

# Determinants of mobile social media use, customer heterogeneity, and international microsegmentation

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## Abstract

How to effectively examine the heterogeneous nature of consumer preferences across borders and cultures is a challenge for firms that use mobile social media. This study identifies the determinants of individuals' mobile social media use behavior and profiles the resulting international microsegments. We propose a model that integrates different theoretical perspectives and sets of factors to explain mobile social media use behavior and test it on a sample of users in China and the United States via online surveys. We estimate a global model (GM) based on all respondents and three local models created by post hoc international microsegmentation. The three local models reveal the existence of three unobserved user segments: "usage goal experts," "determined pragmatists," and "pressured hedonists." Perceived usefulness is the most influential factor in the GM, while users in the three segments significantly differ in their behavioral patterns, cultural value orientations, and demographic characteristics. This study is the first to examine unobserved heterogeneity and international microsegmentation in the mobile social media domain. It provides insights into the factors explaining use behavior and international microsegmentation for scholars and marketers operating in the global marketplace.

## KEYWORDS

cross-cultural, international segmentation, microsegmentation, mobile social media, unobserved heterogeneity

## 1 | INTRODUCTION

Mobile social media are social applications that can be accessed via smartphones for the purpose of communication, interaction, and the generation and exchange of content for many users. They include social networking sites (e.g., Facebook) and instant messaging platforms (e.g., WhatsApp). Mobile applications are portable, personalizable, interactive, convenient, and effective (Huang et al., 2019). Therefore, mobile social media are used globally and are important for firms and marketers as effective tools to create

and capture customer value (Ju et al., 2021). Social media are being increasingly used on mobile devices rather than other devices (Mehra et al., 2020), and several of their characteristics, such as their effective real-time communication (Hwang & Nam, 2017; Yang et al., 2021) and personalizable services (Cloarec, 2020; Pagani & Malacarne, 2017), distinguish mobile social media from traditional social media (Kaplan, 2012).

Marketing 4.0 has a significant impact on customers' satisfaction and purchase intention and implies a more "inclusive, horizontal and social approach to marketing" (Dash et al., 2021, p. 609) in which

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social media can play a relevant role. The ubiquity of social media influences individuals' behavior (Lamberton & Stephen, 2016) and provides new opportunities for researchers and firms that operate in global markets (Rosado-Serrano & Paul, 2017). Particularly, mobile social media use behavior and international segmentation are important research topics that deserve more attention from marketing scholars, as argued below.

Research on social media and mobile social media use behavior has flourished in recent years and falls into two streams. The first stream has primarily focused on the antecedents of continuous usage intention (e.g., Gao & Bai, 2014; Gong et al., 2018; Han et al., 2015; Hoehle et al., 2015; Hong et al., 2017; Leong et al., 2018; Lien et al., 2017; Shao & Pan, 2019; Tan et al., 2018; Wang, 2020; Yang & Lin, 2019; Zhang et al., 2017; Zhao et al., 2016), adoption intention (e.g., Lin & Lu, 2015; Wang, 2020), active use (e.g., Bailey et al., 2018; Pagani & Malacarne, 2017; Shao & Pan, 2019), and actual use (e.g., Assimakopoulos et al., 2017; Ha et al., 2015; Hyun et al., 2021). Studies belonging to this stream have mainly applied different theoretical lenses and, therefore, have used different sets of factors as determinants of mobile social media use behavior.

The second research stream has focused on cross-cultural analysis and has applied Hofstede's cultural value dimensions (Hofstede, 2001) to examine social media and mobile social media use (Abbas & Mesch, 2015; Alsaleh et al., 2019; Amaro & Duarte, 2017; Hoehle et al., 2015; Ifinedo, 2016; Jackson & Wang, 2013; Makri & Schlegelmilch, 2017; Sheldon et al., 2017). Since firms cannot serve the world's heterogeneous population using standardized marketing strategies, researchers and marketers have shown an increasing interest in assessing the heterogeneous nature of customers, and in segmenting them (Steenkamp & Hofstede, 2002).

However, little research exists on heterogeneity and the international segmentation of mobile social media users, and two limitations affecting prior mobile social media research and international microsegmentation are particularly relevant to the current study. First, from the few studies on the actual use of mobile social media, researchers have mainly shed light on the effect of hedonic and integrative gratifications on users' attitudes toward the platforms, as well as their actual use behavior (Ha et al., 2015). However, users' attitudes may be affected not only by perceived hedonic (intrinsic motivation) and integrative gratifications but also by factors such as extrinsic motivations and the perceived influence of their social environment. Thus, identifying the determinants of users' attitudes and actual use behavior from multiple theoretical perspectives is expected to provide a more comprehensive explanation of mobile social media use behavior and mitigate the problem of utilizing more simplistic frameworks that do not integrate some of the relevant factors that drive their usage.

Second, when researchers have conducted cross-cultural analyses to explore users' behavioral differences, the country has been the most frequently used criterion for classifying users (Hoehle et al., 2015). Users in a country are typically assumed to

display similar behavioral patterns and cultural values (Hoehle et al., 2015). However, when there are minimal differences in users' behavioral patterns across countries, the country becomes less important as a segmentation variable (Marreiros et al., 2020). A priori segmentation, as a segmentation approach that groups consumers based on predefined segmentation variables such as demographics (e.g., nationality) rather than on market research, may hide differences in consumer behavior when heterogeneous behavioral patterns exist (Wedel & Kamakura, 2002). Therefore, post hoc segmentation, as a method in which respondents are clustered according to consumer data and the similarity of multivariate individual profiles (Kalafatis & Cheston, 1997), is a more suitable approach.

Against this background, this study's objectives are to bridge these gaps by integrating from several theoretical perspectives the factors that drive actual mobile social media use behavior and by uncovering the different behavioral patterns, cultural value orientations, and demographic characteristics across international microsegments. More specifically, this study seeks to answer the following research questions: (a) How do intrinsic and extrinsic motivations, technology acceptance, and social influence explain the attitude toward and mobile social media use? (b) How can post hoc international microsegmentation of behavioral patterns be effectively applied to identify users' heterogeneity in mobile social media use?

To answer these questions, we propose a hybrid model that integrates the technology acceptance model (TAM) (Davis, 1986; Davis et al., 1989), motivation theory (Deci & Ryan, 1987), and social influence theory (Kelman, 1958) as the main foundations for examining individuals' attitude and actual use behavior. We apply partial least squares path modeling (PLS-SEM) (Hair Jr et al., 2016) to estimate the model using a sample of mobile social media users collected in China and the United States via online questionnaires. Then, we adopt Response Based Unit Segmentation in PLS path modeling (REBUS-PLS) (Vinzi et al., 2008) to detect unobserved heterogeneity and segment users with similar behavioral patterns. Finally, we explain the behavioral differences across segments through the lens of cross-cultural variation theory (Hofstede et al., 2010) and demographic variables.

Our study offers two contributions to the literature on mobile social media and international microsegmentation. First, it identifies and integrates, from multiple theoretical perspectives, different sets of factors that ultimately drive users' actual use behavior, which can help scholars and firms to understand users' preferences and behaviors more comprehensively. Second, our study also contributes to the under-researched topics of unobserved heterogeneity and international microsegmentation in mobile social media by effectively detecting unobserved heterogeneity and segmenting users from different countries who share behavioral patterns. Knowledge regarding different user groups, including the most influential factors, demographic characteristics, and cultural values at the individual level, can help firms more effectively tailor their market offerings toward each segment.

## 2 | MOBILE SOCIAL MEDIA USE AND INTERNATIONAL MARKET SEGMENTATION

### 2.1 | Mobile social media use

To review the literature on mobile social media use, we searched for publications in ScienceDirect, Scopus, and Web of Science because of the internationally accessible and high-quality literature contained therein (Ju et al., 2021; Misirlis & Vlachopoulou, 2018; Salo, 2017). We limited our selection to peer-reviewed articles published in journals listed in the Journal Citation Reports (JCR). These publications represent the most advanced level of research in their corresponding fields (Mustak et al., 2013). We used the following keywords in the title, abstract, keywords, and full text of the articles (Paul & Criado, 2020): “mobile social media,” “mobile social networking sites,” “mobile SNS,” “mobile social media applications,” “mobile social apps,” “mobile instant messaging,” and “mobile location-based social networks.” We found 17 suitable studies; Table 1 summarizes their objectives, theories, methodologies, and contributions.

