

## Investigating cross-national heterogeneity in the adoption of online hotel reviews

### Abstract

*Increasing reliance of potential guests on online hotel reviews has given rise to trepidation among some hospitality managers recently, thus necessitating a better understanding of its adoption. Literature on multicultural studies have suggested that behavioral models do not universally hold across cultures. In view of the limited generalizability and applicability of extant cross-cultural studies to this context, this study generates cross-national insights into the antecedents of travelers' intention to use online hotel reviews to better understand the use of consumer-generated reviews across cultures. Generally, the predictive power of the model derived from the Motivation Theory and TAM holds true for both the United States and Singapore. Nonetheless, tests for structural invariance reveals some noteworthy differences between the two countries. The results highlight the complex cognitive mechanisms determining the acceptance of online hotel reviews in each country as moderated by national culture orientations. Findings hold implications for practitioners and researchers as they navigate through social media in different cultural contexts.*

**KEYWORDS:** Online travel reviews, national culture, user-generated content, social media, TripAdvisor, multi-group analysis.

## **1. Introduction**

The rapid surge in the use of the Internet is indubitably one of the most incredible developments in the last few decades. Internet World Stats (2015) estimates that nearly three-and-half billion people are currently using the Internet globally, representing over 700 percent growth in a decade. This development has had profound implications for hospitality and tourism industries, as travelers increasingly depend on the Internet for travel information search and purchase decision making, hotel booking and electronic word-of-mouth communications, among many others (Xiang and Gretzel, 2010).

Along with this development is the growing popularity of consumer-generated reviews and social media. Consumers are increasingly using these applications for various tasks – entertainment, social networking, media sharing, product reviews, etc. (Yang, 2013). Of growing concern to hospitality managers, is potential customers' reliance on consumers' opinions and reviews of hospitality and tourism products and services for their purchase decision making (Ayeh et al., 2012, Sparks and Bradley, 2014). This phenomenon has led to increased consumer empowerment (Niininen et al., 2007) as hospitality managers contend with the challenges emerging from travelers' use of consumer-generated review sites like *TripAdvisor*, *CTrip*, and *Independent Traveler*, among several others.

Responding to this phenomenon requires hospitality firms and managers of consumer-generated review platforms to develop a more profound understanding of the determinants of usage. Accordingly, much debate has been offered by researchers and practitioners alike on strategies applicable for triggering consumer behavior towards consumer-generated reviews and social media (e.g., Ayeh et al., 2013; Casaló et al., 2011; Di Pietro et al., 2012; Filieri, 2015; Sparks and Bradley, 2014; Yang, 2013).

However, empirical assessment of online technology adoption is ostensibly susceptible to cross-sectional heterogeneity, leading some scholars to question whether technology adoption is analogous across different national cultures (e.g. Lee, 2013; McCoy et al., 2007). In this regard, considerable research has been directed towards understanding the adoption of various online technologies across cultures (Ashraf et al., 2014; Sabiote-Ortiz et al., 2016; Sia et al., 2009; Straub et al., 1997). However, cross-cultural studies on consumer-generated reviews tend to focus on how consumers provide online reviews about movies and non-tourism related products (e.g., Chu and Choi, 2011; Fang et al., 2013; Koh et al., 2010) with inadequate attention given to the possible cultural effects on the acceptance of online hotel reviews. Even though, research on the impact of culture on technology acceptance in other contexts offer a valuable viewpoint, travel-related consumer-generated reviews undoubtedly has a special character. For instance, while extant research suggests that cultures with emphasis on uncertainty avoidance tend to use electronic media less often (Ashraf et al., 2014; Straub et al., 1997), this is expected to differ in the case of travel reviews, given the fundamental role played by online hotel reviews in reducing the uncertainties of travelers during the travel planning process. Thus, support for the determinants of usage in this specific context remains ambivalent due to limited generalizability of existing cross-cultural studies.

Accordingly, the underlying psychological processes defining travel consumers' conative responses to using online hotel reviews are not well understood in cross-national contexts. Against this backdrop, this study attempts to generate cross-national insights into the cognitive mechanisms driving attitudes and intention to use online hotel reviews for travel planning. Applying a multi-group structural equation modelling (SEM)

technique of maximum likelihood, this study draws on data from a survey of online travel consumers from two countries with distinct national cultures to verify if parameters differ. Employing the Motivation Theory (Deci, 1975; Davis et al., 1993), the Technology Acceptance Model [TAM] (Davis, 1989) and Hofstede's (1980, 2010) cultural dimensions as theoretical lenses, we seek to understand the following important research question:

RQ: *What are the differences between the United States and Singapore regarding the antecedents of travelers' intention to use online hotel reviews?*

The paper is organized as follows: in the next section, the theoretical aspects of the model are presented, including a discussion on the drivers of online acceptance of hotel reviews. Thereafter, the measures used to capture the latent variables in the model are described. Procedures for data collection and analysis are also explained. The empirical results are then presented with the final section concluding the paper and discussing some implications for theory and practice. Comparing groups of respondents from the US and Singapore is beneficial from both practical and theoretical perspectives. Most importantly, understanding group specific effects facilitates obtaining further differentiated findings. Failure to consider these differences can be a threat to the validity of SEM results as it could lead to incorrect conclusions (Hair et al., 2014).

## **2. Theoretical Background and Conceptual Model**

### **2.1 Antecedents of Intention to Use Consumer-Generated Reviews**

Measuring and predicting user acceptance and attitudes towards technology-based services have received considerable attention from both academics and practitioners in recent years (Park et al., 2015). Consequently, numerous theoretical perspectives on the

antecedents of intention to use technology-related applications have been proffered. Among these, the TAM (Davis, 1989) has proven to be the most prevalent theory for explicating the process by which people use particular technologies and services in various fields. Developed from the Theory of Reasoned Action (Ajzen and Fishbein, 1980), TAM proposes that the acceptance or otherwise of information communication technologies are determined by users' beliefs and attitudes. The theory posits that the perceived usefulness and ease of use of a specific information system (IS) or service are the fundamental determinants of attitudes toward and intentions to use (Davis, 1989; Davis et al., 1989). Perceived usefulness is defined as “the degree to which an individual believes that using a particular system would enhance his/her job performance” (p. 320). Perceived ease of use, on the other hand, describes “the degree to which an individual believes that using a particular system would be free of physical and mental efforts (Davis, 1989, p. 323). Although, there have been latter extensions of the TAM, such as the TAM 2 and the Unified Theory of Acceptance and Technology use (UTAUT), the classical TAM was chosen as a theoretical lens to understand the intention to use online hotel reviews for trip planning due to its parsimony and widely recognized success in predicting user attitudes and acceptance of specific technologies and services.

