The effect of Facebook users' arousal and valence on intention to go to the festival: applying an extension of the technology acceptance model. Int. J. Hospit. Manage. 31, 819–827.
Leung, L., 2001. College Student Motives for Chatting on ICQ. New Media Soc. 3, 483–500.
Leung, L., 2013. Generational differences in content generation in social media: the roles of the gratifications sought and of narcissism. Comput. Hum. Behav. 29, 997–1006.
Li, D.C., 2011. Online social network acceptance: a social perspective. Internet Res. 21, 562–580.
Lien, C.H., Cao, Y., 2014. Examining WeChat users' motivations, trust, attitudes, and positive word-of-mouth: evidence from China. Comput. Hum. Behav. 41, 104–111.
Lin, K.-Y., Lu, H.-P., 2011. Why people use social networking sites: an empirical study integrating network externalities and motivation theory. Comput. Hum. Behav. 27, 1152–1161.
Lu, Y., Zhou, T., Wang, B., 2009. Exploring Chinese users' acceptance of instant messaging using the theory of planned behavior, the technology acceptance model, and the flow theory. Comput. Hum. Behav. 25, 29–39.
Lu, Y., Yang, S., Chau, P.Y.K., Cao, Y., 2011. Dynamics between the trust transfer process and intention to use mobile payment services: a cross-environment perspective. Inform. Manage. 48, 393–403.
Luo, Y., 1997. Guanxi: principles, philosophies, and implications. Hum. Syst. Manage. 16, 43.
Luo, Y., Shenkar, O., Nyaw, M.-K., 2002. Mitigating liabilities of foreignness: defensive versus offensive approaches. J. Int. Manage. 8, 283–300.
Malhotra, N.K., Kim, S.S., Patil, A., 2006. Common method variance in is research: a comparison of alternative approaches and a reanalysis of past research. Manage. Sci. 52, 1865–1883.
Mäntymäki, M., Salo, J., 2011. Teenagers in social virtual worlds: continuous use and purchasing behavior in Habbo Hotel. Comput. Hum. Behav. 27, 2088–2097.
Mao, C., 2015. Analysis of WeChat Behavior of Chinese University Students. 2015 International Conference on Education, Management, Information and Medicine. Atlantis Press.
McAloon, P., 2014. Studying in China: A Practical Handbook for Students. Tuttle Publishing, Singpore.
Michailova, S., Worm, V., 2003. Personal networking in Russia and China: blat and guanxi. Eur. Manage. J. 21, 509–519.
Nadkarni, A., Hofmann, S.G., 2012. Why do people use Facebook? Personality Individ. Differ. 52, 243–249.

Niedermeier, K.E., Wang, E., Zhang, X., 2016. The use of social media among business-to-business sales professionals in China: how social media helps create and solidify guanxi relationships between sales professionals and customers. J. Res. Interactive Market. 10, 33–49.
Oliveira, MJd, Huertas, MKZ, Lin, Z., 2016. Factors driving young users' engagement with Facebook: evidence from Brazil. Comput. Hum. Behav. 54, 54–61.
Park, S.H., Luo, Y., 2001. Guanxi and organizational dynamics: organizational networking in Chinese firms Strategic management journal 22, 455–477.
Peluchette, J., Karl, K., 2009. Examining Students' Intended Image on Facebook: "What Were They Thinking?!". J. Educ. Bus. 85, 30–37.
Peng, X., Zhao, Y., Zhu, Q., 2016. Investigating user switching intention for mobile instant messaging application: taking WeChat as an example. Comput. Hum. Behav. 64, 206–216.
Pfeffer, J., 1992. Understanding power in organizations. Calif. Manage. Rev. 34, 29–50.
Qi, X., 2013. Guanxi, social capital theory and beyond: toward a globalized social science. Br. J. Sociol. 64, 308–324.
Qu, Y., Rong, W., Ouyang, Y., Chen, H., Xiong, Z., 2015. Social aware mobile payment service popularity analysis: the case of wechat payment in China. In: Yao, L., Xie, X., Zhang, Q., Yang, T.L., Zomaya, Y.A., Jin, H. (Eds.), Advances in Services Computing: 9th Asia-Pacific Services Computing Conference, APSCC 2015, Bangkok, Thailand, December 7–9, 2015, Proceedings. Springer International Publishing, Cham, pp. 289–299.
Quan-Haase, A., Young, A.L., 2010. Uses and gratifications of social media: a comparison of Facebook and instant messaging. Bull. Sci. Technol. Soc. 30, 350–361.
Redding, S.G., Michael, N., 1983. The role of "Face" in the organizational perceptions of Chinese managers. Int. Stud. Manage. Organ. 13, 92–123.
Rupak, R., Greg, R., Jei, Y., Ben, J., 2014. Technology acceptance model (TAM) and social media usage: an empirical study on Facebook. J. Enterprise Inf. Manage. 27, 6–30.