Studies focusing on mobile social media use behavior can be traced back to 2014 (see Table 1, column one), and have investigated the antecedents that drive individuals' use behavior (see Table 1, column two). Researchers have primarily studied continuous usage intention (Gao & Bai, 2014; Gong et al., 2018; Han et al., 2015; Hoehle et al., 2015; Hong et al., 2017; Leong et al., 2018; Lien et al., 2017; Shao & Pan, 2019; Tan et al., 2018; Wang, 2020; Yang & Lin, 2019; Zhang et al., 2017; Zhao et al., 2016) but have paid less attention to initial usage intention (Lin & Lu, 2015; Wang, 2020), actual use behavior (Ha et al., 2015), and active and passive behavior (Pagani & Malacarne, 2017).

Various theories have been adopted to explain mobile social media use behavior. The TAM (Davis, 1986; Davis et al., 1989) is the most widely used theory, and studies on mobile social media have highlighted the significant role of the perceived usefulness and perceived ease of use in using technology (Leong et al., 2018; Oghuma et al., 2016; Tan et al., 2018; Zhao et al., 2016). In addition, gratification theory (Katz et al., 1973) has also been widely used. Researchers have found several gratifications perceived from mobile social media use that positively affect individuals' use behavior, as follows. Social gratification satisfies users' social connection needs (Han et al., 2015), hedonic gratification satisfies users' entertainment and enjoyment needs (Ha et al., 2015; Hsiao et al., 2016; Yang & Lin, 2019), utilitarian gratification satisfies users' needs to contact others and obtain information, and integrative gratification satisfies users' needs to form a sense of belonging to a group and enhance personal values (Ha et al., 2015). In addition, researchers have highlighted motivation theory (Deci & Ryan, 1987) to explain users' behavior. Specifically, perceived usefulness is classified as an extrinsic motivation (Lin & Lu, 2011; Wamba et al., 2017), whereas hedonic gratification is an intrinsic motivation (Zhang et al., 2017). Finally, the perceived social influence of other users also plays an important role in driving users' behavior (Gao & Bai, 2014; Lin & Lu, 2015; Zhang et al., 2017; Zhao et al., 2016).

All the studies were quantitative and conducted data collection via online surveys. The most frequent country for data collection was Mainland China (see Table 1, column four); however, for our purposes, we only found one cross-cultural study (Hoehle et al., 2015) that explained use. All studies applied structural equation modeling (SEM) to analyze the hypothesized relationships. By exploring the antecedents of mobile social media use, these studies deepen our understanding of individuals' behavior and provide useful insights to mobile social media developers and marketing practitioners (see Table 1, column five).

Very little research has considered the role of attitudes toward mobile social media, or the corresponding antecedents that form such attitudes (e.g., Ha et al., 2015). Attitude is an important component in the behavioral process of using information systems because it constitutes a key affective response that connects cognitive and behavioral responses (Davis, 1986; Davis et al., 1989). The current study considers the role of attitude to connect actual use with several cognitive components.

### 2.2 | International market segmentation

Globalization of the business world has turned international market segmentation into an essential concept in both marketing theory and practice (Wedel & Kamakura, 2002). Market segmentation is the process of dividing a heterogeneous market into smaller and relatively homogeneous segments (Kale & Sudharshan, 1987). It can help identify groups of consumers that are separated by national or cultural boundaries but have similar needs and wants (Grunert, 2019). Segmentation helps companies address consumers' specific needs and target potential customers at the international segment level (Steenkamp & Hofstede, 2002). However, how to effectively deal with both the structure of heterogeneity in customers' needs and wants and segment consumers across borders are among the main challenges for scholars and international marketers (Steenkamp & Hofstede, 2002). International segmentation is a challenging issue because it involves obtaining comparative information pertaining to not only countries, industries, products, and consumers in a given market, but also to the cultures of the markets (Papadopoulos & Martín Martín, 2011).

The evolution of the Internet toward the more interactive Web 2.0, the new online platforms for marketing research, and the growth of social media have resulted in both an increase in the availability of data at the consumer level and opportunities for new studies on international (micro)segmentation. Most international segmentation studies have ignored individual heterogeneity by using the country as the unit of analysis (for exceptions, see Cleveland et al., 2011) and they have not focused on segmenting mobile social media users. Taking the country as the unit of analysis, Gaston-Breton and Martín Martín (2011) proposed a two-stage market selection and segmentation model that integrated market attractiveness and consumer values to help institutions and market-seeking multinational enterprises segment European macro-regions and groups of consumers.

TABLE 1 Main studies on factors explaining mobile social media use

Author	Objective	Theory	Methodology	Contribution
Gao and Bai (2014)	To identify the factors affecting mobile SNS users' continuance intention.	IS success model, Network externalities, Flow	Structural equation modeling, 228 responses were collected in Mainland China via survey.	The study enriches extant research on postadoption usage of mobile SNS by integrating network externalities, flow theory, and IS success model.
Ha et al. (2015)	To examine the factors that drive mobile social media users' actual use behavior.	Perceived value, Prospect theory & mental accounting theory	Structural equation modeling, 330 responses of KakaoTalk and 311 of Facebook users were collected via survey in South Korea.	This study deepens the understanding of users' postadoption of mobile SNSs by examining the effect of media effects on actual user behavior.
Han et al. (2015)	To investigate the antecedents of continuous usage intention of SNSs and to compare the differences between mobile and nonmobile users.	Uses and Gratifications Theory	Structural equation modeling, Responses from 798 Twitter users were collected via a cross-sectional survey in South Korea.	This study examines the impact of immediacy and intimacy on social presence and illustrates the different impact of mobile and desktop on social presence.
Hoehle et al. (2015)	Conducting a four-country study to examine factors that drive users' continued usage intention and to explore the differences under the impact of culture.	Espoused cultural values	Structural equation modeling, 1,844 responses were collected via survey from the United States, Germany, Mainland China, and India.	This study shows that espoused national cultural values do not play an important role in moderating the impact of mobile social media application usability on continued intention to use.
Lin and Lu (2015)	To predict individuals' acceptance of mobile social network.	Value theory, social influence	Structural equation modeling, 318 responses were collected via survey in Taiwan.	This study enriches our understanding of factors that explain users' intention to use the mobile SNSs.
Hsiao et al. (2016)	To explore the influential factors in the continuance intention of social App use.	Utilitarian motivation, Hedonic motivation, social influence	Structural equation modeling 378 responses were collected via survey in Taiwan.	The study explains users' initial adoption of the continued use of social Apps from the perspective of customer values.
Oghuma et al. (2016)	To examine the drivers of MIM users' continuance intention.	Expectation Confirmation Theory, post-Acceptance Model of IS Continuance	Structural equation modeling, 350 KakaoTalk users were collected via survey.	The study extends the Expectation Confirmation Theory from IS use in general to MIM use by verifying the impact of perceived usability, perceived security, perceived service quality, and confirmation on continuous usage intention.
Zhao et al. (2016)	To examine antecedents in enhancing customer engagement and long-term loyalty in mobile social media LINE.	Technology Acceptance Model, Theory of psychological ownership	Structural equation modeling 791 responses of Line users were collected via survey in Taiwan.	The study contributes to social media literature by examining the effects of critical factors based on TAM and psychological ownership on users' loyalty to social media.
Lien et al. (2017)	To examine the impact of service quality on WeChat users' usage intention.	Expectancy-Disconfirmation theory	Structural equation modeling, 639 respondents were collected via survey in Mainland China.	The study verified the impact of interaction quality, environment quality, and outcome quality on WeChat users' satisfaction, and confirmed the mediating role of stickiness between satisfaction and usage intentions.