With regards to the current research, perceived usefulness describes travelers' cognitive beliefs that using online hotel reviews will enhance their travel planning while ease of use is defined as the extent to which online travel consumers feel free from engaging in mental and physical efforts when using the hotel review platform to plan holidays. Several studies in various settings offer considerable evidence for the parsimony, theoretical soundness, and robustness of TAM in predicting technology acceptance

behaviors (Gefen et al., 2003; Park et al., 2015; van der Heijden, 2003). In online contexts, the theory has been employed to examine acceptance of various applications, such as e-learning (e.g. Persico et al., 2014), video-sharing websites (Cha, 2014), mobile social network games (Park et al., 2014), Web (Chen et al., 2002; Moon and Kim, 2001), virtual stores (Chen et al., 2002; Gefen et al., 2003), and electronic commerce (Ashraf et al., 2014).

In hospitality settings, Morosan (2012) applied the TAM to the adoption of biometric systems in hotels and confirmed that perceived usefulness and ease of use are salient factors that affect guests' attitudes and intentions. Similarly, Kim, Lee and Law (2008) found perceived usefulness and ease of use important in determining the acceptance behavior of hotel front office systems. Other scholars have studied restaurant computing systems (Ham et al., 2008); self-service technologies (Lee, 2013) information technology in upscale hotels (Lam et al., 2007) as well as social media/ consumer-generated media (Ayeh et al., 2013; Casaló et al., 2011; Di Pietro et al., 2012; Munoz-Leiva et al., 2012) and found the theory influential in helping to explain attitudes and intentions towards technology-related services in the industry. Thus we conceptualize perceived usefulness and ease of use as antecedents of attitudes and intention to use online hotel reviews.

### *Motivation Theory*

Deci's (1975) motivation theory postulates that people engage their efforts as a result of intrinsic and extrinsic motivation. Davis et al. (1993) illustrate that perceived enjoyment is an intrinsic motivation for the intention to use information systems or services. Since consumer-generated review platforms could be regarded as complex hedonic systems

(Ayeh et al., 2013), perceived enjoyment of the online review platform might be an important determinant of use. Intrinsic motivation is understood as the perception that individuals would want to perform an activity “for no apparent reinforcement other than the process of performing the activity *per se*” (Davis et al., 1992, p. 1112). Therefore, intrinsic value represents the perceived enjoyment linked with the use of a specific technology in itself, rather than the potential performance outcome of using such a technology.

Taking into account the purpose of this study, the current research defines perceived enjoyment as the degree to which the act of using the online hotel review platform for travel planning is believed to be enjoyable in its own right barring the instrumental value of the application. A number of studies related to intrinsic motivation suggest that perceived enjoyment is one of the prime determinants of intention to use particular services (van der Heijden, 2004; Venkatesh, 2000). Other studies have also confirmed positive relationships between perceived enjoyment and attitude (Di Pietro et al., 2012; Ha and Stoel, 2009; Shin, 2010) as well as ease of use (Ryan and Deci, 2001; Venkatesh, 2000). Hence we include hedonic motivation – conceptualized as perceived enjoyment – as a predictor in the model. Extrinsic motivation is represented in the model by perceived usefulness from the TAM.

#### *Source Trustworthiness*

Academic literature recognizes trustworthiness as an important predictor of behavior in online environments (Gefen et al., 2003; Sia et al., 2009; Sussman and Siegal, 2003). Recent proliferation of fake and paid online hotel reviews makes the concept of

trustworthiness take on even more significance in online contexts (Ayeh et al., 2013; Filieri, 2015). Trustworthiness in this context refers to “consumer’s confidence in the source for providing information in an objective and honest manner” (Ohanian, 1991; p. 47). The importance of source trustworthiness in explaining attitude and intention is supported by various research in the fields of communication studies, information systems, and marketing (Johnson and Kaye, 2009; Metzger et al., 2003; Pornpitakpan, 2004). In the hospitality and tourism literature, trustworthiness has been documented as a key determinant of tourists’ responses such as satisfaction, loyalty and purchase intention (Filieri, 2015; Ladhari and Michaud, 2015; Martínez and Bosque, 2013). Studies by Casaló et al. (2011) and Filieri (2015), for instance, found trust towards a consumer-generated media websites to have influenced travel consumers' intention to follow other users' recommendations. In this study, travelers’ perception of trustworthiness with regards to the source of online hotel reviews is therefore expected to determine their responses towards the hotel review. In other words, if a potential guest believes that a hotel review is from a trustworthy source, the review is more likely to be judged useful, and the resultant affective and conative responses are expected to be positive.

#### *Attitude towards Using*

In various contexts, several studies have applied behavioral theories like the Theory of Reasoned Action, the TAM and other consumer behavior models to demonstrate that, individuals’ conative responses to using a given service or system could be predicted by their attitude. Ajzen (1989) defines attitude as an individual's “disposition to respond favorably or unfavorably to an object, person, institution, or event” (p. 241). In the



framework of TAM, ‘*Attitude toward using*’ refers to “the degree of evaluative affect that an individual associates with using the target system in his or her job” (Davis, 1993; p. 476). In the current research, this is taken to mean the degree of positive (or negative) feelings about using online hotel reviews for travel planning. Usage intention, on the other hand, represents consumers’ conative responses to the use of online hotel reviews for travel planning. Prior research in information systems (e.g. Venkatesh et al., 2003) as well as in hospitality and tourism (Morosan, 2010) suggests a robust relationship between attitude and intention. Figure 1 illustrates the causal model.

[Insert Figure 1. Causal Model]

## **2.2 Cross-National Context and Research Hypotheses**

Research on cross-national differences in the general consumer behavior literature suggests that cultural differences have substantial influence on consumers, to the degree that the same product or service may be perceived differently in concomitant with respondents’ culture of origin (Forgas-Collet et al., 2012; Jin et al., 2008). Lately, the need to test the applicability of the technology adoption models across cultures has drawn interest from information system researchers and marketers (Alsajjan and Dennis, 2010; Ashraf et al., 2014; Lee, 2013). However, these studies have largely centered on consumer-oriented e-commerce and non-tourism related product reviews (e.g., Fang et al., 2013; Koh et al., 2010; Truong, 2013) to the neglect of other online applications such as consumer-generated travel review platforms.

Culture has been regarded as a highly complex term (Chen et al., 2012) and is defined as “*the collective programming of the mind distinguishing the members of one group or*

*category of people from others” (Hofstede 2001, p. 9).* Pizam (1993) asserts that culture exists everywhere. He proposes a hierarchy that depicts prevailing cultures at various levels of society – national, industrial, occupational, corporate and organizational levels. This approach syndicates culture with levels of society to delineate cultural boundaries. According to Groschl and Doherty (2000), national culture is distinguished on the basis of physical boundaries of a nation state while industrial, occupational, corporate and organizational cultures are differentiated from the patterns of behavior of a social unit. Chen et al. (2012) observed that though Pizam’s work does not offer a clear evidence to support the proposition that lower-level cultures have to be subordinated to higher-level cultures (such as nations), “the hierarchy demonstrates a basis for a more generally understood method of explaining culture” (p. 53). While the members of national communities may have a wide diversity of individual cultural identities, researchers generally acknowledge the presence of a national cultural identity over and above the individual cultural identity (Forgas et al., 2012; Tipton, 2009).