Sharma, S.K., Joshi, A., Sharma, H., 2016. A multi-analytical approach to predict the Facebook usage in higher education. Comput. Hum. Behav. 55 (Part A), 340–353.
Smock, A.D., Ellison, N.B., Lampe, C., Wohn, D.Y., 2011. Facebook as a toolkit: a uses and gratification approach to unbundling feature use. Comput. Hum. Behav. 27, 2322–2329.
Stafford, T.F., Stafford, M.R., Schkade, L.L., 2004. Determining uses and gratifications for the internet. Dec. Sci. 35, 259–288.
Standifird, S.S., Marshall, R.S., 2000. The transaction cost advantage of guanxi-based business practices. J. World Bus. 35, 21–42.
Su, H., 2016. Constant connection as the media condition of love: where bonds become bondage Media. Cult. Soc. 38, 232–247.
Thong, J.Y.L., Hong, S.-J., Tam, K.Y., 2006. The effects of post-adoption beliefs on the expectation-confirmation model for information technology continuance. Int. J. Hum Comput Stud. 64, 799–810.
Timothy Coombs, W., Holladay, S.J., 2007. The negative communication dynamic: exploring the impact of stakeholder affect on behavioral intentions. J. Commun. Manage. 11, 300–312.
van der Heijden, H., Verhagen, T., Creemers, M., 2003. Understanding online purchase intentions: contributions from technology and trust perspectives. Eur. J. Inf. Syst. 12, 41–48.
Venkatesh, V., 2000. Determinants of perceived ease of use: integrating control, intrinsic motivation, and emotion into the technology acceptance model. Inf. Syst. Res. 11, 342–365.
Venkatesh, V., Bala, H., 2008. Technology acceptance model 3 and a research agenda on interventions. Dec. Sci. 39, 273–315.
Venkatesh, V., Davis, F.D., 2000. A theoretical extension of the technology acceptance model: four longitudinal field studies. Manage. Sci. 46, 186–204.
Walnycky, D., Baggili, I., Marrington, A., Moore, J., Breitinger, F., 2015. Network and device forensic analysis of Android social-messaging applications. Digital Invest. 14 (Suppl. 1), S77–S84.
Wang, C.L., 2007. Guanxi vs. relationship marketing: exploring underlying differences. Ind. Mark. Manage. 36, 81–86.
Wang, X., 2016. Social Media in Industrial China. UCL Press.
Wang, Q., Mohammed Abdur, R., Kau, Ah.K., 2007. Chinese cultural values and gift-giving behavior. J. Consumer Market. 24, 214–228.
Wang, Y.-S., Lin, H.-H., Liao, Y.-W., 2012. Investigating the individual difference antecedents of perceived enjoyment in students' use of blogging. Br. J. Educ. Technol. 43, 139–152.
WeChat, 2016. Features <http://www.wechat.com/en/>.
WiC, 2015. Proverbial wisdom – Our columnist Mei selects 300 Chinese proverbs 300 Chinese Proverbs. <http://www.weekinchina.com/wp-content/uploads/2015/10/300_Proverbs.pdf>.
Willson, M., Leaver, T., 2016. Social, Casual and Mobile Games: The Changing Gaming Landscape. Bloomsbury Publishing, USA.
Witt, M.A., 2012. Editorial Asian Business & Management 11, 1–4.
Wong, Y., 1998. The dynamics of guanxi in China. Singapore Manage. Rev. 20, 25–42.
Wong, Y., Leung, T.K., 2001. Guanxi: Relationship Marketing in a Chinese Context. Psychology Press.
Yen, D.A., Barnes, B.R., Wang, C.L., 2011. The measurement of guanxi: introducing the GRX scale. Ind. Mark. Manage. 40, 97–108.
Yi, M.Y., Hwang, Y., 2003. Predicting the use of web-based information systems: self-efficacy, enjoyment, learning goal orientation, and the technology acceptance model. Int. J. Hum. Comput. Stud. 59, 431–449.
Ying Han, F., Gordon, W., Glennda, S., 2014. Guanxi, a two-edged sword! How Australian accounting professionals view the process within a moral framework. Managerial Audit. J. 29, 695–716.
Yuan, E.J., 2013. A culturalist critique of 'online community' in new media studies. New Media Soc. 15, 665–679.
Yue, X., 2015. The change on traditional social relationship by discussing the red packets on Wechat. J. Tangshan Normal Univ. 37, 78–81.
Zhao, Q., Chen, C.-D., Wang, J.-L., 2016. The effects of psychological ownership and TAM on social media loyalty: an integrated model. Telematics Inform. 33, 959–972.
Zhou, T., Li, H., 2014. Understanding mobile SNS continuance usage in China from the perspectives of social influence and privacy concern. Comput. Hum. Behav. 37, 283–289.