(Continues)

TABLE 1 (Continued)

Author	Objective	Theory	Methodology	Contribution
Pagani and Malacarne (2017)	To explore how social media and mobile influence users' online dynamic behavior.	Customer engagement, Experiential engagement, Active and passive use with location-based services	Structural equation modeling 379 responses were collected via survey in EU and the United States.	This study provides insights into increasing experiential engagement and mitigating the negative influence of privacy concerns on the active use of location based SNSs.
Zhang et al. (2017)	To examine the effects of network externalities on users' perceived values and continuance intention.	Network externalities, social interaction ties, Perceived values	Structural equation modeling, 240 responses of WeChat users were collected via survey in Mainland China.	This study provides insights into users' postadoption behavior of SNS by testing the mediating role of social interaction ties in the effect of network externalities on different perceived values.
Gong et al. (2018)	To explore the reasons why experienced mobile social apps users are likely to continue using the app.	Experiential learning theory	Structural equation modeling, 295 responses of WeChat users were collected via survey in Mainland China.	This study enriches our understanding of users' postadoption behavior of mobile social media and the role of levels of experience in increasing their continuous usage intention.
Leong et al. (2018)	To explore the determinants of students' usage intention of mobile SNSs for their pedagogical purposes.	Technology Acceptance Model	Structural equation modeling, 600 students from public universities of Malaysia filled out the survey.	The study extended TAM by confirming the moderating effect of experience on the intention to mobile social media adoption for pedagogical purposes.
Tan et al. (2018)	To understand consumers' adoption intention of mobile social media advertising.	Technology Acceptance Model, personal factors, Interactivity Theory	Structural equation modeling, 459 data were collected in Malaysia via survey.	The study extended TAM by with consumers' personal factors and interactivity.
Shao and Pan (2019)	To examine the factors that drive users' behaviors in the WeChat Moments.	Social capital theory, Technology affordance theory	Structural equation modeling, 287 data were collected from WeChat users in Mainland China via survey.	The study enriches our understanding of antecedents of user participation in mobile social media.
Yang and Lin (2019)	To examine the antecedents that drive elderly users' mobile social service adoption.	Uses and gratification theory, Media richness theory	Structural equation modeling, 226 valid data were collected via survey in Taiwan.	The study advances our understanding of elder users' mobile social media service adoption behavior by proposing a framework combining uses and gratification theory and media richness theory.
Wang (2020)	To understand antecedents that drive mobile short-form video apps adoption intention.	Human-Computer Interaction theory	ANCOVA, 81 responses were collected via survey in the United States.	The study addresses the effects of short-form videos characteristics on users' psychological responses and adoption intention.

Budeva and Mullen (2014) focused on the economic and cultural factors that affected international country segments, and their stability over time, in 30 countries. Cleveland et al. (2011) studied urban consumers from eight countries and found that ethnic identity and demographics impacted consumer behavior. Wamba et al. (2017) assessed unobserved heterogeneity in the information system field by segmenting user social media acceptance within the workspace in five countries.

Although globalization may increase the similarity in needs and wants across national boundaries, countries and mobile social media users remain largely heterogeneous in their preferences and behaviors, and researchers have not paid attention to the heterogeneous nature and international microsegmentation of mobile social media users.

### 3 | THEORETICAL FRAMEWORK AND HYPOTHESES

This section proposes a hybrid model of actual mobile social media use based on the TAM, motivation theory, and social influence theory (see Figure 1), and explains the impact of heterogeneity in mobile social media use. The TAM was built based on the theory of reasoned action (TRA) (Ajzen & Fishbein, 1980) to explain information system acceptance. The TAM posits that users' attitude toward use is a predictor of behavioral intention, which, in turn has a direct effect on actual use. Users' attitudes are jointly determined by perceived usefulness and perceived ease of use (Davis, 1986; Davis

et al., 1989). Motivation theory (Deci & Ryan, 1987) connects the cognitive responses arising from perceived usefulness, ease of use, and enjoyment with the affective response of attitude toward use. Social influence theory was proposed by Deutsch and Gerard (1955) and Kelman (1958), and indicates that referent others influence an individual's attitudes, beliefs, and subsequent actions or behaviors. Building on social influence theory, we complete the model with subjective norms, referent network size, and attachment motivation as other sets of determinants of attitude toward use.

#### 3.1 | Motivation theory and TAM factors

##### 3.1.1 | Perceived enjoyment

We define *perceived enjoyment* as the extent to which the activity of using mobile social media is perceived to be enjoyable. It is an intrinsic and hedonic motivation driven by internal rewards such as enjoyment (Davis et al., 1992; Lee et al., 2005; Venkatesh, 2000; Venkatesh & Bala, 2008). Users may adopt mobile social media not only for communication or interaction (Ju et al., 2021), but also for the enjoyment that is obtained from the usage process (Zhou & Lu, 2011). Thus, perceived enjoyment can be seen as a crucial factor that affects users' adoption behavior (Ha et al., 2015; Hsiao et al., 2016; Omoush et al., 2012; Pagani & Malacarne, 2017; Zhou & Lu, 2011).

People may form beliefs about an object by associating it with specific attributes, and may form attitudes from beliefs (Fishbein &

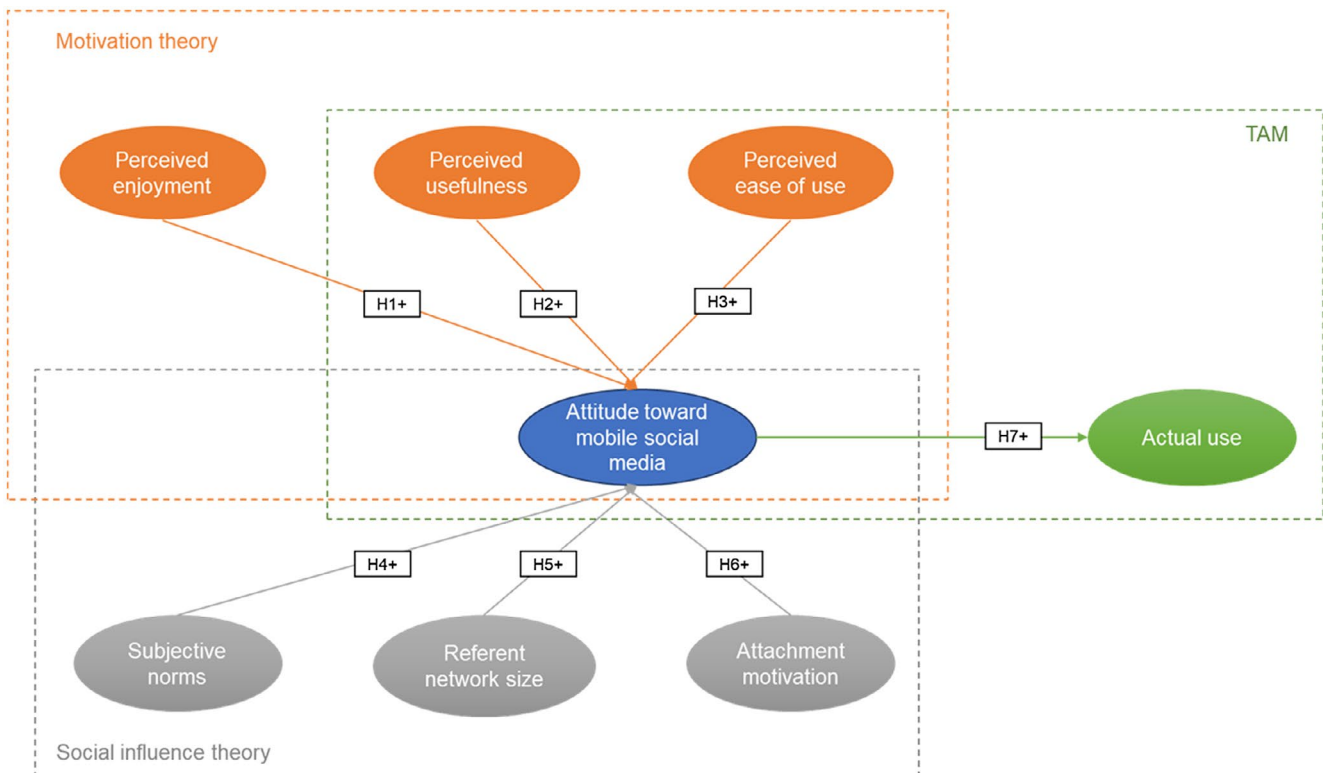


FIGURE 1 Research model

Ajzen, 1975). Social psychologists have proposed that attitude formation can occur through direct experience and emotional reactions (Bem, 1970). Thus, when users experience enjoyment from the use of a given technology, they may form a positive attitude toward it. Consistent with this logic, in the social media sphere, Chen (2014) found that the more pleasure users obtained from using Facebook, the more positive their attitudes toward the social network were. Similarly, Bailey et al. (2018) explored social media use behavior among young users and showed that perceived enjoyment was positively related to users' attitudes toward social media. Thus, we suggest that the perceived enjoyment of mobile social media also leads users to form a favorable attitude toward it. Therefore, we propose the following hypothesis:

**H1.** Perceived enjoyment is positively related to attitude toward mobile social media.

### 3.1.2 | Perceived usefulness

Based on Davis et al. (1992), we define *perceived usefulness* as user expectations that their use of mobile social media will improve the effectiveness of achieving their goals. Motivation can also be extrinsic (Deci & Ryan, 1987). Extrinsic motivation refers to user behavior that is driven by external rewards, such as improved job performance, salary, or promotion (Davis et al., 1992; Venkatesh & Bala, 2008). Perceived usefulness is an extrinsic motivator (Davis et al., 1992; Kwon et al., 2021; Venkatesh & Bala, 2008; Wamba et al., 2017; Zhou & Lu, 2011) because it represents a user's utilitarian need for social media platforms (Hong et al., 2017; Hsiao et al., 2016).