Existing research suggest that the cultural environment in which organizations operate may have a direct influence on the outcomes of market strategies (Brouthers and Hennart, 2007). Cultural environment in this context ‘spans formal and informal forces, including regulative, cognitive and normative structures that affect human and organizational behavior’ (Meiseberg and Dant, 2015, p. 9). The hospitality industry is especially diverse and complex since it is a service business that integrates global business practices in a multicultural context (Chen et al., 2012; Sledge et al., 2008). Nonetheless, there are significant culture-related differences at the national level. This could be social, financial, economic, or legal. For example, a country’s financial systems and economic structure

could influence the scope of different types of hotels whereas social structures, beliefs and values could considerably determine consumers' attitudes and behaviors towards hospitality services and online technologies.

In this regard, Hofstede's framework has proven valuable for understanding consumer behavior in cross-national contexts, and has emerged as one of the key paradigms in research and practice (Chen et al., 2012; de Mooij, 2010; Meiseberg and Dant, 2015; Tipton, 2009). Hofstede's theory delineates the influences of a society's culture on members' values and on how the latter relate to behavior. The theory suggests that cultures and societies vary in accordance with six dimensions (originally four) – (a) *individualism* versus *collectivism* – the dialectical relationship between individuals and groups – (b) *uncertainty avoidance* versus *willingness to accept risks* – the extent to which people forbear uncertainties – (c) *power distance* – the strength of social hierarchical power distribution – (d) *masculinity* versus *femininity* – the existence of gender differences in society, particularly male dominance – (e) *pragmatism* versus *normative orientation* – how society maintains links with its own past while addressing the challenges of the present and future – (f) *indulgence* versus *restrain* – the degree to which individuals attempt to control their desires and impulses based on how they were raised (Hofstede, 1980, 2001, 2010; Hofstede Centre, 2014).

With regards to the individualism index, there are clear differences between Western countries and Asian countries, with North America generally perceived as individualistic while Singaporeans and Asian countries in general tend to hold collectivistic values. There is also marked differences in the Uncertainty avoidance scores with the US society frequently identified as being more open to risk, less regulated and more accepting to

new ideas and thoughts, than their Asian counterparts. Power distance is higher in Singapore and other Asian countries than in Western countries like the US, while orientation towards masculinity is fairly high in the US, compared to Singapore. Low values have been observed for the US with regards to pragmatism, indicative of Americans' appreciation of traditions and the fulfilment of obligations. Indulgence is higher in the US compared to Singapore where there is relatively stronger control over impulses and desires. Previous research contends that these underlying orientations make consumers behave in culture-specific ways (Dant and Meiseberg, 2015; de Mooij 2010; Forgas-Coll et al., 2012; Hofstede 2001, 2010; Hofstede Centre, 2014; Lee, 2013; Straub et al., 1997). Consequently, national culture orientations are expected to shape travelers' perceptions and attitudes, and may thus moderate certain aspects of the cognitive and affective mechanisms driving the use of online hotel reviews for travel planning.

The extrinsic motivation for using online hotel reviews is represented by perceived usefulness, deriving its significance from the TAM. The influence of perceived usefulness on attitude and intention could be explained by informational influence. While this type of influence may occur in all cultures, consumers within different cultures may display varying degrees of vulnerability in terms of informational influence (Mourali et al., 2005). Prior research seems to suggest that consumers from individualistic cultures tend to be more prone to informational influence (Chu and Choi, 2011). A meta-analysis of the moderating effect of culture in mobile commerce research also revealed that perceived usefulness is more important in Western (individualistic) cultures than in Asian (collectivistic) cultures (Zhang et al., 2012). Similarly, cultural orientations might result in divergent online behavior towards hotel reviews when it comes to their perceived

usefulness of such reviews. American travelers may focus more on the informational value of the review content which also reflects their personal judgements about its utilitarian value, whereas Singaporean travelers would rely less on the perceived utility of such reviews and more on other relevant cues. This leads to propose the hypotheses:

**Hypothesis 1.** *The effect of perceived usefulness on attitude towards using online hotel reviews is stronger for travel consumers from individualistic cultures than for those from collectivist cultures*

**Hypothesis 2.** *The influence of perceived usefulness on the intention to use online hotel reviews is stronger for travelers from individualistic cultures than for those from collectivist cultures*

The intrinsic motivation (Davis et al., 1993) for using online hotel reviews is represented in the model by perceived enjoyment. Travelers may use online hotel reviews because they lead to intrinsic rewards such as enjoyment or pleasure. Extant literature suggests that feelings of joy, elation, or pleasure, as well as depression, disgust, displeasure or hate that a person associates with a specific activity have effect on behavior (Triandis, 1971; Igbaria et al., 1995). Nonetheless, cultural variations between societies that score high in indulgence and those that emphasize restraint may reflect in differential effects of the hedonic value of using online hotel reviews. According to the Hofstede Centre (2014), Americans tend to emphasize indulgence much more than Singaporeans who put greater value on restraint or the exercise of control over impulses and desires. In view of this, the effects of perceived enjoyment (mirroring the hedonic value of using the online hotel review platform) on perceived usefulness, attitude and intention is likely to differ

significantly between travelers from the two societies. Thus, these effects may be accentuated in highly indulgent societies (US) as compared with societies that place emphasis on restraint (Singapore). Hence the hypotheses:

**Hypothesis 3.** *The influence of perceived enjoyment on the utilitarian value of online hotel reviews is stronger for travel consumers from indulgent societies than for those from societies which emphasize restraint*

**Hypothesis 4.** *Perceived enjoyment has a stronger effect on attitude towards using online hotel reviews among travel consumers from indulgent societies than for those from societies which emphasize restraint*

**Hypothesis 5.** *The effect of perceived enjoyment on the intention to use online hotel reviews is stronger for travel consumers from indulgent societies than for those from societies which emphasize restraint*

Source trustworthiness is critical to online hotel review platforms and may facilitate the flow of interaction on these platforms, thus increasing the tendency for travel consumers to use the online hotel review for travel decision making. Nonetheless, the extent of the effect of trustworthiness may be related to the predominant cultural orientations in the United States and Singapore.

Since collectivists tend to accentuate interdependence and sociability, potential guests from this type of cultures are likely to trust people from their ‘group’ (in this case, other guests/travelers who have previously used the hotel property) and are thus, more influenced by the opinions of referent others (i.e. hotel reviews from other travel consumers since they are considered to be more trustworthy) than those from

individualistic cultures (Cialdini et al., 1999; Lee and Ward, 1998; Sia et al., 2009). In contrast, travelers from individualistic cultures are fairly more autonomous and less responsive to peer endorsements (in this case, consumer-generated hotel reviews) than collectivists (Sia et al., 2009).

More importantly, Uncertainty avoidance – which refers to the extent to which people in a society are uncomfortable with uncertainty (Hofstede, 1980) – could further condition the acceptance of online hotel reviews as travelers attempt to reduce uncertainties via electronic word of mouth communications. As intimated by the information richness and social presence theories, individuals choose media based on how well those media diminish uncertainty (Daft et al., 1987; Straub et al., 1997). Therefore, consumer-generated hotel reviews can help potential guests to minimize uncertainties about their travel decision making, regardless of whether they are from individualistic or collectivistic cultures. Nonetheless, potential guests from cultures in which individuals tend to avoid uncertainty are likely to respond more positively to consumer-generated hotel reviews than those who are willing to accept risk. Recognizing that US society is more open to risk, less regulated and more accepting to new ideas and thoughts, compared with the Singaporean society, it is expected that trustworthiness will have a weaker effect on American travelers' affective and conative responses to online hotel reviews than their Singaporean counterparts. Thus it is reasonable to believe that with the different cultural orientations

**Hypothesis 6.** *Trustworthiness will have a stronger effect on attitudes towards using online hotel reviews among travel consumers from cultures that tend to avoid uncertainty than those from cultures that are more open to risk.*

**Hypothesis 7.** *Trustworthiness will have a stronger effect on the intention to use online hotel reviews among travel consumers from cultures that are tend to avoid uncertainty than travelers from cultures that are more open to risk.*

### **3. Research Methodology**

The US and Singapore were chosen as the study settings. These two countries are considered as culturally distinctive. Drawing on Straub et al.'s (1997) Computer-based Media Support Index (CMSI), for example, Singapore's CMSI score of 210 and the US value of 157 is a clear indication that these two countries have very distinct national cultures. CMSI combines Hofstede's indices to create an index for selected cultures. It has the advantage of integrating the cultural factors as an aggregate index (representing the simultaneous effect of all four original cultural dimensions) as an alternative to using the individual dimensions (Van Slyke et al., 2010). The CMSI scores have been employed to predict the adoption of other online technologies across countries (Van Slyke et al., 2010, Ashraf et al., 2014; Straub et al., 1997). Figure 2 compares the individual cultural dimensions of Hofstede et al. (2010) to further illustrate the significant cultural differences between the US and Singapore. Identical data collection procedures, tasks and web technologies were employed in each research context to ensure comparability of results.

[Inset Figure 2. Hofstede's Cultural Dimensions: Comparing Singapore with the US]

#### **3.1 Measures and Data Collection**

In collecting data for this study, a survey instrument was developed on the basis of established measures of constructs from the information systems and the general



marketing literature. Where necessary, the wordings for the items taken from existing published scales were amended to suit the context of this study. Scales for *perceived usefulness*, *ease use* and *usage intention* were modified from existing TAM research (Davis, 1989; Davis et al., 1989; Venkatesh et al., 2003). Items for measuring *perceived enjoyment* were adapted from Davis et al. (1992) and Venkatesh (2000). A five-item measurement scale was adapted from Ohanian's (1991) study to measure *source trustworthiness* whereas measurement items for *attitude toward using* was adapted from Moon and Kim (2001). An expert panel review of scholars helped ensure content validity for the adapted scales. A seven-point semantic differential scale was used for the measurement of *attitude* and *source trustworthiness*. Items of the remaining constructs were measured using seven-point Likert-type scales, with anchors ranging from strongly disagree (1) to strongly agree (7). An expert panel of ten academicians with relevant expertise ensured content validity.

Using the web platform of Qualtrics (<http://www.qualtrics.com>), an online survey was employed to obtain data from online travel consumers from the USA and Singapore. Following an introduction which clarified the purpose of the study and relevant terminologies, respondents were directed to the consumer-generated reviews of hotels on *TripAdvisor*, the largest online network for travel consumers where they were asked to familiarize themselves with the content and respond to the survey accordingly. The online survey was programmed in such a way that participants would not have access to the online questionnaire until they had gone through the above-mentioned steps. The respondents for the study were selected from a research company's online database of leisure travelers in the USA and Singapore which used a quota sampling technique to

ensure a representative structure in terms of gender and age. Responses were screened for data quality. Out of a total of 1,868 responses, 614 were screened out because the respondents did not meet the sample criteria of having taken a leisure trip within the last 12 months preceding the survey or having used the Internet for travel information search. Of the 1,254 qualified responses, an extra 69 was discarded for various reasons including missing cases and outliers. The remaining valid sample of 1,185 cases, comprising 524 and 661 valid cases the USA and Singapore subsamples respectively were considered adequate for the analysis.

### **3.2 Data Analysis**

The Structural Equation Modeling technique of maximum likelihood was applied to estimate the theoretical model using the statistical software application of AMOS (version 20). Following suggestions from previous studies of cross-national research (Ashraf et al., 2014; Byrne, 2010; Forgas-Coll et al., 2012; Truong, 2013), a maximum likelihood-based multi-group analysis was conducted to test for group effects in both measurement and structural model relationships and thus determine the extent of invariance across the different groups. As recommended by Arbuckle (2010) and Brown (2006), measurement invariance was examined by testing models in the following sequence: (1) Preliminary separate single-group CFA analyses across samples; (2) a baseline multiple-group model analysis with no equality constraints imposed; (3) a model with equality constraints across groups specified for measurement weights (factor loadings). Structural invariance, on the other hand, was tested by imposing equality constraints across groups specified for structural weights. This process of model fitting resulted in a nested hierarchy of models in which each model included all the constraints

of the preceding model. Chi-square difference tests were then employed to test whether the equality constraints were upheld. The study treated gender, education and age as control variables in order to restrain their potential confounding effects in the structural model.

## **4. Results**

### **4.1 Subject Demographics**

Table 1 presents the profile of the sample respondents. Generally, respondents did not differ portentously with regard to their sex, age, education and Internet usage across the two countries. Among the 524 American respondents, the female-to-male ratio (53.1:46.9) was close to that of the general population estimate (50.8:49.2; U.S. Census Bureau, 2014). When compared to the general population, American respondents were fairly distributed across the different age groups with those in their twenties representing a slight majority. Respondents came from various educational backgrounds and were predominantly habitual Internet users who either access the Internet several times on a day (87.7%) or once daily (9.5%).