Previous social media studies have shown that users may form a positive feeling about platforms when their usage experience matches their expectations (Bailey et al., 2018; Gao et al., 2013; Im & Ha, 2013; Lee et al., 2005; Lin & Kim, 2016). Gao et al. (2013) found that consumers in the United States, mainland China, and Europe formed a positive attitude toward mobile marketing when they increased their perceived utility in participating in marketing activities using mobile technology. Notably, perceived usefulness is the most influential factor affecting American consumers' attitudes toward mobile marketing (Gao et al., 2013). Therefore, we propose the following hypothesis:

**H2.** Perceived usefulness is positively related to attitude toward mobile social media.

### 3.1.3 | Perceived ease of use

We define *perceived ease of use* as the extent to which a person believes that using mobile social media will be free from effort. A given technology's ease of use may be inferred from

the effort put into the process of using the technology to accomplish a task (Davis et al., 1992). Less effort would imply a higher value for the user and, therefore, a positive attitude toward the technology.

Previous social media studies have indicated that users may have a positive attitude toward technology when they have had a good experience and have made less effort previously to complete personal goals (Bailey et al., 2018; Gao et al., 2013; Im & Ha, 2013; Lee et al., 2005). Since social media constitutes important advertising channels (Sreejesh et al., 2020), Lin and Kim (2016) examined undergraduate students' acceptance of sponsored advertising on Facebook. They showed that the easier use of Facebook advertising resulted in a positive attitude toward Facebook advertising. Thus, we suggest that users will form a positive attitude toward mobile social media when less effort is required to use their functions. Therefore, we propose the following hypothesis:

**H3.** Perceived ease of use is positively related to attitude toward mobile social media.

## 3.2 | Social influence factors

### 3.2.1 | Subjective norms

*Subjective norms* are one of the root constructs of social influence (Venkatesh et al., 2003). This influence means that a user's decision to use an information system is influenced by people who are important to them, including family, friends, and colleagues (Venkatesh & Bala, 2008). In the information system context, subjective norms can be considered as the psychological pressure perceived by peers regarding technology adoption (Davis, 1986), and they play an essential role in influencing users' attitudes and decision-making processes. Generally, people may choose to perform a behavior if they believe that one or more essential referents think they should (Venkatesh & Davis, 2000). Subjective norms may influence behavioral intentions via attitude (Davis et al., 1989).

We suggest that a previous positive influence on the use of mobile social media from relevant referents may lead to a positive attitude toward this technology. Prior studies have shown that subjective norms influence users' attitudes toward a given technology. Specifically, Im and Ha (2013) examined American consumers' adoption decisions regarding mobile coupons, and found a positive relationship between subjective norms and attitude. That is, individuals were more likely to form a positive attitude toward the given technology when their peers believed that the technology should be used (Im & Ha, 2013). In the context of social media, Chen (2014) found that subjective norms positively affected user attitudes toward Facebook. We posit that users may form a favorable attitude toward mobile social media under social pressure. Therefore, we propose the following hypothesis:

**H4.** Subjective norms are positively related to attitude toward mobile social media.

### 3.2.2 | Referent network size

The *referent network size* refers to the number of participants in a social network. This aspect represents the perceived value of direct network externalities (Lin & Bhattacharjee, 2008). The value of technology increases to a person when others use it (Shepherd & Lane, 2019), and because of this “herd effect” (Hong et al., 2017), users’ usage decisions regarding interactive technologies are often influenced by the number of friends and colleagues who use them in their social circle. The number of people with whom users can communicate increases with the number of people who use IT (Lin & Bhattacharjee, 2008). In contrast, when the referent network size is small, users may have less interest in a technology and stop using it (Zhou & Lu, 2011).

Although empirical studies have verified the impact of the referent network size on network benefits (Lin & Bhattacharjee, 2008) and perceptual outcomes (Hong et al., 2017), no study has yet examined its impact on users’ attitudes toward mobile social media. Under the influence of the “herd effect,” people are more likely to believe in the evaluation of and feelings toward the mobile social media used by their reference groups, and imitate their adoption decisions (Hong et al., 2017). Thus, users’ attitudes toward mobile social media may be more positive as the number of users increases. Therefore, we propose the following hypothesis:

**H5.** The referent network size is positively related to attitude toward mobile social media.

### 3.2.3 | Attachment motivation

*Attachment motivation* is the degree to which individuals believe that they can improve their social interactions and interpersonal relationships via mobile social media (Ma & Chan, 2014). In the current study, attachment reflects the emotional bond connecting an individual to mobile social media platforms. Social media serve not only to communicate, create, and share messages with others (Yannopoulou et al., 2019), but also shape people's thoughts and attitudes (Hwang & Kim, 2015) and empower them (Tajurrahim et al., 2020). People desire to form relationships with others. Being accepted by others and receiving positive feedback from members of mobile social media may increase a user's sense of belonging to groups, and may stimulate more interaction with others and the development of new relationships (Ma & Chan, 2014). Fulfilled needs influence users’ emotional and psychological states regarding social media platforms, which consequently affects users’ allocation of cognition and attitude toward these platforms (Fedorikhin et al., 2008).

The attachment motivation construct has received some attention in the marketing literature (e.g., Chen, 2014; Ma & Chan, 2014).

For example, Chen (2014) found that Facebook use could fulfill users’ needs for interpersonal relationships and increase users’ attachment to the platform. Consequently, users had a positive attitude toward Facebook and had intentions to continue using it in the future (Chen, 2014). In the current study's mobile social media context, we posit that a high level of attachment to mobile social media will motivate users to form a positive attitude toward it. Therefore, we propose the following hypothesis:

**H6.** Attachment motivation is positively related to attitude toward mobile social media.

### 3.2.4 | Attitude and outcome behavior

We adapt Ajzen's (1991) definition of attitude to our study's context and define it as an individual's positive or negative feelings about using mobile social media. According to the TAM (Davis, 1986; Davis et al., 1989) and theory of planned behavior (Fishbein & Ajzen, 1975), attitudes exert a positive effect on behavioral use intention and users’ consequent actions.

The literature on social media is consistent with these views. Ha et al. (2015) focused on Facebook and KakaoTalk use in Korea to shed light on the significant impact of users’ attitudes toward mobile social media on their actual use behavior. Bailey et al. (2018) suggested that young Latin American users’ attitudes toward social media were positively related to their active social media behaviors. In our study, we suggest that users’ attitudes toward mobile social media will prompt them to spend more time on mobile social media. Therefore, we propose the following hypothesis:

**H7.** Attitude toward mobile social media is positively related to the actual use of mobile social media.

### 3.2.5 | Heterogeneity and international market segmentation

The heterogeneity of customers’ needs and preferences is the driving force behind market segmentation (Floh et al., 2014; Kim et al., 2020). Considerable heterogeneity characterizes international markets, so it is critical to identify similar underlying behavioral patterns in this context. Global users may have similar needs and preferences for mobile social media, regardless of the country in which they live. Thus, a post hoc segmentation method can be effectively used to conduct international microsegmentation (Wedel & Kamakura, 2000). Segmentation is particularly important in the development and implementation of successful global marketing strategies (Olsen et al., 2009; Walters, 1997).

Previous studies have highlighted the role of customer heterogeneity in the marketing domain (Chocarro et al., 2015; Floh et al., 2014; Wamba et al., 2017). For example, Wamba et al. (2017) assessed unobserved heterogeneity in the social media market, and



segmented users from five countries based on their responses. Their findings demonstrated that users' adoption behaviors and demographic characteristics were different in distinct segments. Thus, explaining users' behavioral differences in connection with their specific profiles, such as their demographics and culture, can help determine the characteristics that describe each of the revealed classes and manage users effectively (Chocarro et al., 2015).

Users' motives and behavioral patterns differ across segments, which is associated with users' demographic characteristics and cultural values. Cultural differences reflect the variation in values, attitudes, and behaviors that people share in society (Bond, 2004). Researchers have developed several frameworks to explain cross-cultural variation (e.g., Hofstede, 1980; Hofstede et al., 2010; House et al., 2004; Inglehart, 1997; Schwartz, 1992). The current study relies on Hofstede's cultural dimensions because of their widespread use and relevance in cross-cultural studies on social media (Abbas & Mesch, 2015; Gao et al., 2013; Hoehle et al., 2015; Ifinedo, 2016; Jackson & Wang, 2013) and appeal to academics and practitioners (de Mooij & Hofstede, 2010). Thus, we suggest that users in each segment have specific demographic characteristics and cultural values, and have distinct behavioral patterns when using mobile social media. Therefore, we propose the following hypothesis:

**H8.** Users' motivation, social influence, attitude toward mobile social media, and actual use behavior heterogeneity are associated with the demographic and cultural characteristics of the resulting international segments.