For the Singaporean sample, 53.1% of the 661 respondents were females, which is comparable to the actual percentage (50.8%) in the Singaporean population (Singapore Department of Statistics, 2014). Respondents varied generally in terms of age with the larger part in their thirties (32.5%), twenties (25.4%), and forties (24.5) and were typically regular Internet users who either use the Internet several times each day (82.3%) or once daily (12.0%). In addition, the Singaporean respondents were marginally better educated than the general population, with more than half having earned a bachelor's degree or higher. While all the respondents embarked on a leisure trip in the last 12

months preceding the survey, the overwhelming majority of respondents from both the US (82.6%) and Singapore (89.2%) were certain of taking another vacation trip in the subsequent year.

[Insert Table 1: Profile of Respondents]

#### **4.2 Measurement Model Assessment and Invariance Testing**

A preliminary single-group confirmatory factor analysis was first conducted using the full-sample data ( $n = 1185$ ), followed by two separate single-group confirmatory factor analyses for each country. As observed in Table 2, the fit indices for all the single-group CFAs were within the limits recommended by literature, suggesting that the model fits well separately in the two samples. Prior to the conduct of multi-group comparison, it is imperative to first establish that the measures perform adequately in both sub-samples. Table 3 presents the group-specific results for the measurement model assessment. The findings for the evaluation of the measurement models in the aggregate sample also applies to the country-specific sub-samples. Indicator reliability was verified in both sub-samples. All loadings of the reflective measurement models were significant at the 0.01 level and above the recommended 0.7 threshold (Appendix A1). The estimated indices for composite reliability and Cronbach's alpha demonstrate the reliability of the constructs in each sub-sample. The respective AVE values were all above the minimum requirement of 0.50 (Bagozzi and Yi, 1988) confirming convergent validity. Discriminant validity was also assured as an inspection of the indicators' cross-loadings showed that none of the indicators loads higher on an opposing construct. An application of the

Fornell and Larcker (1981) criterion further confirmed discriminant validity (Tables 4a, 4b and 4c).

[Insert Table 2: Global Fit]

[Insert Table 3: Country-Specific Measurement Model Evaluation]

[Insert Tables 4a, 4b, and 4c: Correlations for the constructs and the square root of AVE]

Having established that the measures are valid for both samples of US and Singapore, the next step was the simultaneous estimation of the unconstrained model in the two samples to verify configural invariance. The results show that the configural model fits the data adequately ( $X^2=1676.542$ ;  $df=718$ ;  $p < 0.01$ ;  $X^2/df=2.335$ ; RMSEA=0.034; CFI=.976; NFI= 960; TLI=973). To test for metrical invariance, we imposed equality constraints on all the factor loadings in the two groups. Even though, the metric model fits well ( $X^2=1733.682$ ;  $df=741$ ;  $p < 0.01$ ;  $X^2/df=2.340$ ; RMSEA=0.034; CFI=.976; NFI= 0.958; TLI=973), a comparison of the  $X^2$  of the configural and the constrained models suggest significant differences ( $\Delta X^2=57.140$ ;  $\Delta df=23$ ;  $p < 0.01$ ).

Thus, though the factorial structure of the instrument is similarly specified and well-fit for each separate national group, there is evidence of measurement non-invariance across the two groups. To deal with this issue, we conducted more detailed analyses to investigate item invariance and identify the nonequivalent parameters (factor loadings) across the two countries within the context of partial measurement invariance. The Chi-square difference tests conducted on an item-by-item basis identified the loadings of two items, namely *TRUST\_1* (from the perceived trustworthiness measurement scale) and *ENJOY\_3* (from the perceived enjoyment scale), to be nonequivalent. More specifically, respondents from Singapore tend to rate the *dependability* of online hotel review sources

(on TripAdvisor) significantly lower than the American travelers ( $\Delta X^2=48.880$ ;  $p < 0.01$ ). Regarding how *interesting* the use of TripAdvisor is, Singaporean travelers gave significantly higher scores than the Americans ( $\Delta X^2=21.827$ ;  $p < 0.05$ ). The nonequivalence in factor loadings for these two items could be due to different interpretations and/or different social desirability across cultures (Byrne, and Watkins, 2003). Following recommendations by Byrne, Shavelson, and Muthen (1989), the restrictions on these two items were relaxed while all other equality constraints on the factorial structure remained in place to ratify partial measurement invariance ( $\Delta X^2=23.145$ ;  $\Delta df=21$ ;  $p=0.336 > 0.1$ ).

### **4.3 Structural relationships and moderating effects**

To test the structural model, an analysis of the causal relationships for the total sample was conducted. This is adequate because the relative chi-square over degrees of freedom was less than three ( $X^2/df = 2.929$ ;  $X^2=1273.967$ ;  $df=435$ ;  $p < .01$ ), RMSEA was close to zero, CFI (0.980), whereas NFI (0.969) and TLI (0.977) were all close to unity.

As shown in Table 5, 12 out of the 13 causal relationships in the model are supported for the sample as a whole. Perception of the usefulness of online hotel reviews predicts attitude and usage intention. Perceived ease of using the online hotel review platform, on the other hand, serves as a significant antecedent of attitude, perceived usefulness, and usage intention. Perceived enjoyment wields the strongest impact on ease of use, and is also found to be significantly related to usefulness, attitude and usage intention. The direct positive relationships between perceived trustworthiness on one hand and attitude

and usefulness on the other hand are verified. Nonetheless, the direct relationship between perceived trustworthiness on usage intention was found to be insignificant. The effect of trustworthiness on usage intention is fully mediated by attitude. Consistent with prior research on human-computer interaction (Davis, 1993; Davis et al., 1989; Venkatesh et al., 2003), attitude has a direct influence on usage intention.

[Insert Table 5: Structural Model Relationships Obtained for the Total Sample]

We next test for structural invariance by introducing additional restrictions necessary for calculating significant differences between the estimated parameters. A comparison of the  $X^2$  of the restricted structural model with that of the less restricted model suggest significant differences ( $\Delta X^2=42.901$ ;  $\Delta df =19$ ;  $p < 0.01$ ). To better understand the moderating effects of national culture, we conducted further analysis to identify the structural relationships that were non-invariant. The sign, significance and magnitude of path coefficients in the inner model were also compared to ascertain whether the strength and directionality of the structural relationships differ across the two sub-samples. Table 6 presents the country-specific MGA results for the US and Singapore. The fit indices suggest that the structural model is adequate in the US and Singaporean samples ( $X^2=1872.177$ ;  $df =870$ ;  $p < 0.01$ ;  $X^2 /df=2.152$ ; RMSEA=0.031; CFI=0.975; NFI= 955; TLI=972).

The findings show solid support for the efficiency and effectiveness of the structural model estimation for both samples. Nonetheless, a comparison of the path coefficients in the two samples revealed some significant differences. Whereas the direct effect of ease of use on usage intention is salient in the Singaporean sample ( $\beta=0.191$ ,  $t=3.661$ ,  $p<$

0.01), this is not the case with the US sample ( $\beta=0.055$ ,  $t=0.749$ ,  $p > 0.05$ ). Also, the hypothesized paths from perceived usefulness to attitude ( $H_1 \Delta X^2= 8.763$ ;  $p = 0.033 < 0.05$ ) and usage intention ( $H_2 \Delta X^2= 21.804$ ;  $p = 0.026 < 0.05$ ) take on significantly greater effect in the US sample than in the Singaporean sample. Similarly, significant differences were observed with regards to the influence of perceived enjoyment. The relationship between perceived enjoyment and usefulness was found to be more dominant in the American sample ( $\gamma=0.434$ ,  $p < 0.01$ ) than in the Singaporean sample ( $\gamma=0.238$ ,  $p < 0.01$ ) ( $H_3 \Delta X^2= 24.157$ ;  $p = 0.012 < 0.05$ ). Perceived enjoyment impacts usage intention among Singaporeans ( $\gamma=0.331$ ,  $p < 0.01$ ) significantly less than the Americans ( $\gamma=0.526$ ,  $p < 0.01$ ) ( $H_5 \Delta X^2= 17.368$ ;  $p = 0.043 < 0.05$ ). The opposite was however the case with regards to the impact of enjoyment on attitude ( $H_4 \Delta X^2= 8.235$ ;  $p = 0.016 < 0.05$ ) in contrast to expectation. The remaining paths were fairly invariant across sub-samples and hence  $H_6$  and  $H_7$  are rejected.

With regards to the control variables (gender, age, and education), only one variable (i.e. age) was found to be significantly related to travelers' intention to use online hotel reviews ( $b = -0.064$ ,  $p < 0.01$ ) within the total sample. The MGA results reveal that this relationship is salient only in the US sample ( $b = -0.09$ ,  $p < 0.01$ ). The relationship is negative, suggesting that younger American travelers tend to have higher conative responses towards using online hotel reviews for vacation planning than older ones. The non-significance of gender is a bit surprising giving that certain previous research has suggested that males and females differ with regards to their attitudes and intentions towards the use of online applications (e.g., Garbarino and Strahilevitz, 2004).



[Insert Table 6: Country-Specific Multi-Group Analysis Results]

## **5. Discussion and Conclusion**

Designing appropriate online marketing strategies for global hospitality operations in the digital age is a challenging task due to the complexities inherent in Internet usage in cross-national contexts. Thus, for hospitality marketers and online hotel review platform designers, it is imperative to have an enhanced understanding of the appropriateness of online adoption theories beyond the boundaries of specific cultural contexts so as to optimize the effectiveness of existing strategies.

Overall, the proposed model in this study can be considered valid for online travel consumers from high-CMSI cultures (Singapore) as well as those from low-CMSI cultures (USA). While this conclusion mirrors Straub et al.'s (1997) study on e-mail usage and Ashraf et al.'s (2014) research on e-commerce, the findings of this study brings to light further differentiated insights.

The only structural path not significant in the overall sample is the direct relationship between trustworthiness and usage intention. Empirical verification revealed that the trustworthiness of the source of online hotel reviews does not directly influence the usage intention of potential guests' from either of the two countries, though it impacts attitude and perception of usefulness. This is a bit surprising given that much of the literature establishes trust as a key determinant of intention (Filieri, 2015; Ladhari and Michaud, 2015). The findings of this study however suggests that this relationship may not arise when other variables are present that may have influence on usage intention. In this case,

respondents' attitude and perceived usefulness of the online hotel review seem to mediate the influence of trustworthiness on usage intention.

### **5.1 Country-Specific Differences in travel consumers' cognitive, affective and conative responses to online hotel reviews**

Earlier, Straub et al. (1997) had argued that cultures high in uncertainty avoidance, power distance and masculinity and low in individualism are likely to be less accepting of computer based media. The study finds that most of the factors that explain variations in travelers' attitudes and intention to use online hotel reviews are largely similar in both countries, however certain significant differences exist between the two national cultures with regards to the exact nature of the cognitive processing that occurs.

The most significant difference in the magnitudes of the path coefficients are the impacts of perceived usefulness and enjoyment. The results suggest that the utilitarian value of online hotel reviews is much more important in determining the affective responses of American travelers than that of their Singaporean counterparts. Again, perceived usefulness seemingly exerts greater influence on the usage intention of American respondents than the Singaporeans. Prior research in other contexts suggest that persons from highly individualistic cultures tend to emphasize the utilitarian values of their exchanges with service providers (Bhawuk and Brislin, 1992; Sabiote-Ortiz et al., 2016). Also, travelers from individualistic cultures are often considered to be autonomous and self-reliant than collectivists (Triandis, 2001; Triandis and Suh, 2002). They therefore tend to place greater importance on efficiency, directness and would thus want to base their adoption decision more on a personal and frank assessment of the utilitarian value of the online hotel review.

Another significant difference concerns the effect of perceived enjoyment. The present study finds that perception of enjoyment is noticeably a more important determinant of usefulness and usage intention to travelers from the US than those from Singapore. In contrast, the influence of perceived enjoyment on attitude is less pronounced in the American sample than it is in the Singaporean sample. Given that the culture in the US places greater emphasis on “indulgence” than Singaporean culture (Hofstede Centre, 2014), it is understandable that the hedonic value of using online hotel reviews is more critical to American travelers when judging the usefulness of hotel reviews and when deciding to use for vacation planning. What is interesting however is in relation to the impact of perceived enjoyment on attitudes towards using online hotel reviews: the hedonic value of using these reviews tend to exert stronger influence on the affective responses of Singaporean travelers than the Americans. In other words, whereas travelers from cultures with emphasis on restraint may not have their cognitive perception of online hotel review usefulness (extrinsic motivation) and conative responses influenced by hedonic motivation as much as they would for those from highly indulgent cultures, hedonic value is still a much more important determinant of their ‘feelings’ or disposition towards using online hotel reviews (than their American counterparts).

The study further reveals that ease of use has a positive direct influence on the conative responses of Singaporean travelers to online hotel reviews, but this is not the case for the Americans. This finding support our theoretical argument that TAM predictions would not necessary hold across cultures. In the case of the Americans, it is possible that cultural tendencies towards individualistic sentiments (i.e., autonomy, self-reliance, utilitarian value, etc.) may have limited the direct influence of ease of use to attitudes and

perceived usefulness, thus dissociating ease of use from usage intention. Also, prior research has suggested that the effect of ease of use becomes less important over time (Adams et al., 1992; Davis, 1989; Straub et al., 1997). Thus, it is reasonable to consider that perhaps travelers from the US were much more familiar with the use of TripAdvisor than those from Singapore, thus muting the importance of ease of use as a cognitive determinant of usage intention. Earlier, Adams et al. (1992) observed that though ease-of-use is a critical antecedent of adoption, it is less important at the post-adoption stage. Besides, the CMSI scores – indicating the concurrent effect of all cultural factors on technology acceptance – for these two countries are very dissimilar.