## 4 | METHODS

### 4.1 | Sampling and respondents' demographic characteristics

We selected mainland China and the United States for three reasons. First, both countries have a high penetration of mobile social media (71% in China and 61% in the United States) (We are Social & Hootsuite, 2019). Second, these two countries are profoundly different in their cultural value orientation (Hofstede, 2001). Third, some of their characteristics, such as their diverse and multicultural populations, indicate a high probability of the existence of unobserved customer heterogeneity. Quota sampling was applied to select survey participants in both countries because a sampling frame was unavailable, and this approach can provide a representative sample of various subgroups within a population (Babin & Zikmund, 2015). We controlled the proportions of age and sex intervals to resemble the countries' populations. We targeted Chinese and American users who had used mobile social media in the last six months.

Table 2 presents the demographic information of the 844 respondents who completed the questionnaire. The sample was quite balanced in terms of sex (53% males, 47% females) and nationality

**TABLE 2** Descriptive analysis of categorical variables of the global model ( $n = 844$ )

Demographic variables	Categories	Frequency	Percentage
Sex	Female	393	47%
	Male	451	53%
Age	24-	210	25%
	25-30	262	31%
	31-35	213	25%
	36-40	107	13%
	41+	52	6%
Education	High school and below	112	13%
	Community college	132	16%
	Bachelors' degree	507	60%
	Masters' degree and above	93	11%
Nationality	China	420	49.76%
	United States	424	50.24%
Living area	Large cities	279	33%
	Medium-size cities	238	28%
	Small cities/rural area	327	39%

(49.76% Chinese, 50.24% Americans). Approximately 81% of the respondents were young, and 87% had higher education. Regarding location size, there are different definitions of city sizes and boundaries between cities and rural areas. To enhance comparability between Chinese and American locations, we defined the size of the location using the percentage of a location's population compared to the country's total population. Locations containing the highest 5% of the country's population were defined as large cities, locations containing the top 5% to the top 30% of the country's population were defined as medium cities, and the remaining locations were considered as small cities and rural areas.

### 4.2 | Questionnaire development, pretest, and data collection

We designed a four-section questionnaire to collect data from mainland China and the United States. This instrument was first developed in English and translated into simplified Chinese. A back-translation technique (from English to Chinese and back to English) was applied by third-party professionals to avoid linguistic biases (Jarvis et al., 2003). The first section inquired about aspects of actual use behavior, such as whether users had used social media on a smartphone during the last six months, the most used types of mobile social media, frequency of use, and the purpose of use. The second section explored the factors that drove users' actual use behavior. The third section measured users' cultural values, and the last section asked for users' demographic information.

To check the content validity and accuracy of the questions and its measures, we conducted qualitative and quantitative pretests before formally collecting data. We first asked for qualitative feedback and suggestions from various marketing professors, and then pretested the administration of the pretest with 30 mobile social media users. After some modifications, we conducted a quantitative pretest among 200 users by distributing a survey on several popular mobile social media applications in China, such as WeChat, QQ, and Sina Weibo.

After the pretests, we contracted an online panel company, Wenjuanxing, to create and distribute the questionnaire among Chinese respondents. Data collection began on January 30, 2019, and 420 valid responses were received in one week. All respondents were of Chinese nationality and, as requested, had used social media on a smartphone during the last six months. To collect the American sample, we created a questionnaire in Qualtrics and distributed it through Amazon Mturk. Data collection began on February 18, 2019, and we received 424 valid responses over two months. All respondents were of American nationality and had also accessed social media on smartphones during the last six months.

We used chi-square tests to verify whether there were significant differences with respect to age and sex between the two country groups (Hair et al., 2013). The p-values of the age interval and sex of the two countries were 0.719 and 0.484, respectively, implying no significant differences.

### 4.3 | Measurement of the variables

All constructs, except for actual use, which was measured with a single item, were operationalized using three items. Seven-point Likert scales ranging from “strongly disagree” (1) to “strongly agree” (7) were developed to measure each item. To measure *perceived enjoyment* (see Appendix 1 for the specific wording of the items in each construct), we focused on the pleasure that the users’ obtained from mobile social media. Two of the items were adapted from Zhou and Lu (2011). Consistent with Rauniar et al. (2014) and Strader et al. (2007), the *perceived usefulness* items explored the consumers’ perceptions of the effectiveness of mobile social media. *Perceived ease of use* items measured the extent to which it was easy to use mobile social media, and two of the items were adapted from Wamba et al. (2017). The fourth item in the scale (PEOU4) was reverse-coded in the database.

*Subjective norms* measured the influence received from influential people, and two items were adapted from Al-Debei et al. (2013). *Referent network size* captured the influence of social circle size, and we adapted two items from Zhou and Lu (2011). *Attachment motivation* reflected the extent to which users were emotionally connected with their social relationships through mobile social media, and one of the items was adapted from Chen (2014), while the other two were self-developed from the construct’s definition.

The three *attitude* items examined users’ feelings about mobile social media applications, and two of the items were adapted from

Chen (2014). Finally, *actual use* was a manifest variable adapted from Rauniar et al. (2014) to measure the hours that users spent daily on mobile social media.

Concerning the variables used to profile the international segments, *collectivism* examined the degree of the users’ feeling of belongingness to a group, and two of the items were adapted from Omoush et al. (2012) and Hoehle et al. (2015). Based on Hofstede’s conceptualizations, *power distance* items examined the degree of acceptance of inequalities among people; the items’ specific wording relied on Li et al. (2009). *Masculinity* examined whether competition, achievement, and success motivated people, while *uncertainty avoidance* measured users’ reactions to ambiguous or unknown situations. The last items of these two variables (MF3 and UA3 in Appendix 1) were adapted from Li et al. (2009), while the rest were self-developed.

To prevent and detect common method bias, we applied ex ante approaches in the research design stage (procedural remedies in designing and administering the questionnaire), while ex post approaches (statistical analyses) were implemented after the research was conducted (Chang et al., 2010; Podsakoff et al., 2003, 2012). Regarding the procedural remedies, to diminish social desirability, threats to self-esteem, and defensiveness (MacKenzie & Podsakoff, 2012; Podsakoff et al., 2003, 2012), we first assured that our survey was anonymous and there were no correct/incorrect answers. Second, to enhance the feeling of altruism (MacKenzie & Podsakoff, 2012; Podsakoff et al., 2012), we emphasized the importance of the participants’ opinions. Third, we randomized the order of appearance of the items in the questionnaire (Podsakoff et al., 2003, 2012). Regarding the statistical analyses, empirical evidence has indicated that this approach can detect biasing levels of common method variance under conditions usually found in survey-based marketing research (Fuller et al., 2016). We performed two Harman’s single factor tests for the Chinese and American data. The unrotated main factor from all the substantive items explained 21% of the total variance in the Chinese dataset and 34% in the American dataset; therefore, common method bias was unlikely to be present in our data (Fuller et al., 2016).

### 4.4 | Data analysis

We applied PLS-SEM to empirically test our model (R package *plspm*). PLS-SEM has several benefits, such as its high statistical power and flexible assumptions regarding model specification and data (Hair et al., 2011). Moreover, as PLS-SEM integrates the response-based unit segmentation REBUS-PLS algorithm (Vinzi et al., 2008), this allowed us to detect local models with better performance and to conduct post hoc segmentation. The REBUS algorithm was first used to estimate a global model (GM) with all observations ( $n = 844$ ). Then, after the communality and structural residuals of each class from the GM were obtained, a hierarchical cluster analysis of the computed residuals from both the

measurement and structural models was performed to obtain the number of classes (Vinzi et al., 2010). We obtained three local models (LM1, LM2, and LM3) and estimated their parameters. The differences between the three classes were used to profile the resulting international segments.

## 5 | RESULTS

### 5.1 | Reliability and validity

Before testing our research hypotheses, we studied the measurement model in terms of item and construct reliability and convergent and discriminant validity. First, the factor loadings and descriptive statistics for all items are as shown in Table 3, and the factor loading of most items reaches the 0.7 threshold (Sanchez, 2013). The exceptions are PEOU2 in GM, LM1, LM2, and LM3; PEOU4 in LM3; and SN3 in GM, LM1, and LM3, although they are still over 0.5 (Sanchez, 2013) and have suitable construct reliability and validity, as explained below. Second, construct reliability was assessed in terms of composite reliability (CR; see Table 3). CR is greater than the 0.7 threshold (Hair et al., 2013) for all constructs and models except for perceived usefulness (PU) (0.65) and attachment motivation (AM) (0.69) in one of the local models (LM1). Third, with respect to convergent validity, we checked the average variance extracted (AVE) of the constructs. This is well above the cutoff point of 0.5 (Hair et al., 2013) for all constructs (see Table 3). Finally, when testing discriminant validity, the square root of the AVE of each construct should be higher than its correlations with other constructs (Hair et al., 2013), as is the case in the GM and the three local models (see Table 4). Overall, the results show that the items and constructs used in the GM and local models have been measured with an acceptable degree of reliability and validity, similar to most of the empirical research on international marketing.