An interesting finding is the differences in the country-specific models regarding the relative importance of cognitive factors. For example, whereas the impact of perceived usefulness on attitude was weaker than on usage intention in the Singaporean sub-sample, the contrary was the case in the US sub-sample. Similarly, perceived enjoyment had a much stronger effect on attitude than on usage intention in the Singaporean sample while the opposite was the situation in the American sample.

The results, while not too surprising, provide a sense of how country-specific differences may impact the generalizability of a structural model. This distinction may be arising from socio-cultural differences. This is in line with the empirical literature on the role of culture in online consumer behavior. Traditional marketing researchers (e.g. de Mooij and Hofstede, 2002; Straughan and Albers-Miller, 2001) have recognized the importance of culture in influencing consumer behaviors. In conducting a multiple-country analysis, a study by Lim, Leung, Sia and Lee (2004) found the cultural dimension of individualism–

collectivism as a major determinant of online behavior. Another study by Sia *et al.* (2009) which investigated respondents from Australia and Hong Kong further highlights the need to consider cultural differences in online contexts. With regards to online reviews, Koh *et al.* (2010) found significant differences across reviewers from China and the US. The findings of a study by Chu and Choi (2011) further emphasize that national culture plays a key role in determining consumers' engagement with e-WOM.

## **5.2 Limitations and Future Research**

The current study is not without limitations and their recognition should help refine future research efforts. First, the results reported here are limited to responses from only two national cultures. Although this is the most common approach in the existing literature, it would have been more interesting to conduct the analysis across a greater number of different national cultures.

The present study finds noteworthy differences in the structural relationships between the two country-specific models. Considering the differences in national culture existing between the US and Singapore, it is alluring yet, premature to conclude that cultural differences alone are responsible for these results. In terms of Internet usage, the US population is generally regarded as a 'matured' market while the Singaporean market could be described as an emerging market. Social media, e-commerce and other related online technologies were initially developed in the West (Ashraf *et al.*, 2014; Van Slyke *et al.*, 2010) where consumers' physiognomies are very different from those in Asia. It is possible that these differences may have likewise conditioned online behavior. Future research may replicate this study to further validate these findings.

### **5.3 Implications**

Recently, some scholars have attempted to throw light on the adoption of consumer-generated media in hospitality and tourism contexts (e.g., Ayeh et al., 2013; Casaló et al., 2011; Di Pietro et al., 2012; Filieri, 2015; Munoz-Leiva et al., 2012; Papathanassis and Knolle, 2011). While these studies offer valuable contributions to our understanding of the factors determining use, they examined this phenomenon from single cultural perspectives. Yet scholars in IS have questioned whether technology adoption is comparable across different national cultures (Lee, 2013; McCoy, Galletta & King, 2007) and thus cautioned about the modeling of online technological applications on the basis of single cultural contexts (Ashraf et al, 2014; Calantone, Griffith, Yalcinkaya, 2006). Recognizing this research gap, our study builds on previous works in this field by generating cross-cultural insights into the determinants of consumer-generated review usage. The findings underscore the role of national culture in regulating aspects of the underlying psychological mechanism driving this online behavior. Additional contribution relates to the application of Hofstede (2001) cultural classification to understand differences in online behavior in a consumer-generated review setting.

Due to the global nature of the Internet, the experiential characteristics of hospitality services, and the geographic nature of international tourism, online hotel reviews, since emergence of Web 2.0, have always been of interest to travel consumers and practitioners across national cultures. This study indicates that the antecedents of the intention to use consumer-generated reviews may differ considerably from country to country, and might therefore lead practitioners to misjudge the relative importance of the determinant factors

in other cultures. Attitude, ease of use, the utilitarian and hedonic values of using online hotel reviews all have divergent influences in different cultures.

The findings emphasize the need to adapt online platforms aptly, to mirror the physiognomies of target markets (Sabiote-Ortiz et al., 2016; Sia et al., 2009) and highlight the essence of considering country-specific differences when determining the mix of web strategies to employ in the social media landscape. For example, if the goal of website designers and social media marketers is to invoke the direct use of a particular review platform in Western cultures (individualism /indulgence), more attention should be paid to the utilitarian and hedonic values of using the platform. Ease of use, on the other hand, is of greater importance to Asian cultures. Also, in cultures which tend to emphasize restraint, the hedonic value of using the platform seems to be more valuable in improving attitudes. The trustworthiness of sources of hotel reviews, however, deserves fair attention in both cultures.

If service providers and travel review platform managers are to serve the needs of travel consumers more effectively, they must understand how travelers assess online reviews. This understanding is of particular interest to website designers of international brands as travelers' evaluations are affected by cultural variations. Overall, our finding highlights the significance of cultural sensitivity in designing effective marketing strategy when utilizing customer endorsements to target international consumers.

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## FIGURES

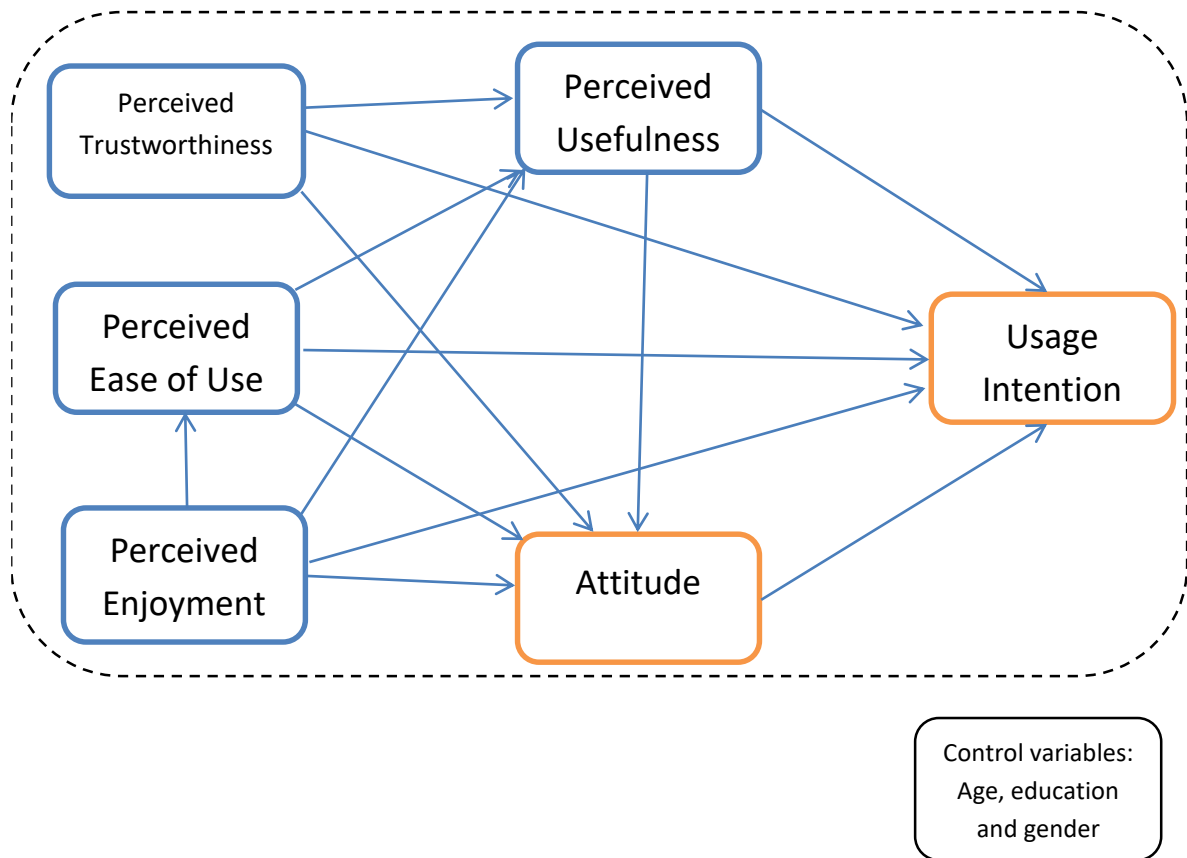


Figure 1. Causal Model

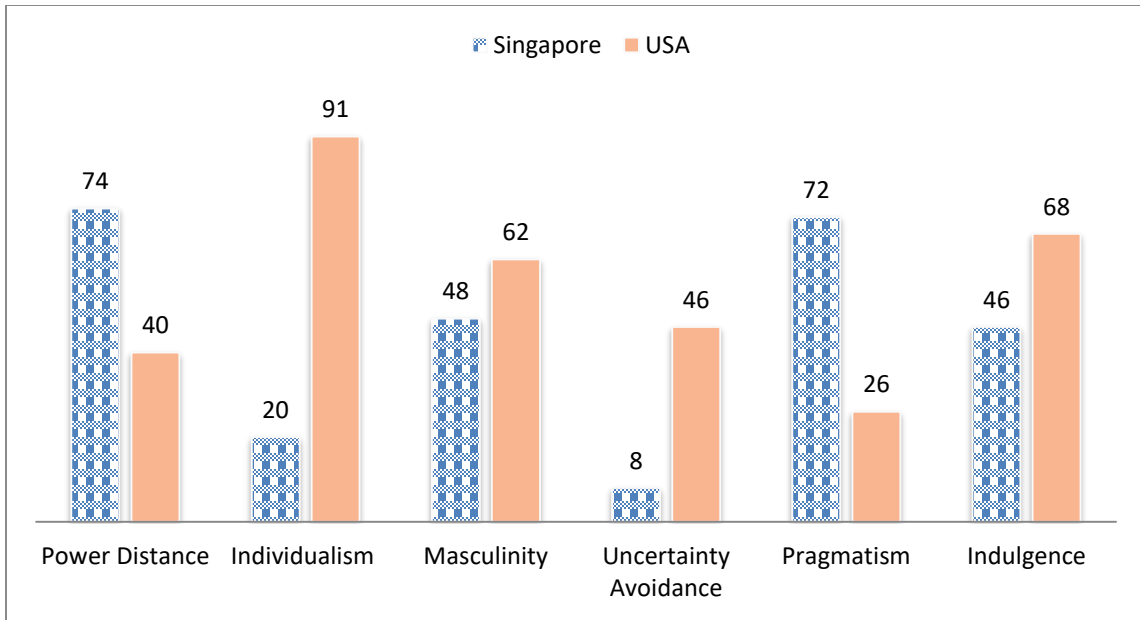


Figure 2. Hofstede's Cultural Dimensions: Comparing Singapore with the US (Hofstede Center, 2014)

# TABLES

## APPENDIX

**Table A1: Factor loadings for individual items**

<i>Construct</i>	<i>Item</i>	<i>Overall</i>		<i>USA</i>		<i>Singapore</i>	
		<i>Loading</i>	<i>t-value</i>	<i>Loading</i>	<i>t-value</i>	<i>Loading</i>	<i>t-value</i>
Perceived	<i>USEF_1</i>	.907		.910		.902	
Usefulness	<i>USEF_2</i>	.916	52.134	.913	34.703	.920	38.729
	<i>USEF_3</i>	.893	48.714	.895	32.826	.891	35.645
	<i>USEF_4</i>	.885	47.593	.889	32.247	.879	34.454
	<i>USEF_5</i>	.918	52.438	.920	35.448	.917	38.401
Ease of use	<i>EOU_5</i>	.938		.941		.933	
	<i>EOU_4</i>	.916	57.945	.918	39.396	.908	41.040
	<i>EOU_3</i>	.893	53.870	.910	38.580	.867	36.235
	<i>EOU_2</i>	.913	57.902	.921	40.324	.898	40.132
Enjoyment	<i>EOU_1</i>	.899	54.424	.907	37.842	.887	38.144
	<i>ENJOY_5</i>	.794		.766		.822	
	<i>ENJOY_4</i>	.890	36.289	.897	22.865	.880	28.327
	<i>ENJOY_3</i>	.883	35.891	.864	21.781	.906	29.730
	<i>ENJOY_2</i>	.897	36.744	.919	23.556	.871	27.853
Trustworthiness	<i>ENJOY_1</i>	.912	37.635	.915	23.447	.908	29.867
	<i>TRUST_5</i>	.865	42.487	.860	27.179	.861	31.870
	<i>TRUST_4</i>	.849	40.803	.831	25.377	.856	31.475
	<i>TRUST_3</i>	.899		.888		.906	
	<i>TRUST_2</i>	.883	44.699	.866	27.765	.891	34.678
Attitude	<i>TRUST_1</i>	.816	38.020	.854	27.040	.765	25.456
	<i>ATT_1</i>	.905		.902		.903	
	<i>ATT_2</i>	.915	51.382	.905	32.803	.923	39.088
	<i>ATT_3</i>	.912	50.965	.902	32.511	.913	37.969
	<i>ATT_4</i>	.881	46.537	.884	30.857	.868	33.370
Usage Intention	<i>ATT_5</i>	.874	45.655	.860	28.867	.879	34.426
	<i>INTENT_2</i>	.902		.920		.876	
	<i>INTENT_3</i>	.944	56.540	.956	42.554	.927	36.260
	<i>INTENT_4</i>	.932	54.498	.946	40.897	.912	34.916
	<i>INTENT_5</i>	.947	57.011	.956	42.633	.931	36.655

*Note:* All loadings are significant at  $p < 0.001$ .