### 5.2 | Global model results

The results of the structural part of the GM, based on all observations ( $n = 844$ ), reveal a significant positive relationship between most explanatory constructs and attitude: perceived enjoyment ( $\beta = 0.283, p < 0.001$ ), perceived usefulness ( $\beta = 0.343, p < 0.001$ ), perceived ease of use ( $\beta = 0.131, p < 0.001$ ), referent network size ( $\beta = 0.067, p < 0.05$ ), and attachment motivation ( $\beta = 0.128, p < 0.001$ ) (see Table 5, column 3). Thus, H1, H2, H3, H5, and H6 are empirically supported, while H4, which connects subjective norms and attitude, is not supported. Moreover, the relationship between attitude and actual use is also positively significant ( $\beta = 0.172, p < 0.001$ ). Thus, H7 is also empirically supported. The R-squared values for attitude and actual use are 0.572 and 0.003, respectively.

### 5.3 | Local model results

We applied the REBUS-PLS (Vinzi et al., 2008) response-based clustering technique to group users automatically into segments, and obtained three local models, which we named LM1, LM2, and LM3. The results from the local models reveal that the determinants of attitude toward mobile social media vary across segments (see Table 5, columns four-six).

In LM1, only three factors are significantly related to attitude: perceived enjoyment ( $\beta = 0.306, p < 0.001$ ), perceived usefulness ( $\beta = 0.356, p < 0.001$ ), and attachment motivation ( $\beta = 0.143, p < 0.05$ ). Thus, H1, H2, and H6 are empirically supported. Attitude also has a significant relationship with actual use ( $\beta = 0.262, p < 0.001$ ), providing empirical support for H7. Respondents in this segment clearly know their purpose for using mobile social media, and their attitude does not change based on others' opinions, the herd effect, or ease of use. Thus, we labeled this segment as "usage goal experts."

In LM2, the significant drivers of attitudes are perceived enjoyment ( $\beta = 0.150, p < 0.01$ ), perceived usefulness ( $\beta = 0.464, p < 0.001$ ), perceived ease of use ( $\beta = 0.122, p < 0.01$ ), referent network size ( $\beta = 0.127, p < .01$ ), and attachment motivation ( $\beta = 0.133, p < 0.01$ ). Therefore, H1, H2, H3, H5, and H6 are supported. In addition, the relationship between attitude and actual use is also significant ( $\beta = 0.541, p < 0.001$ ), which empirically supports H7. Respondents in this segment are highly oriented toward the practicality and enjoyment of social media platforms, and their attitude toward mobile social platforms is not affected by perceived social pressure from others. Therefore, we labeled this segment "determined pragmatists."

In LM3, most factors are positively related to attitude: perceived enjoyment ( $\beta = 0.389, p < 0.001$ ), perceived usefulness ( $\beta = 0.179, p < .01$ ), perceived ease of use ( $\beta = 0.156, p < 0.001$ ), subjective norms ( $\beta = 0.200, p < 0.001$ ), and attachment motivation ( $\beta = 0.175, p < 0.01$ ). Therefore, H1, H2, H3, H4, and H6 are supported. Attitude is also a significant determinant of actual use ( $\beta = 0.707, p < 0.001$ ). Thus, H7 is supported. Respondents in this segment consider both the practicality and enjoyment of using social media platforms. However, the regression weight of perceived enjoyment peaks. In addition, these users are the only users who are influenced by subjective norms. Influential people exert psychological pressure on attitudes toward the use of new technologies, such as mobile social media. Consequently, we labeled this segment "pressured hedonists."

### 5.4 | International mobile social media user segments

#### 5.4.1 | Demographic characteristics

We conducted chi-squared tests to examine whether there were significant differences in the demographic variables among the three



**TABLE 4** Discriminant validity<sup>a</sup>, correlations, and square roots of the average variance extracted (AVE)

	PE	PU	PEOU	SN	RNS	AM	ATT	AU
GM								
PE	<b>0.85</b>							
PU	0.64**	<b>0.81</b>						
PEOU	0.30**	0.32**	<b>0.76</b>					
SN	0.29**	0.43**	-0.02	<b>0.84</b>				
RNS	0.23**	0.38**	0.47**	0.27**	<b>0.88</b>			
AM	0.56**	0.67**	0.13**	0.53**	0.30**	<b>0.82</b>		
ATT	0.64**	0.69**	0.37**	0.34**	0.37**	0.57**	<b>0.86</b>	
AU	0.14**	0.23**	-0.05	0.30**	0.14**	0.25**	0.17**	<b>1.00</b>
<b>LM1</b>								
PE	<b>0.82</b>							
PU	0.65**	<b>0.77</b>						
PEOU	0.43**	0.46**	<b>0.74</b>					
SN	0.25**	0.42**	0.11	<b>0.79</b>				
RNS	0.20**	0.44**	0.51**	0.30**	<b>0.88</b>			
AM	0.56**	0.66**	0.31**	0.45**	0.32**	<b>0.78</b>		
ATT	0.65**	0.70**	0.40**	0.35**	0.36**	0.60**	<b>0.86</b>	
AU	0.09	0.23**	0.13	0.14*	0.20**	0.09	0.26**	<b>1.00</b>
<b>LM2</b>								
PE	<b>0.88</b>							
PU	0.69**	<b>0.83</b>						
PEOU	0.28**	0.30**	<b>0.77</b>					
SN	0.34**	0.45**	-0.04	<b>0.86</b>				
RNS	0.29**	0.41**	0.49**	0.28**	<b>0.90</b>			
AM	0.59**	0.66**	0.11*	0.56**	0.32**	<b>0.85</b>		
ATT	0.61**	0.73**	0.38**	0.33**	0.45**	0.56**	<b>0.88</b>	
AU	0.37**	0.46**	0.12*	0.34**	0.33**	0.42**	0.54**	<b>1.00</b>
<b>LM3</b>								
PE	<b>0.83</b>							
PU	0.56**	<b>0.81</b>						
PEOU	0.22**	0.29**	<b>0.73</b>					
SN	0.27**	0.40**	0.05	<b>0.80</b>				
RNS	0.14*	0.28**	0.46**	0.26**	<b>0.85</b>			
AM	0.52**	0.70**	0.13*	0.51**	0.24**	<b>0.80</b>		
ATT	0.67**	0.64**	0.32**	0.47**	0.27**	0.62**	<b>0.81</b>	
AU	0.45**	0.42**	0.25**	0.31**	0.17**	0.45**	0.71**	<b>1.00</b>
AM	0.52**	0.70**	0.13*	0.51**	0.24**	<b>0.80</b>		
ATT	0.67**	0.64**	0.32**	0.47**	0.27**	0.62**	<b>0.81</b>	
AU	0.45**	0.42**	0.25**	0.31**	0.17**	0.45**	0.71**	<b>1.00</b>

<sup>a</sup>Diagonal values in bold are the square roots of the variance shared between the constructs and their measures.

\*\* $p < 0.01$ ; \* $p < 0.05$

segments (see Table 6). Sex ( $p < 0.05$ ), age ( $p < 0.001$ ), nationality ( $p < 0.001$ ), and geographic location ( $p < 0.001$ ) are significantly different across segments, while education is not ( $p < 0.885$ ). The most used mobile social media applications are also significantly different

across the three segments (WeChat:  $p < 0.001$ , Facebook:  $p < 0.01$ , QQ:  $p < 0.001$ , and YouTube:  $p < 0.001$ ).

In segment 1 ("usage goal experts"), most respondents are Chinese ( $n = 132:66\%$ ), female ( $n = 108:54\%$ ), aged between 25–30 years

Independent variables	Dependent variables	GM	LM1	LM2	LM3
PE	ATT	0.283***	0.306***	0.150**	0.389***
PU		0.343***	0.356***	0.464***	0.179**
PEOU		0.131***	0.017 ns	0.122**	0.156***
SN		0.026 ns	0.037 ns	-0.037 ns	0.200***
RNS		0.067*	0.075 ns	0.127**	-0.007 ns
AM		0.128***	0.143*	0.133**	0.175**
ATT	AU	0.172***	0.262***	0.541***	0.707***
R square (%)	ATT	0.572	0.580	0.595	0.627
	AU	0.030	0.069	0.293	0.499

**TABLE 5** Coefficients of determination, R square, and goodness of fit

Note: ns: not significant.

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ ,

**TABLE 6** Descriptive statistics and significance of local model categorical and continuous variables

Variable	Categories	Relative frequency per category (%)			$\chi^2$ statistics	p-value			
		LM1 (n = 200)	LM2 (n = 399)	LM3 (n = 245)					
Sex	Female	54%*	42%*	48%	8.25	0.020			
	Male	46%*	58%*	52%					
Age	24-	33%*	18%**	29%	52.27	<0.001			
	25-30	37%	26%*	34%					
	31-35	23%	30%*	20%					
	36-40	7%*	16%	12%					
	41+	1%**	10%**	5%					
Education	High school and below	12%	15%	11%	2.35	0.885			
	Community college	15%	16%	16%					
	Bachelor's degree	62%	58%	62%					
	Master's degree and above	11%	11%	11%					
Country	China	66%***	36%***	60%**	62.62	<0.001			
	United States	34%***	64%***	40%**					
Geographic location	Large city	42%*	26%**	37%	21.77	<0.001			
	Medium city	29%	28%	28%					
	Small city/rural area	30%**	46%**	35%					
Cultural dimensions		Mean	SD	Mean	SD	Mean	SD	Kruskal-Wallis	p-value
	Collectivism	0.28	1.29	-0.13	1.31	-0.02	1.13	12.03	<0.01
	Power distance	-0.11	1.15	0.09	1.27	-0.05	1.10	4.33	0.115
	Masculinity	0.20	1.22	-0.12	1.35	0.04	1.33	8.22	<0.05
	Uncertainty avoidance	0.02	1.17	-0.10	1.07	0.15	1.09	8.81	<0.05

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$  represent the significance level of the test of given proportions, in which the proportions in each cluster are compared with the corresponding proportions in the total sample.

( $n = 73:37\%$ ), and live in large Chinese cities ( $n = 83:42\%$ ). WeChat is the most used mobile social media application ( $n = 131:66\%$ ). In segment 2 ("determined pragmatists"), most respondents are American ( $n = 257:64\%$ ), male ( $n = 232:58\%$ ), aged between 31-35 years ( $n = 118:30\%$ ), and live in small cities or rural areas ( $n = 183:46\%$ ).

Facebook is the most popular mobile social media platform in this group ( $n = 200:50\%$ ). In segment 3 ("pressured hedonists"), most respondents are Chinese ( $n = 146:60\%$ ), male ( $n = 127:52\%$ ), aged between 25-30 years ( $n = 84:34\%$ ), and live in large Chinese cities ( $n = 91:37\%$ ). WeChat is the most used application in this segment ( $n = 144:59\%$ ).

## 5.4.2 | Cultural characteristics

We performed statistical tests to examine whether the three segments had significantly different cultural orientations (see Table 6). We first estimated the mean and standard deviation of the standardized factor scores of each cultural dimension in each of the three segments. Then, given that the variables were not normally distributed, we conducted the Kruskal-Wallis test and found heteroscedasticity across the groups. The results show that, except for power distance ( $p = 0.115$ ), the cultural dimensions are significantly different across the three segments: collectivism ( $p < 0.01$ ), masculinity ( $p < 0.05$ ), and uncertainty avoidance ( $p < 0.05$ ). According to the mean of the cultural values, respondents in segment 1 ("usage goal experts") have the highest collectivism and masculinity scores. Therefore, they may perceive a higher sense of belonging to a group and may pay more attention to competition and achievements (Hofstede, 2001). In segment 2 ("determined pragmatists"), respondents are more individualistic, feminine-oriented, and tolerant toward uncertainty. Consequently, they may only look after themselves and their direct families, pay substantial attention to their quality of life, and be less influenced by ambiguous or unknown situations (Hofstede, 2001). Respondents in segment 3 ("pressured hedonists") have the highest degree of uncertainty avoidance, meaning that ambiguity or unknown situations may cause them anxiety (Hofstede, 2001).

## 6 | DISCUSSION

### 6.1 | General discussion

This study identifies the determinants of attitude toward mobile social media, confirms the significant role played by attitude as a driver of actual use behavior, assesses users' heterogeneity, and conducts an international microsegmentation of mobile social media users. Our hybrid research model integrates factors based on the TAM, motivation theory, and social influence theory. We tested the hypothesized relationships in the GM and the three local models. The findings show that users' attitude toward mobile social media is influenced by motivational and social influence factors. As expected, users' attitude results in actual use behavior. Nevertheless, some determinants differ across the segments because of the users' different demographic characteristics and cultural value orientations.

First, regarding motivational factors, the results highlight perceived usefulness as the most influential factor (in the GM and two local models) that affects users' attitude toward mobile social media. This finding is in line with the earlier correlational studies by Bailey et al. (2018) and Lin and Kim (2016), who showed that users' positive attitude toward social media (Bailey et al., 2018) and social media advertisements (Lin & Kim, 2016) were mainly due to users' beliefs in their usefulness. Moreover, users have other significant motivations, and aim to enjoy using mobile social platforms. This finding is in line with Bailey et al. (2018) and Chen (2014), who pointed out users' need for entertainment on social media platforms. The more

relaxed and pleasant the user experience is on these platforms, the more positive their attitude toward the platforms will be (Bailey et al., 2018; Chen, 2014). Users also pay attention to whether these platforms are easy to use (in the GM and two local models), which is also in line with Lin and Kim (2016).

Second, users' attitude toward mobile social media platforms are also affected by social influence factors. However, subjective norms are not a significant determinant of users' attitudes toward platforms (in the GM and two local models). This result is inconsistent with the studies that suggest that users' attitudes toward technology will be positively influenced by people who are important to them (Chen, 2014; Im & Ha, 2013). This may be because users currently have more channels (e.g., online forums, online discussion groups, and online brand communities) from which to gather information about technological applications. The increased number of online reference groups may weaken the significance of the opinions from peers or important persons during the behavioral process. Users will form a positive attitude toward mobile social media platforms if they are popular in their social circle (in the GM and one local model). Regarding the referent network size, we found limited empirical evidence on the relationship between users' social circle size and attitude (in the GM and one of the local models). In relation to attachment motivation, this is the most important determinant of attitude toward mobile social media within this second group of factors. Users expect to improve their relationships with others through mobile social media, which is consistent with Ma and Chan (2014) and Chen (2014).

Third, users' attitude toward mobile social media is a critical factor that stimulates usage. This result is in line with Omoush et al. (2012) and Bailey et al. (2018). The more favorable users' attitude toward a social media platform is, the more likely they are to employ it. Fourth, when taken together, the varying results for the local models suggest that international users with different demographics and cultural characteristics may have different use motivations and technology adoption behaviors.

Finally, our results also show that the three segments based on respondents' behavioral patterns ("usage goal experts," "determined pragmatists," and "pressured hedonists") are heterogeneous. Thus, assuming that mobile social media users are homogeneous may provide a misleading view of their real behavior. Overall, our findings are consistent with Wamba et al. (2017), who suggest that social media users are not homogenous and that the effects of motivators differ in distinct user segments that have different demographic characteristics.

### 6.2 | Implications for theory

Our findings have important implications for theory. First, this study enhances the understanding of attitude toward mobile social media and actual use behavior by integrating into a hybrid model factor related to the TAM, motivation theory, and social influence theory. The previous literature (a) has not accounted, in a single model, for all the

theoretical perspectives and factors that we combine herein (e.g., Bailey et al., 2018; Ha et al., 2015); (b) has not paid much attention to the role of attitude toward mobile social media to explain actual use behavior (e.g., Assimakopoulos et al., 2017; Guenzi & Nijssen, 2020); and (c) neglects the referent network size as a relevant driver of users' attitudes toward mobile social media (e.g., Hong et al., 2017; Zhang et al., 2017). Our study is also unique in revealing that motivation theory may have more explanatory power on attitude and mobile social media use than social influence theory. In other words, based on our findings, we can state that although both motivation and social influences affect attitude toward mobile social media, motivation plays a more important role. In addition, we can confirm, across different populations, that attitude is an important component in the behavioral process of mobile social media use.

Second, our study also contributes to the literature on international market segmentation by highlighting the importance of heterogeneity in international microsegmentation. This study provides strong support for the necessity of conducting international microsegmentation at the individual level in the research domain of mobile social media, and paves the way by developing new items to operationalize some of our constructs (in particular, some dimensions of cultural value orientation) and by using them at the individual level. Most of the previous research on international marketing and social media has used Hofstede's scores at the country level to operationalize culture (e.g., Amaro & Duarte, 2017; Sheldon et al., 2017), which is misleading in research contexts such as social media, where there are more users who are both of younger age and frequent users of ICT (Bailey et al., 2018).

### 6.3 | Implications for practice

From a practical perspective, our findings have important implications for mobile social media application developers and international marketing practitioners. Given that perceived enjoyment, perceived usefulness, and attachment motivation are three significant drivers of attitude toward mobile social media in the GM and three local models, application developers can enhance users' attitude by improving the entertainment, practical, and social functionality of their applications. Moreover, our results also show that generally, ease of use positively impacts users' attitude toward mobile social media. Thus, mobile social media developers should pay attention to applications' interface design to adapt to aspects such as the limited screen size of mobile devices to better integrate social media applications with smartphone technology.

Our empirical findings revealed three user segments with significant differences in behavioral patterns, demographic characteristics, and cultural values. Therefore, international marketing practitioners should avoid designing international marketing strategies that rely exclusively on a priori segmentation at the country level. Instead, they should conduct international segmentation based on users' behavioral patterns and offer customized mobile social media services.

In the "usage goal experts" segment, considering the significant impact of perceived usefulness, perceived enjoyment, and attachment motivation, marketers should strengthen the entertainment, practical, and social functionality of their mobile social media applications. Concerning the "determined pragmatists" segment, since perceived usefulness is the most influential factor, and that the coefficients of perceived usefulness and referent network size are the highest among the three segments, the most effective marketing strategies would be to improve the practicality of applications and make use of the herd effect. Finally, regarding the "pressured hedonists" segment, perceived enjoyment is the most important factor, while the impact of attachment motivation and subjective norms are the highest among the three segments. Therefore, firms targeting this segment should consider increasing the entertainment functionality of the application, apart from relying on influencers to strengthen users' attitude.

## 7 | FUTURE RESEARCH AND LIMITATIONS

We follow the theory-context-characteristics-methodology framework (Paul & Rosado-Serrano, 2019) to propose an agenda for future research. First, in terms of theory, our study included several factors from three relevant theoretical lenses (the TAM, motivation theory, and social influence theory). However, other theories and factors could explain attitude toward mobile social media and actual use and complete our model specification. In particular, perceived playfulness (Wamba et al., 2017) and perceived utility (Lacka & Chong, 2016) may be additional motivational factors, and informational social influence and normative social influence (Li, 2013) could be considered from a social influence theory perspective. In addition, attitude is the mechanism connecting motivational and social influence factors to mobile social media use. We explored its mediating role and found mixed results (the mediating role of attitude toward mobile social media varies across segments). Therefore, future research should study its mediating role in detail, and consider other potential mediators such as behavioral intention.

Second, in terms of context, our study discusses mobile social media use behavior in general. However, there are different types of mobile social media platforms that are used based on their distinct functionalities (e.g., YouTube for videos, Instagram for photos, and WhatsApp for messages). Therefore, there is also heterogeneity across mobile social media platforms (Ju et al., 2021). Future studies could explore attitudes toward mobile social media and use behavior across different types of platforms. In addition, despite the emphasis on the impact of the COVID-19 pandemic on customers' online behavior (Karpen & Conduit, 2020), few efforts have been made to study mobile social media use during the pandemic. Since people may have different motivations for using mobile social media in unusual situations, future research could replicate our study in light of the COVID-19 context to explore the potential differences in users' behavioral patterns.



Third, regarding characteristics, we obtained empirical evidence only from China and the United States. Thus, researchers need to be cautious when generalizing the results to populations from other countries. Scholars are encouraged to collect samples from other countries and regions such as Europe, Oceania, the Middle East, Africa, and South America to study whether our results hold, and whether the international segments discovered herein exist globally.

Fourth, concerning methods, we utilized PLS-SEM because it provided us with the option to use the REBUS-PLS algorithm (Vinzi et al., 2008) to conduct international microsegmentation. However, the alternative SEM estimation approach—covariance-based structural equation modeling (CB-SEM)—can also be used to estimate our conceptual model. Finally, future mobile social media studies can be advanced by comparing results from a priori and post hoc international microsegmentations of behavioral patterns and cultural and demographic characteristics.

## 8 | CONCLUSION

By combining three theoretical perspectives (TAM, motivation theory, and social influence theory), we identify the determinants of mobile social media use and conduct post hoc international microsegmentation of behavioral patterns using a sample of 844 Chinese and American users. Our findings suggest that motivation theory has more explanatory power for mobile social media use than social influence theory. In addition, three segments emerged from the microsegmentation of mobile social media users (“usage goal experts,” “determined pragmatists,” and “pressured hedonists”), which significantly differ in their behavioral patterns, cultural value orientations, and demographic characteristics.

### CONFLICT OF INTEREST

The authors have no conflict of interest.

### DATA AVAILABILITY STATEMENT

Data available from the authors upon request.

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## APPENDIX 1. Survey instrument

Constructs	Measurement items	Reference
Perceived enjoyment (PE)	PE1: I find using social media on my cell phone a pleasant experience.	Self-developed
	PE2: I find using social media on my cell phone very exciting.	Adapted from (Zhou & Lu, 2011)
	PE3: Using social media on my cell phone is fun.	Adapted from (Zhou & Lu, 2011)
Perceived usefulness (PU)	PU1: Social media on my cell phone are useful in my personal life.	Adapted from (Rauniar et al., 2014)
	PU2: By using social media on my cell phone I have more ways of expressing myself.	Self-developed
	PU3: Using social media on cell phone improves my communication with others.	Adapted from (Strader et al., 2007)
Perceived ease of use (PEOU)	PEOU1: It is easy to use the main social media applications and tools on my cell phone (for example, to share messages and videos).	Self-developed
	PEOU2: Using social media on my cell phone does not require much mental effort.	Adapted from (Wamba et al., 2017)
	PEOU3: It is easy to use social media on the cell phone.	Adapted from (Wamba et al., 2017)
	PEOU4: It takes a long time to understand most social media functions on a cell phone.	Self-developed
Subjective norms (SN)	SN1: People who influence my behavior think I should use social media on my cell phone.	Adapted from (Al-Debei et al., 2013)
	SN2: Those important to me think I should use social media on my cell phones.	Adapted from (Al-Debei et al., 2013)
	SN3: Society influences me to use social media on my cell phones.	Self-developed
Reference network size (RNS)	RNS1: Most of my friends use social media on their cell phones.	Adapted from (Zhou & Lu, 2011)
	RNS2: Most of my classmates or colleagues use social media on their cell phones.	Adapted from (Zhou & Lu, 2011)
	RNS3: Most of the people in my circle use social media on their cell phones.	Self-developed

Constructs	Measurement items	Reference
Attachment motivation (AM)	AM1: Using social media on my cell phone helps me feel closer to others.	Adapted from (Chen, 2014)
	AM2: I like my mobile social media followers to be interested in how I am and what I'm doing.	Self-developed
	AM3: I feel good when I find and follow other social media users on my cell phone.	Self-developed
Attitude (ATT)	ATT1: I am in favor of the use of social media on cell phones.	All of them are adapted from (Chen, 2014)
	ATT2: I think that users benefit from the possibility of accessing social media on cell phones.	
	ATT3: Using social media on cell phones is a good idea.	
Actual use (AU)	AU1: How many hours a day do you use social media on your cell phone?	Adapted from (Al-Debei et al., 2013)
Collectivism (IC)	IC1: I normally accept group decisions well although my personal opinion may be different.	Adapted from (Omoush et al., 2012)
	IC2: Being accepted as a member of a group is more important than having autonomy and independence.	Adapted from (Hoehle et al., 2015)
	IC3: The opinions of other people frequently influence my intention to do something.	Self-developed
Power distance (PD)	PD1: Managers should make their decisions without consulting employees.	All of them are adapted from (Li et al., 2009)
	PD2: Employees should not question the decisions of their managers.	
	PD3: The existence of social inequalities is acceptable.	
Masculinity (MF)	MF1: Professional achievements are important and should be rewarded.	Self-developed
	MF2: I think one's professional career is as important as one's quality of life.	Self-developed
	MF3: In my opinion, some jobs are more suitable for a man than for a woman.	Adapted from (Li et al., 2009)
Uncertainty avoidance (UA)	UA1: I'm afraid of changes because I think that things could get worse.	Self-developed
	UA2: I'm afraid of trying new things.	Self-developed
	UA3: I feel uncomfortable in ambiguous situations and with unknown risks.	Adapted from (Li et al., 2009)